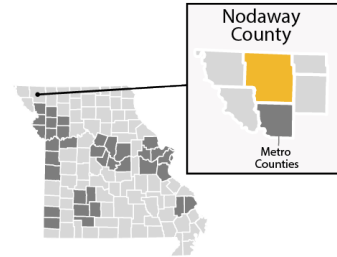


Nodaway County, Missouri

Broadband Expansion Economic Benefit Analysis

Nodaway County is adjacent to the St. Joseph metropolitan statistical area in northwest Missouri. Nodaway County’s 65.4% rate of households with fixed broadband service (fiber, cable or DSL) is relatively high compared to other Missouri counties’ rates. The county’s 2019 population totaled 22,092, ranking it 51st in Missouri for population size.



Two 10-year expansion scenarios estimate the benefits to Nodaway County if it increased household broadband adoption by 7.5 (minimum) and 15 (maximum) percentage points. Exhibit 1 shows the number and percent of households assumed to have fixed broadband by year ten. Exhibit 2 shows the total benefit model inputs for each scenario.

Exhibit 1. 10-Year Fixed Broadband Household Adoption Scenarios

Characteristic	Base Value	Minimum Scenario	Maximum Scenario
Households without Fixed Broadband Service	2,907	2,277	1,648
Households with Fixed Broadband Service	5,488	6,118	6,747
Percent of Households with Fixed Broadband Service	65.4%	72.9%	80.4%

Sources: Demographics from U.S. Census Bureau, ACS, 2019 5-Year Summary Data.

Exhibit 2. 10-Year Economic Benefit Direct Model Inputs

Basic Assumptions	Minimum Scenario	Maximum Scenario
Percent of Households that Adopted Broadband by Year 10	72.9%	80.4%
Broadband Installation Investment to Serve Remaining Households	\$11,101,678	\$11,101,678
Telemedicine Benefits		
Patient Savings from Reduced Use of Emergency Departments	\$2,246,459	\$4,492,918
Patient Savings from Initial Health Consultation via Internet	\$1,077,769	\$2,155,537
Patient Transportation Savings due to Telemedicine	\$29,919	\$59,838
Missed Work Income Savings to Patient	\$26,209	\$52,417
Education Productivity Benefits		
K12 Teacher Productivity Savings	\$1,317,445	\$1,317,445
Income and Employment Benefits		
Household Income Increases	\$658,381	\$1,316,762
Farm Income Changes	\$7,064,158	\$14,128,316
Annual Average Direct Employment Increases by Year 10	102	204

Notes: See Methodology section in full Broadband Impact report for details. Dollar values represent 10-year benefit in nominal figures.

Nodaway County 10-Year Broadband Expansion Benefit Results

Benefits arise from both fixed broadband infrastructure construction and household broadband adoption. In year two, the construction investments and expanded household adoption benefits begin. The temporary construction activity concludes in year six. In each scenario, new jobs, labor income and GDP include the total impact of direct inputs (from Exhibit 2) and indirect purchases, such as new local spending in the county spurred by those inputs.

Minimum Scenario: 7.5 Percentage Point Gain in Fixed Broadband Adoption over 10 Years

In the minimum scenario, the annual average increase of 143 jobs is realized in year 10. On average, annual employment is 0.8% higher than 2019 county employment. This scenario adds an annual average of 0.9% and 0.8%, respectively, to county labor income and GDP relative to 2019.

Exhibit 3. Minimum Scenario – Total Economic Benefits by Year

Characteristic	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total*	Avg. Annual Change**
New Annual Average Employment	N/A	41	57	75	91	106	97	113	128	143	143	0.8%
New Labor Income (in Millions)	N/A	\$1.9	\$2.6	\$3.3	\$4.0	\$4.7	\$4.2	\$4.9	\$5.6	\$6.2	\$37.3	0.9%
New GDP (in Millions)	N/A	\$2.6	\$3.7	\$4.9	\$5.9	\$6.9	\$6.5	\$7.5	\$8.4	\$9.4	\$55.7	0.8%

Notes: All income and GDP figures in 2021 dollars. *Total employment is for year 10 as jobs are not cumulative, and other figures are cumulative totals. **Average annual change compared to 2019 county employment, income and GDP totals.

Maximum Scenario: 15 Percentage Point Gain in Fixed Broadband Adoption over 10 Years

In the maximum scenario, Nodaway County sees the annual average increase of 287 jobs in year 10. On average, annual employment is 1.5% higher than 2019 county employment. This scenario adds an annual average of 1.7% and 1.4%, respectively, to labor income and GDP relative to 2019.

Exhibit 4. Maximum Scenario – Total Economic Benefits by Year

Characteristic	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total*	Avg. Annual Change**
New Annual Average Employment	N/A	57	90	126	158	188	194	225	256	287	287	1.5%
New Labor Income (in Millions)	N/A	\$2.6	\$4.0	\$5.5	\$6.9	\$8.2	\$8.4	\$9.8	\$11.1	\$12.4	\$68.8	1.7%
New GDP (in Millions)	N/A	\$3.6	\$5.8	\$8.1	\$10.2	\$12.2	\$12.7	\$14.7	\$16.7	\$18.7	\$102.8	1.4%

Notes: All income and GDP figures in 2021 dollars. *Total employment is for year 10 as jobs are not cumulative, and other figures are cumulative totals. **Average annual change compared to 2019 county employment, income and GDP totals.

This summary is part of the [Economic Benefits of Expanding Broadband in Select Missouri Counties](#) study published by MU Exceed, June 2021. [Additional resources](#) available from MU Exceed.