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Broadband Construction Projects and Prevailing Wage in Minnesota

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Executive Summary

Historic investments in broadband internet infrastructure are poised to boost economic activity across Minnesota. Expanding broadband infrastructure can increase employment, boost wages, enhance agricultural production, and improve telemedicine and telehealth services. However, these investments are occurring as construction employers are experiencing acute labor shortages. This report explores ways that Minnesota can maximize the positive economic impact of these essential infrastructure projects.

Minnesota is undertaking a multibillion investment to expand reliable high-speed internet access to hundreds of thousands of homes, businesses, farms, schools, and other community institutions.

- Since 2014, Minnesota has invested $805 million on 294 broadband projects—with 43 percent ($349 million) from the State and 57 percent in matching funds—expanding access to 113,000 locations.
- 14 percent of households do not have broadband internet connections—including 17 percent of households outside the Minneapolis-St. Paul metro area and 21 percent of Black households.
- In 2023, the Biden Administration announced $652 million for broadband infrastructure in Minnesota.
- Over the next six years, Minnesota is expected to leverage $827 million in federal and state funds to spur a $1.9 billion total investment in broadband infrastructure, expanding access to 159,000 more locations.

Only a small minority of Minnesota' taxpayer-funded broadband projects pay prevailing wages, which data shows leads to less hiring of local businesses, lower wages for construction workers, and lower levels of workforce productivity.

- Research has linked prevailing wage laws with more work for local contractors, better job quality for skilled construction workers, stronger apprenticeship programs, and superior economic outcomes for communities.
- The Minnesota Prevailing Wage Act covers virtually all public works construction projects, but these standards are not applied to most taxpayer-funded state grants for broadband projects.
- "Last-mile" broadband projects and "middle-mile" broadband projects that receive state grants of less than $200,000 or loans of less than $500,000 are exempt from prevailing wage coverage in Minnesota.
- *At least* 82 percent of broadband projects receiving state grants—accounting for 76 percent of the total project value—have not been covered by prevailing wage standards since 2014.
- After adjusting for inflation, broadband projects covered by prevailing wages have cost about $5,700 per connection, which is 28 percent less than the $8,000 cost per connection for those not covered.
- In sectors covered by prevailing wages, Minnesota workers deliver 29 percent higher levels of workforce productivity and earn an average of 19 percent more while in-state contractors perform 49 percent more of the total construction value than the sector that includes broadband projects.

Minnesota may consider expanding prevailing wage coverage on broadband projects to help combat skilled labor shortages and improve transparency and accountability for taxpayers.

- Prevailing wage standards are consistently associated with improved economic, job quality, workforce development, and safety outcomes with no negative effect on overall project costs.
- Eliminating the "last-mile" exemption would have extended prevailing wage coverage to 226 of the 294 broadband projects since 2014 (77 percent).
- Lowering the contract threshold to a *total project value of $25,000*—the standard on other state-funded public works projects—would have covered 15 of the 294 broadband projects since 2014 (5 percent).
- Inserting prevailing wage and other labor standards into the scoring system for awarding broadband grants would incentivize applicants to account for job quality.
- House File 4626 would have applied the same safety standards to broadband projects that are on other utility infrastructure projects while also repealing prevailing wage exemptions.

Minnesota' broadband expansion is funded with taxpayer dollars, and yet these projects are treated differently than state funding for roads, bridges, buildings, parks, and other public works projects. Expanding prevailing wage coverage to more of these projects would likely bolster economic and workforce outcomes on these projects and ensure that they are built safely, on-time, and within budget by Minnesota-based contractors who employ skilled local workers.

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Introduction

Investments in broadband infrastructure that deliver access to reliable high-speed internet service boost economic activity. Expansions in broadband infrastructure increase job market opportunities for workers, ensure private firms can conduct business more efficiently, connect consumers to online shopping and entertainment, facilitate greater agricultural production, and improve telehealth services (Williams et al., 2020). Research shows that communities achieving higher levels of broadband internet access experience greater economic growth rates than unserved or underserved areas (Koutroumpis, 2009).[1] In Minnesota, every dollar spent by rural broadband providers has been found to return $1.70 in sales at local businesses, with every job created resulting in an additional 1.8 jobs (Gallardo & Kumar, 2019).

Minnesota is currently undertaking a significant expansion of reliable high-speed internet access, building upon a decade of previous investments. Since 2014, the State of Minnesota has granted nearly $350 million to expand broadband internet access that has been matched by over $450 million in funding from private industry and local governments, resulting in more than $800 million in total investments (DEED, 2024a). These investments have led to Minnesota ranking 21st for broadband internet among the 50 U.S. states and the District of Columbia, based on metrics measuring both coverage and connection quality (Neukam, 2023). While median download and upload speeds are faster in Minnesota than the nation overall, tens of thousands of homes lack broadband access and only 42 percent of the state has an option for wired broadband available at a low price of $60 per month or less (Shevik, 2023).

In June 2023, the Biden Administration announced that Minnesota will receive $652 million to deploy broadband internet service to homes and small businesses that currently lack access (NTIA, 2023a). This federal funding comes from the Broadband Equity, Access, and Deployment (BEAD) Program created under the Infrastructure Investment and Jobs Act (IIJA), commonly referred to as the "Bipartisan Infrastructure Law." Combined with state and local matching dollars, this federal funding will spur well over $1 billion in new broadband internet investments over approximately six years.

These historic investments are occurring while demand for construction services is high and employers are experiencing labor shortages. There are still more than two job openings available for every unemployed person in Minnesota, and the state's unemployment rate has been lower than or equal to the national average every month since November 2007 (BLS, 2024a).[2] Nationally, 75 percent of construction contractors nationally are having a hard time filling craft positions and 61 percent are experiencing project delays due to shortages of workers (AGC, 2023a). Minnesota is faring only slightly better, with 68 percent of contractors experiencing difficulty finding qualified workers and 42 percent experiencing delays due to worker shortages (AGC, 2023b). Meanwhile, the majority of construction firms (68 percent both nationally and in Minnesota) expect at least one-tenth of their current workforce to retire in the next decade (AGC, 2023a; AGC, 2023b).

Attracting, developing, and retaining a sufficiently skilled labor force to build billions of dollars in infrastructure improvements—including for broadband internet expansion—in Minnesota requires strong commitments to job quality and worker training. In particular, two labor market institutions have been linked with upward economic mobility for skilled construction workers and increased investments in registered apprenticeship programs: collective bargaining agreements with trades unions and prevailing wage laws.

[1] Broadband is the high-speed, wide-bandwidth transmission of information that forms the internet. Many new broadband infrastructure investments aim to achieve 1 gigabit per second (Gbps) download and upload speeds, which is at least 40 times faster than the current Federal Communications Commission (FCC) standard for broadband (DEED, 2024; Gonsalves, 2021).

[2] For example, in February 2024, there were 171,000 job openings in Minnesota compared to just over 84,000 unemployed individuals (BLS, 2024a).

Unions have long been associated with higher levels of job quality, including better wages and family-supporting benefits (U.S. Treasury, 2023; BLS, 2023a; Parolin & VanHeuvelen, 2023; Farber et al., 2021). In Minnesota, union construction workers earn 32 percent higher wages and are 43 percent more likely to be covered by private health insurance than their nonunion counterparts (Manzo et al., 2021). Because they earn higher incomes, union construction workers contribute 48 percent more in state income taxes and are 13 percent less likely to rely on food stamps and Earned Income Tax Credits (Manzo et al., 2021).

Construction apprenticeship programs sponsored jointly by unions and signatory employers train the overwhelming majority of the state's skilled trades workers. Cooperatively administered and financed by ongoing "cents per hour" contributions, joint labor-management apprenticeship programs enrolled 95 percent of all new construction apprentices and accounted for 98 percent of all apprentice graduates in Minnesota from 2019 through 2023 (ApprenticeshipUSA, 2024). Nonunion programs tend to produce fewer apprentices because they rely on voluntary contributions from contractors, who have incentives to forgo long-term training investments in order to win bids on short-term projects. As a result, a growing body of research has concluded that, because they invest in job quality and worker training, union contractors have higher workforce productivity and less turnover, are less likely to suffer delays in project completion times due to shortages of skilled workers, and are 4 percent more cost-effective than the nonunion alternative (Manzo, Petrucci, & Bruno, 2022; USEER, 2023; McFadden, Santosh, & Shetty, 2022).

State prevailing wage laws establish minimum wage rates for different types of skilled construction workers on taxpayer-funded and taxpayer-subsidized projects that are based on the wages, benefits, and workforce training investments already being paid for similar work in the local area where the projects are to be completed. By preventing public bodies, utilities, and organizations receiving government funds from awarding bids to contractors that pay less than privately negotiated market rates, prevailing wage laws promote a level playing field for local businesses and ensure that more workers can afford to live in the communities where they are building public projects. Minnesota is one of 29 states (plus the District of Columbia) that has a prevailing wage law (WHD, 2024; *Fox 2 Detroit*, 2023). Additionally, the Davis-Bacon Act has established prevailing wages on federally funded and assisted construction projects since 1931.

Economic research has found that prevailing wage laws augment job quality and bolster registered apprenticeship programs (Duncan & Ormiston, 2018). Construction apprenticeship enrollments are 8 percent higher in states with prevailing wage laws (Bilginsoy, 2005). Because prevailing wage laws level the field for contractors and promote investment in skilled workers, project-level data has shown that they deliver higher levels of efficiency, safety, and workforce productivity on jobsites. The economic consensus is that prevailing wage laws keep total construction costs under control—with 18 out of 21 peer-reviewed studies (86 percent) conducted since 2000 concluding that they have no effect on overall public works construction costs (Manzo, Bruno, & Petrucci, 2023; Duncan, Case, & Manzo, 2024).

The Minnesota Prevailing Wage Act covers construction projects funded in whole or in part by state funds (ORS, 2023). All state-funded projects are covered as long as the project value is at least $2,500 if a single trade is involved and $25,000 if multiple trades are involved (WHD, 2024). Prevailing wage and benefit rates are based on the most common wage paid for each job classification in a county, ascertained through an annual survey of construction industry stakeholders by the Department of Labor and Industry (DLI, 2024a).

Workers on broadband projects receiving state grants must be paid the locally prevailing wage, with two major exceptions. First, "last-mile" infrastructure—or "broadband infrastructure that serves as the final leg connecting the broadband service provider's network to the end-use customer's on-premise telecommunications equipment"—to individual residences is exempt from prevailing wage coverage. Second,

any "middle-mile" project that links a broadband service provider's core network to last-mile infrastructure is also not covered if the state grant is less than $200,000 or a loan of less than $500,000 is issued (DLI, 2024b). The exemption of last-mile projects and the higher dollar threshold for coverage on middle-mile projects mean that fewer broadband projects pay prevailing wages to blue-collar construction workers than other types of taxpayer-funded infrastructure projects—likely eroding job quality, business opportunities for local firms, and workforce development investments in this critical sector of the construction industry.

This Midwest Economic Policy Institute (MEPI) report evaluates the impact of this gap in prevailing wage coverage in Minnesota. The report begins with an assessment of the state's "digital divide" prior to a summary of previous and upcoming investments to expand broadband internet access, with a supplementary discussion on projects that were and were not covered by the Minnesota Prevailing Wage Act. Then, data on construction sectors that are traditionally covered by prevailing wages—including the share of work completed by in-state contractors, the wages paid to blue-collar construction workers, and health and safety outcomes on jobsites—are compared and contrasted to the sector that contains broadband projects. Finally, potential policy options are offered before a concluding section recaps key findings.

The "Digital Divide" in Minnesota

There remains a large "digital divide" in Minnesota. The "digital divide" is the gap between those with and those without a connection to affordable broadband internet service. Even among households with an internet connection, many still do not have access to reliable high-speed internet that is necessary to perform routine tasks in the modern economy.

Figure 1 uses data from the U.S. Census Bureau to show the "digital divide" in Minnesota. Each year, the Census Bureau asks households whether they subscribe to the internet using broadband internet such as cable, fiber optic, or digital subscriber line (DSL) service (Ruggles et al., 2024). As of 2021 and 2022, about 330,000 households (14 percent) in Minnesota reported that they did not have broadband internet connections. The data reveal considerable "digital divides" by geography, racial or ethnic background, and educational attainment.[3] The share of households without coverage is 11 percent in the Minneapolis-St. Paul metropolitan area but is 17 percent across the rest of the state. While 12 percent of white households do not have broadband connections, the shares lacking coverage are 17 percent for Hispanic households and 21 percent for Black households. Similarly, only 10 percent of households headed by people with college degrees do not have broadband internet service compared to 15 percent of those headed by people who have not earned college degrees (Figure 1).

The lack of broadband internet connections exacerbates economic inequities (Figure 2). Using U.S. Census Bureau data, 86 percent of people between the ages of 18 years old and 64 years old who have broadband connections are in the labor force and 83 percent are employed, resulting in an unemployment rate below 4 percent. On average, workers with broadband internet service earn nearly $70,000 in income from wages and

[3] Note that this Census data shows that an estimated 330,900 households do not have broadband internet service. This exceeds the Department of Commerce's National Telecommunications and Information Administration (NTIA) report that 135,984 homes and small businesses in Minnesota lack *access* to a high-speed internet connection (NTIA, 2023a). Households may have access to a connection and still lack service for numerous reasons, but the most common is due to the cost. For example, an unemployed renter in Minneapolis may have access to broadband internet but may temporarily cut service until he gets another job and can make the monthly payment. Similarly, a retiree in Brainerd may have access but choose not to pay nearly $80 per month due to her fixed income. Meanwhile, a farmer in rural Minnesota may live at one of the 135,984 locations without access altogether. Simply put, the Census estimate is higher due to the combination of households lacking access, those who are unable to afford high-speed internet, and those who opt not to have the service for other reasons.

salaries per year. By contrast, only 80 percent of comparable working-age residents without broadband connections are in the labor force and just 76 percent have jobs, producing a 5 percent unemployment rate. The annual income of workers without broadband internet averages about $53,000. Accordingly, Minnesota workers with broadband connections are 7 percent more likely to be employed and they earn 31 percent more than their counterparts without broadband internet service (Figure 2).

FIGURE 1: SELECTED MINNESOTA HOUSEHOLDS REPORTING NO BROADBAND INTERNET CONNECTION TO THE CENSUS BUREAU

Households with No Broadband Internet	Share of Households	Number of Households
All Households in Minnesota	13.6%	330,900
Minneapolis-St. Paul Households	11.5%	169,837
Households in the Rest of Minnesota	16.9%	161,063
White Households	12.0%	525,743
Black Households	20.7%	78,979
Hispanic Households*	17.3%	57,560
Household Head Has College Degree	9.6%	201,469
Household Head with No College Degree	15.1%	547,144

Source(s): Author's analysis of 2021-2022 *American Community Survey* data (one-year estimates) from the U.S. Census Bureau (Ruggles et al., 2024). *NOTE: The Census Bureau uses the term "Hispanic" to refer to individuals who trace their ancestry and nationality to Latin America.

FIGURE 2: EMPLOYMENT AND INCOME OUTCOMES OF WORKING-AGE MINNESOTA RESIDENTS, BY BROADBAND CONNECTION

Minnesota's Working-Age Population: Residents Ages 16 to 64 Years Old	Residents With Broadband Internet	Residents Without Broadband Internet	Broadband Difference
Employment Rate (Percent with Jobs)	83.0%	75.7%	**+7.3%**
Labor Force Participation Rate	86.1%	79.7%	**+6.5%**
Unemployment Rate	3.7%	5.0%	**-1.3%**
Average Annual Income (Employed Only)	$69,522	$52,966	**+31.3%**

Source(s): Author's analysis of 2021-2022 *American Community Survey* data (one-year estimates) from the U.S. Census Bureau (Ruggles et al., 2024).

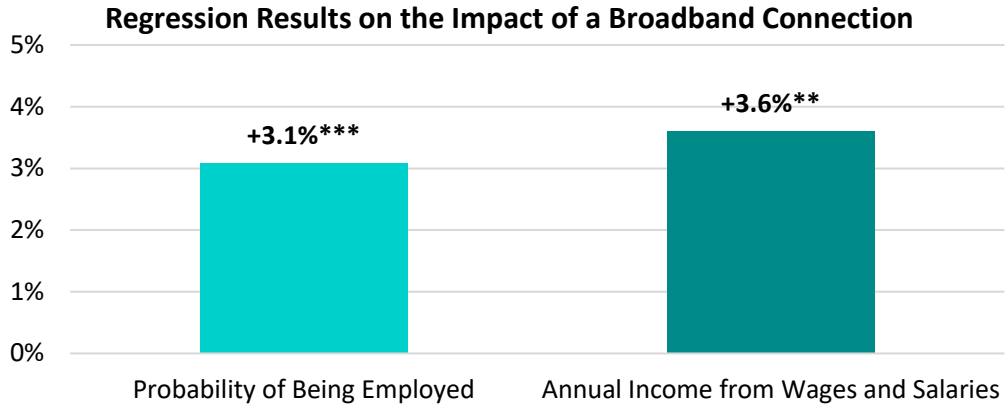
There may, however, be other factors that contribute to these gaps in economic outcomes. For example, workers with college degrees may be more likely to have broadband connections than those without. Greater levels of educational attainment are associated with lower unemployment rates and higher incomes (BLS, 2023b). Similarly, workers in jobs that can be done remotely could be more likely to have broadband internet at their homes, and remote and hybrid occupations are generally higher-paying than those requiring workers to be fully onsite.

Figure 3 uses "regression" analyses to control for these and other observable factors to parse out the unique and independent effect of broadband internet connections on employment and incomes. After accounting for age, racial and ethnic background, gender identification, marital status, household size, veteran status, native-born or foreign-born status, school enrollment status, and educational attainment, a broadband connection is associated with a 3 percent increase in the chances that a Minnesota resident is employed. After accounting for occupation, sector of employment, weeks worked over the year, hours worked per week, and the previously mentioned factors, a broadband connection is associated with an annual income increase of 4 percent for a Minnesota worker. Both effects are statistically significant (Figure 3).

These findings underscore the importance of expanding broadband infrastructure because these investments expand employment and improve worker wages. By addressing the "digital divide," Minnesota's planned

broadband infrastructure expansion will help close employment and income gaps between urban and rural areas, white and nonwhite residents, and people with and without college degrees.

FIGURE 3: STATISTICAL IMPACTS OF BROADBAND INTERNET CONNECTIONS ON EMPLOYMENT RATES AND WORKER INCOMES



Source(s): Author's analysis of 2021-2022 *American Community Survey* data (one-year estimates) from the U.S. Census Bureau (Ruggles et al., 2024). ***P≤|0.01|; **P≤|0.05|; *P≤|0.10|. For full regression results, see Appendix Table A. Income results, which are in inflation-adjusted terms, are converted to percent changes using correct adjustments (Kennedy, 1981; IDRE, 2021).

Broadband investments not only enhance economic outcomes, but they deliver important social benefits as well. In addition to expanding access to remote work opportunities and adding value to farmers—who now utilize global positioning system (GPS)-guided tractors and sensors, remote-controlled equipment, and automated technologies to grow crops and support livestock—these investments can also improve the health of Minnesota residents (FB, 2024; Williams et al., 2020). Telemedicine and telehealth, or the delivery of clinical and other health services over the internet, have become essential tools for doctors and patients. Practitioners can share information quickly regardless of geographic location, allowing people to interact with health practitioners who otherwise may not be available, such as by connecting rural residents to specialists in urban centers without travel (Williams et al., 2020). With rural areas facing challenges in attracting and retaining health care workers, augmented telemedicine and telehealth infrastructure is one way to improve access to medical and behavioral health specialists (Carey, 2024).

State and Federal Investments in Broadband Since 2014

Minnesota is investing hundreds of millions of dollars in broadband infrastructure. In 2014, the Border-to-Border Broadband Infrastructure Grant Program was created to expand high-speed internet into unserved and underserved areas of the state (DEED, 2024a). Starting in 2022, the State awarded additional grants through the Low-Density Pilot Program, which provides financial incentives to deploy broadband in rural areas (DEED, 2024a). This pilot initiative was made permanent by the Minnesota Legislature in 2023 and was officially called the Lower Population Density Broadband Infrastructure Grant Program (DEED, 2024b). Both Border-to-Border Broadband Grant Program and the Lower Population Density Broadband Infrastructure Grant Program are administered by the Office of Broadband Development (OBD) at the Department of Employment and Economic Development (DEED).

The broadband infrastructure grant programs require matching contributions from local sources, such as telecommunications companies, other private firms, and local governments. Border-to-Border grants of up to $10 million can pay for up to 50 percent of project costs, with the remaining 50 percent or more funded through local sources. Lower Population Density grants can cover up to 75 percent of expenses, with a local

match of at least 25 percent (DEED, 2024b).[4] The Minnesota Legislature approved $50 million for these programs in each of Fiscal Year 2024 and Fiscal Year 2025, with annual allocations of $30 million for Border-to-Border grants and $20 million for Lower Population Density grants (DEED, 2024a).

In November 2021, President Joe Biden signed the Bipartisan Infrastructure Law, a $1.2 trillion infrastructure program over eight years (NCSL, 2022). Since the law was passed, a total of $6.2 billion in new federal funding has already been announced for Minnesota, with nearly 500 projects identified for construction, repair, and maintenance (Biden White House, 2024). Fully $895 million has been announced "to connect everyone in the state to reliable high-speed internet" (Biden White House, 2024). This includes $652 million through the Broadband Equity, Access, and Deployment (BEAD) Program and money for other programs, such as tribal broadband expansions and the Affordable Connectivity Program (ACP) to make broadband affordable for low-income households by covering portions of the monthly cost (NTIA, 2023a; DEED, 2024b). The BEAD Program requires a matching contribution of at least 25 percent for a state to put the federal funds to use, except for certain projects in "high-cost areas" and other cases in which the National Telecommunications and Information Administration (NTIA) at the U.S. Department of Commerce waives the matching requirement (NTIA, 2023b). Minnesota's Border-to-Border and Lower Population Density grants both exceed this requirement.

Since 2014, the State of Minnesota has distributed competitive grants through 9 rounds of awards, funded with general fund revenues as well as federal money from the American Rescue Plan Act (ARPA) (DEED, 2024a).[5] Rounds 1 through 6 were funded with state general revenue funds, while Rounds 7 through 9 included both state and federal funding (DEED, 2024b). Specifically, $100 million from the ARPA Capital Projects Fund was used for the Border-to-Border Broadband Grant Program ($70 million) and Lower Population Density Pilot Program ($30 million) in 2022 and 2023, and ARPA funds were used as a match for some Round 9 projects in 2024 (DEED, 2024b).

The State plans to issue subsequent grant rounds. Following the announcement of Round 9 grantees in March 2024, DEED launched Round 10, with applications due in May 2024, awards anticipated to be announced in the summer, and project completion dates of December 31, 2026—just over two years following receipt of the funds (DEED, 2024a). Rounds 11 and after are anticipated to be funded with the $652 million in federal dollars once the BEAD funds become available (DEED, 2024a).

The State of Minnesota has invested $349 million in broadband infrastructure through the Border-to-Border Grant Program and Lower Population Density Pilot Program since 2014 (Figure 4). This investment has been matched by $457 million from nonstate sources, including telecommunications companies and local governments. In total, $805 million has been invested in Minnesota since 2014, with state funding accounting for 43 percent of the total and matching funds contributing the remaining 57 percent.

Fully 294 broadband infrastructure projects have accepted state grants since 2014 (Figure 4). These grants have been competitive, with DEED receiving 2.0 applications for every one grant awarded. In recent rounds, the number of submissions per grant has increased to 2.9 applications. Round 7 in 2022, which included $70 million in federal ARPA money, has so far been the peak year for broadband investment. In that year, just

[4] In 2022, the Minnesota Legislature also created a smaller Line Extension Connection Grant Program to extend "existing broadband infrastructure to unserved locations identified by homes and businesses" (DEED, 2024b) The Legislature directed that up to $15 million in federal American Rescue Plan Act (ARPA) funding could be used for this program, with the first round of awards in 2023 delivering $4.4 million, matched by $2.2 million from internet providers, to expand wired broadband to 779 homes and 64 businesses—an average cost of $7,854 per connection.

[5] Round 9 awards for Fiscal Year 2024 were announced in March 2024 (DEED, 2024c).

under $100 million was awarded to 61 applicants, with local matches bringing the total investment up to $252 million. Round 7 has ultimately accounted for 21 percent of projects, 29 percent of state grant money, and 31 percent of the total investment in broadband since 2014 (Figure 4).

FIGURE 4: BROADBAND GRANT ROUNDS, AWARDS, APPLICATIONS, AND FUNDING BREAKDOWN SINCE 2014

Round (Year) of Broadband Grants	Grants Awarded	Applications Received	Applications Per Grant	State Grants Amount	Nonstate or Local Match	Total Cost of Projects	State Share
Round 1 (2014)	16	49	3.1	$18,778,796	$24,472,837	$43,251,633	43.4%
Round 2 (2015)	15	44	2.9	$11,012,356	$18,149,401	$29,243,082	37.7%
Round 3 (2016)	40	57	1.4	$29,040,894	$34,992,764	$64,033,659	45.4%
Round 4 (2017)	39	70	1.8	$26,475,556	$34,358,250	$60,612,484	43.7%
Round 5 (2019)	30	80	2.7	$23,270,933	$36,233,810	$58,908,863	39.5%
Round 6 (2020)	39	64	1.6	$20,645,425	$34,139,665	$54,340,704	38.0%
Round 7 (2022)	61	130	2.1	$99,592,713	$152,259,622	$251,852,330	39.5%
Round 8 (2023)	30	88	2.9	$66,869,009	$71,619,484	$138,488,493	48.3%
Round 9 (2024)	24	69	2.9	$53,031,993	$51,112,448	$104,144,441	50.9%
All (2014-2024)	**294**	**582**	**2.0**	**$348,717,675**	**$457,338,281**	**$804,875,689**	**43.3%**

Source(s): Author's analysis of Minnesota Department of Employment and Economic Development awards and project descriptions from 2014 through 2024 for the Border-to-Border Grant Program and the Lower Population Density Grant Program (DEED, 2024a).

The value of broadband projects has increased over time (Figure 5). From 2014 through 2020, total project costs ranged between $29 million and $64 million per round. In the three rounds since 2022, total project costs have annually been at least $104 million and as much as $252 million. State grants have averaged $1.2 million per project, but the average has exceeded $2.2 million in two consecutive rounds. Similarly, the average broadband project has cost $2.7 million since 2014, but has increased to over $4 million since 2022. Higher average costs are partly due to increases in project size—with awarded applications connecting more locations—and partially attributable to rising input costs due to inflation and supply-chain issues since the global pandemic began in 2020 (Figure 5).

FIGURE 5: BROADBAND GRANT ROUNDS, GRANT FUNDING, TOTAL PROJECT COSTS, AND PER-PROJECT AVERAGES SINCE 2014

Round (Year) of Broadband Grants	Grants Awarded	State Grants Amount	Total Cost of Projects	Average Grant Size	Average Project Size
Round 1 (2014)	16	$18,778,796	$43,251,633	$1,173,675	$2,703,227
Round 2 (2015)	15	$11,012,356	$29,243,082	$734,157	$1,949,539
Round 3 (2016)	40	$29,040,894	$64,033,659	$726,022	$1,600,841
Round 4 (2017)	39	$26,475,556	$60,612,484	$678,860	$1,554,166
Round 5 (2019)	30	$23,270,933	$58,908,863	$775,698	$1,963,629
Round 6 (2020)	39	$20,645,425	$54,340,704	$529,370	$1,393,351
Round 7 (2022)	61	$99,592,713	$251,852,330	$1,632,667	$4,128,727
Round 8 (2023)	30	$66,869,009	$138,488,493	$2,228,967	$4,616,283
Round 9 (2024)	24	$53,031,993	$104,144,441	$2,209,666	$4,339,352
All (2014-2024)	**294**	**$348,717,675**	**$804,875,689**	**$1,186,115**	**$2,737,672**

Source(s): Author's analysis of Minnesota Department of Employment and Economic Development awards and project descriptions from 2014 through 2024 for the Border-to-Border Grant Program and the Lower Population Density Grant Program (DEED, 2024a).

The $805 million invested in Minnesota thus far has expanded broadband access to nearly 113,000 homes, businesses, farms, and community institutions like schools and houses of worship (Figure 6). On average, the

cost to connect each location to reliable high-speed internet has been about $7,100, or about $9,600 per connection after adjusting for inflation.[6]

FIGURE 6: BROADBAND GRANT ROUNDS, PROJECT COSTS, LOCATIONS SERVED, AND COST PER CONNECTION SINCE 2014

Round (Year) of Broadband Grants	Grants Awarded	State Grants Amount	Total Cost of Projects	Locations Served	Average Cost Per Connection	Inflation-Adjusted Cost Per Connection
Round 1 (2014)	16	$18,778,796	$43,251,633	5,937	$7,285	$9,605
Round 2 (2015)	15	$11,012,356	$29,243,082	4,308	$6,788	$8,958
Round 3 (2016)	40	$29,040,894	$64,033,659	17,235	$3,715	$4,837
Round 4 (2017)	39	$26,475,556	$60,612,484	12,209	$4,965	$6,305
Round 5 (2019)	30	$23,270,933	$58,908,863	10,939	$5,385	$6,598
Round 6 (2020)	39	$20,645,425	$54,340,704	6,913	$7,861	$9,398
Round 7 (2022)	61	$99,592,713	$251,852,330	33,092	$7,611	$8,349
Round 8 (2023)	30	$66,869,009	$138,488,493	13,136	$10,543	$10,869
Round 9 (2024)	24	$53,031,993	$104,144,441	8,914	$11,683	$11,683
All (2014-2024)	**294**	**$348,717,675**	**$804,875,689**	**112,683**	**$7,143**	**$9,605**

Source(s): Author's analysis of Minnesota Department of Employment and Economic Development awards and project descriptions from 2014 through 2024 for the Border-to-Border Grant Program and the Lower Population Density Grant Program (DEED, 2024a). Inflation adjustments are made using the Consumer Price Index for All Urban Consumers (CPI-U) with January 2024 as the base month and comparing to each January in preceding years (BLS, 2024b).

FIGURE 7: ESTIMATED NUMBER OF LOCATIONS SERVED AFTER SIX YEARS OF BROADBAND INVESTMENTS, FY2025-FY2030

Minnesota Broadband Investments (FY2025-FY2030)	Announced or Estimated Value
Announced Federal Funding (BEAD Program)	$651,839,368
Announced State Grants (FY 2025)	$50,000,000
Expected State Funding (FY2026-FY 2030)	$125,000,000
Total State and Federal Funding (43%)	$826,839,368
Nonstate or Local Match (57%)	$1,081,589,581
Total Investment in Broadband Projects	**$1,908,428,949**
Expected Cost Per Connection (Recent+7%)*	$12,000
Estimated Homes, Farms, Businesses, and Institutions Served	**159,036**

Source(s): Author's analysis of Minnesota Department of Employment and Economic Development awards and project descriptions from 2014 through 2024 for the Border-to-Border Grant Program and the Lower Population Density Grant Program (DEED, 2024a) as well as the Department of Commerce's National Telecommunications and Information Administration announcement on federal dollars to be allocated to Minnesota (NTIA, 2023a). *NOTE: The $12,000 cost per connection is equal to a 7.2 percent increase over the inflation-adjusted average cost per connection in Rounds 8 and 9 (2023-2024), which was $11,198 (BLS, 2024b).

Figure 7 uses this project data to estimate the full impact of upcoming state and federal investments on broadband internet access in Minnesota. The projection assumes that the cost to connect each location will be $12,000, which equates to a 7 percent increase over the inflation-adjusted average from Round 8 and Round 9. It also assumes that the split in state-nonstate funding (43 percent to 57 percent, respectively) will continue, even though the Bipartisan Infrastructure Law only requires a minimum state contribution of 25 percent. It further assumes that the State will reduce its annual general revenue fund contribution from its current $50 million per year to $25 million per year, which would be similar to its support in Rounds 3 through 6 from 2016 to 2020. Lastly, because the BEAD Program requires states to submit Five-Year Action Plans, this

[6] The cost per connection has increased from an inflation-adjusted average of $6,832 for the 179 awards between 2014 and 2020 to an average of $9,488 for the 115 awards in the post-pandemic era, a difference of 39 percent.

analysis assumes that the federal funds will be expended over five years starting with Fiscal Year 2026 and ending in Fiscal Year 2030 (NTIA, 2023c).

Border-to-Border grants and Lower Population Density grants are projected to total $827 million over the next six years (Figure 7). This includes $50 million from state general revenue funds for Fiscal Year 2025, which are anticipated to be announced later this year, plus $125 million from the State over the next five years ($25 million per year). It also accounts for the $652 million in federal BEAD funding. With a 57 percent nonstate match, telecommunications companies, other private businesses, and local governments are expected to contribute an additional $1.1 billion. The total investment is thus forecast to be $1.9 billion towards expanding broadband access to 159,000 homes, businesses, farms, and anchor institutions across Minnesota (Figure 7).

Prevailing Wage Standards on Broadband Infrastructure Projects in Minnesota

Some workers on broadband projects that receive state grants are paid the locally prevailing wage. The Minnesota Prevailing Wage Act covers all state economic development grant awards of $200,000 or more. This includes "middle-mile" broadband projects or "projects with middle-mile components" that are awarded grants of at least $200,000 (DEED, 2024a). However, "last-mile" infrastructure is exempt from prevailing wage coverage. As examples, infrastructure to connect an antenna mounted on a tower with an internet service provider's network and infrastructure to connect two neighboring towns are considered "middle-mile." These projects are for "the mid-section of internet infrastructure that carries large amounts of data at high speeds over long distances," but do not reach the end user's location (NTIA, 2022). "Middle-mile" projects often run alongside highways and roads, constructed next to other utility infrastructure like natural gas lines and electric transmission lines. Once the towns are connected to the network, "last-mile" projects deliver the service to the homes in individual neighborhoods.

Certain projects receiving federal funding require the payment of prevailing wages under the Davis-Bacon Act. Those receiving $5 million or more from the American Rescue Plan Act's Capital Project Fund (CPF) require grantees, their contractors, and subgrantees and subrecipients to provide certification that workers are paid prevailing wages. If certification is not provided, award recipients must submit "project employment and local impact reports" detailing the number of employees of contractors and subcontractors working on the project and whether their wages and benefits are less than prevailing rates (DEED, 2023a).[7]

The Broadband Equity, Access, and Deployment (BEAD) Program requires states to submit Five-Year Action Plans assessing needs and establishing goals and priorities as well as an Initial Proposal describing how they will select subgrantees and contractors to construct the projects—including how the states plan to integrate labor standards on the projects and ensure a highly skilled workforce (NTIA, 2024).[8] Once the Initial Proposal is approved, states must submit a Final Proposal detailing compliance with program requirements.

[7] DEED provided one instance in which a 2023 grantee—Federated Rural Electric Association for a $10 million fiber-to-the-premises project in Jackson County that received a $7.1 million taxpayer-funded grant—submitted a project employment and local impact report. Scott Reimer, CEO of Federal Rural Electric Association, checked "No" to a question asking, "Do you intend to certify that all laborers and mechanics employed by contractors and subcontractors in the performance of such project are paid wages at rates not less than those prevailing?" Reimer wrote that the project would employ "6-7" direct workers and 25 contract employees and that it was "unknown for sure" whether any workers would be paid less than prevailing wage rates but that "we believe them to be competitive." No evidence was provided to confirm that belief. See Appendix Exhibit A.

[8] BEAD encourages, but does not require, eligible entities to create quality, high-paying jobs (de Wit, 2023).

DEED submitted its Initial Proposal in December 2023 (DEED, 2023b). In DEED's response to a request for information by the federal government on how grant recipients will ensure compliance with federal labor and employment laws, DEED notes that "projects that exceed the $5 million threshold identified for federal funding" require reporting on wages and benefits by worker classification and that the Department has an email box to collect payroll records.[9] When asked to describe whether award recipients and their contractors and subcontractors will be required to pay prevailing wages and benefits to workers, use project labor agreements, use local hire provisions, use "an appropriately skilled workforce" through registered apprenticeships, or take steps to prevent worker misclassification, DEED responded that it "will not make mandatory any of the items listed… other than the Minnesota Statutory provisions related to the application of prevailing wage to broadband projects. Where prevailing wage does apply, the [award recipient] is responsible to ensure prevailing wage requirements under Minnesota State Law are met and required documentation is collected and retained" (DEED, 2023b). This means that the State will only have full accountability and transparency on those projects that receive $5 million or more in federal funding. That said, DEED provided a documented instance in which a 2023 grantee—Federated Rural Electric Association for a $10 million fiber-to-the-premises project in Jackson County that received a $7.1 million taxpayer-funded grant—responded that it did *not* intend to certify that all workers are paid prevailing wage rates.[10] Ultimately, an "honor system" is largely in place for broadband projects, in which the State assumes that grantees, contractors, and subcontractors will pay prevailing wages on covered projects and simply checks the email box for payroll records. Minnesota has no stated plan to guarantee that registered apprentices are utilized.

The Initial Proposal submitted by neighboring Illinois is a stark contrast to Minnesota's (DCEO, 2023). The Illinois Office of Broadband at the Illinois Department of Commerce and Economic Opportunity (DCEO) wrote in December 2023 that it "is strongly committed to ensuring that subgrantees, contractors, and subcontractors use strong labor standards and protections." Illinois has a pre-qualification filing window in which applicants are asked to submit records of past compliance with federal labor and employment laws and to detail the "applicable wage scales… for each class of employees expected to be involved directly in the physical construction of the broadband network." These two criteria account for 8 percent of the total score on applications, with higher scores improving an applicant's chances of securing a state grant. An optional certification that a project labor agreement (PLA) will be used which includes clauses prohibiting strikes and lockouts, provides a reliable source of labor, and sets goals for apprenticeship hours performed by women and people of color—among other items—improves an applicant's score by another 7 percent (DCEO, 2023).

After broadband projects are awarded grants, Illinois requires the payment of prevailing wages to workers, institutes apprenticeship ratios, and uses local hire provisions (DCEO, 2023). Award recipients must comply with the Illinois Prevailing Wage Act, with all contracts for construction including "a stipulation that not less than the prevailing rate of wages—as applicable to the project—shall be paid to all laborers, workers, and mechanics performing work under the award," and must report on their compliance on a monthly basis. Projects estimated to cost $500,000 will be covered by the Illinois Works Apprenticeship Initiative, with apprentices performing at least 10 percent of work hours. Additionally, award recipients are subject to the Employment of Illinois Workers on Public Works Act, which ensures that at least 90 percent of blue-collar construction workers on the projects are in-state residents when the state's unemployment rate exceeds 5 percent for two consecutive months (DCEO, 2023). These provisions promote job quality and improve workforce readiness on broadband infrastructure projects.

To assess the extent of prevailing wage coverage on Minnesota's broadband infrastructure projects, the Midwest Economic Policy Institute (MEPI) submitted two requests for information under the Data Practices

[9] The email address is DEED.wagedata@state.mn.us (DEED, 2023b).

[10] See Exhibit A in the Appendix.

Act on March 1, 2024. The first was to the Minnesota Department of Labor and Industry (DLI), requesting records on prevailing wage coverage for all broadband projects receiving state grants since 2014. MEPI specifically asked for the list of Border-to-Border and Lower Population Density projects subject to state or federal prevailing wage requirements, grantee forms certifying that workers will be paid prevailing wages, the first and last certified payroll reports submitted by grantees and their subcontractors, and information on the wages and benefits paid on these projects. DLI responded within three business days that it did not have responsive data and does not "collect or retain" payroll records. DLI confirmed that "[t]he responsibility to collect and retain certified prevailing wage reports is with the contracting authority and grant recipient."[11]

A second request for the same information was submitted to the Minnesota Department of Employment and Economic Development (DEED). DEED acknowledged receipt of the request on the day that it was sent, but did not respond until May 3, 2024. Although DEED is responsible for enforcing prevailing wage coverage and collecting payroll records, the Department stated that "DEED does not have a list of Border-to-Border and Low-Density Pilot Program recipients subject to either state prevailing wage requirements, such as middle-mile projects with a grant exceeding $200,000, or federal Davis-Bacon Act prevailing wage requirements by year (or round)" and that it did not have information on wages and benefits paid to laborers and mechanics on these projects by prevailing wage coverage status, by year, or by round.[12]

Consequently, Figure 8 presents an estimation of broadband infrastructure projects that have potentially been covered by prevailing wage standards in Minnesota since 2014. The data is based on project descriptions posted publicly on DEED's website for Rounds 1 through 9 (DEED, 2024a). Those that include the phrase "last-mile project," "fiber-to-the-premises," or "fiber-to-the-home" were marked as ineligible for prevailing wage coverage, unless they also noted a "middle-mile" component. Four of these projects from 2022 through 2024 received state grants of $5 million and *could* have been subject to federal Davis-Bacon requirements if the money was from ARPA's Capital Projects Fund, but one such project reported that it would not pay prevailing wages and a general lack of clarity on the others resulted in those three receiving an "uncertain" prevailing wage status.[13] Projects described as "middle-mile" or as being a "middle- and last-mile project" were marked as eligible for prevailing wage coverage, provided that the state grant was reported to be $200,000 or above. All other projects with grant of less than $200,000 were marked as ineligible. The remaining projects without descriptors that could be used to determine eligibility were not assigned a prevailing wage status.[14]

Based on project descriptions and project size, it is estimated that 241 of the 294 broadband infrastructure grants issued from 2014 through 2024 (82 percent) were not covered by prevailing wage standards (Figure 8). Only 19 projects (6 percent) likely had prevailing wage standards attached, while the status was unknown for the remaining 34 projects (12 percent). Projects estimated to be exempt from prevailing wage coverage served about 87,000 locations (77 percent) and accounted for $260 million of total state funding (74 percent) as well as $613 million in total project value (76 percent). Their inflation-adjusted cost per connection was $8,006 between 2014 and 2024. Those that likely included prevailing wage standards served 7,600 locations (7 percent) and accounted for 4 percent of both total state funding ($15 million) and total project value ($35

[11] Email from Karen Bugar, State Program Administrative Director, Prevailing Wage and Construction Misclassification at the Minnesota Department of Labor and Industry on March 6, 2024.

[12] Emails from the DEED Data Practices Team (DEED.datapractices@state.mn.us) in March 2024 and May 2024.

[13] See Exhibit A in the Appendix.

[14] For the full list of projects receiving grants since 2014 and their estimated prevailing wage eligibility, see Table B in the Appendix.

million). Their inflation-adjusted cost per connection was $5,735, or 28 percent less than those that were not covered.[15]

FIGURE 8: BROADBAND GRANTS, PROJECT COSTS, AND LOCATIONS SERVED BY LIKELY PREVAILING WAGE COVERAGE

Projects Receiving Taxpayer-Funded Broadband Grants	Grants Awarded	State Grants Amount	Total Cost of Projects	Locations Served	Inflation-Adjusted Cost Per Connection
All Projects	294	$348,717,675	$804,875,689	112,683	$8,132
Without Prevailing Wage Coverage	241	$259,663,734	$613,361,454	86,987	$8,006
Covered by Prevailing Wage	19	$15,082,564	$35,552,736	7,608	$5,735
Prevailing Wage Status Uncertain	34	$73,971,377	$156,961,499	18,073	$9,742
No Prevailing Wage Share (*Difference*)	**82.0%**	**74.5%**	**76.2%**	**77.2%**	**--**
Prevailing Wage Share (*Difference*)	**6.5%**	**4.3%**	**4.4%**	**6.8%**	***-28.4%***
Uncertain Status Share (*Difference*)	**11.6%**	**21.2%**	**19.5%**	**16.1%**	***+21.7%***

Source(s): Author's analysis of Minnesota Department of Employment and Economic Development awards and project descriptions from 2014 through 2024 for the Border-to-Border Grant Program and the Lower Population Density Grant Program (DEED, 2024a). Inflation adjustments are made using the Consumer Price Index for All Urban Consumers (CPI-U) with January 2024 as the base month and comparing to each January in preceding years (BLS, 2024b). Estimates may not sum perfectly due to rounding.

Results from Figure 8 reveal the impact of exemptions from the Minnesota Prevailing Wage Act. "Last-mile" projects are a substantial majority of broadband projects and, regardless of "last-mile" or "middle-mile" status, 58 of the 294 awards (20 percent) were for less than $200,000. These exemptions meant that that *at least* 82 percent of all projects and *at least* 76 percent of the investments made to expand broadband access since 2014 have occurred without prevailing wage coverage. Note that these estimates are likely undercounts, given the uncertainty surrounding some projects. In this massive investment using the tax dollars paid by Minnesota residents, there has been no assurance that construction workers performing the work have earned market-competitive compensation and—due to a lack of reporting and lack of enforcement—no accountability and transparency for taxpayers on the vast majority of broadband infrastructure projects.

Expanding Prevailing Wage Coverage on Broadband Projects in Minnesota

This section compares the "power and communication line and related structures construction" sector, which includes broadband infrastructure projects and is mostly unaffected by the state's prevailing wage law, to the "highway, street, and bridge construction" sector, which includes prevailing wage coverage on nearly all projects.

According to Economic Census data released by the U.S. Census Bureau, the total value of construction work done in Minnesota included $3.8 billion in the power and communication line segment of the industry and $3.8 billion in the highway, street, and bridge construction segment of the industry in 2017 (Figure 9).[16] Despite their similar market sizes, the Census Bureau reports that Minnesota-based contractors performed just 37 percent of the work ($1.4 billion) on power and communication line projects while completing 86

[15] This does not necessarily mean that projects with prevailing wage coverage are cheaper to build per connection because those projects with uncertain prevailing wage status averaged $9,742 per connection. Additional information on these 34 projects is required from DEED before a comparative analysis of cost per connection can be done.

[16] 2017 is the latest year for which this information is available. The most recent Economic Census was conducted in 2022, and the results will mostly be made available by the U.S. Census Bureau in 2025 and 2026 (Census, 2024c).

percent of the work ($3.2 billion) on road and bridge projects—a difference of 49 percentage points.[17] While there could be many reasons for this considerable disparity, the lack of prevailing wage standards is likely a significant factor.

As a comparison, Illinois is the closest neighboring state with a strong prevailing wage law, and Illinois applies prevailing wage rates on broadband projects receiving state grants after incorporating past compliance with prevailing wage laws and commitments to labor standards in its application criteria for awarding the grants (DCEO, 2023).[18] Illinois had $2.7 billion in power and communication line construction and $5.5 billion in highway, street, and bridge construction work done in 2017 (Figure 9). In-state contractors accounted for 89 percent of the power and communication line construction sector ($2.4 billion) and 95 percent of the highway, street, and bridge construction sector ($5.2 billion)—a much smaller in-state gap (6 percentage points) than in Minnesota (49 percentage points). The market share of in-state contractors on power and communication line construction projects is 52 percentage points higher in Illinois than in Minnesota. This is likely partially attributable to greater applicability of prevailing wage coverage in Illinois.

Economic research has found that prevailing wage laws increase the share of construction value performed by local contractors. In Minnesota, local contractors account for a 10 percent higher market share when prevailing wages are paid on public school projects (Manzo & Duncan, 2018). Research has also found that in-state contractors are 8 percent more likely to be awarded federal highway projects that pay Davis-Bacon prevailing wages compared to similar projects that do not, while county-resident contractors account for 16 percent higher market share when prevailing wages apply on library construction projects (Manzo, 2022; Duncan, 2011). Conversely, after bordering Wisconsin repealed its prevailing wage law, the share of state highway construction projects awarded to out-of-state contractors increased from 9 percent to 14 percent—driven by firms from Iowa, Michigan, and Florida (Manzo et al., 2020).

FIGURE 9: SHARE OF TOTAL CONSTRUCTION WORK COMPLETED BY IN-STATE CONTRACTORS, BY SECTOR AND STATE, 2017

Total Value of Construction Work by Construction Sector: 2017 Economic Census Data	Minnesota		Illinois	
	Communication and Power Line	Highway, Street, and Bridge	Communication and Power Line	Highway, Street, and Bridge
Total Construction Work Done	$3,792,816,000	$3,785,677,000	$2,698,918,000	$5,499,604,000
Completed by In-State Contractors	$1,392,106,000	$3,245,120,000	$2,400,650,000	$5,244,893,000
In-State Market Share	**36.7%**	**85.7%**	**88.9%**	**95.4%**

Source(s): Author's analysis of 2017 Economic Census data on "Construction: Value of Construction Work for Location of Construction Work for the U.S. and States" from the U.S. Census Bureau (Census, 2024a).

Figure 10 also uses Economic Census data to show the average wages, labor cost share of total project costs, and value added per construction worker in these two sectors in 2017. Note that all values are in 2017 dollars and would be 27 percent higher if adjusted for inflation to 2024 dollars (BLS, 2024b). The data reveal that construction workers in the highway, street, and bridge sector earned higher pay and better benefits while contributing more to the state's economy. While the net value of construction work—or total value of construction minus the cost subcontracted out to other firms—was lower in power and communication line construction, that sector nevertheless employed more blue-collar construction workers (about 8,700) than

[17] Although broadband construction was a small share of spending in communication and power line construction in 2017 (the latest year with available information), it is a growing segment of the sector and contractors building this infrastructure compete with those performing other types of communication and power line work for projects and for skilled workers. That is, they generally operate in the same supply-and-demand markets as their counterparts in the rest of the sector.

[18] All four states bordering Minnesota did not have state-level prevailing wage laws (North Dakota, South Dakota, and Iowa) or repealed them within the last decade (Wisconsin in 2017) (Manzo et al., 2020).

the road and bridge construction sector did (about 6,400). Blue-collar construction workers earned 8 percent more in wages (over $34 per hour) and 60 percent more in benefits ($13 per hour) in the highway, street, and bridge construction sector than their counterparts in Minnesota's power and communication line construction sector ($32 per hour and $8 per hour, respectively). However, despite blue-collar construction workers earning a total compensation that was 19 percent higher per hour, their labor cost share of total costs was just 21 percent on highway, street, and bridge projects—the same as the labor cost share on power and communication line projects (21 percent). This is because road and bridge construction workers were more productive: Value added per construction worker amounted to $280,000 on highway, street, and bridge construction projects versus $217,000 on power and communication line construction projects in Minnesota in 2017, a difference of 29 percent (Figure 10).

FIGURE 10: CONSTRUCTION WAGES AND BENEFITS PER HOUR AND PRODUCTIVITY PER WORKER, BY SECTOR, 2017

Metric by Construction Sector: 2017 Economic Census Data	Power and Communication Line Construction	Highway, Street, and Bridge Construction	Highway and Bridge Difference
Total Construction Work Done	$3,792,816,000	$3,785,677,000	**-0.2%**
Net Value of Construction Work*	$2,921,685,000	$3,260,705,000	**+11.6%**
Construction Worker Wages	$488,487,000	$493,537,000	**+1.0%**
Construction Worker Share of Wages	67.2%	76.4%	**+9.2%**
Construction Worker Fringe Benefits	$123,381,080	$184,731,765	**+49.7%**
Total Blue-Collar Labor Costs	$611,868,080	$678,268,765	**+10.9%**
Labor Costs Share of Total Costs**	20.9%	20.8%	**-0.1%**
Construction Labor Hours	15,372,000	14,365,000	**-6.6%**
Blue-Collar Construction Workers	8,717	6,387	**-26.7%**
Construction Wage Per Hour	$31.78	$34.36	**+8.1%**
Construction Benefits Per Hour	$8.03	$12.86	**+60.2%**
Blue-Collar Labor Cost Per Hour	$39.80	$47.22	**+18.6%**
Value Added***	$1,892,300,000	$1,788,849,000	**-5.5%**
Value Added Per Construction Worker	$217,088	$280,066	**+29.0%**

Source(s): Author's analysis of 2017 Economic Census data on "Construction: Summary Statistics for the U.S., States, and Selected Geographies" from the U.S. Census Bureau (Census, 2024b). *NOTE: The "Net Value of Construction Work" is the total value of construction work less the cost of construction work subcontracted out to others. **NOTE: "Labor Costs Share of Total Costs" is the total blue-collar labor costs (i.e., construction worker wages plus construction worker fringe benefits) divided by the net value of construction work. This avoids double-counting construction workers employed by subcontractors, who are included in the labor costs and net value of construction work for employers in their sectors. ***NOTE: "Value Added" equals the value of construction work done, less costs for construction work subcontracted out to others and costs for materials, components, supplies, and fuels.

Lastly, there is strong evidence that prevailing wage laws improve worksite safety for blue-collar construction workers (Figure 11). Since 1995, at least 11 studies have assessed differences in construction worker fatalities, injuries, and disabilities between states with and without prevailing wage laws. On average, when prevailing wage standards do apply, construction worker fatalities, injuries, and disabilities are 14 percent higher. A lack of prevailing wage standards increases on-the-job injuries and fatalities by between 10 percent and 26 percent across these academic and policy reports (Figure 11). It is worth noting that economic research has also shown that construction workers are better-trained and their productivity levels are least 14 percent higher in states with prevailing wage laws, which lead to improved safety outcomes (Philips, 2014).

Because they are more productive and much safer, blue-collar construction workers earn more in states with prevailing wage laws. Prevailing wage laws statistically increase construction worker earnings by between 5 percent and 16 percent per year, producing greater tax revenues and reducing construction worker reliance on government assistance programs (Manzo & Duncan, 2018; Manzo, Lantsberg, & Duncan, 2016; Philips,

2014; Philips & Blatter, 2017). Conversely, in the six states that repealed their prevailing wage laws between 2015 and 2018, construction worker wage growth was between 4 percent and 13 percent slower, construction worker benefits growth was between 7 percent and 10 percent slower, the growth in construction worker productivity per hour was 1 percent slower, and the on-the-job fatality rate was 14 percent higher versus states that maintained their prevailing wage laws (Manzo, Bruno, & Petrucci, 2023).

FIGURE 11: STUDIES ON THE IMPACT OF *REPEALING OR LACKING* PREVAILING WAGE ON CONSTRUCTION INJURIES, 1995-2023

Study	Authors	Year	Type	Geography	Estimate
1	Frank Manzo IV; Robert Bruno; Larissa Petrucci	2023	Fatalities	Four Repeal States vs. 19 States with PWLs	+14.3%
2	Zhi Li; Chimedlkham Zorigtbaatar; Gabriel Pleites; Ari Fenn; Peter Philips	2019	Injuries	United States	+13.1%
3	Michael Kelsay; Frank Manzo IV	2019	Injuries	West Virginia	+26.4%
4	Jill Manzo	2017	Fatalities	United States	+13.8%
5	Michael Kelsay	2016	Injuries	12 North Central States	+9.5%
6	Peter Philips	2014	Disabilities	United States	+12.0%
7	Alison Dickson Quesada; Frank Manzo IV; Dale Belman; Robert Bruno	2013	Fatalities	United States	+12.0%
8	Hamid Azari-Rad	2005	Injuries	United States	+10.0%
9	Peter Philips	1999	Injuries	Kentucky	+11.0%
10	Peter Philips	1998	Injuries	Kansas	+20.5%
11	Peter Philips; Garth Mangum; Norm Waitzman; Anne Yeagle	1995	Serious Injuries	United States	+15.0%
Average Impact of Repealing Prevailing Wage or Not Having Prevailing Wage Across Studies					**+14.3%**

Source(s): Author's compilation of average effects or "best estimates" (i.e., the most methodologically robust) on the increase in injuries or fatalities in states *without* prevailing wage or *due* to the repeal of prevailing wage from the individual studies listed in the Figure. Full citations of each study are available in Sources.

Both the data and the preponderance of the economic research demonstrate that expanding prevailing wage coverage to more broadband infrastructure projects would deliver positive impacts in Minnesota. It would prevent many broadband infrastructure projects from being awarded to out-of-state contractors and nonlocal workers. This would keep more of Minnesota's tax dollars in the local economy, increasing labor income and consumer spending in communities across the state. It would also raise wages, boost productivity, increase investments in registered apprenticeship programs, and improve worksite safety outcomes in the broadband construction industry.

Potential Policy Options

With a projected $1.9 billion in taxpayer-supported broadband infrastructure investments connecting 159,000 locations expected to occur in the next six years, the State of Minnesota may wish to consider policy interventions that combat skilled labor shortages and ensure a supply of reliable, qualified workers on these projects.

One solution would be to expand Minnesota Prevailing Wage Act coverage to more broadband projects. Broadband grants are funded with taxpayer dollars and there is no discernible reason why they are treated differently than state funding for roads, bridges, buildings, parks, and other types of infrastructure projects. In particular, eliminating the "last-mile" exemption would have extended prevailing wage coverage to 226 of

the 294 broadband projects since 2014 (77 percent).[19] Lowering the contract threshold from a grant amount of $200,000 to a *total project value of $25,000*—which is the standard on other state-funded public works projects when multiple trades are involved—would have covered 15 additional projects.[20] These two modifications would have meant that every broadband project receiving a grant thus far would have been covered by the state's prevailing wage law. These reforms would increase the share of projects built by Minnesota-resident contractors and local workers, enhance apprenticeship training investments, improve worksite safety, and deliver market-competitive wages and benefits for skilled tradespeople employed on vital economic development projects.

The expansion of prevailing wage coverage would make all broadband infrastructure projects accountable and transparent to taxpayers because award recipients, contractors, and subcontractors would be required to submit certified payroll records. If the State does not choose to expand prevailing wage coverage, then it could consider alternative methods to improve accountability and transparency. One way to do this would be to require that certified payroll reports be submitted to, collected by, and retained by the Department of Labor and Industry (DLI). This change would also streamline administrative costs and improve the accuracy of prevailing wage determinations because DLI—which is the agency responsible for ascertaining prevailing wage rates via an annual survey process—would already have the data. Moreover, the State could conduct more investigations and audits at broadband infrastructure jobsites to ensure that workers are being paid the wages and benefits that they are legally owed and that health and safety standards are being followed (Johnson, 2023). Greater coordination between DEED, DLI, the Department of Revenue (DOR), and the Office of the Attorney General on worker misclassification is also required to safeguard workers from labor abuses such as misclassification and wage theft (AG, 2024). For example, Federated Rural Electric Association received a $7.1 million grant for a $10 million project in Jackson County in 2023 but responded to DEED that it did not intend to certify that all 32 workers would be paid prevailing wages rates. Regarding the wages that would be paid, the CEO said simply that "we believe them to be competitive" without providing any supporting evidence. This is a project that could have potentially warranted a wage investigation.

Inserting labor standards into the scoring criteria for awarding broadband grants to applicants would be another potential complement or alternative option to fully expanding prevailing wage coverage. Specifically, the State could eliminate exemptions and lower the threshold dollar amount for contract coverage. DEED does not award broadband projects directly to contractors in public lettings like other agencies do when they directly fund infrastructure projects (*e.g.*, see MnDOT, 2024). DEED does, however, select applicants based on a scoring system in which those with the most points are given preference and awarded the taxpayer-funded grants. Currently, the scoring system awards maximums of 120 possible points for Border-to-Border grant applicants and 140 possible points for Lower Population Density grant applicants (DEED, 2024d). Points are awarded for the number of locations served, the upload and download speeds that the project will enable, the local match (with higher scores awarded to projects with greater shares of matching funds), and project readiness, sustainability, and economic development and community impact criteria, among other items. No points are awarded for projects with prevailing wage or other labor standards (DEED, 2024d).

Minnesota could consider adopting a "Labor Standards" section to its scoring criteria. In Illinois, applicants score higher when they submit records of past compliance with labor and employment laws in the last three years, certify that they and their contractors and subcontractors will pay prevailing wages for each craft involved on the project, and indicate that they will include a project labor agreement (PLA) (DCEO, 2023).

[19] For more, see Table B in the Appendix.

[20] If the threshold is only lowered to a *grant amount* of $25,000 (rather than a total project cost of $25,000), then three projects (1 percent) of the 2014-2024 projects would have still been exempt, including two with middle-mile components and one last-mile project.

Minnesota could add any of these sections to its scoring criteria, incentivizing recipients to include labor standards and making it more likely that workers will earn market-competitive wages and benefits regardless of whether projects are officially covered by the Minnesota Prevailing Wage Act. The section could be worth 25 points—the maximum amount for other sections in the scoring criteria—with up to 10 points awarded for a clean track record, 10 points awarded for prevailing wage certification, and 5 points awarded for projects covered by PLAs (DEED, 2024d). This would improve applicant scores by 7 percent on Border-to-Border projects and 6 percent on Lower Population Density projects if they pay prevailing wages, and by 17 percent and 15 percent, respectively, if all three labor standards criteria are met.[21]

Finally, Minnesota could promote better safety outcomes by requiring construction workers on broadband infrastructure projects to have the same safety certifications as those on similar projects. As an example, House File 4626 introduced in 2024 by Assistant Majority Leader Brad Tabke (DFL) and State Representative Pat Garafolo (R) was a bipartisan bill that would have applied federal pipeline inspection rules and safety standards to construction and maintenance that is performed within 20 feet of a corridor accessing either above-ground utility infrastructure or underground facilities (ORS, 2024). This would have effectively extended the safety standards that must be met on oil and gas pipeline projects to other types of utility infrastructure, including broadband projects. For example, when roads are built or reconstructed, utility lines typically run alongside them to deliver water, gas, and electricity to homes and businesses. Broadband infrastructure is often placed next to water pipes, gas pipes, and electricity transmission lines than run alongside roads and highways. House File 4626 would have ensured that construction workers performing broadband infrastructure in the same hole as workers installing or repairing gas pipes are subject to identical safety standards. Notably, House File 4626 also would have included the repeal of prevailing wage exemptions for broadband projects (ORS, 2024).

Conclusion

Over the next six years, Minnesota will be leveraging more than $800 million in taxpayer-funded grants to spur an estimated $1.9 billion investment in broadband infrastructure. Access to reliable high-speed internet service will be expanded to 159,000 homes, businesses, farms, schools, and other community institutions. These investments will raise worker income and expand access to jobs while addressing “digital divides.” However, Minnesota will only maximize the economic development impact of these investments if they are built by local contractors who are able to attract, develop, and retain skilled trades workers during a historic labor shortage. Without action, Minnesota risks either delays in constructing this critical infrastructure or significant leakage of taxpayer dollars to out-of-state businesses and nonlocal workers, who take their earnings and consumer spending back home with them upon project completion—reducing economic activity in the state and limiting its growth potential.

To meet the moment, Minnesota could expand coverage of its prevailing wage law to most or all broadband infrastructure projects that receive taxpayer-funded grants, similar to its existing policy on other types of public works construction projects. The state’s prevailing wage law levels the playing field for contractors, improves job quality for workers, bolsters registered apprenticeship programs that train the next generation of skilled workers, and increases workforce productivity while reducing worksite safety issues. However, at

[21] The Border-to-Border program would go from 120 points to 145 points, while the Lower Population Density program would go from 140 points to 165 points. Mathematically, 10 points divided by 145 points equals 6.9 percent and 10 points divided by 165 points equals 6.1 percent, while 25 points divided by 145 points equals 17.2 percent and 25 points divided by 165 points equals 15.2 percent. These amounts would be similar to Illinois’ system, which awards up to 8 percent for the track record and prevailing wage certification criteria and another 7 percent—for a combined maximum of 15 percent—if PLAs are included (DCEO, 2023).

least 8-in-10 broadband infrastructure projects funded with state grants since 2014 have been excluded from prevailing wage coverage.

The state could consider eliminating the exemption for "last-mile" broadband projects and reducing the coverage threshold from a grant of $200,000 to a total project value of $25,000 consistent with prevailing wage coverage on all other state-funded projects. Repealing these exceptions for prevailing wage coverage could have the ancillary benefit of improving transparency and accountability for taxpayers, with certified payroll reports becoming accessible. Additional measures could include inserting prevailing wage and other labor standards into the scoring system for awarding broadband grants to applicants and applying high safety standards on broadband infrastructure investments. These reforms could help ensure that broadband projects are built safely, on-time, and within budget by construction businesses from Minnesota who employ skilled local workers earning market-competitive wages and family-supporting benefits.

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Appendix

TABLE A: REGRESSION RESULTS ON THE IMPACT OF BROADBAND CONNECTIONS ON THE PROBABILITY OF BEING EMPLOYED (ROBUST PROBIT) AND THE NATURAL LOG OF REAL INCOME FROM WAGES AND SALARIES (ROBUST OLS), 2021-2022

Robust Regression Models	[1] Prob(Employed)		[2] ln(Real Income)	
Variable	*dy/dx*	(St. Err.)	Coefficient	(St. Err.)
Broadband Internet Connection	**+0.0308*** **	**(0.007)**	**+0.0354*** **	**(0.015)**
Race: Black or African American	-0.0306**	(0.013)	-0.1806***	(0.035)
Race: Hispanic or Latinx	-0.0192	(0.012)	-0.0551**	(0.024)
Age	+0.0233***	(0.001)	+0.0594***	(0.003)
Age^2	-0.0003***	(0.000)	-0.0006***	(0.000)
Gender Identification: Female	-0.0557***	(0.005)	-0.1623***	(0.011)
Demographics: Married	+0.0395***	(0.006)	+0.1149***	(0.011)
Demographics: Military Veteran	-0.0340***	(0.012)	-0.0137	(0.026)
Education: Has College Degree	+0.0915***	(0.005)	+0.2731***	(0.011)
Location: Lives in Twin Cities Metro	+0.0052	(0.005)	+0.1596***	(0.009)
Demographics: Foreign-Born	-0.0304***	(0.009)	-0.0814***	(0.021)
Family: Number of Children	-0.0159***	(0.002)	+0.0195***	(0.005)
School Status: Currently Enrolled	-0.0599***	(0.009)	-0.1113***	(0.021)
Sector: Self-Employed	N		-0.1488***	(0.033)
Sector: Nonprofit	N		-0.0356**	(0.015)
Sector: Federal Government	N		+0.0615	(0.039)
Sector: State Government	N		-0.0234	(0.023)
Sector: Local Government	N		+0.0402**	(0.018)
21 Occupation Variables	N		Y	
Weeks Worked Per Year	N		+0.0313***	(0.001)
Usual Hours Worked Per Week	N		+0.0318***	(0.001)
Constant	0.8200***	(0.002)	6.2780***	(0.071)
R^2	0.071		0.597	
Sample of Residents	Residents Ages 16-64		Employed Ages 16-64	
Observations	58,805		45,170	
Weighted	Y		Y	

Source(s): Author's analysis of 2021-2022 *American Community Survey* data (one-year estimates) from the U.S. Census Bureau (Ruggles et al., 2024). ***P≤|0.01|; **P≤|0.05|; *P≤|0.10|. Model 1 probit uses average marginal effects (*margins, dydx* in STATA) to assess the impact on the probability that any given individual is employed. Model 2 is a natural logarithm to assess the impact on inflation-adjusted annual income from wages and salaries. To interpret natural logarithm income results in Model 2, convert to percent changes using the Kennedy (1981) adjustment, which is $e^{(coefficient)}$—1. (Kennedy, 1981; IDRE, 2021).

TABLE B: FULL GRANT-LEVEL DATA ON BROADBAND INVESTMENTS IN MINNESOTA, INCLUDING ESTIMATED PREVAILING WAGE COVERAGE STATUS, 2014-2024

Award Recipient and Project Name	Year	Project Cost	State Grant	Local Match	Description	Locations	Prevailing Wage?	Cost Per Connection	Inflation-Adjusted Cost	Adjusted Cost Per
CTC - RD9 Clinton Twp	2024	$4,585,580	$2,292,790	$2,292,790	fiber-to-the-X	303	No	$15,134	$4,585,580	$15,134
Garden Valley Tel - Rural E Grand Forks	2024	$1,400,620	$1,050,465	$350,155	last-mile	80	No	$17,508	$1,400,620	$17,508
Hanson - Chippewa Cty W	2024	$4,625,644	$2,081,494	$2,544,150	fiber-to-the-X	283	No	$16,345	$4,625,644	$16,345
Hanson - Comfrey FTTP	2024	$987,849	$395,138	$592,711	fiber-to-the-X	245	No	$4,032	$987,849	$4,032
Mediacom - Esquagama Lake	2024	$1,922,204	$961,102	$961,102	fiber-to-the-X	294	No	$6,538	$1,922,204	$6,538
Mediacom - Oakhill/Spring Valley	2024	$112,878	$33,863	$79,015	fiber-to-the-X	36	No	$3,136	$112,878	$3,136
Meeker Fahlun	2024	$1,181,419	$590,709	$590,710	fiber-to-the-X	124	No	$9,528	$1,181,419	$9,528
Midco North Central	2024	$1,603,400	$801,700	$801,700	fiber-to-the-X	237	No	$6,765	$1,603,400	$6,765
Red River - Rural Hawley	2024	$1,940,822	$970,411	$970,411	fiber-to-the-X	54	No	$35,941	$1,940,822	$35,941
SCI - East Central MN	2024	$7,277,634	$3,563,817	$3,713,817	fiber-to-the-X	1,069	No	$6,808	$7,277,634	$6,808
Spectrum-Mower County	2024	$1,029,397	$414,699	$614,698	last-mile	148	No	$6,955	$1,029,397	$6,955
Arvig (Tekstar) – Wright County Area Fiber Extension	2023	$1,759,493	$879,747	$879,746	last-mile	256	No	$6,873.02	$1,813,879	$7,085
Arvig (Tekstar) – Sherburne County Area Fiber Extension	2023	$456,440	$182,576	$273,864	last-mile	240	No	$1,901.83	$470,549	$1,961
Benton Cooperative Telephone – Benton County South of Trunk Highway 23	2023	$8,537,928	$2,988,275	$5,549,653	last-mile	836	No	$10,212.83	$8,801,835	$10,529
Comcast-Xfinity – Comcast Washington County	2023	$8,472,372	$2,908,829	$5,563,543	last-mile	1,075	No	$7,881.28	$8,734,253	$8,125
Comcast-Xfinity – Comcast/City of Nowthen	2023	$8,498,043	$2,549,413	$5,948,630	last-mile	1,227	No	$6,925.87	$8,760,718	$7,140
East Cental Energy – Isanti South	2023	$18,267,826	$4,900,000	$13,367,826	fiber-to-the-X	1,990	No	$9,179.81	$18,832,485	$9,464
Frontier – Wright County - City of Clearwater	2023	$2,766,000	$829,800	$1,936,200	last-mile	316	No	$8,753.16	$2,851,497	$9,024
Gardonville Cooperative Telephone – Carlos	2023	$1,479,884	$665,950	$813,934	last-mile	122	No	$12,130.20	$1,525,627	$12,505
Gardonville Cooperative Telephone – Buckskin	2023	$1,904,474	$857,013	$1,047,461	last-mile	214	No	$8,899.41	$1,963,341	$9,174
Harmony Telephone Company – North Fountain Fiber-To-The-Premises	2023	$7,477,595	$2,991,038	$4,486,557	fiber-to-the-X	311	No	$24,043.71	$7,708,727	$24,787
Harmony Telephone Company – Rural Preston Fiber-To-The-Premises	2023	$2,611,089	$1,044,436	$1,566,653	fiber-to-the-X	68	No	$38,398.37	$2,691,798	$39,585
KM Telecom – Rural Byron & Salem Corners Fiber Build	2023	$3,862,092	$1,931,046	$1,931,046	last-mile	221	No	$17,475.53	$3,981,469	$18,016
Koochiching County – Koochiching County International Falls Economic Development	2023	$193,248	$77,300	$115,948	last-mile	13	No	$14,865.23	$199,221	$15,325
Meeker Coop Light & Power – French Lake Township - Wright County	2023	$2,822,516	$1,270,132	$1,552,384	last-mile	525	No	$5,376.22	$2,909,760	$5,542
Meeker Coop Light & Power – Harrison Township	2023	$1,186,576	$533,959	$652,617	last-mile	216	No	$5,493.41	$1,223,253	$5,663
Midco – Midco Rural Independence	2023	$3,039,100	$1,519,500	$1,519,600	last-mile	423	No	$7,184.63	$3,133,039	$7,407
Midco – Midco May Township	2023	$3,511,700	$1,580,300	$1,931,400	last-mile	575	No	$6,107.30	$3,620,247	$6,296
Otter Tail Telcom – South Battle Lake	2023	$4,663,585	$2,331,792	$2,331,793	last-mile	506	No	$9,216.57	$4,807,736	$9,501
Runestone Telephone Assoc. – Stearns County West Phase 2	2023	$12,123,378	$4,800,000	$7,323,378	last-mile	628	No	$19,304.74	$12,498,112	$19,901
SCI – Aitkin County Broadband Expansion	2023	$1,589,644	$794,822	$794,822	last-mile	199	No	$7,988.16	$1,638,780	$8,235
SCI – Carlton County Broadband Expansion	2023	$2,543,670	$1,271,835	$1,271,835	last-mile	503	No	$5,057.00	$2,622,295	$5,213
702 Communications – Western Clay County Kragnes Township	2023	$3,499,773	$2,624,830	$874,943	last-mile	369	No	$9,484.48	$3,607,951	$9,778

Garden Valley Technologies – 2023 Rural Warren SW	2023	$1,984,430	$1,488,322	$496,108	last-mile	96	No	$20,671.15	$2,045,769	$21,310
Interstate Telecommunications Company – Yellow Medicine County West Fiber-To-The-Home Project	2023	$6,650,899	$4,988,174	$1,662,725	last-mile	483	No	$13,769.98	$6,856,478	$14,196
Meeker Coop Light & Power – Lake Elizabeth-East Lake Lillian Townships	2023	$1,904,088	$1,428,066	$476,022	last-mile	185	No	$10,292.37	$1,962,943	$10,611
Red River Rural Telephone Association – North Wilkin County	2023	$2,969,817	$2,227,363	$742,454	last-mile	128	No	$23,201.70	$3,061,614	$23,919
Red River Rural Telephone Association – Rural Campbell	2023	$2,714,000	$2,035,500	$678,500	last-mile	86	No	$31,558.14	$2,797,890	$32,534
Wikstrom Telephone Company – Wiktel NW MN Broadband 202	2023	$3,375,318	$2,531,488	$843,830	last-mile	199	No	$16,961.40	$3,479,649	$17,486
Federated Rural Electric Assoc. – Jackson County Fiber-To-The-Premises	2023	$10,097,460	$7,068,222	$3,029,238	fiber-to-the-X	480	No	$21,036.38	$10,409,572	$21,687
AcenTek - Rural Dakota	2022	$8,045,502	$3,218,201	$4,827,301	last-mile	608	No	$13,232.73	$8,825,835	$14,516
Albany Mutual Tel. - Stearns County East	2022	$2,987,857	$746,964	$2,240,893	last-mile	233	No	$12,823.42	$3,277,649	$14,067
Benton Cooperative Tel - Borgholm Township	2022	$3,195,113	$1,118,289	$2,076,824	last-mile	440	No	$7,261.62	$3,505,007	$7,966
Benton Cooperative Tel - Golden Spike - Mayhew Lake	2022	$3,613,150	$1,264,602	$2,348,548	last-mile	395	No	$9,147.22	$3,963,589	$10,034
Benton Cooperative Tel - Northwestern Benton County	2022	$222,075	$77,726	$144,349	last-mile	21	No	$10,575.00	$243,614	$11,601
Benton Cooperative Tel - Ronneby (Oak Park)	2022	$487,494	$170,623	$316,871	last-mile	67	No	$7,276.03	$534,776	$7,982
BEVCOMM - Rural Faribault & Martin Counties - Phase 3	2022	$1,883,153	$1,444,030	$941,577	last-mile	222	No	$8,482.67	$2,065,800	$9,305
BEVCOMM - Rural Le Sueur County - Phase Two	2022	$3,610,074	$941,576	$2,166,044	last-mile	373	No	$9,678.48	$3,960,215	$10,617
Consolidated Tel. (CTC) - Woods to Waters	2022	$9,714,060	$4,857,030	$4,857,030	last-mile	1,804	No	$5,384.73	$10,656,227	$5,907
Crosslake Comm. - Anchor Point Fiber Project	2022	$858,880	$343,552	$515,328	last-mile	245	No	$3,505.63	$942,183	$3,846
East Central Energy - Kanabec Central	2022	$14,824,350	$4,403,000	$10,421,350	last-mile	2,563	No	$5,783.98	$16,262,164	$6,345
East Central Energy - Pine South	2022	$15,995,002	$4,750,000	$11,245,002	last-mile	2,535	No	$6,309.67	$17,546,357	$6,922
E. Otter Tail Tel. (Arvig) - Otter Tail County	2022	$2,851,762	$1,140,705	$1,711,057	last-mile	271	No	$10,523.11	$3,128,354	$11,544
Farmers Mutual Tel. - Chippewa County	2022	$10,507,080	$4,728,186	$5,778,894	last-mile	636	No	$16,520.57	$11,526,162	$18,123
Federated Tel. Coop - Kandiyohi County West FTTP	2022	$9,827,011	$4,913,506	$4,913,506	last-mile	646	No	$15,212.09	$10,780,133	$16,688
Garden Valley Tech. - Rural Warren East & Rural Oslo	2022	$2,925,139	$1,462,569	$1,462,570	last-mile	105	No	$27,858.47	$3,208,848	$30,560
Gardonville Coop Tel. - Nelson	2022	$2,424,675	$1,212,338	$1,212,338	last-mile	300	No	$8,082.25	$2,659,844	$8,866
Hanson Comm. - Lamberton Revere	2022	$2,309,795	$923,918	$1,385,877	fiber-to-the-X	529	No	$4,366.34	$2,533,822	$4,790
Hanson Comm. - Pope County SE	2022	$10,621,989	$4,248,796	$6,373,193	fiber-to-the-X	1,057	No	$10,049.19	$11,652,216	$11,024
Harmony Tel. - North Preston Rural FTTP	2022	$2,824,350	$1,129,740	$1,694,610	fiber-to-the-X	112	No	$25,217.41	$3,098,284	$27,663
JTN Comm. - Eureka Center	2022	$226,152	$113,076	$113,076	last-mile	101	No	$2,239.13	$248,086	$2,456
KM Telecom - Rock Dell Southeast	2022	$3,240,014	$1,498,115	$1,620,007	last-mile	208	No	$15,576.99	$3,554,263	$17,088
KM Telecom - Rock Dell Adjacent East	2022	$3,329,145	$1,620,007	$1,831,030	last-mile	264	No	$12,610.40	$3,652,039	$13,833
Mediacom - East Scanlon	2022	$2,719,526	$801,834	$1,917,692	last-mile	560	No	$4,856.30	$2,983,293	$5,327
Mediacom - Esko	2022	$9,779,405	$4,400,732	$5,378,673	last-mile	1,678	No	$5,828.01	$10,727,909	$6,393
Mediacom - Esquagama Lake	2022	$2,054,395	$821,758	$1,232,637	last-mile	375	No	$5,478.39	$2,253,651	$6,010

Mediacom - Project 19 - Hibbing	2022	$4,282,269	$2,141,135	$2,141,135	last-mile	573	No	$7,473.42	$4,697,606	$8,198
Mediacom - Swan Lake	2022	$330,518	$99,156	$231,363	last-mile	89	No	$3,713.69	$362,575	$4,074
Meeker Coop./Vibrant - Big Swan Lake	2022	$313,940	$94,182	$219,758	last-mile	106	No	$2,961.70	$344,389	$3,249
Meeker Coop./Vibrant - Collinwood Lake	2022	$347,790	$104,337	$243,453	last-mile	107	No	$3,250.37	$381,522	$3,566
Meeker Coop./Vibrant - Dunns & Richardson Lakes	2022	$267,341	$80,202	$187,139	last-mile	85	No	$3,145.19	$293,270	$3,450
Meeker Coop./Vibrant - Lake Erie	2022	$63,644	$19,093	$44,551	last-mile	28	No	$2,273.00	$69,817	$2,493
Meeker Coop./Vibrant - Long Lake	2022	$99,006	$29,702	$69,304	last-mile	25	No	$3,960.24	$108,609	$4,344
Melrose Tel. (Arvig) - Stearns County Area Fiber Build	2022	$18,424,333	$4,974,570	$13,449,763	last-mile	2,149	No	$8,573.44	$20,211,309	$9,405
Midco - Midco Forest Lake	2022	$1,950,262	$975,131	$975,131	last-mile	323	No	$6,037.96	$2,139,418	$6,624
Midco - Midco Isanti County	2022	$3,294,642	$1,647,321	$1,647,321	last-mile	562	No	$5,862.35	$3,614,189	$6,431
Mille Lacs Energy Coop - Phase 6 MLEC FTTH	2022	$2,473,636	$1,231,818	$1,241,818	last-mile	250	No	$9,894.54	$2,713,554	$10,854
Nuvera - Belle Lake & Hutchinson East FTTP	2022	$4,089,444	$1,840,250	$2,249,194	last-mile	454	No	$9,007.59	$4,486,079	$9,881
Nuvera - Brown County FTTP	2022	$7,678,000	$3,839,000	$3,839,000	last-mile	678	No	$11,324.48	$8,422,689	$12,423
Nuvera - Cedar Lake Township FTTP	2022	$5,414,283	$2,436,427	$2,977,856	last-mile	572	No	$9,465.53	$5,939,414	$10,384
Nuvera - Nicollet County RTF DTF FTTP	2022	$958,022	$479,011	$479,011	last-mile	91	No	$10,527.71	$1,050,941	$11,549
Otter Tail Telcom - North Fergus Falls	2022	$8,454,152	$3,381,661	$5,072,491	last-mile	1,186	No	$7,128.29	$9,274,120	$7,820
Paul Bunyan Comm - Northern MN GigaZone Fiber	2022	$7,630,300	$3,052,120	$4,578,180	fiber-to-the-X	1,035	No	$7,372.27	$8,370,363	$8,087
Qwest/CenturyLink - City of Harris	2022	$1,046,814	$465,814	$581,000	last-mile	185	No	$5,658.45	$1,148,344	$6,207
Red River Rural Tel. - B2B Breckenridge	2022	$4,315,326	$2,157,663	$2,157,663	last-mile	315	No	$13,699.45	$4,733,869	$15,028
Redwood Cty Tel. (Arvig) - Redwood County	2022	$4,453,457	$1,336,037	$3,117,420	last-mile	1,870	No	$2,381.53	$4,885,398	$2,613
Runestone Tel. Assoc. - Herman-Dumont	2022	$4,987,273	$2,493,637	$2,493,636	last-mile	406	No	$12,283.92	$5,470,989	$13,475
Savage Comm. Inc. (SCI) - Grand Lake Township	2022	$1,124,196	$562,098	$562,098	last-mile	330	No	$3,406.65	$1,233,232	$3,737
Savage Comm. Inc. (SCI) - Northern Mille Lacs County	2022	$952,216	$476,108	$476,108	last-mile	149	No	$6,390.71	$1,044,571	$7,011
Spectrum/Charter - Dakota County	2022	$329,166	$98,750	$230,416	last-mile	69	No	$4,770.52	$361,092	$5,233
Spectrum/Charter - Steele County Project	2022	$351,227	$158,052	$193,175	last-mile	56	No	$6,271.91	$385,293	$6,880
Spectrum/Charter - Wright County	2022	$4,290,476	$1,824,009	$2,466,467	last-mile	638	No	$6,724.88	$4,706,609	$7,377
Spectrum/Charter - Wright County	2022	$2,384,770	$1,008,146	$1,376,624	last-mile	412	No	$5,788.28	$2,616,069	$6,350
Tekstar Comm. (Arvig) - Nowthen Area	2022	$549,318	$219,727	$329,591	last-mile	81	No	$6,781.70	$602,596	$7,439
Tekstar Comm. (Arvig) - Sherburne County - Elk River Area	2022	$542,651	$217,061	$325,591	last-mile	42	No	$12,920.26	$595,283	$14,173
Tekstar Comm. (Arvig) - Sherburne Clear Lake & Haven TWP	2022	$2,147,208	$858,883	$1,288,325	last-mile	212	No	$10,128.34	$2,355,466	$11,111
Wikstrom Tel. Co. - Wiktel NW MN 2022	2022	$1,479,331	$665,699	$813,632	last-mile	150	No	$9,862.21	$1,622,811	$10,819
Woodstock Tel. Co. - Lake Sarah Township FTTP	2022	$2,962,664	$1,333,199	$1,629,465	last-mile	369	No	$8,028.90	$3,250,013	$8,808
Xfinity/Comcast - City of Corcoran	2022	$4,329,283	$1,298,785	$3,030,498	last-mile	496	No	$8,728.39	$4,749,180	$9,575
Xfinity/Comcast - City of Rogers	2022	$1,607,640	$643,056	$964,584	last-mile	165	No	$9,743.27	$1,763,565	$10,688
Acentek Rural Peterson FTTH	2020	$4,973,654	$1,492,096	$3,481,558	last-mile	374	No	$13,298.54	$5,946,252	$15,899
Benton Coop Ramey Phase 2	2020	$965,746	$338,011	$627,735	last-mile	119	No	$8,115.51	$1,154,598	$9,703
BEVCOMM Rural Faribault Co. & Martin Co.	2020	$2,957,043	$1,182,818	$1,774,225	last-mile	430	No	$6,876.84	$3,535,293	$8,222
BEVCOMM Rural Morristown	2020	$526,729	$210,692	$316,037	last-mile	108	No	$4,877.12	$629,731	$5,831
Charter Communications (Spectrum) Cambridge Hills	2020	$96,582	$28,950	$67,632	middle- and last-mile	41	No	$2,355.66	$115,469	$2,816

Charter Communications (Spectrum) Getchell Road	2020	$25,360	$11,400	$13,960	middle- and last-mile	8	No	$3,170.00	$30,319	$3,790
Charter Communications (Spectrum) West Lake Carlos	2020	$81,661	$24,450	$57,211	middle- and last-mile	42	No	$1,944.31	$97,630	$2,325
Consolidated Tel. Co. (CTC) Stark-Ross Lake Area	2020	$701,610	$350,805	$350,805	last-mile	180	No	$3,897.83	$838,810	$4,660
Crosslake Communications O'Brien/Goodrich Lake	2020	$1,547,424	$618,970	$928,454	last-mile	232	No	$6,669.93	$1,850,023	$7,974
Gardonville Coop Douglas Co. County Road 34	2020	$3,447,488	$1,551,370	$1,896,118	last-mile	615	No	$5,605.67	$4,121,644	$6,702
Gardonville Coop. Douglas Co. Town Hall Rd.	2020	$225,628	$90,251	$135,377	last-mile	49	No	$4,604.65	$269,750	$5,505
Halstad Tel. Co. North Fisher Expansion	2020	$1,376,000	$619,000	$757,000	last-mile	64	No	$21,500.00	$1,645,077	$25,704
KMTelecom Rock Dell Northwest	2020	$1,283,910	$385,173	$898,737	last-mile	125	No	$10,271.28	$1,534,979	$12,280
KMTelecom Rock Dell Southwest	2020	$1,349,031	$404,709	$944,322	last-mile	171	No	$7,889.07	$1,612,834	$9,432
Mediacom Field of Dreams Hermantown	2020	$1,249,503	$624,751	$624,752	last-mile	274	No	$4,560.23	$1,493,843	$5,452
Mediacom Minnetrista	2020	$421,673	$189,752	$231,921	last-mile	80	No	$5,270.91	$504,131	$6,302
Meeker Coop (Vibrant Broadband) Lake Koronis	2020	$139,757	$41,927	$97,830	last-mile	28	No	$4,991.32	$167,086	$5,967
MiBroadband Rural Preston	2020	$3,370,372	$1,173,330	$2,197,042	fiber-to-the-X	257	No	$13,114.29	$4,029,448	$15,679
Midco Scandia	2020	$434,144	$78,824	$355,320	last-mile	79	No	$5,495.49	$519,041	$6,570
Mille Lacs Energy Coop (MLEC) Phase 4 Crow Wing/Aitkin Co.	2020	$441,350	$198,607	$242,743	fiber-to-the-X	85	No	$5,192.35	$527,656	$6,208
Nuvera Goodhue Welch	2020	$973,686	$340,790	$632,896	last-mile	115	No	$8,466.83	$1,164,090	$10,123
Nuvera Goodhue West	2020	$1,520,662	$532,232	$988,430	last-mile	150	No	$10,137.75	$1,818,027	$12,120
Nuvera Hutchinson SE	2020	$423,423	$169,369	$254,054	last-mile	47	No	$9,009.00	$506,223	$10,771
Nuvera New Ulm HDT 202	2020	$1,269,675	$444,386	$1,269,675	last-mile	147	No	$8,637.24	$1,517,960	$10,326
Nuvera Webster Rural	2020	$1,232,171	$431,260	$800,911	last-mile	281	No	$4,384.95	$1,473,122	$5,242
Paul Bunyan Comm. City of Cook GigaZone Fiber	2020	$691,675	$311,254	$380,421	last-mile	311	No	$2,224.04	$826,932	$2,659
Runestone Telecom Association Villard	2020	$4,180,741	$1,463,259	$2,717,482	last-mile	546	No	$7,657.03	$4,998,285	$9,154
SCI Mille Lacs Band of Ojibwe (Onamia) Broadband Expansion	2020	$140,522	$70,261	$70,261	last-mile	102	No	$1,377.67	$168,001	$1,647
Sytek Comm. Morrison/Todd/Stearns Co.	2020	$2,330,373	$1,048,668	$1,281,705	last-mile	130	No	$17,925.95	$2,786,077	$21,431
West Central Tel. Assn. Rural Staples Phase 2	2020	$1,033,445	$465,050	$568,395	last-mile	56	No	$18,454.38	$1,235,535	$22,063
Wikstrom Tel. (WikTel) NW MN 2020	2020	$1,091,104	$490,997	$600,107	last-mile	153	No	$7,131.40	$1,304,469	$8,526
Winnebago Coop SE Faribault/W Freeborn Co.	2020	$3,179,381	$953,842	$2,225,539	last-mile	319	No	$9,966.71	$3,801,109	$11,916
Winthrop Tel. Co. Bismarck & Transit Township	2020	$1,790,000	$716,000	$1,074,000	last-mile	154	No	$11,623.38	$2,140,035	$13,896
AcenTek Rural Houston	2019	$9,651,059	$2,895,318	$6,755,741	last-mile	909	No	$10,617.23	$11,825,250	$13,009
Benton Coop Ramey Phase I	2019	$2,676,454	$936,759	$1,739,695	last-mile	352	No	$7,603.56	$3,279,406	$9,316
BEVCOMM dba Easton Tel. Rural Faribault Co.	2019	$1,449,451	$579,781	$869,670	last-mile	176	No	$8,235.52	$1,775,983	$10,091
Bois Forte Tribal Government FTTH	2019	$2,497,580	$1,248,790	$1,248,790	last-mile	478	No	$5,225.06	$3,060,235	$6,402
Charter Communications Lake Carlos	2019	$149,081	$74,540	$74,541	last-mile	47	No	$3,171.94	$182,666	$3,887
Consolidated Tel. Co. (CTC) Fort Ripley/Exec. Acres	2019	$1,661,175	$830,587	$830,588	last-mile	399	No	$4,163.35	$2,035,405	$5,101
Eckles Tel. Co. dba BEVCOMM Le Sueur County	2019	$3,714,752	$1,857,376	$1,857,376	last-mile	568	No	$6,540.06	$4,551,611	$8,013
Emily Coop Esquagamah-Round Lake Fiber	2019	$752,000	$376,000	$376,000	last-mile	345	No	$2,179.71	$921,411	$2,671
Fond du Lac Big Lake Road	2019	$1,205,832	$602,916	$602,916	last-mile	136	No	$8,866.41	$1,477,482	$10,864
Gardonville Coop. Krohnfeldt Drive	2019	$95,380	$42,921	$52,459	last-mile	24	No	$3,974.17	$116,867	$4,869
Halstad Tel. Co. Rural East Grand Forks	2019	$1,067,362	$440,000	$627,362	last-mile	101	No	$10,567.94	$1,307,817	$12,949

Mediacom Independence	2019	$278,079	$139,039	$139,040	last-mile	105	No	$2,648.37	$340,725	$3,245
Meeker Coop Light & Power Lakes Louisa/Marie	2019	$695,194	$297,940	$993,134	last-mile	206	No	$3,374.73	$851,807	$4,135
Midco Renville	2019	$923,338	$230,835	$692,503	last-mile	677	No	$1,363.87	$1,131,348	$1,671
Midco Scandia	2019	$1,020,717	$510,358	$510,359	last-mile	219	No	$4,660.81	$1,250,664	$5,711
Mille Lacs Energy Coop (MLEC) Phase 3 Aitkin Co.	2019	$2,819,899	$1,253,955	$1,565,944	last-mile	507	No	$5,561.93	$3,455,166	$6,815
Nuvera Hutchinson West	2019	$910,704	$346,282	$564,422	last-mile	109	No	$8,355.08	$1,115,867	$10,237
Nuvera New Ulm SW	2019	$1,101,713	$385,600	$716,113	last-mile	128	No	$8,607.13	$1,349,907	$10,546
Otter Tail Telcom Long and Fish Lakes	2019	$448,440	$156,954	$291,486	last-mile	98	No	$4,575.92	$549,465	$5,607
Paul Bunyan Communications North Central Fiber	2019	$6,268,400	$2,562,916	$3,705,484	last-mile	1,353	No	$4,632.96	$7,680,545	$5,677
Pine Island Tel. Co. dba BEVCOMM NE Pine Island	2019	$634,920	$222,222	$412,698	last-mile	77	No	$8,245.71	$777,955	$10,103
Qwest Corp. dba CenturyLink Nessel Township	2019	$5,525,167	$1,657,550	$3,867,617	last-mile	1,020	No	$5,416.83	$6,769,877	$6,637
Runestone Tel. Assn. South Alexandria	2019	$4,401,058	$1,760,423	$2,640,635	last-mile	908	No	$4,846.98	$5,392,528	$5,939
Savage Communications dba SCI Glen Township	2019	$401,695	$195,848	$205,847	last-mile	281	No	$1,429.52	$492,189	$1,752
West Central Tel. Assn. Rural Staples Phase I	2019	$1,234,123	$555,355	$678,768	last-mile	109	No	$11,322.23	$1,512,146	$13,873
Wikstrom Tel. Co. NW MN	2019	$2,558,946	$1,151,526	$1,407,420	last-mile	316	No	$8,097.93	$3,135,425	$9,922
Acentek - Rushford Village/Rural Rushford Fiber Build	2017	$5,158,020	$2,011,628	$3,146,392	last-mile	557	No	$9,260.36	$6,550,943	$11,761
Albany - Two Rivers Area	2017	$1,233,486	$616,743	$616,743	last-mile	121	No	$10,194.10	$1,566,589	$12,947
Benton - Rice Ramey	2017	$2,637,985	$765,015	$1,872,970		323	No	$8,167.14	$3,350,373	$10,373
BEVCOMM - Delavan SE Rural Project	2017	$565,000	$220,350	$344,650	last-mile	55	No	$10,272.73	$717,578	$13,047
BEVCOMM - Freeborn Southwest Rural Final	2017	$314,000	$122,460	$191,540	last-mile	32	No	$9,812.50	$398,796	$12,462
BEVCOMM - Granada Rural Final	2017	$519,000	$202,410	$316,590	last-mile	56	No	$9,267.86	$659,156	$11,771
Carlton County w/ Frontier - Phase I: Cromwell/Kettle River	2017	$1,138,117	$569,058	$569,059		298	No	$3,819.18	$1,445,465	$4,851
CenturyLink - Fish Lake Township FTTH Project	2017	$4,584,310	$1,833,724	$2,750,586	last-mile	927	No	$4,945.32	$5,822,303	$6,281
CenturyLink - Fredenberg Township FTTH Project	2017	$3,618,625	$1,809,312	$1,809,313	last-mile	852	No	$4,247.21	$4,595,835	$5,394
Farmers - City of Watson and SW Lac Qui Parle County FTTP	2017	$1,552,043	$760,501	$791,542	last-mile	156	No	$9,948.99	$1,971,172	$12,636
Fond du Lac - Brookston Project	2017	$538,052	$258,265	$279,787	last-mile	117	No	$4,598.74	$683,353	$5,841
Garden Vallley - Bejou	2017	$2,608,842	$1,304,421	$1,304,421	last-mile	238	No	$10,961.52	$3,313,360	$13,922
Gardonville - Douglas County: Country Estates FTTH Project	2017	$225,830	$101,624	$124,206	last-mile	42	No	$5,376.90	$286,815	$6,829
Gardonville - Douglas County: Pospisil Drive FTTH Project	2017	$120,345	$54,155	$66,190	last-mile	24	No	$5,014.38	$152,844	$6,369
Hanson - Minnewaska Area FTTP	2017	$11,460,530	$4,996,791	$6,463,739	fiber-to-the-X	1,469	No	$7,801.59	$14,555,446	$9,908
Jaguar - Sand Creek Township Area Broadband Project	2017	$493,346	$192,405	$300,941	last-mile	139	No	$3,549.25	$626,574	$4,508
KMTelecom - Rural Kasson Fiber Build	2017	$1,554,124	$606,108	$948,016	last-mile	158	No	$9,836.23	$1,973,815	$12,493
Mediacom - Fountain 2018 Broadband Build	2017	$421,094	$202,125	$218,969	last-mile	181	No	$2,326.49	$534,810	$2,955
Mediacom - Medina 2018 Broadband Build	2017	$159,535	$62,219	$97,316	last-mile	42	No	$3,798.45	$202,617	$4,824
Midco - Annandale East	2017	$1,074,100	$537,050	$537,050		578	No	$1,858.30	$1,364,161	$2,360
Midco - Wanamingo	2017	$1,537,200	$768,600	$768,600		677	No	$2,270.61	$1,952,321	$2,884

MVTC - Milroy Broadband Project	2017	$1,903,500	$742,365	$1,161,135	last-mile	268	No	$7,102.61	$2,417,540	$9,021
NuTel - Hanska A&D FTTP	2017	$721,988	$324,894	$397,094	last-mile	47	No	$15,361.45	$916,961	$19,510
NuTel - White Rock Rural East FTTP	2017	$914,898	$411,704	$503,194	last-mile	110	No	$8,317.25	$1,161,966	$10,563
Otter Tail - Red Oak Drive	2017	$347,366	$173,683	$173,683	last-mile	40	No	$8,684.15	$441,172	$11,029
Palmer - Duelm Hwy 95	2017	$361,809	$162,814	$198,995	last-mile	81	No	$4,466.78	$459,516	$5,673
Palmer - Sherburne County Road 3	2017	$135,253	$110,661	$245,914	last-mile	30	No	$4,508.43	$171,778	$5,726
Paul Bunyan - North Central Fiber	2017	$1,783,600	$802,620	$980,980	last-mile	835	No	$2,136.05	$2,265,261	$2,713
SCI - Dell Grove Township Broadband Expansion	2017	$236,496	$118,248	$118,248	last-mile	174	No	$1,359.17	$300,362	$1,726
SCI - Shamrock Township Broadband Expansion	2017	$297,006	$148,503	$148,503	last-mile	374	No	$794.13	$377,212	$1,009
Sjoberg's - NW MN Rural Broadband	2017	$614,176	$307,088	$307,088	last-mile	111	No	$5,533.12	$780,034	$7,027
WCTA - Northern Todd County	2017	$1,805,390	$902,695	$902,695	last-mile	215	No	$8,397.16	$2,292,936	$10,665
WCTA - Wadena Rural Phase III	2017	$1,822,044	$874,581	$947,463	last-mile	202	No	$9,020.02	$2,314,087	$11,456
Winthrop - Cornish Township FTTP Project	2017	$813,100	$365,895	$447,205	last-mile	60	No	$13,551.67	$1,032,678	$17,211
Woodstock - Balaton FTTP	2017	$1,424,169	$413,009	$1,011,160	last-mile	339	No	$4,201.09	$1,808,766	$5,336
AcenTek Rural Lanesboro Fiber Build	2016	$4,678,780	$1,777,936	$2,900,844	last-mile	474	No	$9,870.84	$6,090,836	$12,850
Albany Mutual Telephone Association Big Watab Lake	2016	$1,452,370	$726,185	$726,185	last-mile	242	No	$6,001.53	$1,890,695	$7,813
Arvig - Redwood County Telephone Middle Mile Fiber Extension	2016	$62,218	$27,998	$34,220	last-mile	35	No	$1,777.66	$80,995	$2,314
Benton Cooperative Telephone Company Buckman	2016	$708,287	$276,230	$432,057	last-mile	148	No	$4,785.72	$922,048	$6,230
Benton Cooperative Telephone Company Ramey	2016	$776,220	$225,100	$551,120	last-mile	127	No	$6,111.97	$1,010,483	$7,957
Blue Earth Valley Telephone Co. (dba BEVCOMM) Rural Winnebago	2016	$382,070	$152,828	$229,242	last-mile	31	No	$12,324.84	$497,379	$16,044
Cannon Valley Telecom, Inc. (dba BEVCOMM) Rural Freeborn	2016	$376,750	$150,700	$226,050	last-mile	31	No	$12,153.23	$490,453	$15,821
Eckles Telephone Company (dba BEVCOMM) Rural Heidelberg	2016	$470,000	$188,000	$282,000	last-mile	102	No	$4,607.84	$611,846	$5,998
Frontier Kandiyohi Initiative	2016	$2,030,550	$1,015,275	$1,015,275	last-mile	1,161	No	$1,748.97	$2,643,370	$2,277
Gardonville Cooperative Telephone Douglas County Lake Louise	2016	$153,348	$68,240	$85,108	last-mile	35	No	$4,381.37	$199,628	$5,704
Granada Telephone Company (dba BEVCOMM) South Rural Granada	2016	$394,800	$157,920	$236,880	last-mile	40	No	$9,870.00	$513,951	$12,849
KMTelecom Rural Mantorville	2016	$1,960,674	$764,663	$1,196,011	last-mile	205	No	$9,564.26	$2,552,405	$12,451
Martin County (with Frontier) Rural Broadband Initiative	2016	$3,355,646	$1,677,823	$1,677,823	last-mile	1,844	No	$1,819.76	$4,368,380	$2,369
Mediacom Fayal Township	2016	$675,243	$263,345	$411,898	last-mile	262	No	$2,577.26	$879,031	$3,355
Mediacom Harris Township	2016	$773,686	$224,369	$549,317	last-mile	268	No	$2,886.89	$1,007,184	$3,758
Mille Lacs Energy Cooperative FTTP Project	2016	$3,515,280	$1,757,640	$1,757,640	last-mile	800	No	$4,394.10	$4,576,192	$5,720
New Ulm Telecom, Inc. Goodhue-Bellechester	2016	$738,507	$332,328	$406,179	last-mile	130	No	$5,680.82	$961,388	$7,395
New Ulm Telecom, Inc. Hanska	2016	$445,326	$200,397	$244,929	last-mile	46	No	$9,681.00	$579,725	$12,603
New Ulm Telecom, Inc. Mazeppa	2016	$706,135	$317,761	$388,374	last-mile	164	No	$4,305.70	$919,247	$5,605
Otter Tail Telcom Battle Lake	2016	$476,340	$238,170	$238,170	last-mile	62	No	$7,682.90	$620,099	$10,002
Otter Tail Telcom Fergus Falls Area	2016	$558,542	$279,271	$279,271	last-mile	79	No	$7,070.15	$727,110	$9,204
Palmer Wireless Big Lake Industrial Park	2016	$211,600	$90,988	$120,612	last-mile	18	No	$11,755.56	$275,461	$15,303

Palmer Wireless Del Tone Road and St. Cloud Airport	2016	$460,000	$179,400	$280,600	last-mile	15	No	$30,666.67	$598,828	$39,922
Paul Bunyan Communications Hubbard, Becker & Itasca Counties	2016	$3,904,083	$1,742,232	$2,161,851	last-mile	958	No	$4,075.24	$5,082,335	$5,305
Renville County HBC & RS Fiber	2016	$2,071,709	$807,966	$1,263,743	last-mile	295	No	$7,022.74	$2,696,951	$9,142
Runestone Telephone Holmes City 2	2016	$1,401,348	$700,674	$700,674	last-mile	299	No	$4,686.78	$1,824,275	$6,101
Sjoberg's Inc. Roseau and Lake of the Woods Counties	2016	$709,481	$354,740	$354,740	last-mile	157	No	$4,518.99	$923,602	$5,883
Sunrise Township (CenturyLink) Fiber to the Home	2016	$2,388,560	$1,074,852	$1,313,708	last-mile	596	No	$4,007.65	$3,109,427	$5,217
TDS Telecom Cass & Crow Wing Counties	2016	$6,000,000	$3,000,000	$3,000,000	last-mile	3,525	No	$1,702.13	$7,810,800	$2,216
WCTA Wadena Rural North	2016	$1,497,605	$718,850	$778,755	last-mile	189	No	$7,923.84	$1,949,582	$10,315
Wikstrom Telephone Company (with Beamco, Inc.) Rural Alvarado	2016	$86,963	$43,481	$43,482	last-mile	12	No	$7,246.92	$113,208	$9,434
Wikstrom Telephone Company Wiktel NW MN	2016	$2,112,941	$950,823	$1,162,118	last-mile	262	No	$8,064.66	$2,750,627	$10,499
Winona County Pickwick Area	2016	$868,000	$416,640	$451,360	last-mile	225	No	$3,857.78	$1,129,962	$5,022
Woodstock Telephone Westbrook	2016	$916,424	$412,391	$504,033	last-mile	404	No	$2,268.38	$1,193,001	$2,953
BEVCOMM Cannon Valley Telecom - Rural Freeborn Fiber-to-the-Premises Project	2015	$393,750	$149,625	$244,125	fiber-to-the-X	44	No	$8,948.86	$519,620	$11,810
BEVCOMM Blue Earth Valley Telephone - Rural Winnebago Fiber-to-the-Premises Project	2015	$375,500	$142,690	$232,810	fiber-to-the-X	30	No	$12,516.67	$495,536	$16,518
Federated Telephone Cooperative - Swift County FTTP 2015	2015	$12,484,095	$4,950,000	$7,534,095	fiber-to-the-X	1,100	No	$11,349.18	$16,474,886	$14,977
Halstad Telephone Company - Gentilly Township	2015	$931,000	$424,460	$504,540	fiber-to-the-X	135	No	$6,896.30	$1,228,613	$9,101
Hiawatha Broadband Communications - Winona County Whitewater Area	2015	$773,320	$247,000	$526,000	fiber-to-the-X	418	No	$1,850.05	$1,020,527	$2,441
New Ulm Telecom Goodhue Fiber Project	2015	$244,073	$115,934	$128,139	middle- and last-mile	24	No	$10,169.71	$322,096	$13,421
Otter Tail Telcom Hwy 59/94 PRT to POM	2015	$345,699	$164,207	$182,437	middle-mile	21	No	$16,461.86	$456,209	$21,724
Runestone Telephone Association - Holmes City	2015	$428,060	$189,990	$238,070		108	No	$3,963.52	$564,898	$5,231
West Central Telephone Association Hwy 71 Wadena NORTH Expansion Project	2015	$2,119,018	$193,515	$1,925,503		208	No	$10,187.59	$2,796,404	$13,444
Mediacom, Pintar Road	2014	$275,697	$137,848	$137,849		122	No	$2,259.81	$363,504	$2,980
Otter Tail Telcom, Stuart Lake	2014	$210,729	$105,364	$105,365		47	No	$4,483.60	$277,844	$5,912
Otter Tail Telcom, 245th	2014	$217,105	$108,553	$108,552		39	No	$5,566.79	$286,251	$7,340
Palmer Wireless, Becker Industrial Park	2014	$303,870	$151,934	$151,936		33	No	$9,208.18	$400,650	$12,141
Arvig (Tekstar) Lake Osakis, Sauk Lake & Smith Lake	2020	$1,389,880	$486,458	$903,422	middle- and last-mile	269	Yes	$5,166.84	$1,661,671	$6,177
Garden Valley Technologies Thief River Falls & Euclid	2020	$3,281,444	$1,640,722	$1,640,722	middle- and last-mile	126	Yes	$26,043.21	$3,923,130	$31,136
Gardonville Coop. Douglas Co. Hazel Hill Rd	2020	$1,732,322	$692,929	$1,039,393	middle- and last-mile	292	Yes	$5,932.61	$2,071,078	$7,093
Lismore Cooperative Telephone Company Iona	2020	$732,381	$219,714	$512,667	middle- and last-mile	100	Yes	$7,323.81	$875,598	$8,756
Minnesota Valley Tel. Co. (MVTC) Rural Franklin	2020	$648,000	$226,800	$421,200	middle- and last-mile	45	Yes	$14,400.00	$774,716	$17,216

Woodstock Tel. Co. Lynd	2020	$1,085,154	$325,548	$759,606	middle- and last-mile	209	Yes	$5,192.12	$1,297,356	$6,207
Charter Communications Rosemount North	2019	$998,144	$499,072	$499,072	middle- and last-mile	265	Yes	$3,766.58	$1,223,006	$4,615
Loretel Systems dba Arvig Cormorant Area	2019	$1,230,800	$430,780	$800,020	middle- and last-mile	481	Yes	$2,558.84	$1,508,075	$3,135
Melrose Tel. Co. dba Arvig Eden Valley & Melrose	2019	$1,125,400	$393,890	$731,510	middle- and last-mile	420	Yes	$2,679.52	$1,378,930	$3,283
Minnesota Valley Tel. Co. Rural Lucan Project	2019	$1,412,000	$635,400	$776,600	middle- and last-mile	125	Yes	$11,296.00	$1,730,095	$13,841
Arvig - Pelican Rapids rural non-ACAM	2017	$1,624,725	$633,642	$991,083	middle- and last-mile	606	Yes	$2,681.06	$2,063,482	$3,405
Woodstock - Pipestone County Wireless	2017	$727,703	$363,851	$363,852	middle-mile	676	Yes	$1,076.48	$924,219	$1,367
Benton Cooperative Telephone Company Bock	2016	$1,760,897	$510,000	$1,250,897	middle-mile	375	Yes	$4,695.73	$2,292,336	$6,113
CenturyLink Thief River Middle Mile	2016	$2,648,800	$1,324,400	$1,324,400	middle-mile	609	Yes	$4,349.43	$3,448,208	$5,662
Garden Valley Telephone Company Rural Thief River Falls East	2016	$4,222,990	$2,027,035	$2,195,955	middle- and last-mile	355	Yes	$11,895.75	$5,497,488	$15,486
Halstad Telephone Company Kertsonville Area	2016	$593,330	$296,665	$296,665	middle- and last-mile	51	Yes	$11,633.92	$772,397	$15,145
Lismore Cooperative Telephone Company Nobles County Broadband	2016	$5,889,156	$2,944,578	$2,944,578	middle- and last-mile	1,535	Yes	$3,836.58	$7,666,503	$4,994
Midco Canby to Marshall Middle Mile and Last Mile in Porter-Taunton-Minneota-Ghent	2016	$1,599,000	$623,000	$976,000	middle- and last-mile	1,069	Yes	$1,495.79	$2,081,578	$1,947
MVTV Wireless Middle Mile	2015	$1,850,610	$808,080	$1,042,530	middle-mile	*6000	Yes	#VALUE!	$2,442,194	#VALUE!
Federated Tel - W Kandiyohi	2024	$16,404,000	$8,202,000	$8,202,000	fiber-to-the-X	1,289	Depends	$12,726	$16,404,000	$12,726
Paul Bunyan Rural Telephone Coop – Paul Bunyan Communications Rural GigaZone Fiber	2023	$7,526,055	$5,569,281	$1,956,774	last-mile	646	Depends	$11,650.24	$7,758,685	$12,010
East Central Energy - Isanti North	2022	$16,850,584	$5,000,000	$11,850,584	last-mile	2,486	Depends	$6,778.19	$18,484,922	$7,436
AMTA - Stearns Phase 2	2024	$20,410,244	$7,123,175	$13,287,069		1,395	Unknown	$14,631	$20,410,244	$14,631
Arvig - Mower Cty	2024	$4,172,549	$3,129,412	$1,043,137		225	Unknown	$18,545	$4,172,549	$18,545
Arvig - Stearns Cty	2024	$1,214,049	$910,537	$303,512		55	Unknown	$22,074	$1,214,049	$22,074
Arvig - Naytahwaush Area	2024	$652,222	$326,111	$326,111		137	Unknown	$4,761	$652,222	$4,761
Bevcomm (Easton) Rural MN Lake	2024	$1,452,794	$435,838	$1,016,956		101	Unknown	$14,384	$1,452,794	$14,384
Bevcomm - Waseca-Cty Fiber	2024	$5,847,259	$4,385,444	$1,461,815		492	Unknown	$11,885	$5,847,259	$11,885
ECE Mille Lacs South	2024	$13,204,890	$4,885,809	$8,319,081		1,479	Unknown	$8,928	$13,204,890	$8,928
Gardonville - Douglas Cty	2024	$447,043	$223,521	$223,522		52	Unknown	$8,597	$447,043	$8,597
Nuvera White Rock	2024	$2,512,572	$1,884,429	$628,143		136	Unknown	$18,475	$2,512,572	$18,475
Sytek Swanville North Moose Lake	2024	$4,919,956	$3,689,967	$1,229,989		301	Unknown	$16,345	$4,919,956	$16,345
Wiktel - NW MN Broadband RD9	2024	$4,088,840	$3,066,630	$1,022,210		263	Unknown	$15,547	$4,088,840	$15,547
Woodstock Comm - Hatfield FTTH	2024	$2,150,576	$1,612,932	$537,644		116	Unknown	$18,539	$2,150,576	$18,539
Advantenon - Rural Grant, Stevens and Wilkin Counties, MN	2017	$659,488	$316,554	$342,934	fixed wireless	668	Unknown	$987.26	$837,583	$1,254
Wikstrom - Wiktel NW MN Broadband	2017	$2,906,189	$1,307,785	$1,598,404		331	Unknown	$8,780.03	$3,691,005	$11,151
Consolidated Telecommunications Company - Fort Ripley Phase II	2015	$1,599,000	$759,525	$759,525		272	Unknown	$5,878.68	$2,110,152	$7,758
Midcontinent Little Fork Middle Mile	2015	$584,100	$277,448	$306,652		258	Unknown	$2,263.95	$770,819	$2,988
Otter Tail Telcom Fergus Falls 864 - Hwy 59	2015	$621,962	$295,432	$326,530		63	Unknown	$9,872.41	$820,785	$13,028

Paul Bunyan Central Itasca County Fiber	2015	$5,519,895	$1,980,000	$3,539,895		1,251	Unknown	$4,412.39	$7,284,440	$5,823
Winona County Hiawatha Broadband Communications - Cedar Valley Area	2015	$973,000	$314,450	$658,550		376	Unknown	$2,587.77	$1,284,039	$3,415
Arvig (Mainstreet Communications LLC), Sauk Lake area	2014	$1,073,404	$536,702	$536,702		217	Unknown	$4,946.56	$1,415,272	$6,522
CenturyLink Foley, Benton County–Balkan Township	2014	$995,977	$382,883	$613,094		172	Unknown	$5,790.56	$1,313,186	$7,635
Consolidated Telephone Cooperative, Region 5 Virtual Highway Project	2014	$4,220,000	$2,000,000	$2,220,000		337	Unknown	$12,522.26	$5,564,028	$16,510
Federated Telephone Cooperative, Big Stone County	2014	$7,920,000	$3,920,000	$4,000,000		1,072	Unknown	$7,388.06	$10,442,441	$9,741
Halstad Telephone Co., Halstad Tract MN 11902500 FTTH	2014	$3,300,000	$1,650,000	$1,650,000		249	Unknown	$13,253.01	$4,351,017	$17,474
Interstate Telecommunications Cooperative (ITC), Hendricks Town FTTP	2014	$1,870,000	$700,000	$1,170,000		442	Unknown	$4,230.77	$2,465,576	$5,578
Northeast Service Cooperative – Frontier Communications Corp., Border to Border Phase I	2014	$4,350,000	$1,960,000	$2,390,000		877	Unknown	$4,960.09	$5,735,432	$6,540
Otter Tail Telcom, Swan Lake West	2014	$877,874	$438,937	$438,937		110	Unknown	$7,980.67	$1,157,468	$10,522
Rock County Broadband Alliance (RCBA), FTTP Project	2014	$12,850,000	$5,000,000	$7,850,000		1,350	Unknown	$9,518.52	$16,942,597	$12,550
R-S Fiber Cooperative, FTTH Project	2014	$3,320,000	$1,000,000	$2,320,000		598	Unknown	$5,551.84	$4,377,387	$7,320
Sjoberg Cable, Broadband Grant Proposal	2014	$523,150	$261,575	$261,575		156	Unknown	$3,353.53	$689,768	$4,422
Wikstrom Telephone, Kittson, Marshall, Roseau Broadband Extension	2014	$943,827	$425,000	$518,827		116	Unknown	$8,136.44	$1,244,426	$10,728

Source(s): Author's analysis of Minnesota Department of Employment and Economic Development awards and project descriptions from 2014 through 2024 for the Border-to-Border Grant Program and the Lower Population Density Grant Program (DEED, 2024a). Inflation adjustments are made using the Consumer Price Index for All Urban Consumers (CPI-U) with January 2024 as the base month and comparing to each January in preceding years (BLS, 2024b).

EXHIBIT A: RESPONSIVE DATA FROM DEED ON MAY 3, 2024 REGARDING CERTIFICATION THAT ALL LABORERS AND MECHANICS ON PROJECTS RECEIVING $5 MILLION OR MORE IN FEDERAL CPF FUNDING WOULD BE PAID PREVAILING WAGES

EMPLOYMENT AND ECONOMIC DEVELOPMENT
OFFICE OF BROADBAND DEVELOPMENT

Federal Capital Project Funds
Labor Reporting Compliance Documentation

Grantee: Federated Rural Electric Association

Grant Number: BCPF-23-0002-FY23

Project Name: Jackson County FTTP

The following reporting requirements apply to Grantees and Grantee's contractors, subgrantees and subrecipients for CPF-funded projects receiving $5 million or more in CPF funding based on expected total cost. For compliance documentation for the above-named project, please answer the following questions and provide applicable documentation.

1. **Labor Reporting**
   Do you intend to certify that all laborers and mechanics employed by contractors and subcontractors in the performance of such project are paid wages at rates not less than those prevailing, as determined by the U.S. Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code (commonly known as the "Davis-Bacon Act"), for the corresponding classes of laborers and mechanics employed on projects of a character similar to the contract work in the civil subdivision of the State (or the District of Columbia) in which the work is to be performed, or by the appropriate State entity pursuant to a corollary State prevailing-wage-in-construction law (commonly known as "baby Davis-Bacon Acts")?
   a. ____Yes - I certify that the above reference project complies with Davis-Bacon Act and will maintain and provide documentation with each reimbursement request submitted.

      By:_____

      Title:_____

      Date: _____

   b. _X___ No - complete the following information:
      i. ____6-7___ Number of Direct Employees (Number of employees on the project hired directly)
      i. ___25____ Number of Contractor Employees (Number of employees of contractors and sub-contractors working on the project) Unknown at this time for sure. We are anticipating a competitive bid process that will reveal what the contractor is capable of in the given timeline. Currently we are looking at around 125 days of construction to achieve 2 miles per day of progress. This would likely take 2 plow crews and 3 bore and drop crews at 3 persons each. Add 4 for splicing and 6 for engineering for an estimated number of 25 contractor employees.
      ii.

EMPLOYMENT AND ECONOMIC DEVELOPMENT
OFFICE OF BROADBAND DEVELOPMENT

iii. _____ Number of 3rd Party Employees (Number of employees on the project hired through a third party) Difficult to determine at this time however we are exploring options for one general contractor or several contracts directly. The estimate of 25 may end up being 15 or so. We will update upon completion of the bid process and once a formal construction plan and roster are in place.

iv.

v. Any Wages Less Than Prevailing? _____Yes __X__No Unknown for sure however based on current market rates in the area we believe them to be competitive.

vi.

vii. Provide listing of wages and benefits of workers on the project by classification. We will provide wages and benefits for Federated staff. Others will need to be submitted based upon award to the appropriate contractors.

viii.

2. Certification of Labor Agreements

Do you intend to certify that 'the indicated project' includes a project labor agreement, meaning a pre-hire collective bargaining agreement consistent with section 8(f) of the National Labor Relations Act (29 U.S.C. 158(f))?

a. _____Yes - I certify that the above reference project includes a labor agreement.

By:_____

Title:_____

Date: _____

b. __X___No, answer the following labor questions:

i. Assurance of Adequate Labor - How will the recipient ensure the project has ready access to a sufficient supply of appropriately skilled and unskilled labor to ensure high-quality construction throughout the life of the project, including a description of any required professional certifications and/or in-house training, registered apprenticeships or labor-management partnership training programs, and partnerships like unions, community colleges, or community-based groups? We will be selecting contractors during the bid process that have a track record of supplying skilled labor in the appropriate fields. Federated is accustomed to successfully attracting contractors with the skills needed for all aspects of the projects we undertake.

ii. Minimizing Risks - How will the recipient minimize risks of labor disputes and disruptions that would jeopardize timeliness and cost-effectiveness of the project? With a solid contract administration plan and frequent

communications to address issues as they arise. Pre construction planning with a collaborative approach to resolution as needed.

iii. How will the recipient provide a safe and healthy workplace that avoids delays and costs associated with workplace illnesses, injuries, and fatalities, including descriptions of safety training, certification, and/or licensure requirements for all relevant workers (e.g., OSHA 10, OSHA 30)? With the project specifications and the contract, we will identify any and all hazards that may be encountered and require that the contractors conduct weekly safety meetings and Federated staff will participate to ensure compliance.

iv. Adequate Wages -Will workers on the project receive wages and benefits that will secure an appropriately skilled workforce in the context of the local or regional labor market? Yes

c. Does the project have a completed project labor agreement? _____Yes ___X__No

3. **Prioritize Local Hires**
   Does the project prioritize local hires? __X___Yes _____No
4. **Community Benefit Agreement**
   Does the project have a Community Benefit Agreement? _____Yes __X___No

   If Yes, please provide description of Community Benefit Agreement:

Form completed by:

By: Scott Reimer

Title: General Manager - CEO

Date: October 25, 2023