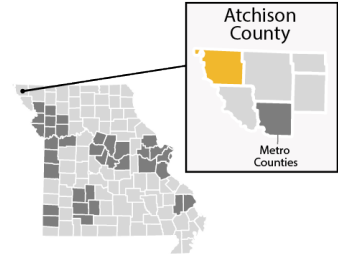


# Atchison County, Missouri

## Broadband Expansion Economic Benefit Analysis

Atchison County borders Nebraska and Iowa in the northwest corner of Missouri. It has a relatively higher percent of households with fixed broadband service (62.8%) compared with the Missouri county median value (49.7%). Atchison County’s 2019 population totaled 5,143, ranking it 108<sup>th</sup> in Missouri for population size.



Two 10-year expansion scenarios estimate the benefits to Atchison County if it increased household broadband adoption by 10 (minimum) and 20 (maximum) percentage points. Exhibit A1 shows the number and percent of households assumed to have fixed broadband by year ten. Exhibit A2 shows the total benefit model inputs for each scenario.

### Exhibit A1. 10-Year Fixed Broadband Household Adoption Scenarios

Characteristic	Base Value	Minimum Scenario	Maximum Scenario
Households without Fixed Broadband Service	953	697	441
Households with Fixed Broadband Service	1,609	1,865	2,121
Percent of Households with Fixed Broadband Service	62.8%	72.8%	82.8%

Sources: Demographics from U.S. Census Bureau, ACS, 2019 5-Year summary data.

### Exhibit A2. 10-Year Economic Benefit Direct Model Inputs

Basic Assumptions	Minimum Scenario	Maximum Scenario
Percent of Households that Adopted Broadband by Year 10	72.8%	82.8%
Broadband Installation Investment to Serve Remaining Households	\$24,406,615	\$24,406,615
<b>Telemedicine Benefits</b>		
Patient Savings from Reduced Use of Emergency Departments	\$878,365	\$1,756,731
Patient Savings from Initial Health Consultation via Internet	\$482,512	\$965,023
Patient Transportation Savings due to Telemedicine	\$11,698	\$23,397
Missed Work Income Savings to Patient	\$10,708	\$21,417
<b>Education Productivity Benefits</b>		
K12 Teacher Productivity Savings	\$552,736	\$552,736
<b>Income and Employment Benefits</b>		
Household Income Increases	\$359,356	\$1,439,650
Farm Income Changes	\$11,924,508	\$23,849,016
Annual Average Direct Employment Increases by Year 10	23	46

Notes: Dollar values represent 10-year benefit in nominal figures.

## Atchison 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 household adoption expansion benefits begin. The temporary construction activity, and associated jobs, concludes in year five. In each scenario, new jobs, labor income and GDP include the total impact of direct inputs (from Exhibit A2) and indirect purchases, such as new local spending in the county spurred by those inputs.

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

In the minimum scenario, the annual average increase of 35 jobs is realized in year 10. On average, annual employment is 2.2% higher than 2019 county employment. Annually, this scenario adds 1.8% and 1.4%, respectively, to county labor income and GDP on average compared with 2019 levels.

### Exhibit A3. 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	93	98	103	107	22	26	29	32	35	35	2.2%
New Labor Income (in Millions)	N/A	\$1.9	\$2.1	\$2.3	\$2.5	\$0.9	\$1.1	\$1.2	\$1.4	\$1.5	\$15.1	1.8%
New GDP (in Millions)	N/A	\$2.8	\$3.2	\$3.6	\$3.8	\$1.5	\$1.8	\$2.0	\$2.2	\$2.4	\$23.2	1.4%

Notes: All income and GDP figures in 2022 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: 20 Percentage Point Gain in Fixed Broadband Adoption over 10 Years

In the maximum scenario, the annual average increase of 72 jobs is seen in year 10. On average, annual employment is 3.0% higher than 2019 county employment. This scenario adds an annual average of 2.9% and 2.1%, respectively, to labor income and GDP compared with 2019 levels.

### Exhibit A4. 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	98	108	119	126	44	51	58	65	72	72	3.0%
New Labor Income (in Millions)	N/A	\$2.1	\$2.5	\$3.0	\$3.3	\$1.9	\$2.2	\$2.5	\$2.8	\$3.1	\$23.4	2.9%
New GDP (in Millions)	N/A	\$3.2	\$3.9	\$4.6	\$5.0	\$3.0	\$3.5	\$3.9	\$4.3	\$4.8	\$36.1	2.1%

Notes: All income and GDP figures in 2022 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 study is being funded with Coronavirus Aid, Relief, and Economic Security Act (CARES) funds as part of a Northwest Missouri Regional Council of Governments grant provided by the U.S. Dept. of Commerce, Economic Development Administration.

MARCH 2022