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# CVPD REGIONAL DEMOGRAPHICS

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Appanoose, Lucas, Monroe, and Wayne Counties



**CVPD Regional Demographics & Information**  
**Counties of Appanoose, Lucas, Monroe and Wayne**  
**All communities within**

**Appanoose County, Iowa Barriers to Broadband**

**Topography**

The Chariton Valley Planning & Development Council of Governments is comprised of four rural counties in south central Iowa. Appanoose County is the most populated at approximately 26 people/square mile and 497 square miles. Lucas County has 431 square miles with 21 people/sq mile. Monroe County has about 434 sq/miles and 18 people/sq mile. The largest sized county is Wayne County with approximately 525 sq miles and is the least populated with about 12 people/sq mile.

The Chariton Valley Region is home to rolling hills and scenic forested areas in addition to state parks, Lake Rathbun, and Honey Creek Resort State Park. The hilly nature of the area and highly erodible soils can make row crop farming a challenge but more desirable for raising livestock. The terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain.

The soils that are found within the region are well suited to agricultural uses, including crop production and pasture, but are susceptible to erosion. The highest elevation in the ADLM region is about 1,070 feet above sea level in Appanoose County and the lowest elevation is about 504 feet above sea level and occurs in Lucas County. Davis County has the least variation in elevation. Appanoose, Lucas, and Monroe Counties are comprised of gently rolling hills and average elevation variation of approximately 550 feet.

The hills and valleys pose a challenge to wireless broadband providers that broadcast a signal to a specific receiver with limited obstacles.

**Rural**

The Chariton Valley Planning & Development Council of Governments is comprised of four rural counties in south central Iowa. Appanoose County is the most populated at approximately 26 people/square mile and 497 square miles.

Appanoose County is in the southern tier of counties in Iowa adjoining the Missouri border. There are twenty-four unincorporated communities in Appanoose County and eleven incorporated cities.

Appanoose County is in the south-central sector of Iowa at coordinates 40° 44' 17" N, 92° 52' 2" W and bordering the Missouri counties of Putnam and Schuyler. The Iowa counties surrounding Appanoose are as follows, Davis, Wapello, Monroe, Lucas, and Wayne. Appanoose County encompasses an area of 516 square miles with a population density of 25 people per square mile according to the 2020 ACS.

Rathbun Lake is located primarily in Appanoose County covering a total area of 12,040 acres in four counties. Rathbun Lake is the second largest water body in Iowa. Fourteen rivers and creeks cross through Appanoose County, the most significant of which is the Chariton River which created Rathbun Lake once dammed in the 1970's.

Appanoose County's terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain. Appanoose County is in 5 different watersheds, all within the Mississippi Basin. The Upper Chariton watershed encompasses most of the county and extends into Missouri.

Broadband USA Community Reports illustrate the scattered service available to residents in the rural Appanoose County. The availability of providers greatly varies by individual census tracts to another across 497 square miles target service area. This source also indicates that approximately 70% of the 5,353 households in the county receive broadband service of any type. It is estimated that 26% of households have no internet access. There are ten different providers but, in some situations, a neighboring tract can be identified as having 2-3 providers, but the adjacent tract will have zero service providers. Most qualifying households needing service are located in the western half of the county. This includes the communities of Cincinnati, Numa, Mystic, Rathbun, and Iconium. This encompasses approximately 700 ITQ eligible locations.

About 42% of the workers in Appanoose County work within the county of residence, meaning that they do not commute to other counties. Most workers commute by private vehicle alone, unlike US trends, while public transport usage is very low reflecting the absence of such options in this rural region. The 2020 ACS indicates the average commute time for workers in the county is approximately 22 minutes.

Regional commuting patterns represent possible sources of sales surplus or leakage for local retail entities. Worker inflow from neighboring communities helps to expand the potential customer base. When people commute elsewhere for work, there is a likelihood that they will shop locally in that employment base. US Census "On the Map" estimated in 2019 that approximately 4397 working residents reside in Appanoose County but commute to work outside the county of their residence. This is in comparison to about one-third of residents that live and work within the same county. An estimated 1,566 people reside outside of county but travel into a county for employment. The county seat cities are generally the regional hub for the rural residents. Centerville is the largest community and County seat in Appanoose County. US Census On the Map estimated in 2019 that 1216 residents reside in Centerville but commute to work outside the Centerville city limits. This is in addition to the 852 Centerville residents that live and work within the city. An estimated 1,895 people reside outside of Centerville but come here for employment. This surplus also helps bolster the economy.

Prime farmland, as defined by the U.S. Department of Agriculture, "is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during growing season or is protected from flooding. Slope ranges mainly from 0 to 6%."

<b>Regional Agriculture Contributions</b>	
<i>Prime Farmland &amp; Farmland of Statewide Importance</i>	
<i>County</i>	<i>Number of Acres</i>
<i>Appanoose County</i>	206,106
<i>Lucas County</i>	154,391
<i>Monroe County</i>	141,995
<i>Wayne County</i>	205,991
<i>Regional Total</i>	708,483
<i>www.nrcs.usda.gov</i>	

Prime farmland is of major importance to accomplish meeting the Nation's short term and long-term needs for food and fiber. The U.S. Department of Agriculture acknowledges that there is a limited supply of high-quality farmland, and it is crucial for government and individuals to protect it.

Iowa's Department of Natural Resources Conservation Service has developed mapping and general locations that the rich soil composition to establish prime farmland. The NRCS estimates 708,483 acres of prime farmland in the CVPD region.

Iowa's agriculture plays a vital role in the nation's economy. The 2017 US Agriculture Census indicates that Iowa leads the United States in corn bushel production and is second in the country for soybean production. The state produces a

total of 2.5 billion bushels of corn and 18 million (.7%) come from the CVPD region. The region's total corn contribution is among the lowest county percentages across the State of Iowa.

<b>Regional Agricultural Economy Census</b>						
<b>2017 Ag Census</b>						
	# of Farms	Total Acres of Farmland	Market Value of land & Buildings per farm	Market Value of Crops	Market Value of Livestock & Poultry	Net Cash farm annual income avg/farm
Appanoose County	675	179,274	\$1,079,752	\$26.4M	\$18M	\$16,581
Lucas County	567	175,437	\$1,055,881	\$22.7M	\$27.4M	\$14,901
Monroe County	618	193,082	\$1,314,106	\$29.6M	\$32M	\$30,056
Wayne County	743	285,213	\$1,632,207	\$53.1M	\$38.6M	\$27,741
Regional Totals	2,603	833,006	--	\$131.8M	\$116M	--
State of Iowa	86,104	30.6M	\$2,506,812	\$13.8B	\$15.1B	\$86,878
Regional Total Value/Average	651	208,252	\$1,270,487	\$32M	\$29M	\$22,320
Contribution to State Totals	3%	2.7%	--	.9%	.8%	--
www.nass.usda.gov						

The US Census Bureau shows the top commodities exported from Iowa include:

1. Corn – approximately \$1,200M/yr.
2. Tractors – approx. \$600M/yr.
3. Fresh & Chilled Pork – approx. \$450M/yr.
4. Herbicide – approx. \$350M/yr.
5. Soybean Oilcake – approx. \$325M/yr.
6. Brewing & Distilling – approx. \$320M/yr.
7. Frozen Pork – approx. \$310M/yr.

Many products are shipped to Canada, Mexico, Japan, and China. Any global economic disruptions or embargoes could directly impact the stability of the agricultural economy in Iowa.

When analyzing the sources of farm income across the CVPD region, the greatest sources of income are from crops and/or livestock. The exhibit above shows it is evident that farmers in Appanoose and Wayne Counties rely more on the market value of crops in their annual budgets. Whereas farmers in Lucas and Monroe Counties have a greater source of income on the market values of livestock and poultry.

Farmers in this region that raise livestock primarily have cattle/calves and hogs/pigs. The following table shows the livestock population per county and how it contributes to the overall state totals.

<b>2017 Livestock Inventory</b>							
<b>Chariton Valley Planning &amp; Development COG Region</b>							
	Appanoose County	Lucas County	Monroe County	Wayne County	Regional Livestock Totals	State of Iowa Livestock Totals	Regional Contribution to State Inventory
<u>Livestock Type</u>							
Hogs & Pigs	778	44,499	29,401	32,577	67,205	22.7M	.3%
Cattle & Calves 2017 Ag Census	29,419	32,543	32,584	30,664	105,848	4M	2.6%

The CVPD region is a productive agricultural area producing both crops and livestock. The region contains 2603 farms that encompass 833,006 acres of land (2017 Ag Census). Approximately 3,350 acres produce forage (hay, silage, etc.) and the same approximate number of acres are dedicated to yielding 130,571 bushels corn. The farmland also provides nutrients for 105,848 head of cattle/calves and 252,655 hogs. This agricultural region could be at a large economical risk

of animal, plant or crop disease due to the severity of potential agricultural losses.

### **Demographics**

As of the 2020 ACS, the total population of Appanoose County was 12,257 with a total of 4,920 households. According to Iowa State University's Regional Capacity Analysis Program (ReCAP), Appanoose County has faced nearly a century of decline starting around 1910. The decline has been evening out in recent decades with the smallest amount of population loss between 1990 and 2000.

Appanoose County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2020 ACS, the census estimated that 3.6% people have a primary language that is other than English and would be considered linguistically isolated.

There are approximately 686 (5.6% of the total population) children under the age of five years. The population over the age of 65 years accounts for 23.6% (2893 people) in Appanoose County.

The remaining "at risk" category would be individuals that have a disability. It is estimated that approximately 2083 (17%) residents of Appanoose County have a confirmed disability. The combination of all these populations qualifies nearly 50% of the total population deemed "at risk".

In the 2020 ACS, median household income for Appanoose County was up to \$39,693 from \$34,689 in the 2010 Census. In 2020, 17% of residents in the population of Appanoose County were determined to be under the Federal Poverty Guidelines.

<b>Appanoose County</b>	<b>2020 American Census Survey – 5yr estimate</b>
Population	12,317
Median Household Income	\$ 39,693
Persons in poverty, percent	14.6%
Education level of HS graduate or higher (25yrs+)	90.5%
Education level with bachelor's degree education or higher	18.4%
Person's w/o Health Insurance under 65 ages	6.1%
Median Housing Value	\$85,000
Total Housing Units	6,313
Number of Employer Establishments	283
Veterans	891
Percent of households with Broadband	75.1%

#### **Appanoose County (12,317)**

<b>Centerville</b>	5,412
<b>Cincinnati</b>	290
<b>Exline</b>	160
<b>Moravia</b>	637
<b>Moulton</b>	607
<b>Mystic</b>	322
<b>Numa</b>	68
<b>Plano</b>	59
<b>Rathbun</b>	43
<b>Udell</b>	28
<b>Unionville</b>	75

Source: American Census Survey – 2020

The unemployment rate is defined as the percentage of the workforce that is unemployed but actively seeking work. The average unemployment rate in the county has remained above the State of Iowa levels but it mirrors the overall trend. The Appanoose County unemployment rate for January 2023 was 3.40% compared to the State of Iowa rate of 3.0%. While discussing the human capital (skills, knowledge, and experience of people) the residents frequently acknowledged that prevalent drug use, poverty and emotional challenges complicate addressing the local unemployment concerns.

The education levels of residents directly correlate to the household incomes in the region and influence the poverty rate. The education levels of persons 25 years and older are below the State of Iowa's averages. The 2021 ACS shows that 91% of the county's population over the age of 25 years have attained a high school diploma or equivalency and the State of Iowa's average as 93.3%.

Educational attainment among adults aged 25 and over is lagging in the region. The most recent data supporting this comes from the 2021 ACS showing that 9.1% of Appanoose County residents do not have a high school diploma or equivalent. In Iowa the percentage of adults over age 25 lacking a high school diploma or equivalent is 6.6% (source: 2021 American Community Survey Five-Year Estimates, S1501 - Educational Attainment).

Appanoose County has elevated poverty rates that place among the poorest in the State of Iowa for many years. The poverty rate was Appanoose County with 17% of the population living with incomes below the Poverty Guidelines (also known as the Federal Poverty Threshold) as of the 2020 ACS versus the State of Iowa with approximately 11%. Most people in Appanoose County who are living under this poverty threshold are children under 18 years. This is of potential concern as poverty trends tend to be cyclical meaning that youth growing up in poverty tend to remain in poverty later in life leading their children to become accustomed to similar life-prospects.

### **Broadband Impacts**

#### **Work**

Precision agriculture uses information and technology to manage site-specific inputs to reduce cost and increase yields for maximum profitability, as well as for improved sustainability and environmental protection. Precision agriculture relies on GPS and geospatial data techniques for reducing inputs and increasing outputs, resulting in increased productivity to allow producers to feed more people using the same amount of land and export U.S. agriculture around the globe. Both high-accuracy and broadband connectivity are becoming integral components of daily agricultural operations in the US and globally. Without modern technologies necessary to deploy these critical technologies, agriculture producers will fall short of their potential.

High-quality mobile broadband connectivity in cropland is important to ensure ongoing US leadership in precision agriculture to feed the growing US and world population. The US population is projected to reach 417 million in 2060, an increase from 319 million today. Worldwide, farmers must double the food supply in the next 40 years to feed tomorrow's global citizens. Bringing broadband connectivity to cropland farmers it will provide the ability to make real-time data transfers and design prescriptions that minimize the number of necessary seed, fertilizer, and pesticides; reduce costs for fuel, labor, and water; and dynamically identify best practices. Some reports estimate decisions about irrigation, fertilization, and harvesting can increase corn farm profitability by \$5 to \$100 per acre.

There are 12 major employers are identified in Appanoose County by [www.iowasouth.com](http://www.iowasouth.com)

Centerville Community Schools	Hill Phoenix
Amcor	MercyOne
Hy-Vee	Rathbun Regional Water Assoc
Mercy Medical Center – Centerville	Wal-Mart
Wells Vehicle Electronics	Fareway Stores Inc
Lee Container	C & C Machining

Many businesses in Appanoose County, Iowa have moved to a full time or part-time “work from home” model. Doing so requires robust and reliable internet connections. Working from home provided residents with the freedom to work from anywhere. This allows individuals who have lived and worked in a metropolitan area the option to relocate to rural locations such as Appanoose County. This region would like to eliminate all barriers that would prevent families from moving to this area, especially reliable and affordable internet connectivity. The priority location selected for improved broadband service in this application is this region surrounding Rathbun Lake. The beautiful land surrounding the Army Corp territory provides an ideal location for recreational activities and would attract potential new residents if efficient broadband could be provided.

Consumers have also migrated to online shopping as well. Most big-name providers now provide online ordering as well as delivery. Many local small businesses and entrepreneurs came to rely on internet sales through the Covid pandemic and continue to offer such services. Efficient broadband is essential to the longevity of their ventures.

### **Education**

During the pandemic, the educational model shifted from in-person instruction to virtual learning. It became quickly apparent that Centerville Community School District, Moravia Community School District, and Moulton-Udell School District didn’t have sufficient infrastructure to support that model. Both educators and students in multiple school districts struggled then and continue to struggle now with adequate internet connectivity required for virtual education.

Additionally, higher education institutions and vocational programs are offered virtually by Indian Hills Community College and many other online institutions, but residents of Appanoose County have difficulty accessing these programs due to the lack of affordable and reliable internet options.

Below are profile summaries of the learning institutions in Appanoose County:

#### **Indian Hills Community College**

The only college campus located in the CVPD region is the Indian Hills Community College- Centerville Campus. It is located on the northwestern edge of the City of Centerville. Students at this campus may take Arts and Sciences courses, Advanced Technology course, Construction Technology, Sustainable Agriculture and Entrepreneurship, associate degree Nursing, Practical Nursing and EMT classes. The Centerville Campus is also home to the Indian Hills Baseball and Wrestling Teams. Student enrollment averages 250 students with over 50 living on campus. There are 20 full-time staff/teachers. IHCC plans to provide great opportunities through services and facilities for students in the 21<sup>st</sup> century.

The Centerville Campus of Indian Hills Community College is located on the northwestern edge of the city of Centerville, Iowa. Students at this campus may take Arts & Sciences courses, as well as enroll in several Advanced Technology programs. This includes Construction Technology, Sustainable Agriculture and Entrepreneurship, and Viticulture. The Health Sciences: Associate degree Nursing and Practical Nursing programs are also available. The Centerville Campus is also home to the Falcons (the Indian Hills baseball team), as well as the beautiful Pat Daugherty Field. Also, on campus, is the "The Barn," which is the Student Union. This is a congregate site for students and staff.

Indian Hills has on-campus housing is available on the Centerville campus. Rooms range from modern, apartment-style units to traditional double-occupancy.

2020-21 School Year

Student enrollment: 360

# Students on campus Housing: 69 (full)

School buildings: 21

# Of FT teachers: 15

# Of FT staff: 17

# Of PT staff: 15

Also located on the college campus is a preschool/daycare facility, Kid's World. Kids World Day Care and Preschool is a Licensed Center in Centerville. It has a maximum capacity of 82 children. The provider may also participate in the subsidized childcare program. Approximately 6 adults are employed at this facility.

### **Centerville Community School District**

Centerville Community School District is in the process of formally adopting a Future Ready Blueprint for the district. This document outlines the district mission as "All students will learn well, become lifelong learners, and contribute positively to society." The vision of the district is to establish "a highly collaborative learning culture to exist within our school district, which empowers and prepares all students to become responsible citizens". The school district leaders and staff will work to 1. Prepare each student to be Life-Career-College ready. 2. Actively engage parents and community partners in supporting student success. 3. Students and staff will learn and work in a safe, healthy and secure environment. 4. The district will provide all students with access to a technology-rich, state of the art learning center that ensures all students are productive, digital citizens. 5. The district will facilitate students' developing a deeper understanding and appreciation for Citizenship-Patriotism-and Democracy. 6. The district will be fiscally responsible by consistently monitoring and effectively managing revenue and expenditures for the purpose of providing a quality education for all students. Centerville Public Schools is in the county seat of Appanoose County, Centerville. The school district serving Centerville, Mystic, and Cincinnati is the K-12 Centerville Community School District. Its facilities include:

<i>Centerville Community School Statistics</i>	
<i>2021-2022 School Year</i>	<i>Centerville School District</i>
Student Enrollment	1361
Student/Teacher Ratio	14.60
Eligible for Free/Reduced Meals	56%
Minority Ethnicity (any other than white)	8%
Classroom Teachers (FTE)	93
<i>National Center for Education Statistics</i>	

The Centerville Community Schools operates 24 buses throughout the district to provide transportation to all enrolled families.

### **Moravia Community School District**

Moravia Community School's vision statement is "learning flourishes in an environment of disciplined inquiry that develops and integrates knowledge and skills. The best learning occurs in an environment that is rich in resources, provides opportunity for active, participatory learning, and stresses responsibility and initiative. Learning is achieved through a clear integration and alignment of the Iowa Core Curriculum's 21<sup>st</sup> Century Skills, the Essential Skills and Concepts, instruction, and assessment. All students can learn and are expected to achieve high standards."

### **District Facts:**

<i>Moravia Community School Statistics</i>	
<i>2021-22 School Year</i>	<i>Moravia School District</i>
Student Enrollment	378
Student/Teacher Ratio	11.96
Eligible for Free/Reduced Meals	43%
Minority Ethnicity (any other than white)	5%
Classroom Teachers (FTE)	32
<i>National Center for Education Statistics</i>	

### **Moulton-Udell School District**

Moulton-Udell School is a consolidated public school in Appanoose County. The facilities are in the City of Moulton. The school has established the mission statement as: “Our mission is to develop students into responsible, self-respecting, productive adult community members.”

District Beliefs:

- Students have a right and responsibility to learn.
- Parents have a right and responsibility to be actively involved with their child’s education.
- Education must always be student focused.
- Students deserve the highest quality education.
- Students share the responsibility for the transmission of cultures.
- Schools must adapt to a changing world.
- Education must function in an ethical environment.
- Students are distinct individuals with common as well as unique needs.
- Schools must be advocates for students in the community.
- Education must be a total community effort.
- Learning is a lifelong process, extending past high school.
- A nurturing school environment enhances the growth and development of the whole child.
- School must be inclusive and representative of the entire community.
- Education must prepare students to function successfully in an increasingly complex world.
- All students can learn, and we can teach them.
- District resources will be allocated to support and increase student achievement

### **District Facts**

<i><b>Moulton-Udell School District Statistics</b></i>	
<i><b>2021-2022 School Year</b></i>	<i><b>Moulton-Udell School District</b></i>
Student Enrollment	165
Student/Teacher Ratio	20.77
Eligible for Free/Reduced Meals	47%
Minority Ethnicity (any other than white)	4.7%
Classroom Teachers (FTE)	21
<i><b>National Center for Education Statistics</b></i>	

### **Healthcare**

Centerville is the hub of services for Appanoose County, Iowa. There are 3 medical offices and one local hospital. Mercy One provides service to the county and many residents from the surrounding counties. To access care, some residents will drive 20-30 minutes. The local doctors can consult and access referrals through efficient broadband service. This area has also become dependent on tele-health services. This type of care continues to expand to include general consultation, ongoing health management, mental health services, and emergency care. It is becoming increasingly more important for citizens of Appanoose County to have access to this critical care through effective and efficient broadband services.

### **Mercy One Medical Campus**

Centerville’s Mercy Medical Hospital is one of Iowa’s oldest continually operating and busiest rural hospitals. In the fiscal year 2020, the hospital saw over 1379 patient days and 272 total discharges. The total revenue was \$69,907,098 for

2020.

In 2016, the Centerville facility became part of the Mercy Health Network. CHI and Trinity Health signed a new agreement. The contract makes MHN a more integrated, effective, and competitive regional health system. It simplifies decision making and streamlines business processes. MHN is more clinically, operationally, and financially integrated. Hospitals, clinics and other ministries of MHN function as a true regional system. It responds to community needs and business opportunities quickly and efficiently. The units work together to enhance quality, control costs, and improve the health of populations.

Now a member of Trinity Health, based in Livonia, Michigan and one of the largest Catholic not-for-profit health systems, Mercy One provides award-winning health care to our communities. More than 2,000 physicians and advanced practice clinicians provide care in Mercy One facilities. With nearly 1,000 formally integrated, Mercy One is one of the largest multi-specialist physician group practices in Iowa. The physicians regularly consult with each other via secured internet service.

The Mercy One ACO (Accountable Care Organization) is recognized as one of the most successful in the nation. Health coaches and other fresh techniques help people better manage chronic diseases and improve their health.

#### **Overall, Health Status of Appanoose County Residents**

The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute have partnered to collect health data for counties across the nation for the past 10 years. The purpose of this data collection “is working to improve health outcomes for all and to close the health gaps between those with the most and least opportunities for good health. This work is rooted in a deep belief in health equity, the idea that everyone has a fair and just opportunity to be as healthy as possible, regardless of race, ethnicity, gender, income, location, or any other factor. Increasing opportunities for everyone can reduce gaps in health. For example, providing better access to high-quality education and enrichment opportunities boosts workforce skills that are key to landing a good job and for upward economic mobility.” [Appanoose, Iowa | County Health Rankings & Roadmaps](#). The data from the past ten years indicates that Appanoose County had fallen to the lowest ranking in the state in 2019 but risen slightly to be 93 out of 99 in 2022. Some of the negative health behaviors impacting the study include adult smoking, adult obesity, physical inactivity, alcohol-impaired driving deaths and teen births. The study also indicates a lack of access to exercise opportunities. The county shows a greater percentage of residents participating or affected than the average for the State of Iowa.

Next-generation EMT services will use mobile communications technology, aimed at providing a significant time advantage, expediting critical treatment, and improving patient outcomes. Vital signs of patients being transported by ambulance can be measured and transmitted to the hospital instantly via a wireless network, and videos taken by digital cameras installed in the ambulance can be sent to the hospital in real-time.

Medical professionals can also evaluate patient health through remote monitoring. Wearable gadgets can report vital signs to a health center that can warn patients of potential problems. This can be especially beneficial to elderly patients or people with mobility challenges. These services are internet service based and rely on efficient service.

## **Lucas County, Iowa Barriers to Broadband**

### **Topography**

The Chariton Valley Planning & Development Council of Governments is comprised of four rural counties in south central Iowa. Appanoose County is the most populated at approximately 26 people/square mile and 497 square miles. Lucas County has 431 square miles with 21 people/sq mile. Monroe County has about 434 sq/miles and 18 people/sq mile. The largest sized county is Wayne County with approximately 525 sq miles and is the least populated with about 12 people/sq mile.

The Chariton Valley Region is home to rolling hills and scenic forested areas in addition to state parks, Lake Rathbun, and Honey Creek Resort State Park. The hilly nature of the area and highly erodible soils can make row crop farming a challenge but more desirable for raising livestock. The terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain.

The soils that are found within the region are well suited to agricultural uses, including crop production and pasture, but are susceptible to erosion. The highest elevation in the ADLM region is about 1,070 feet above sea level in Appanoose County and the lowest elevation is about 504 feet above sea level and occurs in Lucas County. Appanoose, Lucas, and Monroe Counties are comprised of gently rolling hills and average elevation variation of approximately 550 feet. The hills and valleys pose a challenge to wireless broadband providers that broadcast a signal to a specific receiver with limited obstacles.

### **Rural**

The Chariton Valley Planning & Development Council of Governments is comprised of four rural counties in south central Iowa. Lucas County has 431 square miles with 21 people/sq mile.

Lucas County is in the south-central sector of Iowa at coordinates 41° 1' 34" N, 93° 19' 42" W. The counties surrounding Lucas are as follows, Marion, Lucas, Appanoose, Decatur, Clarke, and Warren. Lucas County encompasses an area of 434 square miles with a population density of 20 people per square mile according to the 2020 ACS.

Rathbun Lake is located primarily in Appanoose County but extends into Lucas County covering a total area of 12,040 acres across four counties. Rathbun Lake is the second largest water body in Iowa. Four smaller bodies of water exist within the county. Those include Lake Morris, Lake Ellis, Red Haw Lake, and Crystal Lake. Eight rivers and creeks cross through Lucas County, the most significant of which is the Chariton River which created Rathbun Lake once dammed in the 1970'S. Lucas County's terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain. Lucas County is in 3 different watersheds, all within the Mississippi Basin. The Lake Red Rock watershed encompasses slightly more of the county than the other two.

Broadband USA Community Reports illustrate the scattered service available to residents in the rural Lucas County. The availability of providers greatly varies by individual census tracts to another across 431 square miles target service area. This source also indicates that approximately 76% of the 3701 households in the county receive broadband service of any type. It is estimated that 21% of households have no internet access. There are seven different providers but, in some situations, a neighboring tract can be identified as having 2-3 providers, but the adjacent tract will have zero service providers. The majority of qualifying households needing service are located in an eight-mile perimeter around Chariton. This includes the communities of Russell and Williamson. This encompasses approximately 681 ITQ eligible locations of the nearly 1150 in the county.

About 32% of the workers in Lucas County work within the county of residence, meaning that they do not commute to other counties. Most workers commute by private vehicle alone, unlike US trends, while public transport usage is very low reflecting the absence of such options in this rural region. The 2020 ACS indicates the average commute time for workers in the county is approximately 22 minutes.

Regional commuting patterns represent possible sources of sales surplus or leakage for local retail entities. Worker inflow from neighboring communities helps to expand the potential customer base. When people commute elsewhere for work, there is a likelihood that they will shop locally in that employment base. US Census “On the Map” estimated in 2019 that approximately 3134 working residents reside in Lucas County but commute to work outside the county of their residence. This is in comparison to about one-quarter of residents that live and work within the same county. An estimated 1,721 people reside outside of county but travel into a county for employment. The county seat cities are generally the regional hub for the rural residents. Chariton is the largest community and County seat in Lucas County. US Census “On the Map” estimated in 2019 that 1162 residents reside in Chariton but commute to work outside the Chariton city limits. This is in addition to the 432 Chariton residents that live and work within the city. An estimated 1,961 people reside outside of Chariton but come here for employment. This surplus also helps bolster the economy.

Prime farmland, as defined by the U.S. Department of Agriculture, “is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during growing season or is protected from flooding. Slope ranges mainly from 0 to 6%.”

Prime farmland is of major importance to accomplish meeting the Nation’s short term and long-term needs for food and fiber. The U.S. Department of Agriculture acknowledges that there is a limited supply of high-quality farmland, and it is crucial for government and individuals to protect it.

Iowa’s Department of Natural Resources Conservation Service has developed mapping and general locations that the rich soil composition to establish prime farmland. The NRCS estimates 708,483 acres of prime farmland in the CVPD region.

Iowa’s agriculture plays a vital role in the nation’s economy. The 2017 US Agriculture Census indicates that Iowa leads the United States in corn bushel production and is second in the country for soybean production. The state produces a total of 2.5 billion bushels of corn and 18 million (.7%) come from the CVPD region. The region’s total corn contribution is among the lowest county percentages across the State of Iowa.

<b>Regional Agriculture Contributions</b>	
<i>Prime Farmland &amp; Farmland of Statewide Importance</i>	
<i>County</i>	<i>Number of Acres</i>
<i>Appanoose County</i>	206,106
<i>Lucas County</i>	154,391
<i>Monroe County</i>	141,995
<i>Wayne County</i>	205,991
<i>Regional Total</i>	708,483
<i>www.nrcs.usda.gov</i>	

**Regional Agricultural Economy Census**  
**2017 Ag Census**

	# of Farms	Total Acres of Farmland	Market Value of land & Buildings per farm	Market Value of Crops	Market Value of Livestock & Poultry	Net Cash farm annual income avg/farm
Appanoose County	675	179,274	\$1,079,752	\$26.4M	\$18M	\$16,581
Lucas County	567	175,437	\$1,055,881	\$22.7M	\$27.4M	\$14,901
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Wayne County	743	285,213	\$1,632,207	\$53.1M	\$38.6M	\$27,741
Regional Totals	2,603	833,006	--	\$131.8M	\$116M	--
State of Iowa	86,104	30.6M	\$2,506,812	\$13.8B	\$15.1B	\$86,878
Regional Total Value/Average	651	208,252	\$1,270,487	\$32M	\$29M	\$22,320
Contribution to State Totals	3%	2.7%	--	.9%	.8%	--
www.nass.usda.gov						

The US Census Bureau shows the top commodities exported from Iowa include:

1. Corn – approximately \$1,200M/yr.
2. Tractors – approx. \$600M/yr.
3. Fresh & Chilled Pork – approx. \$450M/yr.
4. Herbicide – approx. \$350M/yr.
5. Soybean Oilcake – approx. \$325M/yr.
6. Brewing & Distilling – approx. \$320M/yr.
7. Frozen Pork – approx. \$310M/yr.

Many products are shipped to Canada, Mexico, Japan, and China. Any global economic disruptions or embargoes could directly impact the stability of the agricultural economy in Iowa.

When analyzing the sources of farm income across the CVPD region, the greatest sources of income are from crops and/or livestock. Exhibit 42 shows it is evident that farmers in Appanoose and Wayne Counties rely more on the market value of crops in their annual budgets. Whereas farmers in Lucas and Monroe Counties have a greater source of income on the market values of livestock and poultry.

Farmers in this region that raise livestock primarily have cattle/calves and hogs/pigs. The following table shows the livestock population per county and how it contributes to the overall state totals.

**2017 Livestock Inventory**  
**CVPD Region**

	Appanoose County	Lucas County	Monroe County	Wayne County	Regional Livestock Totals	State of Iowa Livestock Totals	Regional Contribution to State Inventory
<u>Livestock Type</u>							
Hogs & Pigs	778	44,499	29,401	32,577	67,205	22.7M	.3%
Cattle & Calves 2017 Ag Census	29,419	32,543	32,584	30,664	105,848	4M	2.6%

The CVPD region is a productive agricultural area producing both crops and livestock. The region contains 2603 farms that encompass 833,006 acres of land (2017 Ag Census). Approximately 3,350 acres produce forage (hay, silage, etc.) and the same approximate number of acres are dedicated to yielding 130,571 bushels corn. The farmland also provides nutrients for 105,848 head of cattle/calves and 252,655 hogs. This agricultural region could be at a large economical risk of animal, plant, or crop disease due to the severity of potential agricultural losses.

### **Demographics**

As of the 2021 ACS, the total population of Lucas County was 8,634 with a total of 3,3614 households. According to Iowa State University's Regional Capacity Analysis Program<sup>1</sup> (ReCAP), Lucas County has faced five decades of decline starting in 1920 through 1970. A slight population increase occurred between 1970 and 1980 followed by a 12% population decline in the 1980's. There was a modest growth occurred as captured in the 2000 Census, however, now the new data indicates a significant decrease of 524 in 2010. Lucas County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2020 ACS, the census estimated that 5.2% people have a primary language that is other than English and would be considered linguistically isolated in Lucas County. There are approximately 540 (6.2% of total population) children under the age of five years. The population over the age of 65 years accounts for 22.1% (1925 people) in Lucas County.

The remaining "at risk" category would be individuals that have a disability. It is estimated that 1 002 residents of Lucas County have a confirmed disability. That accounts for approximately 11.5% of the population.

The combination of all these populations qualifies nearly 45% of the total population deemed "at risk".

In the 2020 Census, median household income for Lucas County was down slightly (\$53,967) from 2019 at \$55,205 up from \$43,005 in the 2010 ACS. In 2020, 12.9% of people in Lucas County were determined to be under the Federal Poverty Guidelines.

<b>Lucas County</b>	<b>2020 American Census Survey – 5yr estimate</b>
Population	8,634
Median Household Income	\$53,967
Persons in poverty, percent	13.5%
Education level of HS graduate or higher (25yrs+)	93%
Education level with bachelor's degree education or higher	16.6%
Person's w/o Health Insurance under 65 ages	5.5%
Median Housing Value	\$94,200
Total Housing Units	4,056
Number of Employer Establishments	190
Veterans	509
Percent of households with Broadband	78.1%

#### **Lucas County ( 8,634)**

<b>Chariton</b>	4,193
<b>Derby</b>	90
<b>Lucas</b>	172
<b>Russell</b>	472
<b>Williamson</b>	120

Source: American Census  
Survey – 2020

The unemployment rate is defined as the percentage of the workforce that is unemployed but actively seeking work. The average unemployment rate in the county has remained steady with the State of Iowa levels. The Lucas County unemployment rate for January 2023 was 2.80% compared to the State of Iowa rate of 3.0%. While discussing the human capital (skills, knowledge, and experience of people) the residents frequently acknowledged that prevalent drug use, poverty and emotional challenges complicate addressing the local unemployment concerns.

Lucas County has elevated poverty rates that place among the poorest in the State of Iowa for many years. The poverty rate was Lucas County with 13% of the population living with incomes below the Poverty Guidelines (also known as the Federal Poverty Threshold) as of the 2020 ACS versus the State of Iowa with approximately 11%. Most people in Lucas County who are living under this poverty threshold are children under 18 years. This is of potential concern as poverty trends tend to be cyclical meaning that youth growing up in poverty tend to remain in poverty later in life leading their children to become accustomed to similar life-prospects.

### **Broadband Impacts**

#### **Work**

Precision agriculture uses information and technology to manage site-specific inputs to reduce cost and increase yields for maximum profitability, as well as for improved sustainability and environmental protection. Precision agriculture relies on GPS and geospatial data techniques for reducing inputs and increasing outputs, resulting in increased productivity to allow producers to feed more people using the same amount of land and export U.S. agriculture around the globe. Both high-accuracy and broadband connectivity are becoming integral components of daily agricultural operations in the US and globally. Without modern technologies necessary to deploy these critical technologies, agriculture producers will fall short of their potential.

High-quality mobile broadband connectivity in cropland is important to ensure ongoing US leadership in precision agriculture to feed the growing US and world population. The US population is projected to reach 417 million in 2060, an increase from 319 million today. Worldwide, farmers must double the food supply in the next 40 years to feed tomorrow's global citizens. Bringing broadband connectivity to cropland farmers it will provide the ability to make real-time data transfers and design prescriptions that minimize the number of necessary seed, fertilizer and pesticides; reduce costs for fuel, labor, and water; and dynamically identify best practices. Some reports estimate decisions about irrigation, fertilization, and harvesting can increase corn farm profitability by \$5 to \$100 per acre.

There are eight major employers are identified in Lucas County by [www.iowasouth.com](http://www.iowasouth.com)

Fat Baggers, Inc.	Johnson Machine Works
Chariton Public Schools	C & C Cycle
Chariton Nursing & Rehab Ctr	Lucas County Health Center
Seats Inc	
Hy-Vee	

Many businesses in Lucas County, Iowa have moved to a full time or part-time “work from home” model. Doing so requires robust and reliable internet connections. Working from home provided residents with the freedom to work from anywhere. This allows individuals who have lived and worked in a metropolitan area the option to relocate to rural locations such as Lucas County. This county would like to eliminate all barriers that would prevent families from moving to this area, especially reliable and affordable internet connectivity. The priority location selected for improved broadband service in this application is this region surrounding Chariton and Red Haw Lake. The beautiful land surrounding the lake provides an ideal location for recreational activities and would attract potential new residents if efficient broadband can be provided.

Consumers have also migrated to online shopping as well. Most big-name providers now provide online ordering as well as delivery. Many local small businesses and entrepreneurs came to rely on internet sales through the Covid pandemic and continue to offer such services. Efficient broadband is essential to the longevity of their ventures.

**Education**

During the pandemic, the educational model shifted from in-person instruction to virtual learning. It became quickly apparent that Chariton Community School District didn't have sufficient infrastructure to support that model. Both educators and students in the school district struggled then and continue to struggle now with adequate internet connectivity required for virtual education.

Additionally, higher education institutions and vocational programs are offered virtually by Indian Hills Community College and many other online institutions, but residents of Lucas County have difficulty accessing these programs due to the lack of affordable and reliable internet options.

Below are profile summaries of the learning institutions in Lucas County:

**Chariton Community School District**

**Educational Philosophy:** The Chariton Community School District, acting through its board of directors, is dedicated to promoting an equal opportunity for a quality public education to its students within financial limitations of the school district. The district shall work in cooperation with parents and the school district community to provide students the opportunity to develop a healthy social, intellectual, emotional, and physical self-concept in a safe learning environment that provides guidance and encourages critical thinking in students.

The board endeavors through the dedication of the school district's resources, to encourage students, who come to the school district from a variety of backgrounds, to look forward to the time when they will have jobs, homes, families, places in the school district community, and attain recognition as individuals. In order to achieve this goal, the board will seek qualified employees dedicated to utilization of their professional skills for the betterment of the education program, always enhancing educational productivity.

Instruction and curriculum are the key elements of a public education. Critical thinking and problem-solving skills that will assist the student's preparation for life shall be instructed as part of the sequentially coordinated curriculum. The school district strives to prepare students for their future, to discover and nurture creative talent, and to prepare them to meet and cope with social change in an atmosphere conducive to learning.

The support and involvement of the home and school district community are essential to achieve educational excellence in the school district. The school district strives to maintain an active relationship with the homes and the school district community to create within the students an awareness of dignity and worth of the individual, civic responsibility, and respect for authority.

**Mission Statement:** Successful Learning for All Students.

**Philosophy Statement:** The Board of Directors of the Chariton Community School District, in cooperation with parents/guardians, is committed to a philosophy of service to children; and to help children develop a strong basic skill foundation to enable them to be contributing members of society. The Board believes this philosophy can best be achieved through a school program that encompasses the intellectual, physical, civic, social, and aesthetic education of children.

## District Facts

<i>Chariton Community School District Statistics 2021-22 School Year</i>	<i>Chariton Community School District</i>
Student Enrollment	1,272
Student/Teacher Ratio	14.29
Eligible for Free/Reduced Meals	55%
Minority Ethnicity (any other than white)	6.8%
Classroom Teachers (FTE)	89
<i>National Center for Education Statistics</i>	

## Healthcare

Chariton is the hub of services for Lucas County, Iowa. Lucas County Health Center provides service to the county and many residents from the surrounding counties. To access care, some residents will drive 20-30 minutes. The local doctors can consult and access referrals through efficient broadband service. This area has also become dependent on tele-health services. This type of care continues to expand to include general consultation, ongoing health management, mental health services, and emergency care. It is becoming increasingly more important for citizens of Lucas County to have access to this critical care through effective and efficient broadband services.

### Lucas County Health Center

Construction on what would become Lucas County Memorial Hospital began in the fall of 1959. A Grand Opening was held May 1, 1961, to announce the community's modern medical facility was open for business.

The hospital was so well used by area residents, that a 48-bed addition was constructed in 1969. A two-unit ambulance service was added in 1970. To meet the growing needs of Lucas County residents, a four-bed intensive care unit was equipped in 1971 with the latest technology.

As healthcare needs continued to evolve, the Lucas County Memorial Hospital Board of Directors kept pace. In 1985, Northridge Living Center was developed to meet the growing need for residential facilities for the elderly.

The 1990s brought more changes to the hospital, including a name change. Lucas County Memorial Hospital was renamed Lucas County Health Center. A spacious medical office building was added to the north side of the building, a project that included the construction of an airy atrium entrance to the health Center.

The LCHC Mammography Center began offering on-site mammography every weekday in 1999. Neal Sokol, D. O., joined the LCHC staff in 1999 as general surgeon before opening his own practice, Surgical Clinic of Southern Iowa, P.C. on Court Avenue in Chariton two years later. Nearly 1,000 surgeries were performed from 1999 to 2000. Procedures performed by Dr. Sokol, and other visiting physicians now include general surgeries; ear, nose, and throat; oncology; podiatric; orthopedic, cataract removal and many others.

Other LCHC departments include physical, occupational and speech therapies, athletic training services, counseling services, women's health services, and obstetrics. LCHC also has a comprehensive laboratory and full radiology services with the latest technology offered through CT, and mobile MRI and digital mammography. The health Center also offers sleep studies, cardiac and pulmonary rehabilitation, infusion therapies, diabetes education, and wound healing treatment. It could be stated that all patients of the Health Care Center are considered vulnerable and at risk due to their physical or mental health state that requires additional care. In this situation, all 22 beds would be given as an estimated number to be considered "at risk" for this facility.

Also located on the property of Lucas County Health Center is “Kids' Life Discovery Center”, a childcare service of the health Center and is licensed to meet the physical and developmental needs of up to 135 children from 5:30 a.m. to 6:30 p.m. Monday through Friday. Trained and educated staff members foster a nurturing environment of acceptance and welcome for all children.

Kids' Life Discovery Center is an extension of the family unit, serving as a supplement to - not a replacement for - the family. Young children develop optimally through close, affectionate relationships with older people, particularly adults. Each child has a unique rate of development and level of ability, which is expected, valued, and accepted at Kids' Life Discovery Center.

Lucas County Health Center is one of the major employers in Lucas County. There are approximately 180 employees at the location in Chariton.

### **Overall, Health Status of Lucas County Residents**

The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute have partnered to collect health data for counties across the nation for the past 10 years. The purpose of this data collection “is working to improve health outcomes for all and to close the health gaps between those with the most and least opportunities for good health. This work is rooted in a deep belief in health equity, the idea that everyone has a fair and just opportunity to be as healthy as possible, regardless of race, ethnicity, gender, income, location, or any other factor. Increasing opportunities for everyone can reduce gaps in health. For example, providing better access to high-quality education and enrichment opportunities boosts workforce skills that are key to landing a good job and for upward economic mobility.” [Lucas, Iowa | County Health Rankings & Roadmaps](#) The data from the past ten years indicates that Lucas County has declining from 2020 to 2022. The area slipped from 41 of 99 to 73 out of 99 in 2022. Some of the negative health behaviors impacting the study include adult smoking, adult obesity, physical inactivity, alcohol-impaired driving deaths and teen births. The study also indicates a lack of access to exercise opportunities. The county shows a greater percentage of residents participating or affected than the average for the State of Iowa.

Next-generation EMT services will use mobile communications technology, aimed at providing a significant time advantage, expediting critical treatment, and improving patient outcomes. Vital signs of patients being transported by ambulance can be measured and transmitted to the hospital instantly via a wireless network, and videos taken by digital cameras installed in the ambulance can be sent to the hospital in real-time.

Medical professionals can also evaluate patient health through remote monitoring. Wearable gadgets can report vital signs to a health center that can warn patients of potential problems. This can be especially beneficial to elderly patients or people with mobility challenges.

## **Monroe County, Iowa Barriers to Broadband**

### **Topography**

The Chariton Valley Planning & Development Council of Governments is comprised of four rural counties in south central Iowa. Appanoose County is the most populated at approximately 26 people/square mile and 497 square miles. Lucas County has 431 square miles with 21 people/sq mile. Monroe County has about 434 sq/miles and 18 people/sq mile. The largest sized county is Wayne County with approximately 525 sq miles and is the least populated with about 12 people/sq mile.

The Chariton Valley Region is home to rolling hills and scenic forested areas in addition to state parks, Lake Rathbun, and Honey Creek Resort State Park. The hilly nature of the area and highly erodible soils can make row crop farming a challenge but more desirable for raising livestock. The terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain.

The soils that are found within the region are well suited to agricultural uses, including crop production and pasture, but are susceptible to erosion. The highest elevation in the ADLM region is about 1,070 feet above sea level in Appanoose County and the lowest elevation is about 504 feet above sea level and occurs in Lucas County. Davis County has the least variation in elevation. Appanoose, Lucas, and Monroe Counties are comprised of gently rolling hills and average elevation variation of approximately 550 feet.

The hills and valleys pose a challenge to wireless broadband providers that broadcast a signal to a specific receiver with limited obstacles.

### **Rural**

Monroe County is in the southern tier of counties in Iowa, one county from the Missouri border. There are twenty-three unincorporated communities in Monroe County and four incorporated cities.

Monroe County is in the south-central sector of Iowa at coordinates 41° 1' 42" N, 92° 52' 12" W. The counties surrounding Monroe are as follows, Marion, Mahaska, Wapello, Davis, Appanoose, Wayne, and Lucas. Monroe County encompasses an area of 433 square miles with a population density of 18 people per square mile according to the 2020 ACS.

Rathbun Lake is located primarily in Appanoose County but extends into Monroe County covering a total area of 12,040 acres across four counties. Rathbun Lake is the second largest water body in Iowa. Seven creeks cross through Monroe County, the most significant of which is Cedar Creek which stretches from south to north, west of Albia. (See Monroe County's terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain. Monroe County is in 2 different watersheds, all within the Mississippi Basin. The majority of Monroe County is in the Lower Des Moines watershed.

Broadband USA Community Reports illustrate the scattered service available to residents in rural Monroe County. The availability of providers greatly varies from individual census tracts to another across 433 square miles target service area. This source also indicates that approximately 73% of the 3294 households in the county receive broadband service of any type. It is estimated that 20% of households have no internet access. There are eleven different providers but, in some situations, a neighboring tract can be identified as having 2-3 providers, but the adjacent tract will have zero service providers. The qualifying households needing service are spread out throughout the rural county, but the majority are located in the northern half of the county. This encompasses approximately 646 ITQ eligible locations of nearly 1,018 in the county.

About 26% of the workers in Monroe County work within the county of residence, meaning that they do not commute to other counties. Most workers commute by private vehicle alone, unlike US trends, while public transport usage is very low reflecting the absence of such options in this rural region. The 2020 ACS indicates the average commute time for workers in the county is approximately 25 minutes.

Regional commuting patterns represent possible sources of sales surplus or leakage for local retail entities. Worker inflow from neighboring communities helps to expand the potential customer base. When people commute elsewhere for work, there is a likelihood that they will shop locally in that employment base. US Census “On the Map” estimated in 2019 that approximately 2037 working residents reside in Monroe County and 74% commute to work outside the county of their residence. This is in comparison to about one-quarter of residents that live and work within the same county. An estimated 1,289 people reside outside of county but travel into a county for employment. The county seat cities are generally the regional hub for the rural residents. Albia is the largest community and County seat in Monroe County. US Census “On the Map” estimated in 2019 that 1130 working residents reside in Albia but commute to work outside the Albia city limits. This is in addition to the 238 Albia residents that live and work within the city. An estimated 774 people reside outside of Albia but come here for employment. This surplus also helps bolster the economy.

Prime farmland, as defined by the U.S. Department of Agriculture, “is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during growing season or is protected from flooding. Slope ranges mainly from 0 to 6%.”

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Many products are shipped to Canada, Mexico, Japan, and China. Any global economic disruptions or embargoes could directly impact the stability of the agricultural economy in Iowa.

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Farmers in this region that raise livestock primarily have cattle/calves and hogs/pigs. The following table shows the livestock population per county and how it contributes to the overall state totals.

**2017 Livestock Inventory  
CVPD Region**

	Appanoose County	Lucas County	Monroe County	Wayne County	Regional Livestock Totals	State of Iowa Livestock Totals	Regional Contribution to State Inventory
<u>Livestock Type</u>							
Hogs & Pigs	778	44,499	29,401	32,577	67,205	22.7M	.3%
Cattle & Calves	29,419	32,543	32,584	30,664	105,848	4M	2.6%
2017 Ag Census							

The CVPD region is a productive agricultural area producing both crops and livestock. The region contains 2603 farms that encompass 833,006 acres of land (2017 Ag Census). Approximately 3,350 acres produce forage (hay, silage, etc.)

and the same approximate number of acres are dedicated to yielding 130,571 bushels corn. The farmland also provides nutrients for 105,848 head of cattle/calves and 252,655 hogs. This agricultural region could be at a large economical risk of animal, plant or crop disease due to the severity of potential agricultural losses.

### **Demographics**

As of the 2020 ACS, the total population of Monroe County was 7,577 with a total of 3,294 households. According to Iowa State University's Regional Capacity Analysis Program<sup>2</sup> (ReCAP), Monroe County has faced nearly a century of decline starting around 1910. The decline has been evening out in recent decades with the smallest amount of population loss between 1990 and 2000. The population of the unincorporated county is approximately 45% of the total population of the county.

Monroe County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2020 ACS, the census estimated that 3% people have a primary language that is other than English and would be considered linguistically isolated. There are approximately 464 (6% of total population) children under the age of five years. The population over the age of 65 years accounts for 20% (1514 people) in Monroe County.

The remaining "at risk" category would be individuals that have a disability. It is estimated that approximately 10.7% of residents of Monroe County have a confirmed disability.

The combination of all these populations qualifies nearly 40% of the total population deemed "at risk".

In the 2020 ACS, median household income for Monroe County was up to \$59,489 from \$58,269 in 2019. In 2020, 809 people (10.5%) in Monroe County were determined to be under the Federal Poverty Guidelines.

<b>Monroe County</b>	<b>2020 American Census Survey – 5yr estimate</b>
Population	7,577
Median Household Income	\$59,489
Persons in poverty, percent	10.5%
Education level of HS graduate or higher (25yrs+)	89.8%
Education level with bachelor's degree education or higher	19.9%
Person's w/o Health Insurance under 65 ages	6.2%
Median Housing Value	\$113,800
Total Housing Units	3,648
Number of Employer Establishments	181
Veterans	481
Percent of households with Broadband	73.7%

#### **Monroe County (7,577)**

<b>Albia</b>	3,721
<b>Lovilia</b>	472
<b>Melrose</b>	110

Source: American Census Survey –  
2020

The unemployment rate is defined as the percentage of the workforce that is unemployed but actively seeking work. The average unemployment rate in the county has remained steady with the State of Iowa levels. The Monroe County unemployment rate for January 2023 was 3.7% compared to the State of Iowa rate of 3.0%. While discussing the human capital (skills, knowledge, and experience of people) the residents frequently acknowledged that prevalent drug use, poverty and emotional challenges complicate addressing the local unemployment concerns.

Monroe County has elevated poverty rates that place among the poorest in the State of Iowa for many years. The poverty rate was Monroe County with 10.5% of the population living with incomes below the Poverty Guidelines (also known as the Federal Poverty Threshold) as of the 2020 ACS versus the State of Iowa with approximately 11%. Most people in Monroe County who are living under this poverty threshold are children under 18 years. This is of potential concern as poverty trends tend to be cyclical meaning that youth growing up in poverty tend to remain in poverty later in life leading their children to become accustomed to similar life-prospects.

### **Broadband Impacts**

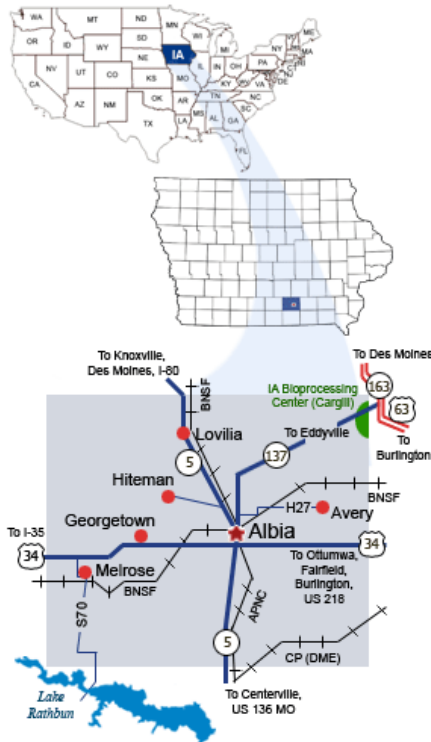
#### **Work**

Precision agriculture uses information and technology to manage site-specific inputs to reduce cost and increase yields for maximum profitability, as well as for improved sustainability and environmental protection. Precision agriculture relies on GPS and geospatial data techniques for reducing inputs and increasing outputs, resulting in increased productivity to allow producers to feed more people using the same amount of land and export U.S. agriculture around the globe. Both high-accuracy and broadband connectivity are becoming integral components of daily agricultural operations in the US and globally. Without modern technologies necessary to deploy these critical technologies, agriculture producers will fall short of their potential.

High-quality mobile broadband connectivity in cropland is important to ensure ongoing US leadership in precision agriculture to feed the growing US and world population. The US population is projected to reach 417 million in 2060, an increase from 319 million today. Worldwide, farmers must double the food supply in the next 40 years to feed tomorrow's global citizens. Bringing broadband connectivity to cropland farmers it will provide the ability to make real-time data transfers and design prescriptions that minimize the number of necessary seed, fertilizer and pesticides; reduce costs for fuel, labor, and water; and dynamically identify best practices. Some reports estimate decisions about irrigation, fertilization, and harvesting can increase corn farm profitability by \$5 to \$100 per acre.

Ten major employers are identified in Monroe County by [www.iowasouth.com](http://www.iowasouth.com)

Cargill Inc	AYM Inc
Ajinomoto Health & Nutrition	Preferred Wholesale
RELCO Locomotives	Kness Pest Control
Superior Machine	Hawkeye Molding
Iowa Aluminum	Zero Connect



### **Iowa Bioprocessing Center**

The Iowa Bioprocessing Center (IBC) located in South Central Iowa consists of 1600 acres where four international companies have clustered together, investing more than \$1.5 billion dollars in plants engaging in value-added agriculture. Ajinomoto Food Ingredients, LLC and its subsidiary Ajinomoto Heartland LLC are located on the north side of the property. This is a part of the complex, which focuses on the manufacture of enzymes, amino acids, sweeteners, and other ingredients for human and animal products. Ajinomoto Heartland LLC manufactures and distributes cost effective feed-grade amino acids and is the frontrunner in amino acid nutritional research and technical expertise. Also located in Monroe County in this development are Cargill (Vitamin E), ITC Midwest, and Cargill Sweeteners. Other partners include TECUS, Indian Hills Community College/IBTC, and Wacker Chemical Corporation.

The Iowa Bioprocessing Center produces a variety of products. Whether high fructose corn syrup that is found in many of today's food products or lysine that feeds livestock or ethanol that powers our automobiles, the Iowa Bioprocessing Center manufactures products that are part of everyday life.

The foundation for these products is Cargill's corn wet milling process that helps to supply a variety of co-products made at the Center. Some of these products

include:

Cargill – Corn Milling (High Fructose Corn Syrup, Corn Syrup, Dextrose, Crude Corn Oil, Corn Gluten Meal, and Sweet Bran) Acidulants – Citric Acid, Anhydrous Citric Acid, Liquid Citric Acid, Sodium Citrate, Potassium Citrate, and Glucosamine.

Health & Food Technologies- Natural Vitamin E, D-Alpha Tocopheryl Acetate, Phytosterols, FFA, and FAME.

Biofuel –Ethanol

Ajinomoto Food Ingredients LLC- Monosodium Glutamate, Custom Dry Blends for flavor enhancement

Ajinomoto Heartland - Feed Grad Threonine & Feed Grade Lysine

HF Chlor-Alkali, LLC - Hydrochloric acid, bleach, and caustic soda

Wacker - Cyclodextrins

The Iowa Bioprocessing Center has a global impact and significantly relies on efficient broadband infrastructure.

Many businesses in Monroe County, Iowa have moved to a full time or part-time “work from home” model. Doing so requires robust and reliable internet connections. Working from home provided residents with the freedom to work from anywhere. This allows individuals who have lived and worked in a metropolitan area the option to relocate to rural locations such as Monroe County. This region would like to eliminate all barriers that would prevent families from moving to this area, especially reliable and affordable internet connectivity.

Consumers have also migrated to online shopping as well. Most big-name providers now provide online ordering as well as delivery. Many local small businesses and entrepreneurs came to rely on internet sales through the Covid pandemic and continue to offer such services. Efficient broadband is essential to the longevity of their ventures.

## **Education**

During the pandemic, the educational model shifted from in-person instruction to virtual learning. It became quickly apparent that Albia Community School district didn't have sufficient infrastructure to support that model. Both educators and students in the school district struggled then and continue to struggle now with adequate internet connectivity required for virtual education.

Additionally, higher education institutions and vocational programs are offered virtually by Indian Hills Community College and many other online institutions, but residents of Monroe County have difficulty accessing these programs due to the lack of affordable and reliable internet options.

Below is profile summary of the learning institution in Monroe County:

### **Albia Community School District**

**Educational Philosophy:** As a school corporation of Iowa, the Albia Community School District, acting through its Board of Directors, is dedicated to promoting an equal opportunity for quality public education to its students. The Board's ability may be limited by the school district's ability and willingness to furnish financial support in cooperation with student's parents and school district community. The Board is also dedicated to providing the opportunity to develop a healthy social, intellectual, emotional, and physical self-concept in a learning environment that provides guidance to and encourages critical thinking in the student's lifetime.

The board endeavors through the dedication of the school district's resources, to encourage students, who come to the school district from a variety of backgrounds, to look forward to the time when they will have jobs, homes, families, places in the school district community, and attain recognition as individuals. To achieve this goal, the board will seek qualified employees dedicated to utilization of their professional skills for the betterment of the education program, always enhancing educational productivity.

Instruction and curriculum are the key elements of a public education. Critical thinking and problem-solving skills are essential parts of the Iowa Core and Common Core curriculum that is designed to prepare students for success beyond school. The school district strives to prepare students for employment, to discover and nurture creative talent and to prepare them to meet and cope with social change in an atmosphere conducive to learning.

The support and involvement of the home and school district community are essential to achieve educational excellence in the school district. The school district strives to maintain an active relationship with the homes and the school district community to create within the students an awareness of dignity and worth of the individual, civic responsibility, and respect for authority.

**Vision Statement:** The Albia Community School District Vision is to prepare students to become responsible citizens, parents, and wage earners who are life-long learners.

**Mission Statement:** Our mission, therefore, is student development. We strive to provide quality education opportunities for all students to help them be successful now and in the future.

### **Albia Public School**

#### **District Facts**

<i>Albia Community School District Statistics</i>	
<i>2021-22 School Year</i>	<i>Albia Community School District</i>
Student Enrollment	1,153
Student/Teacher Ratio	14.87
Eligible for Free/Reduced Meals	37.1%
Minority Ethnicity (any other than white)	12%
Classroom Teachers (FTE)	78
<i>National Center for Education Statistics</i>	

## **Healthcare**

The City of Albia is the hub of services for Monroe County, Iowa. Monroe County Hospital provides service to the county and many residents from the surrounding counties. To access care, some residents will drive 20-30 minutes. The local doctors can consult and access referrals through efficient broadband service. This area has also become dependent on tele-health services. This type of care continues to expand to include general consultation, ongoing health management, mental health services, and emergency care. It is becoming increasingly more important for citizens of Monroe County to have access to this critical care through effective and efficient broadband services.

### **Monroe County Hospital**

Monroe County Hospital & Clinics is a trusted provider of high quality, local healthcare to the residents of Monroe County and surrounding. The full-service, primary care hospital offers an array of inpatient and outpatient health services designed to provide the care you need and the individual, personalized care you deserve.

This local hospital is a MercyOne Affiliate, which allows us to partner with MercyOne-Des Moines through a management and CAH agreement. Monroe County Hospital & Clinics Board of Trustees maintains complete control of Monroe County Hospital & Clinics operations, while taking advantage of the cost savings, management expertise and education offerings available to a larger, tertiary facility such as MercyOne.

Due to increasing outpatient utilization, an outpatient clinic was added in 1988. The clinic was funded entirely by a generous donation. The Morris Clinic provided exam rooms for specialists from surrounding areas to treat patients. In 1993, a physician's clinic was constructed, adjoining the North side of the hospital. This addition provided space for four physicians and an optometrist.

A three-phase construction project was initiated in 1997. The first phase included a face-lift for the hospital's interior. The second phase included construction to add an additional physician's office, as well as 3,000 square feet of office and classroom space to the east side of the hospital. The third phase was a complete renovation of the outpatient area.

Through the vision of its community leaders, there has been a progressive approach to providing current technology in modern facilities. For over 100 years, health care services have been provided for the residents of Monroe County. We are very proud of the building we have today and the culture inside.

Monroe County Hospital and Clinics is a general medical and surgical hospital in Albia, IA, with 25 beds.

#### **Employed Staff:**

Licensed Practical or Vocational Nurses: 8  
Other salaried personnel: 67  
Respiratory Therapists: 1  
Medical Social Worker: 1  
Nurse Practitioners: 1  
Registered Professional Nurses: 27  
Registered Pharmacists: 1  
Diagnostic Radiology Technicians: 6

### *Overall, Health Status of Monroe County Residents*

The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute have partnered to collect health data for counties across the nation for the past 10 years. The purpose of this data collection “is working to improve health outcomes for all and to close the health gaps between those with the most and least opportunities for good health. This work is rooted in a deep belief in health equity, the idea that everyone has a fair and just opportunity to be as healthy as possible, regardless of race, ethnicity, gender, income, location, or any other factor. Increasing opportunities for everyone can reduce gaps in health. For example, providing better access to high-quality education and enrichment opportunities boosts workforce skills that are key to landing a good job and for upward economic mobility.” [Monroe, Iowa | County Health Rankings & Roadmaps](#) The data from the past ten years indicates that Monroe County has improving from 2020 to 2022. The area went from 84 of 99 to be 62 out of 99 in 2022. Some of the negative health behaviors impacting the study include adult smoking, adult obesity, physical inactivity, alcohol-impaired driving deaths and teen births. The study also indicates a lack of access to exercise opportunities. The county shows a greater percentage of residents participating or affected than the average for the State of Iowa.

Next-generation EMT services will use mobile communications technology, aimed at providing a significant time advantage, expediting critical treatment, and improving patient outcomes. Vital signs of patients being transported by ambulance can be measured and transmitted to the hospital instantly via a wireless network, and videos taken by digital cameras installed in the ambulance can be sent to the hospital in real-time.

Medical professionals can also evaluate patient health through remote monitoring. Wearable gadgets can report vital signs to a health center that can warn patients of potential problems. This can be especially beneficial to elderly patients or people with mobility challenges.

## **Wayne County, Iowa Barriers to Broadband**

### **Topography**

The Chariton Valley Planning & Development Council of Governments is comprised of four rural counties in south central Iowa. The largest sized county is Wayne County with approximately 525 sq miles and is the least populated with about 12 people/sq mile.

The Chariton Valley Region is home to rolling hills and scenic forested areas in addition to state parks, Lake Rathbun, and Honey Creek Resort State Park. The hilly nature of the area and highly erodible soils can make row crop farming a challenge but more desirable for raising livestock. The terrain is predominantly undulating topography that characterizes the rolling hills of the Southern Iowa Drift Plain.

The soils that are found within the region are well suited to agricultural uses, including crop production and pasture, but are susceptible to erosion. The highest elevation in the ADLM region is about 1,070 feet above sea level in Appanoose County and the lowest elevation is about 504 feet above sea level and occurs in Lucas County. Davis County has the least variation in elevation. Appanoose, Lucas, and Monroe Counties are comprised of gently rolling hills and average elevation variation of approximately 550 feet.

The hills and valleys pose a challenge to wireless broadband providers that broadcast a signal to a specific receiver with limited obstacles.

### **Rural**

Wayne County at risk groups are identified as young children, the elderly, those with disabilities, and those whose primary language is not English. As of the 2020 ACS, the census estimated that 8.6% people have a primary language that is other than English and would be considered linguistically isolated in Wayne County. This includes 9% of the Amish population that speak Indo-European. There are approximately 468 (7.2% of total population) children under the age of five years. The population over the age of 65 years accounts for 21.7% (1425 people) in Wayne County.

The remaining “at risk” category would be individuals that have a disability. It is estimated that 625 residents of Wayne County have a confirmed disability. That accounts for approximately 9.6% of the population.

In the 2020 ACS, median household income for Wayne County was \$47,543 which is up from \$44,768 in 2019. In 2020, Wayne County had 872 people under the Federal Poverty Guidelines comprising about 13.4% of the unincorporated population.

Broadband USA Community Reports illustrate the scattered service available to residents in rural Wayne County. The availability of providers greatly varies from individual census tracts to another across 525 square miles target service area. This source also indicates that approximately 71% of the 2689 households in the county receive broadband service of any type. It is estimated that 26% of households have no internet access. There are seven different providers but, in some situations, a neighboring tract can be identified as having 2-3 providers, but the adjacent tract will have zero service providers. The majority of qualifying households needing service are located in an eight-mile perimeter around Seymour. This encompasses approximately 518 ITQ eligible locations (which extends into far southwest Appanoose County).

About 27% of the workers in Wayne County work within the county of residence, meaning that they do not commute to other counties. Most workers commute by private vehicle alone, unlike US trends, while public transport usage is very low reflecting the absence of such options in this rural region. The 2020 ACS indicates the average commute time for workers in the county is approximately 24 minutes.

Regional commuting patterns represent possible sources of sales surplus or leakage for local retail entities. Worker inflow from neighboring communities helps to expand the potential customer base. When people commute elsewhere for work, there is a likelihood that they will shop locally in that employment base. US Census “On the Map” estimated in 2019 that approximately 2,037 working residents reside in Wayne County but 73% (1487) commute to work outside the county of their residence. This is in comparison to about one-quarter of residents that live and work within the same county. An

estimated 603 people reside outside of county but travel into a county for employment. The county seat cities are generally the regional hub for the rural residents. Corydon is the largest community and is the County seat in Wayne County. The US Census “On the Map” estimated in 2019 that 1102 residents reside in Corydon but 369 commute to work outside the Corydon city limits. This is in addition to the 147 Corydon residents that live and work within the city. An estimated 586 people reside outside of Corydon but come here for employment. This surplus also helps bolster the economy.

Prime farmland, as defined by the U.S. Department of Agriculture, “is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during growing season or is protected from flooding. Slope ranges mainly from 0 to 6%.”

Prime farmland is of major importance to accomplish meeting the Nation’s short term and long-term needs for food and fiber. The U.S. Department of Agriculture acknowledges that there is a limited supply of high-quality farmland, and it is crucial for government and individuals to protect it.

Iowa’s Department of Natural Resources Conservation Service has developed mapping and general locations that the rich soil composition to establish prime farmland. The NRCS estimates 708,483 acres of prime farmland in the CVPD region.

Iowa’s agriculture plays a vital role in the nation’s economy. The 2017 US Agriculture Census indicates that Iowa leads the United States in corn bushel production and is second in the country for soybean production. The state produces a total of 2.5 billion bushels of corn and 18 million (.7%) come from the CVPD region. The region’s total corn contribution is among the lowest county percentages across the State of Iowa.

<b>Regional Agriculture Contributions</b>	
<i>Prime Farmland &amp; Farmland of Statewide Importance</i>	
<i>County</i>	<i>Number of Acres</i>
<i>Appanoose County</i>	206,106
<i>Lucas County</i>	154,391
<i>Monroe County</i>	141,995
<i>Wayne County</i>	205,991
<i>Regional Total</i>	708,483
<i>www.nrcs.usda.gov</i>	

#### **Regional Agricultural Economy Census 2017 Ag Census**

	# of Farms	Total Acres of Farmland	Market Value of land & Buildings per farm	Market Value of Crops	Market Value of Livestock & Poultry	Net Cash farm annual income avg/farm
Appanoose County	675	179,274	\$1,079,752	\$26.4M	\$18M	\$16,581
Lucas County	567	175,437	\$1,055,881	\$22.7M	\$27.4M	\$14,901
Monroe County	618	193,082	\$1,314,106	\$29.6M	\$32M	\$30,056
Wayne County	743	285,213	\$1,632,207	\$53.1M	\$38.6M	\$27,741
Regional Totals	2,603	833,006	--	\$131.8M	\$116M	--
State of Iowa	86,104	30.6M	\$2,506,812	\$13.8B	\$15.1B	\$86,878
Regional Total Value/Average	651	208,252	\$1,270,487	\$32M	\$29M	\$22,320
Contribution to State Totals	3%	2.7%	--	.9%	.8%	--
www.nass.usda.gov						

The US Census Bureau shows the top commodities exported from Iowa include:

1. Corn – approximately \$1,200M/yr.
2. Tractors – approx. \$600M/yr.
3. Fresh & Chilled Pork – approx. \$450M/yr.
4. Herbicide – approx. \$350M/yr.
5. Soybean Oilcake – approx. \$325M/yr.
6. Brewing & Distilling – approx. \$320M/yr.
7. Frozen Pork – approx. \$310M/yr.

Many products are shipped to Canada, Mexico, Japan and China. Any global economic disruptions or embargoes could directly impact the stability of the agricultural economy in Iowa.

When analyzing the sources of farm income across the CVPD region, the greatest sources of income are from crops and/or livestock. Exhibit 42 shows it is evident that farmers in Appanoose and Wayne Counties rely more on the market value of crops in their annual budgets. Whereas farmers in Lucas and Monroe Counties have a greater source of income on the market values of livestock and poultry.

Farmers in this region that raise livestock primarily have cattle/calves and hogs/pigs. The following table shows the livestock population per county and how it contributes to the overall state totals.

**2017 Livestock Inventory  
CVPD Region**

	Appanoose County	Lucas County	Monroe County	Wayne County	Regional Livestock Totals	State of Iowa Livestock Totals	Regional Contribution to State Inventory
<b><u>Livestock Type</u></b>							
Hogs & Pigs	778	44,499	29,401	32,577	67,205	22.7M	.3%
Cattle & Calves 2017 Ag Census	29,419	32,543	32,584	30,664	105,848	4M	2.6%

The CVPD region is a productive agricultural area producing both crops and livestock. The region contains 2603 farms that encompass 833,006 acres of land (2017 Ag Census). Approximately 3,350 acres produce forage (hay, silage, etc.) and the same approximate number of acres are dedicated to yielding 130,571 bushels corn. The farmland also provides nutrients for 105,848 head of cattle/calves and 252,655 hogs. This agricultural region could be at a large economical risk of animal, plant or crop disease due to the severity of potential agricultural losses.

### **Demographics**

As of the 2020 ACS, the total population of Wayne County was 6,497 which was up from 6,385 in 2010. Wayne County has faced six decades of decline starting in 1920 through 1970. More recently, a decrease occurred as captured in the 2010 Census. But the most recent decade has shown a population rebound with an increase in residents and households. The population of the unincorporated county is over one third of the total county population.

Woods and Poole Economics, Inc. provided population projections for each of the counties in Iowa through 2040. Wayne County

to lose population by 2025 and continued decreasing through 2040. Cumulative projected change for Wayne County is a loss of 5% suggesting that by 2040 the county's population could be down to 5,586.

<b>Wayne County</b>	<b>2020 American Census Survey – 5yr estimate</b>
Population	6,497
Median Household Income	\$47,543
Persons in poverty, percent	13%
Education level of HS graduate or higher (25yrs+)	88.9%
Education level with bachelor's degree education or higher	14.3%
Person's w/o Health Insurance under 65 age	7%
Median Housing Value	\$79,900
Total Housing Units	3,022
Number of Employer Establishments	142
Veterans	346
Percent of households with Broadband	72.9%

<b>Wayne County (6,497)</b>	
<b>Allerton</b>	430
<b>Clio</b>	67
<b>Corydon</b>	1,526
<b>Humeston</b>	465
<b>Lineville</b>	195
<b>Millerton</b>	36
<b>Promise City</b>	72
<b>Seymour</b>	634
Source: American Census Survey – 2020	

The unemployment rate is defined as the percentage of the workforce that is unemployed but actively seeking work. The average unemployment rate in the county has remained steady with the State of Iowa levels. The Wayne County unemployment rate for January 2023 was 3.7% compared to the State of Iowa rate of 3.0%. While discussing the human capital (skills, knowledge, and experience of people) the residents frequently acknowledged that prevalent drug use, poverty and emotional challenges complicate addressing the local unemployment concerns.

Wayne County has elevated poverty rates that place among the poorest in the State of Iowa for many years. The poverty rate was Lucas County with 13.4% of the population living with incomes below the Poverty Guidelines (also known as the Federal Poverty Threshold) as of the 2020 ACS versus the State of Iowa with approximately 11%. Most people in Wayne County who are living under this poverty threshold are children under 18 years. This is of potential concern as poverty trends tend to be cyclical meaning that youth growing up in poverty tend to remain in poverty later in life leading their children to become accustomed to similar life-prospects.

## **Broadband Impacts**

### **Work**

Precision agriculture uses information and technology to manage site-specific inputs to reduce cost and increase yields for maximum profitability, as well as for improved sustainability and environmental protection. Precision agriculture relies on GPS and geospatial data techniques for reducing inputs and increasing outputs, resulting in increased productivity to allow producers to feed more people using the same amount of land and export U.S. agriculture around the globe. Both high-accuracy and broadband connectivity are becoming integral components of daily agricultural operations in the US and globally. Without modern technologies necessary to deploy these critical technologies, agriculture producers will fall short of their potential.

High-quality mobile broadband connectivity in cropland is important to ensure ongoing US leadership in precision agriculture to feed the growing US and world population. The US population is projected to reach 417 million in 2060, an increase from 319 million today. Worldwide, farmers must double the food supply in the next 40 years to feed tomorrow's global citizens. Bringing broadband connectivity to cropland farmers it will provide the ability to make real-time data transfers and design prescriptions that minimize the number of necessary seed, fertilizer and pesticides; reduce costs for fuel, labor, and water; and dynamically identify best practices. Some reports estimate decisions about irrigation, fertilization, and harvesting can increase corn farm profitability by \$5 to \$100 per acre.

Ten major employers are identified in Wayne County by the Location One Information System (LOIS) website.

Hy-Vee	Allerton Lumber Co
Wayne County Community Schools	Log Chain Apiary
Wayne County Hospital	NXMP, North America Inc
Country Clipper	East Penn
Shivver's	Taylor Fencing & Hardware

Many businesses in Wayne County, Iowa have moved to a full time or part-time "work from home" model. Doing so requires robust and reliable internet connections. Working from home provided residents with the freedom to work from anywhere. This allows individuals who have lived and worked in a metropolitan area the option to relocate to rural locations such as Wayne County. This region would like to eliminate all barriers that would prevent families from moving to this area, especially reliable and affordable internet connectivity.

Consumers have also migrated to online shopping as well. Most big-name providers now provide online ordering as well as delivery. Many local small businesses and entrepreneurs came to rely on internet sales through the Covid pandemic and continue to offer such services. Efficient broadband is essential to the longevity of their ventures.

### **Education**

During the pandemic, the educational model shifted from in-person instruction to virtual learning. It became quickly apparent that Mormon Trail Elementary School, Seymour Community School district, and Wayne Community School District didn't have sufficient infrastructure to support that model. Both educators and students in multiple school districts struggled then and continue to struggle now with adequate internet connectivity required for virtual education.

Additionally, higher education institutions and vocational programs are offered virtually by Indian Hills Community College and many other online institutions, but residents of Wayne County have difficulty accessing these programs due to the lack of affordable and reliable internet options.

Below is profile summary of the learning institution in Wayne County:

**Mormon Trail Elementary School District**

The Mormon Trail Elementary School is in Humeston in Wayne County. It is affiliated with the Mormon Trail School system which is outside of the CVPD region in Decatur County. The Mission of the Mormon Trail Community School District, in partnership with the community, is to provide quality educational opportunities in a safe and caring environment to prepare all students to function successfully in a diverse and changing world.

Mormon Trail Elementary School is a coeducational public school who has a total student enrollment of 130 students. The school provides Pre-Kindergarten to sixth grade. The student/teacher ratio is 10:1. Approximately 63% of students qualify for free or reduced-price lunch based upon their household income.

**Seymour Community School District**

**Educational Philosophy:** The Seymour School District and the Board of Directors of Seymour School District are dedicated to promoting an equal opportunity for a quality public education to its students, within the limitations of the school district's ability, in order to provide for students, in cooperation with the families and the school district community, the opportunity to develop a healthy social, intellectual, emotional and physical self-concept in a learning environment that provides guidance and encourages each student to develop his/her full potential and become a productive citizen. The District and the Board endeavor, through the dedication of the district's resources, to encourage students to prepare for and anticipate their future. To achieve this goal, the District and the Board will seek qualified employees dedicated to the development of their professional skills for the betterment of the education program. The support and involvement of the home and the community are essential to achieve educational excellence in the education program. The District strives to maintain an active relationship with the home and the community to create within the students an awareness of the importance of each, and to encourage the goals outlined above outside the educational environment. "Where Every Student Counts".

**Mission Statement:** The purpose of the Seymour Community School District is to provide each student an opportunity to achieve his or her highest academic and social potential through access to high quality programs and facilities. The district provides students with access to high quality instruction that supports the required "Common Core" Standards, 21<sup>st</sup> Century Skill acquisition and the enhanced application of technology.

Seymour School District has an estimated student enrollment of 251 students in 2021-22 school year. The current teacher to student ratio is approximately 9:1 and minority enrollment is 3%. Approximately 60% of students enrolled qualify for Free & Reduced Lunch. There are currently 27 staff members employed by this school district.

**Wayne Community School District**

**Mission Statement:** It is the vision of the Wayne County Schools to provide students with the opportunity to gain the skills and knowledge needed to succeed beyond the structure of our school system including but not limited to being: 1. Productive Citizens 2. Effective Parents 3. Proficient Workers 4. Dedicated Professionals 5. Students prepared for all facets of post-secondary education 6. Moral and Ethical Leaders.

Wayne Community Schools were created in the mid-60s, as some of the individual school districts in the area reorganized. Students are housed in two buildings that are located within the city limits of Corydon. The sites are Wayne Community Junior/Senior High School, and Wayne Community Elementary School. The Wayne Community Schools, like every public school district in Iowa, is governed by a board of directors. The board is responsible for determining policies, setting the budget, and maintaining standards of excellence in education on behalf of the community. Board members are elected by Wayne County voters for four-year terms.

This includes full-time and parttime Staff: 47

The Wayne Community School is predominantly (99%) white ethnicity.

There were approximately 634 students enrolled during the 2021-22 school year. The student/teacher ratio is 14:1. The current number of students who are enrolled for the Free and Reduced Lunch program is used to determine the number of at-risk students who reside in poverty conditions. There are approximately 56% of students in this school district that qualify for this program. Wayne Community Schools offers transportation to enrolled students throughout the district. Six (6) buses travel throughout the district to transport children to and from school.

### **Healthcare**

The City of Corydon is the hub of services for Wayne County, Iowa. Wayne County Hospital provides services to the county and many residents from the surrounding counties. To access care, some residents will drive 20-30 minutes. The local doctors can consult and access referrals through efficient broadband service. This area has also become dependent on tele-health services. This type of care continues to expand to include general consultation, ongoing health management, mental health services, and emergency care. It is becoming increasingly more important for citizens of Wayne County to have access to this critical care through effective and efficient broadband services.

### **Wayne County Hospital**

A two-time (2010 & 2009) Press Ganey Summit Award recipient for outstanding patient satisfaction, the Wayne County Hospital team of health care professionals is dedicated to improving the health and well-being of patients. Wayne County Hospital is a general medical/surgical hospital with modern medical imaging and laboratory services, inpatient & outpatient rehabilitation therapy, new labor-delivery-recovery obstetrical suites and an exceptional dialysis unit. The emergency department, designated as a Level IV Trauma Center, provides 24-hour emergency care, and offers stabilization and transfer services to patients requiring more specialized care. Ambulance and medical helicopter transfer services are available with highly trained emergency personnel.

The medical staff consists of family practice physicians, a general surgeon and orthopedic specialist, complemented by physician assistants and nurse practitioners. In addition, obstetric care service in a 5-county area.

The Amy Robertson Specialty Clinic offers patients local care with visiting specialists in areas such as audiology, cardiology, orthopedics, podiatry, and urology. The Wayne County Hospital rehabilitation services team provides physical, occupational and speech language therapy. The hospital clinic system operates four clinics conveniently located in Corydon, Humeston, Lineville and Seymour to provide better health care access to patients within Wayne County.

Wayne County Hospital is one of the largest employers in the county serving a population of 6,403 people in Wayne County plus surrounding areas. (2010 Census) Wayne County Hospital operates as a tax-exempt; 25-bed licensed Critical Access Hospital (CAH).

### **Affiliate of Mercy Medical Center, Des Moines**

Since 1986, the Wayne County Hospital has been a part of the Mercy Medical Center of Des Moines, Iowa, statewide collaborative Network of Healthcare Services. This affiliation is through a management contract with that facility.

Wayne County Hospital is one of the major employers in Wayne County. There are approximately 236 employees.

### **Overall, Health Status of Wayne County Residents**

The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute have partnered to collect health data for counties across the nation for the past 10 years. The purpose of this data collection “is working to improve health outcomes for all and to close the health gaps between those with the most and least opportunities for good health. This work is rooted in a deep belief in health equity, the idea that everyone has a fair and just opportunity to be as healthy as possible, regardless of race, ethnicity, gender, income, location, or any other factor. Increasing opportunities for everyone can reduce gaps in health. For example, providing better access to high-quality education and enrichment opportunities boosts workforce skills that are key to landing a good job and for upward economic mobility.” [Wayne, Iowa | County](#)

[Health Rankings & Roadmaps](#) The data from the past ten years indicates that Wayne County has declining from 2019 to 2022. The area improved from 97 of 99 to be 81 out of 99 in 2022. Some of the negative health behaviors impacting the study include adult smoking, adult obesity, physical inactivity, alcohol-impaired driving deaths and teen births. The study also indicates a lack of access to exercise opportunities. The county shows a greater percentage of residents participating or affected than the average for the State of Iowa.

Next-generation EMT services will use mobile communications technology, aimed at providing a significant time advantage, expediting critical treatment, and improving patient outcomes. Vital signs of patients being transported by ambulance can be measured and transmitted to the hospital instantly via a wireless network, and videos taken by digital cameras installed in the ambulance can be sent to the hospital in real-time.

Medical professionals can also evaluate patient health through remote monitoring. Wearable gadgets can report vital signs to a health center that can warn patients of potential problems. This can be especially beneficial to elderly patients or people with mobility challenges.