CASS COUNTY COMPREHENSIVE & TRANSPORTATION PLAN

CASS 2045

May 2018

BACKGROUND

BACKGROUND

Cass County is located along the eastern border of North Dakota in the Red River Valley (Figure 1.1). This Comprehensive and Transportation Plan covers the entire area of Cass County, addressing the following topics:

- Community Development
  - Housing
  - Economic Development
  - Food Systems
  - Emergency Management
  - Public Infrastructure and Facilities
  - Energy
- Land Use
  - Land Use
  - Intergovernmental Coordination
  - Floodplain Management
  - Natural Resources
  - Cultural Resources
  - Climate
- Transportation
  - Roadways
  - Bridges
  - Public and Active Transportation

Each of these topics is guided by the Vision and Principles developed through the public input process. An implementation plan is also included in this document.

Figure 1.1: County Location

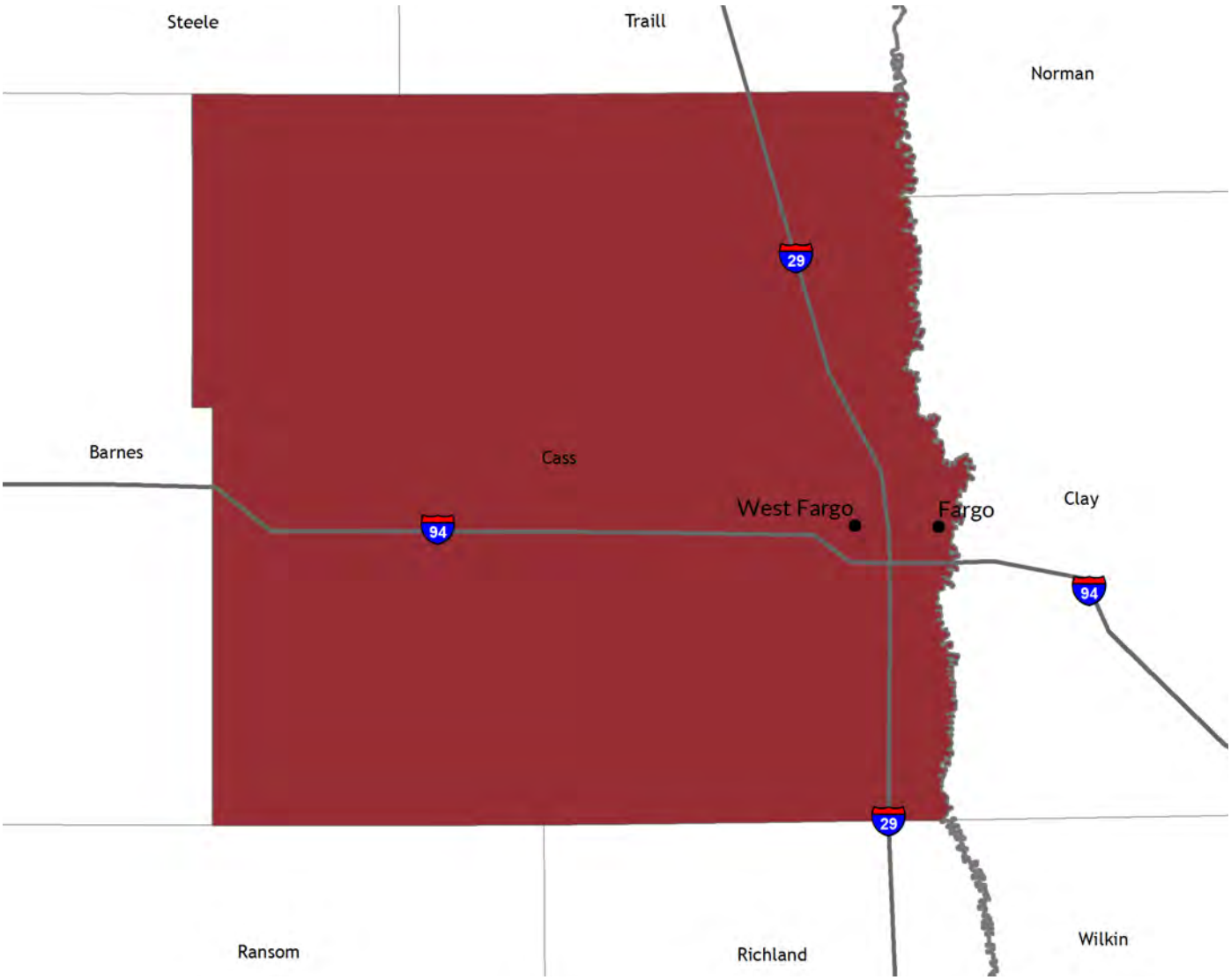
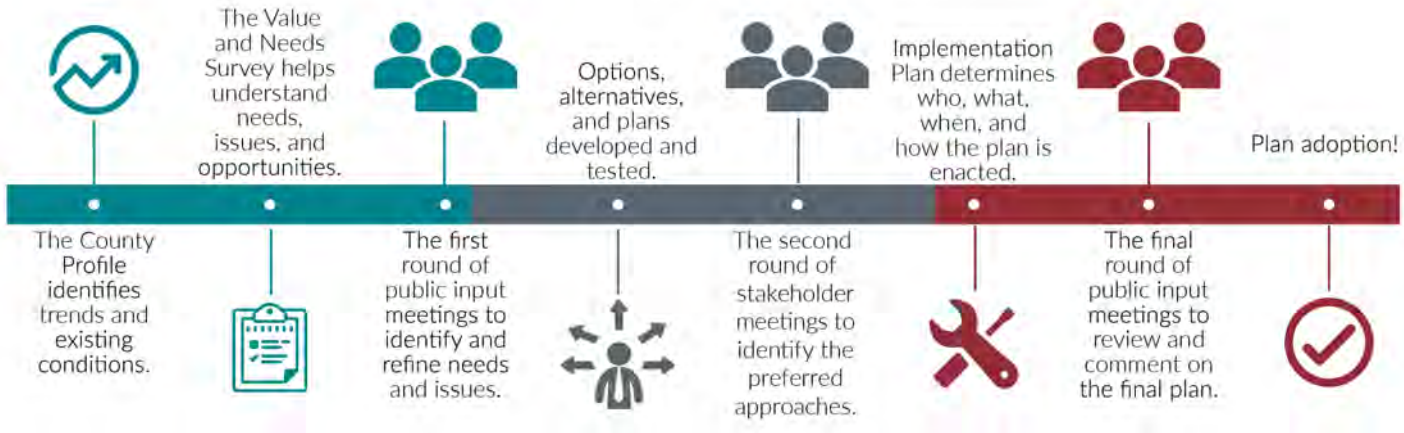


Figure 1.2: Planning Process



Purpose

The Cass County Comprehensive and Transportation Plan presents a vision for the future of the County and provides a framework of strategies and policies on many topics relevant to the current and future needs of the County. This allows the county government to make decisions that are internally consistent and fiscally efficient. Private interests also benefit from comprehensive plans because the plans offer a general understanding of how future development may occur. Comprehensive plans also serve as a foundation for the regulation of development through subdivision and zoning controls. This plan is an update to the 2005 Cass County Comprehensive Plan.

Process

The Cass County Comprehensive and Transportation Plan followed the general process shown in Figure 1.2. It began with an existing and projected conditions assessment, detailed in the County Profile, then testing options, alternatives, and recommendations, and developing implementation strategies. The plan incorporated multiple rounds of public and stakeholder engagement, including meetings and surveys, which is detailed in the Summary of Public Input.

History

Sisseton and Wahpeton bands of the Sioux Native Americans occupied current day Cass County as far back as the seventeenth century. By the late 1700s and early 1800s, the first European settlers, fur traders, migrated west across North America. The first settler in Cass County, Peter Goodman was an employee of the Hudson Bay Company. The new pioneers relied heavily on the area's waterways, settling along the Red, Wild Rice, and Sheyenne rivers for sources of wood, water, resources, and transportation.

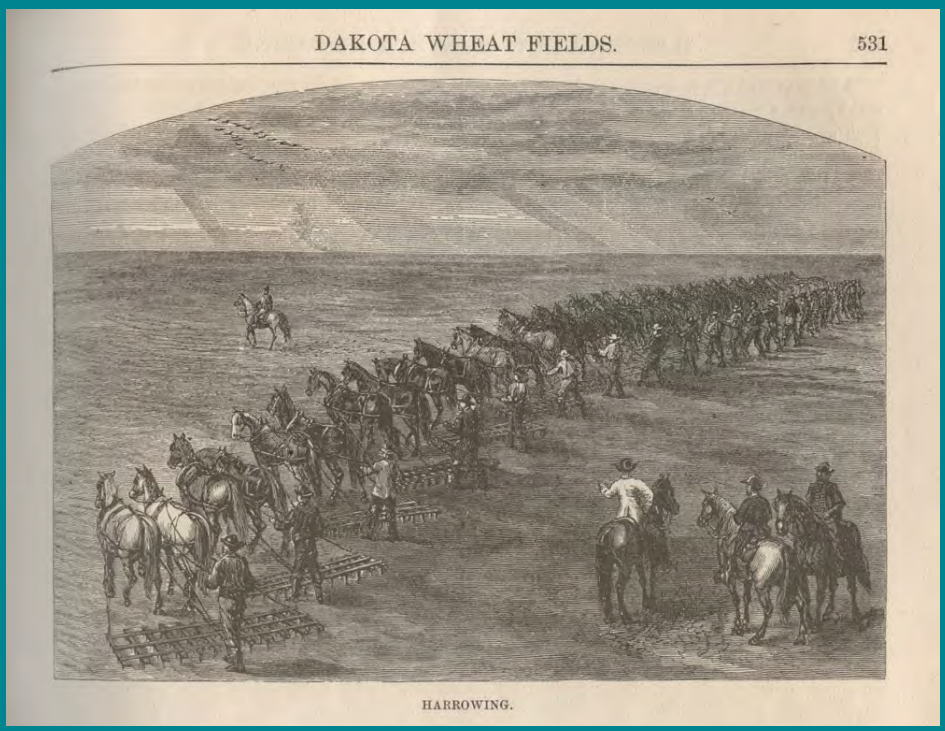
The area now known as Cass County was originally part of Pembina County, which included all of the northern Dakota Territory east of the Missouri River. As settlement increased in the area, Pembina County was carved into several smaller counties. Cass County, named after George W. Cass, the President of the Northern Pacific Railway, was officially created in 1873 with the first County Commission meeting held on October 27, 1873.

The expansion of the Northern Pacific Railway in 1871 through what is now Fargo, marked the beginning of western development into the County. This expansion brought new settlers which, combined with the discovery of the fertile soils of the Red River Valley, created large bonanza farming operations. These settlers were sod busters, exposing natural soils to seed of various small grains; spring wheat provided the area's first cash crop and its success was largely responsible for the increased number of settlers moving into the region. The intensive farming practices of the bonanza farms contributed to the 1930s Dust Bowls and led to soil conservation practices to prevent the erosion of the fertile topsoil.

The increased utilization of the automobile and the expansion and creation of a higher quality roadway network allowed residents to travel longer distance more rapidly and reliably. This pattern has continued to the present day, and resulted in the development of the Fargo urbanized area as a regional trade center, providing products, services, and jobs that are utilized by the rural areas of Cass County and a large region beyond its borders.

Bonanza Farms were very large farms, mostly cultivating and harvesting wheat. They developed as a result of efficient farming machinery, cheap land and the completion of major railroads between the farming areas and markets.

Figure 1.3: Harrowing at the Dalrymple Farms in Cass County[1]



COUNTY PROFILE

COUNTY PROFILE

DEMOGRAPHICS

Historical and Future Population

Cass County's population has seen high, continuous growth since it was first organized in 1873. More recently, Cass County has seen 43.1 percent growth since 2000, to a 2015 population of 168,930 (shown in Figure 2.1). Cass County is 22.3 percent of North Dakota's 2015 population (756,835). Historical and future populations for selected cities in Cass County are shown in Table 2.1.

The urban-rural profile has changed overtime. When first organized, Cass County was only around 30 percent urban. Fast forward to the 2010 Decennial Census and Cass County is nearly 90 percent urban.

The recently completed Demographic Forecast Study for the Fargo-Moorhead Metropolitan Council of Governments included population forecasts for Cass County and many of the county subdivisions (cities and townships).

From 2015 through 2045, the population of Cass County is expected to grow more than 49 percent, to 251,940 (Figure 2.2). Much of this population growth will be in current population centers, specifically the Fargo-Moorhead urban area (Fargo, West Fargo, and Horace). Urbanization is expected to continue, with 94 percent of the population expected to live in the urban areas by 2045.

Figure 2.1: Historical Population

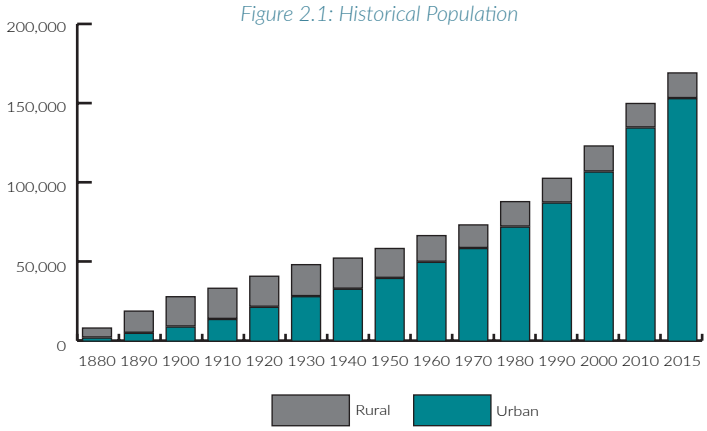


Figure 2.2: Population Forecasts

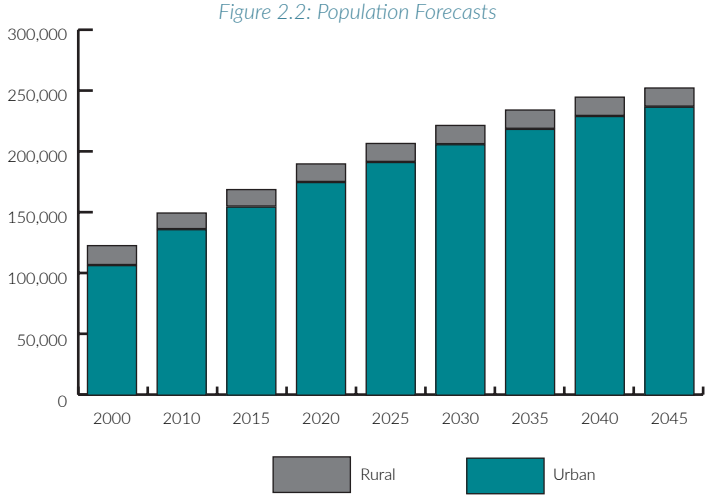


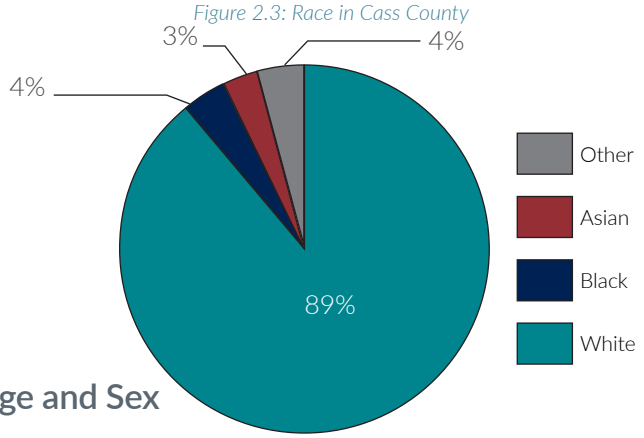
Table 2.1: Historical and Future Populations for Selected Cities in Cass County

Jurisdiction	1990	2000	2010	2015	2020	2025	2030	2035	2040	2045
Cass County	102,874	123,138	149,778	168,930	189,900	206,620	221,350	233,940	244,460	251,940
Argusville	161	147	475	500	503	506	506	499	491	495
Casselton	1,601	1,855	2,329	2,420	2,530	2,680	2,800	2,920	2,990	3,110
Fargo	74,111	90,599	105,524	117,230	129,690	140,030	151,810	162,450	172,140	179,800
Harwood	590	607	718	755	723	716	705	712	716	711
Horace	662	915	2,430	2,620	5,070	8,190	8,940	9,500	9,820	10,040
Kindred	569	614	692	728	773	798	805	799	802	797
Mapleton	682	606	762	801	792	809	774	750	761	755
Reiles Acres	210	254	513	539	489	483	493	475	468	464
West Fargo	12,287	14,940	25,840	32,300	37,370	40,140	42,000	43,240	43,660	43,270
Rest of Cass	12,001	12,601	10,495	11,037	11,960	12,268	12,517	12,595	12,612	12,498

Race

In 2015, Cass County was 89 percent white, four percent Black and three percent Asian (Figure 2.3). The county has become more diverse since 2000, when the County was 95 percent white.

Figure 2.3: Race in Cass County



Age and Sex

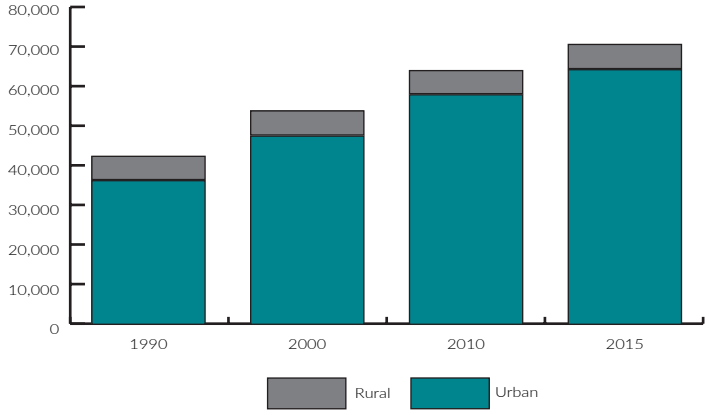
The median age of Cass County has increased from 31.3 in 2000 to 31.9 in 2015, but remains younger than the state, where the median age was 34.6 in 2015. This is primarily due to the multiple universities and colleges in the Fargo-Moorhead metropolitan area, which results in a large college aged population. The recent Fargo-Moorhead Demographic Forecast Study also found that the Fargo-Moorhead area has been more successful retaining college graduates in recent years, likely attributable to the strong economy. The population pyramid for Cass County and North Dakota is shown in Figure 2.4, with the geographic distribution of median age shown in Figure 2.12.

Figure 2.4: 2015 Population Pyramid

Historical and Future Households

There were 70,460 households in Cass County in 2015, 91 percent of which were in Fargo, West Fargo, and Horace. This is a 10 percent increase over 2010, when there were 63,899 households and a 31 percent increase over 2000, when there were 53,790 households. Cass County represents 22.5 percent of all households in North Dakota (313,475). Historical households are shown in Figure 2.5, with the geographic distribution of households shown in Figure 2.13. The historical and future households for selected cities in Cass County is shown in Table 2.2.

Figure 2.5: Historial Households



The recently completed Demographic Forecast Study for the Fargo-Moorhead Metropolitan Council of Governments included population forecasts for Cass County and many of the county subdivisions (cities and townships).

From 2015 through 2045, the number of households in Cass County is expected to increase nearly 42 percent to 99,960 households (Figure 2.6); 97 percent of this household growth will be in current population centers, specifically the Fargo-Moorhead metropolitan area (Fargo, West Fargo, and Horace). Urbanization is expected to continue, with 93 percent of the households in the county to be in urban areas by 2045.

Figure 2.6: Household Forecasts

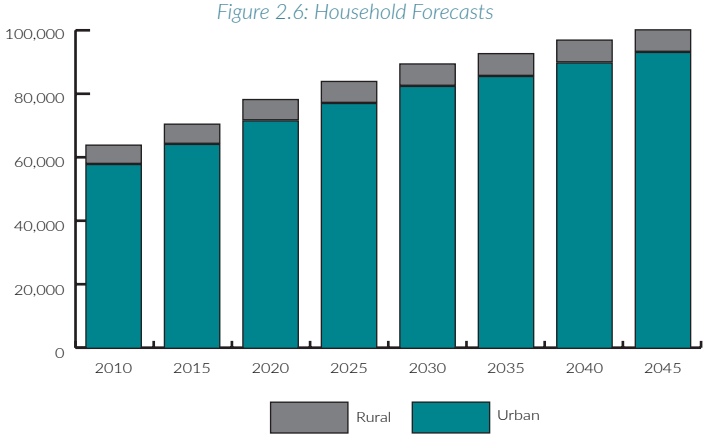


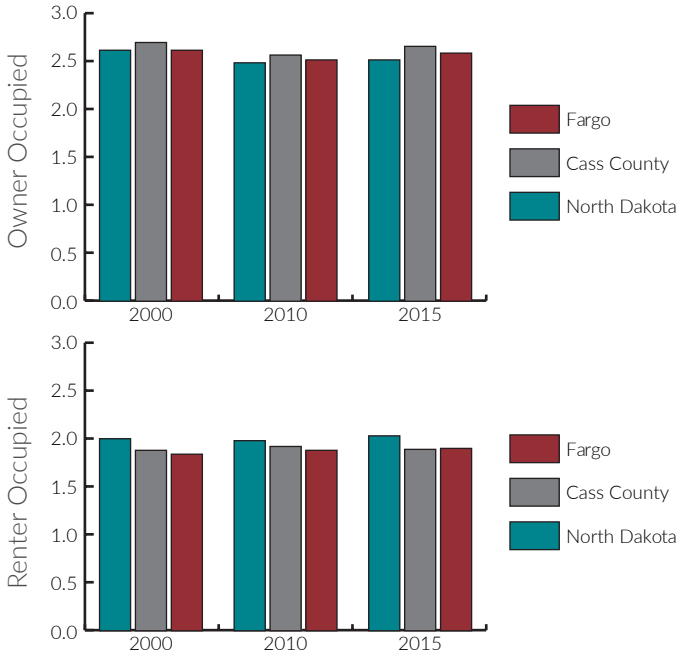
Table 2.2: Historical and Future Households for Selected Cities in Cass County

Jurisdiction	1990	2000	2010	2015	2020	2025	2030	2035	2040	2045
Cass County	42,407	53,790	63,899	70,460	78,160	83,820	89,290	92,520	96,750	99,960
Argusville	56	65	151	160	160	170	170	170	170	170
Casselton	664	738	874	890	920	950	1,000	1,040	1,090	1,150
Fargo	31,711	41,200	46,671	50,870	56,280	60,260	64,650	66,630	70,550	73,530
Harwood	172	201	241	250	250	270	270	270	280	280
Horace	216	311	810	840	1,730	2,710	2,980	3,190	3,360	3,520
Kindred	246	267	267	270	280	280	280	290	300	300
Mapleton	203	193	248	250	260	280	280	280	290	290
Reiles Acres	56	72	146	150	160	170	180	180	180	180
West Fargo	4,574	5,968	10,348	12,410	13,460	13,950	14,630	15,540	15,690	15,840
Rest of Cass	4,509	4,775	4,143	4,370	4,660	4,780	4,850	4,930	4,840	4,700

Household Size

In 2015, the average household size in Cass County was 2.65 for owner occupied households and 1.89 for renter occupied households. The average household size for owner occupied households is larger than the state average of 2.51, but the average household size for renter occupied households is smaller than the state average of 2.03. Household size is shown in Figure 2.7.

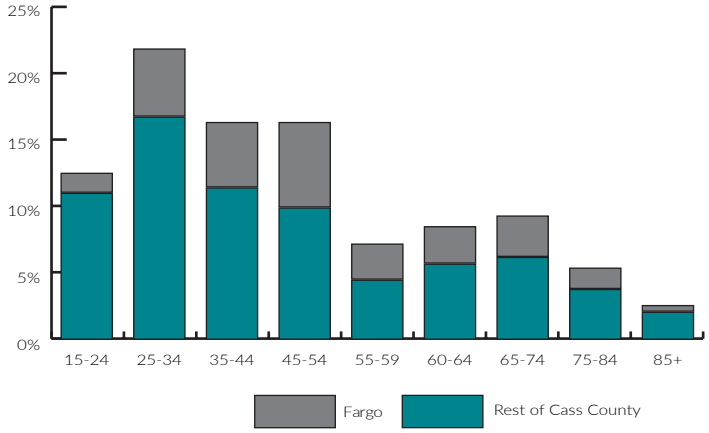
Figure 2.7: Household Size



Age of Householder

As of 2015, the largest percent of householders were between the ages of 25 and 34 at 22 percent, split between Fargo (17 percent) and the rest of Cass County (five percent). The largest age range outside of Fargo is the 45 to 54 year olds, where they comprise more than six percent of households. Just five percent of households with the householder aged 65 or older live in rural Cass County. The age of householder is shown in Figure 2.8, with the geographic distribution of householders 65 or older shown in Figure 2.14.

Figure 2.8: Age of Householder



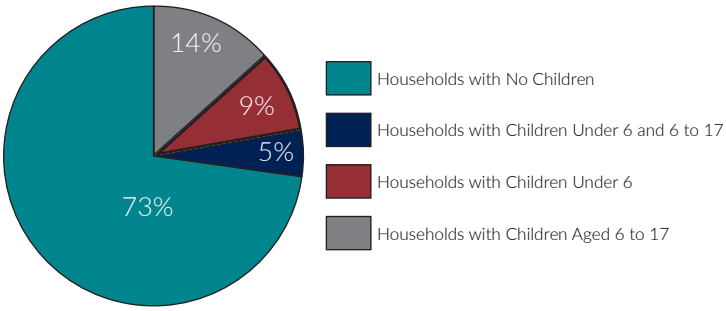
The age of the householder has many implications on planning and policy. A large population of householders between 25 and 34, prime child-bearing years, could result in the need for future schools, while a large population of householders aged 65 or older could indicate a need for additional elder care services.

- In 2015, 28 percent of households had at least one person over 60, which is up from 16 percent in 2010. This trend was borne out in the state of North Dakota as well, where households with one person over 60 increased from 24 percent in 2010 to 33 percent in 2015.
- Nearly one in three households in 2015 had just one person living there. This trend has been fairly constant since 2000. Of these one-person households, 28 percent were individuals older than 65, including 5 percent living in rural Cass County.

Households with Children

Around one of four households in Cass County had children under 18 in 2015 (27 percent), as shown in Figure 2.9. This is a decline from 2000, where 30 percent of households had children under 18, but an increase from 2010 where 26 percent of households had children under 18. The geographic distribution of households with children is shown in Figure 2.15.

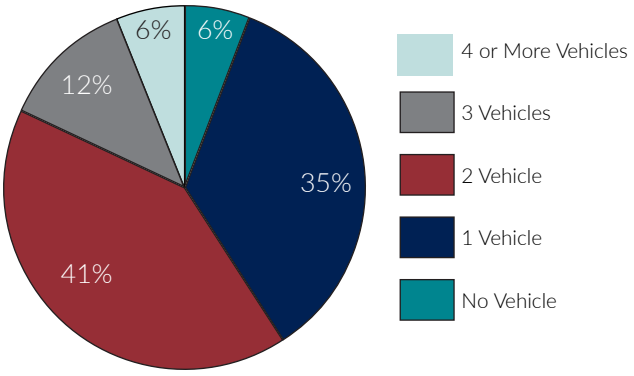
Figure 2.9: Households with Children



Vehicle Availability

Private automobiles are often very important for mobility to work, medical, or social events, especially in rural communities. In Cass County in 2015, six percent of households had no vehicle. Of the households with no vehicle, 68 percent of them are single person households who live in Fargo. Looking further into vehicle availability, one-vehicle households are surprisingly common.

Figure 2.10: Vehicle Availability

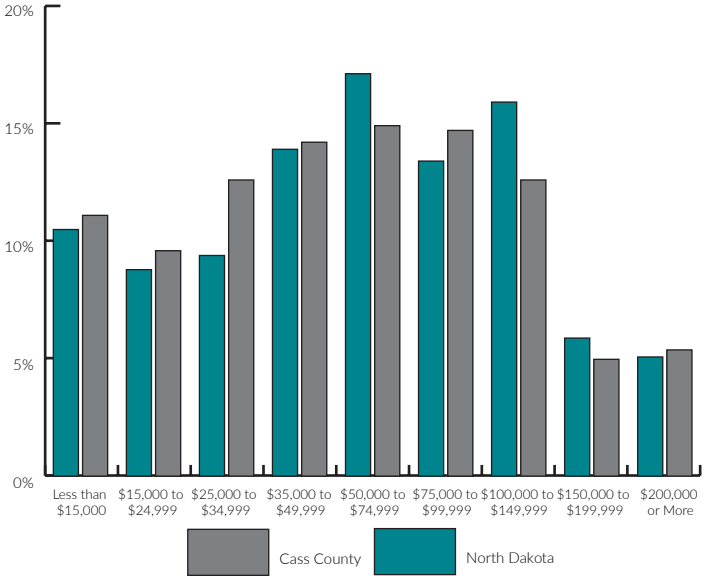


On average, 17 percent of Cass County two or more person households had just one vehicle available. Vehicle availability is shown in Figure 2.10.

Median Household Income

In 2015, the median household income in Cass County was $53,728, up 6.2 percent since 2010 ($50,616) and 40.8 percent since 2000 ($38,147). For the first time since 2000, the median household income in Cass County was lower than the statewide median household income of $60,557. Cass County has a higher proportion of lower income households (less than $35,000) than the state as a whole. This could be explained by two factors. First, Cass County is younger than the state as a whole. The younger population may be enrolled in college, working less than full time, or have less experience and thus lower wages. Second, the lagging impact of the oil boom in western North Dakota may have resulted in a higher proportion of high-wage jobs in oil rich areas, relative to the types of jobs and job sectors that have grown in Cass County. Distribution of household income is shown in Figure 2.11.

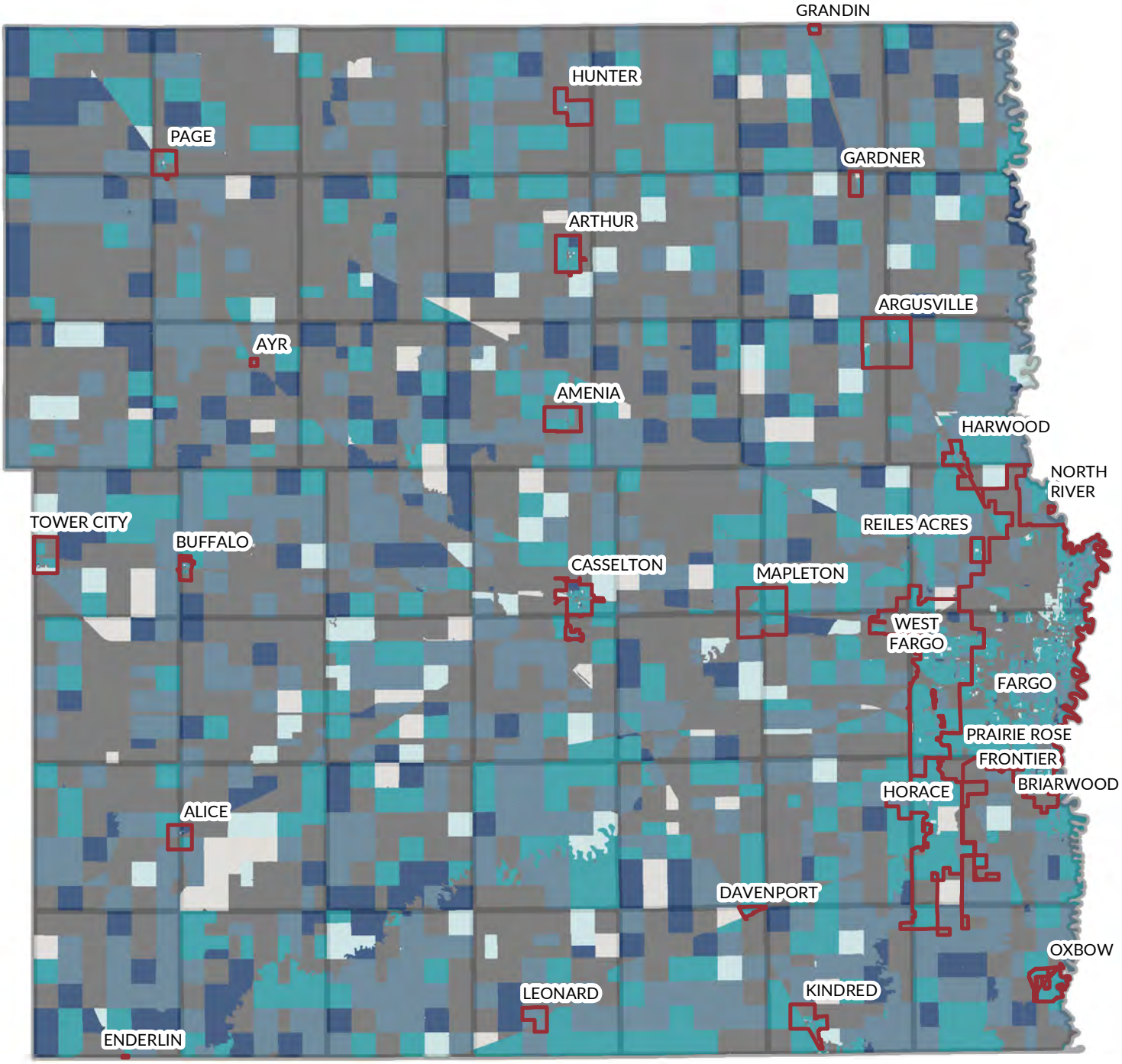
Figure 2.11: Distribution of Household Income



Poverty

In 2015 in Cass County, 10.7 percent of individuals were in poverty. This includes 4.9 percent of families, 8.8 percent of children under 18, and 7.5 percent of people aged 65 and over. Since 2000, poverty has declined across most groups (families, children under 18, and people aged 65 and over). It has increased slightly for individuals between 18 and 65.

Figure 2.12: Cass County Age by Block (2010)



Cass County Median Age by Block

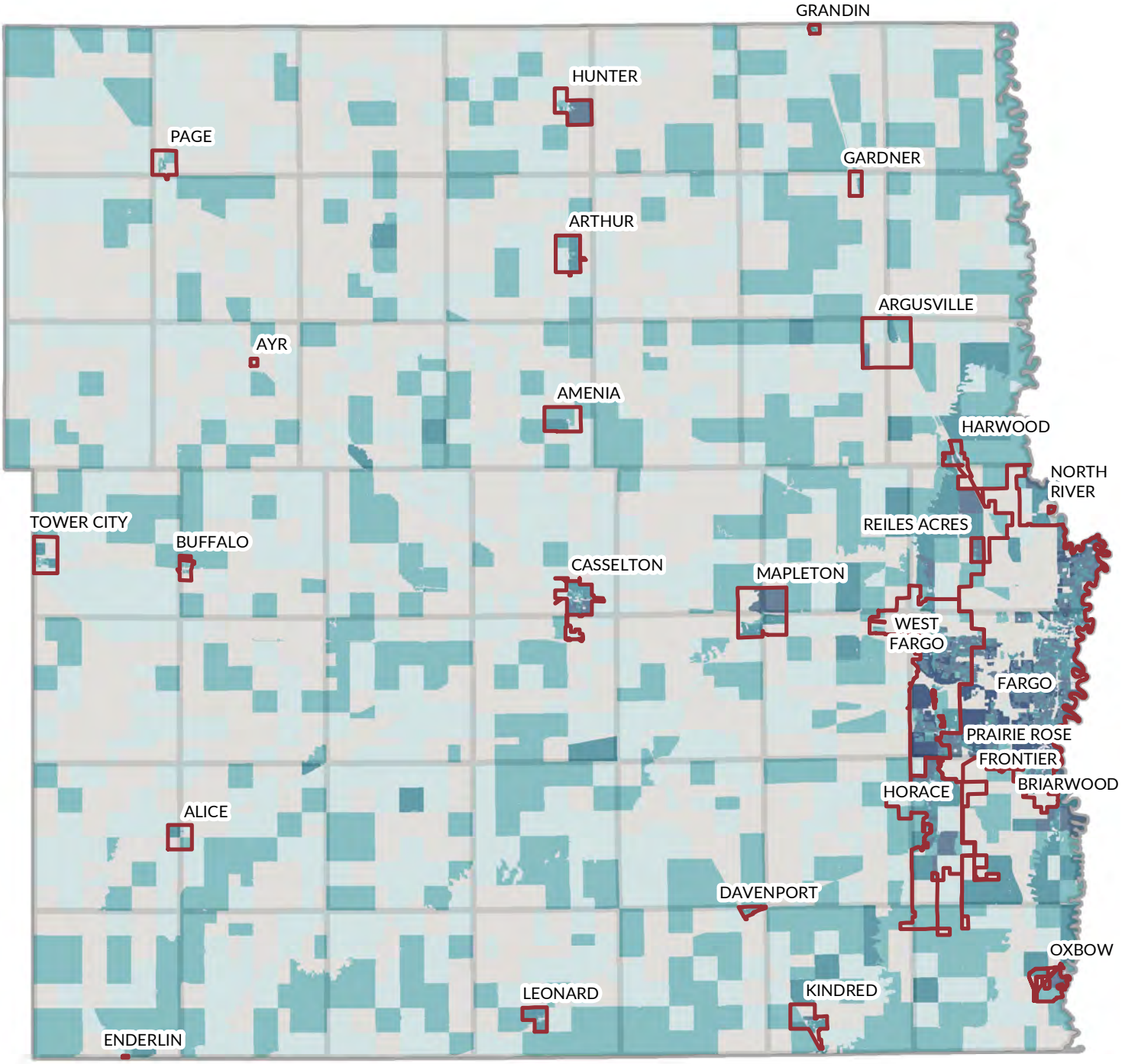
Census 2010

Median Age

Under 17 | 25 - 44 | 65+

18 - 24 | 45 - 65 | No Population | City Limits

Figure 2.13: Cass County Households (2010)



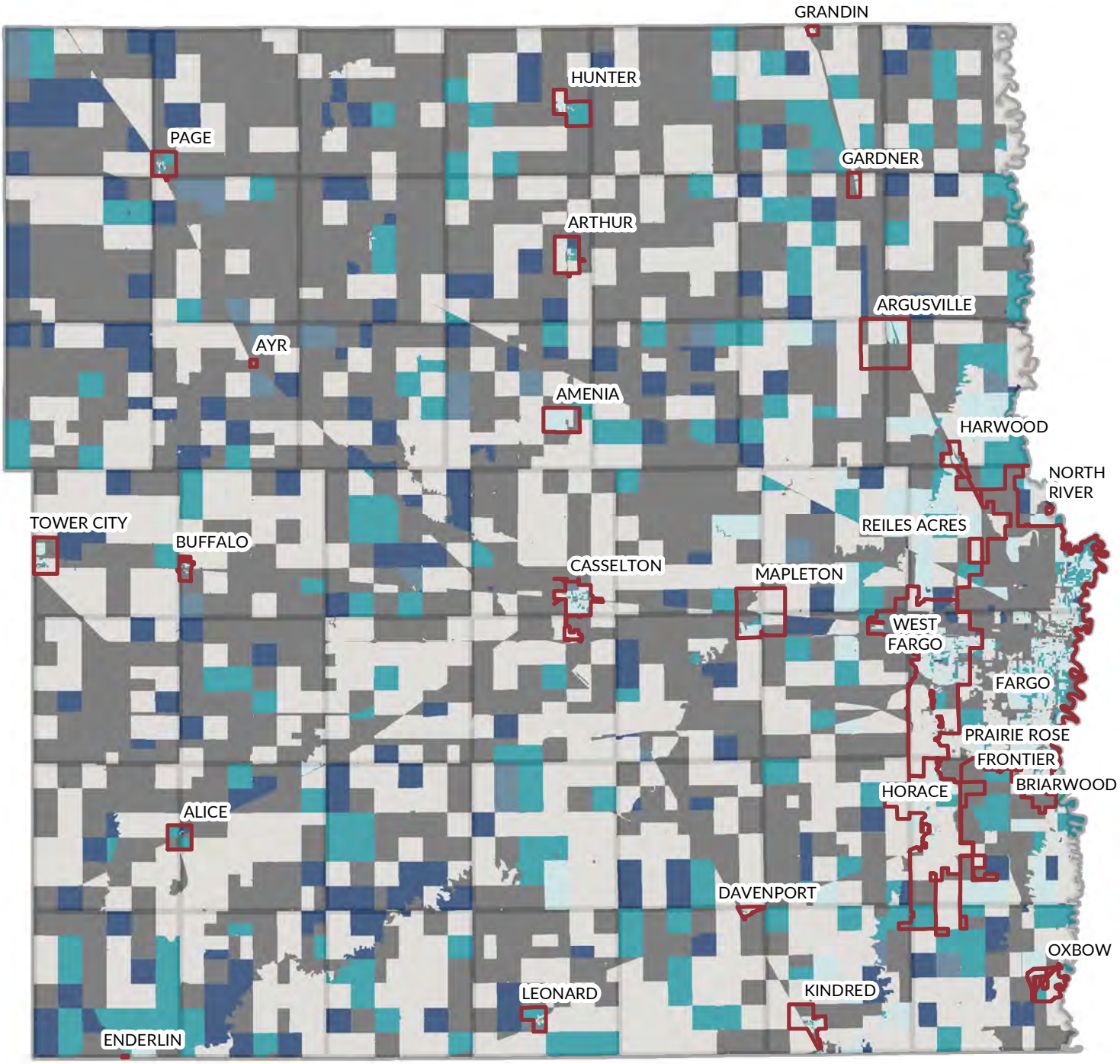
Cass County Total Households by Block

Census 2010

Total Households

0	2 - 5	26 - 100	
1	6 - 25	101 - 532	City Limits

Figure 2.14: Cass County Households Over 65 (2010)



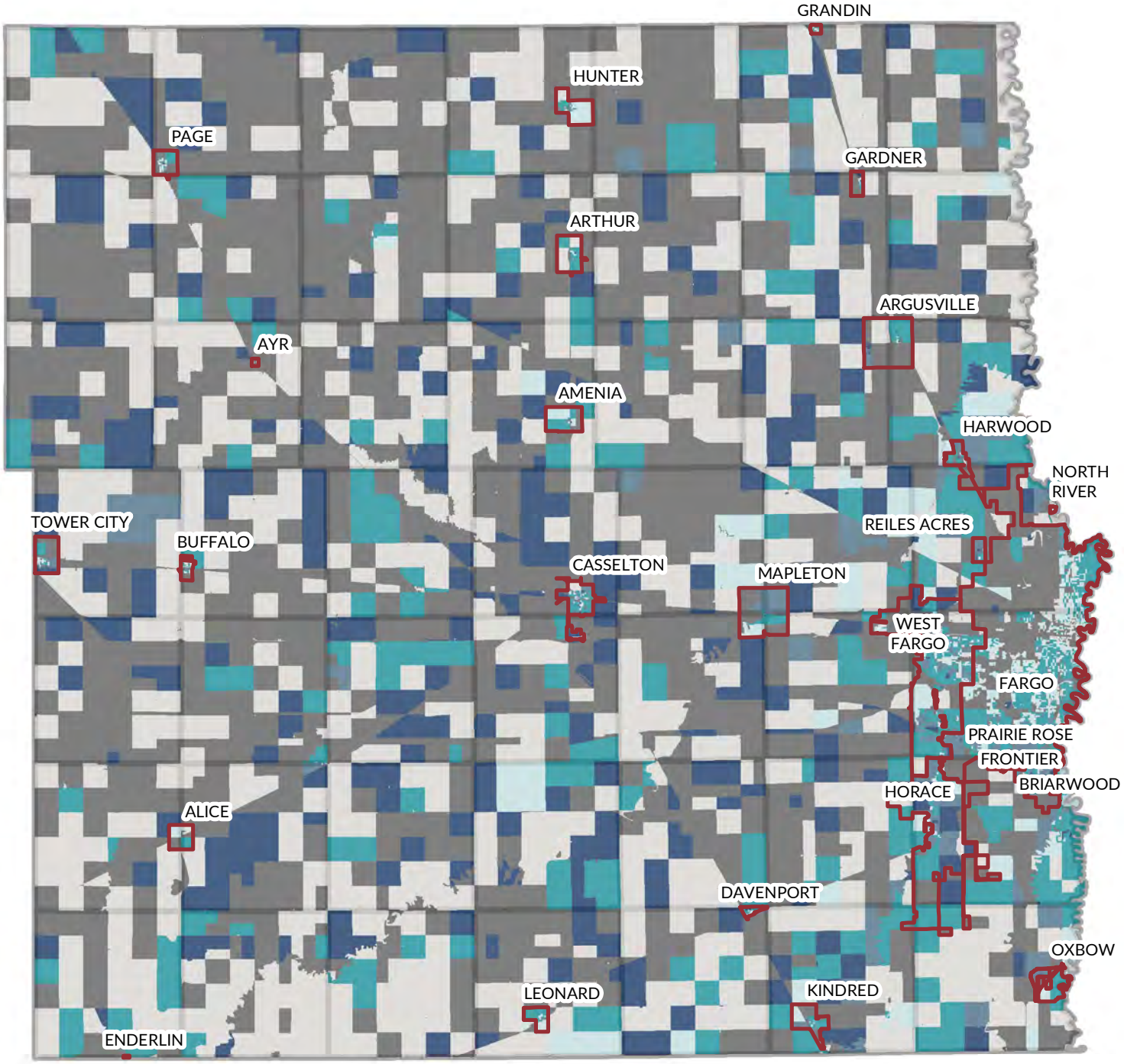
Cass County Households Over 65 by Block

Census 2010

Percent of Households with Persons Over 65

Under 10 | 25 - 50 | 75 - 100
10 - 25 | 50 - 75 | No Population | City Limits

Figure 2.15: Households with Children



Cass County Households With Children by Block

Census 2010

Percent of Households with Children

Under 10 | 25 - 50 | 75 - 100

10 - 25 | 50 - 75 | No Population | City Limits

School Enrollment

There are eight school districts in Cass County:

- Fargo Public Schools
- West Fargo Public Schools
- Kindred
- Central Cass
- Mapleton
- Northern Cass
- Maple Valley
- Page

Since 2010, enrollment in many of the rural schools has remained relatively flat. Northern Cass has grown at a rate of 2.5 percent each year, or about 15 new students each year. The West Fargo school district grew the fastest, nearly six percent each year, or 482 new students each year.

Figure 2.16: Enrollment in West Fargo and Fargo School Districts

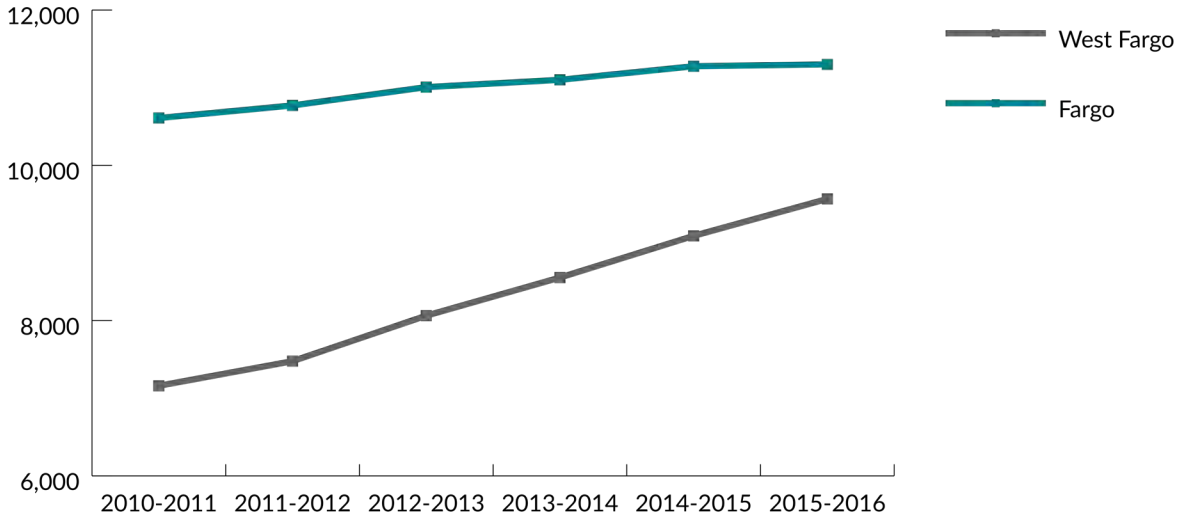
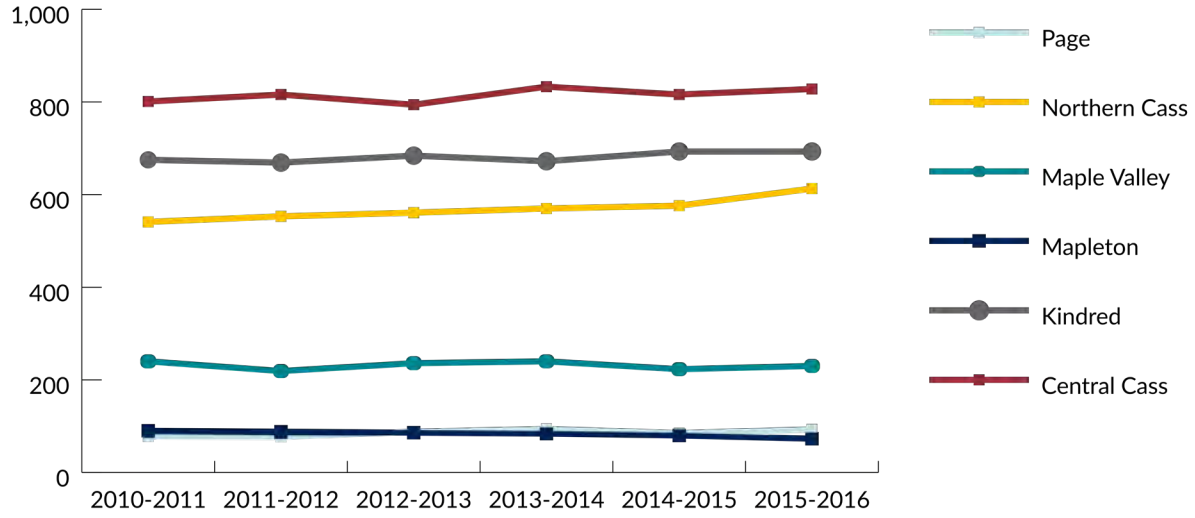


Figure 2.17: Enrollment in Rest of Cass County School Districts



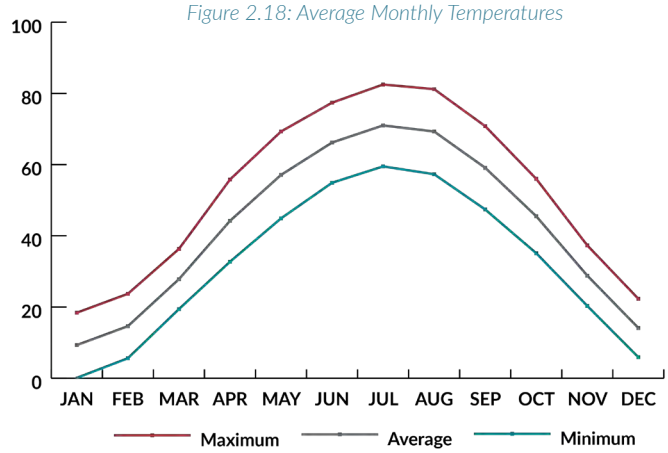
Climate

Overview

Cass County has a continental climate, with four distinct seasons: warm summers, cold winters, and moderate springs and falls. It is important to differentiate weather and climate. Weather is the state of the atmosphere, the representation of how hot or cold, wet or dry, calm or stormy the atmosphere is. Climate is the sum of weather over time.

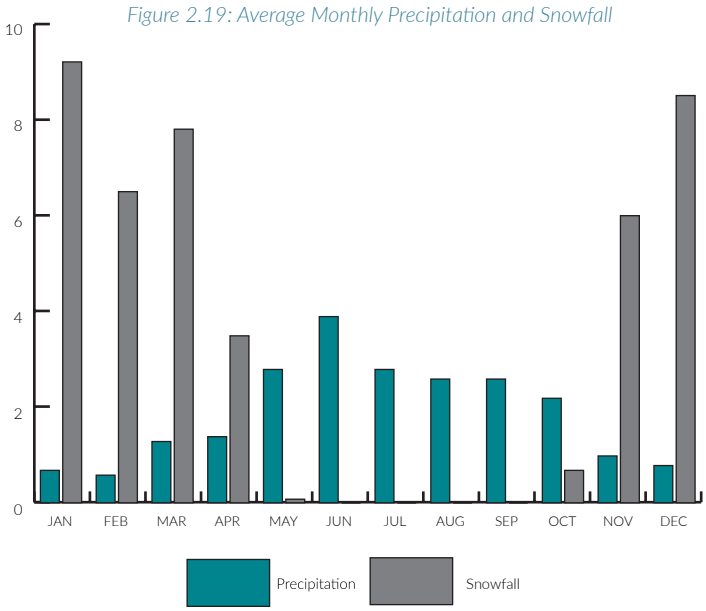
Since 1980, Cass County has had an average annual temperature of 42.3 degrees, with the coldest average temperature in January (nine degrees) and the warmest in July (71 degrees), as shown in Figure 2.18. Typically, Cass County experiences 12 days above 90 degrees and 178 days below 32 degrees.

Figure 2.18: Average Monthly Temperatures



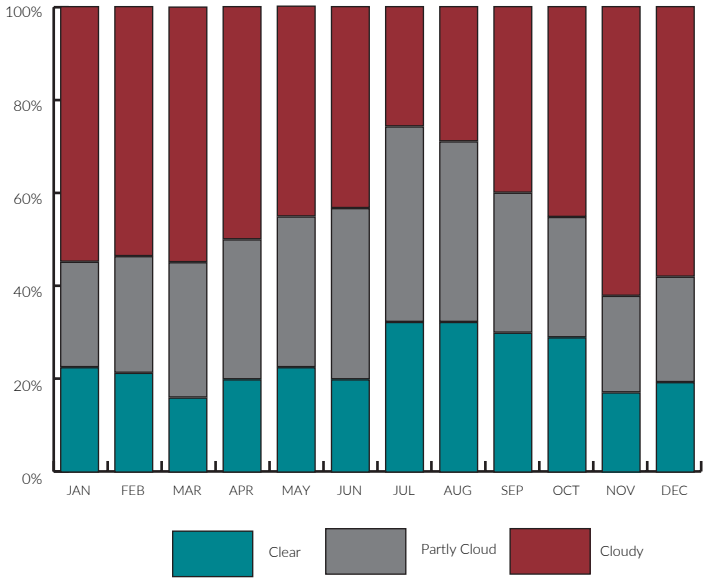
Annually, Cass County receives 22.6 inches of precipitation, including 42.3 inches of snow. Monthly precipitation and snowfall is shown in Figure 2.19.

Figure 2.19: Average Monthly Precipitation and Snowfall



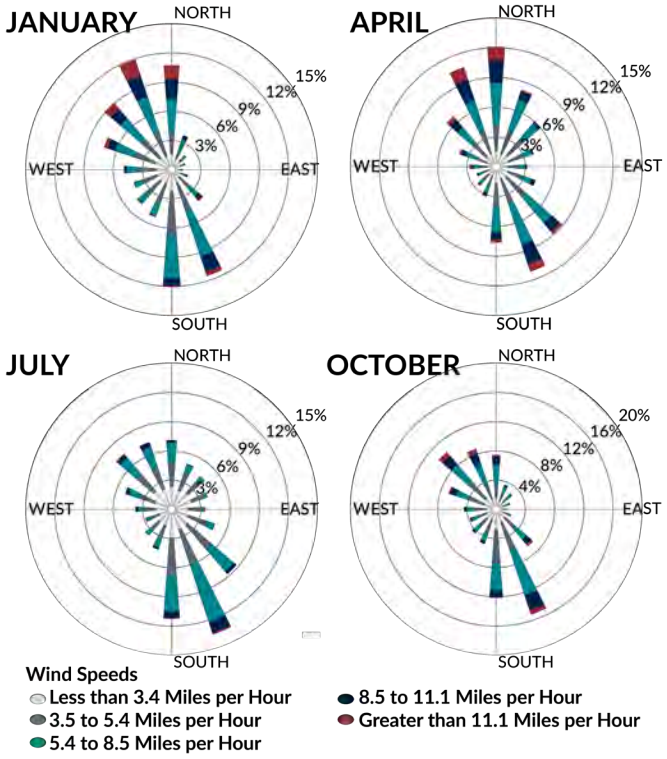
On average, Cass County experiences 174 days of sunshine, typically experiencing more days of full and part sun during the summer months. Days of clear, partly cloudy, and cloudy are shown in Figure 2.20.

Figure 2.20: Seasonal Wind Roses



Annual average wind speeds are around 11 miles per hour. However, as the seasons change, the direction and speeds of winds also change. Seasonal wind speeds and direction are shown in Figure 2.21.

Figure 2.21: Average Monthly Temperatures



Change Over Time

Data collected by the National Centers for Environmental Information (program under the National Oceanic and Atmospheric Administration)[2] since 1960 has shown an upward trend for both temperatures (Figure 2.22) and precipitation (Figure 2.23) for Cass County.

Figure 2.22: Annual Average Temperature

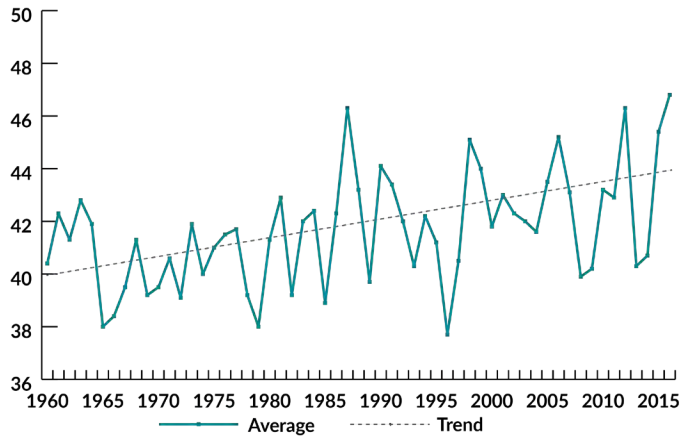
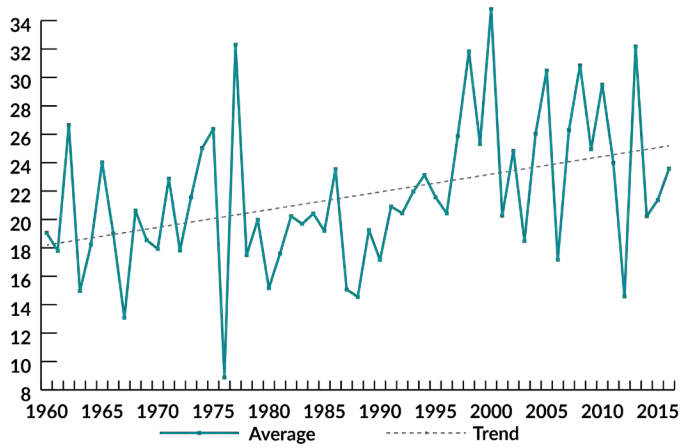


Figure 2.23: Average Annual Rainfall



Climate Impacts

On Transportation

National research completed by the Transportation Research Board, and presented in *Transportation Research Board Special Report 290*[3] has begun to outline the potential impacts climate change will have on transportation systems. With higher and more sustained instances of extreme temperatures and weather events, impacts to the transportation system are likely to include thermal expansion on bridge joints and paved surfaces, decreased pavement integrity, subsidence or erosion of road base, and increased flooding and washouts of roadways.

Climate Change Impacts in the United States: The Third National Climate Assessment[4] identified a variety of impacts to the transportation system:

- Short-term road flooding and blocked culverts due to extreme rain events
- Train derailment due to railway buckling
- Pavement heaving and reduced pavement life due to high temperatures

The same publication presented adaptation opportunities for transportation:

- Through transportation and land use planning, decide what infrastructure to build and where to build and seek to minimize impacts on vulnerable areas and populations (elderly, low-income, and non-native English speakers) of the community.
- Complete a risk assessment to identify vulnerable facilities and systems and project consequences.
- Adapt new infrastructure design that is resilient to extreme weather events and higher temperatures.
- Incorporate a responsive plan for current and anticipated conditions for operations and maintenance.
- Anticipate extreme weather disruptions and develop emergency response capabilities.

On Agriculture

Whether it is a longer growing season, increased instances of drought or heavy rains, or changes in pests and invasive species, climate change has significant impacts on agriculture.

Climate Change Impacts in the United States: The Third National Climate Assessment (Chapter 19: Great Plains) presented some findings on climate change's potential impact on agriculture:

- Winter and spring precipitation and very heavy precipitation events will likely increase runoff and flooding resulting in lower water quality and eroded soils. The increased winter and spring precipitation may result in fields too wet to plant, but this could be offset by longer growing seasons.
- Warmer winters will allow some pests and invasive weeds to survive. It could also induce winter crops to emerge early and then be damaged by spring freezes.
- Higher temperature extremes and heat waves will have negative impacts on livestock. Livestock will also be impacted by feed-grain production, availability and price and pasture production and quality, among other things.

- Over time, the cumulative result of these impacts may be changing patterns of farming and changes in primary crops being grown in the County.

On Communities

In 2014, the Intergovernmental Panel on Climate Change produced the *Fifth Assessment Report of the Intergovernmental Panel on Climate Change*[4]. The report states that emissions have increased since the preindustrial era, driven largely by economic and population growth, and are now higher than they have ever been. According to the report, many regions are experiencing climate change impacts that threaten ecosystems, human health, and infrastructure. Increasing temperatures and changing precipitation are altering hydrological systems and affecting water quality and quantity.

According to *Climate Change Impacts in the United States: The Third National Climate Assessment (Chapter 19: Great Plains)*, North Dakota's increase in annual temperature over the past 130 years is the fastest in the contiguous United States, and the number of days with temperatures over 100 degrees Fahrenheit is projected to double by 2050. These increases in extreme heat will lead to increases in surface water losses, heat stress, and demand for air conditioning. These conditions will more than offset the benefits of warmer winters, such as lower winter heating demand, less cold stress on humans and animals, and a longer growing season. Winter and spring precipitation is projected to increase. As patterns of temperature and precipation change, the Great Plains region will face increased competition for water supplies and energy.

Natural Resources

The 2005 Cass County Comprehensive Plan, 2016 Cass County Subdivision Ordinance, and Cass County Flood Damage Prevention Ordinance were reviewed to determine existing Cass County policies, regulations, and practices as they relate to the protection and enhancement of natural resources. One of the goals identified in the 2005 Cass County Comprehensive Plan (Goal Four) is "To use and preserve natural resources in an environmentally sound manner." Objectives contained within this goal focus on the protection of ground and surface water resources, protection of natural vegetation along rivers, and protection of wetlands. Specific policies identified for achieving these objectives are general, but provide a framework and basis for the implementation of additional rules and regulations if needed.

The 2016 Cass County Subdivision Ordinance contains a number of provisions relative to the protection and enhancement of natural resources. The majority of these provisions defer to compliance with existing state and federal laws and regulations; however, there are some provisions that go beyond current state and federal regulations.

- Section 609 of the ordinance requires the implementation of vegetative buffer zones along all blue line perennial watercourses and wetlands as identified on USGS quadrangle maps.
- Section 610 of the ordinance requires building setback distances from all blue line perennial watercourses and wetlands as identified on USGS quadrangle maps.
- Section 614 outlines requirements for planting vegetative buffers and also contains provisions for the protection of existing wooded areas.

The Cass County Flood Damage Prevention Ordinance is intended to manage development within Special Flood Hazard Areas (SFHA) as identified in the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM). Counties, cities, and townships are responsible for developing floodplain development ordinances that are in compliance with the National Flood Insurance Program (NFIP). Cass County, together with cities and townships within the County that participate in the National Flood Insurance Program, are responsible for governing floodplain activities occurring within the county.

Figure 2.24: Soybean Field in Cass County

With the exception of aforementioned documents, environmental oversight within the county is primarily deferred to existing state and federal regulations. To assess the current state and success of environmental oversight within the county, Tom Soucy with the Cass County Highway Department was interviewed. Mr. Soucy reaffirmed that protection of the natural and human environment is largely deferred to existing state and federal regulations. The county has not identified any issues within their jurisdiction that are not being properly addressed by existing state and federal regulations. If environmental issues are identified in the future that are outside the bounds of current regulations, the county would consider the implementation of county specific regulations at that time.

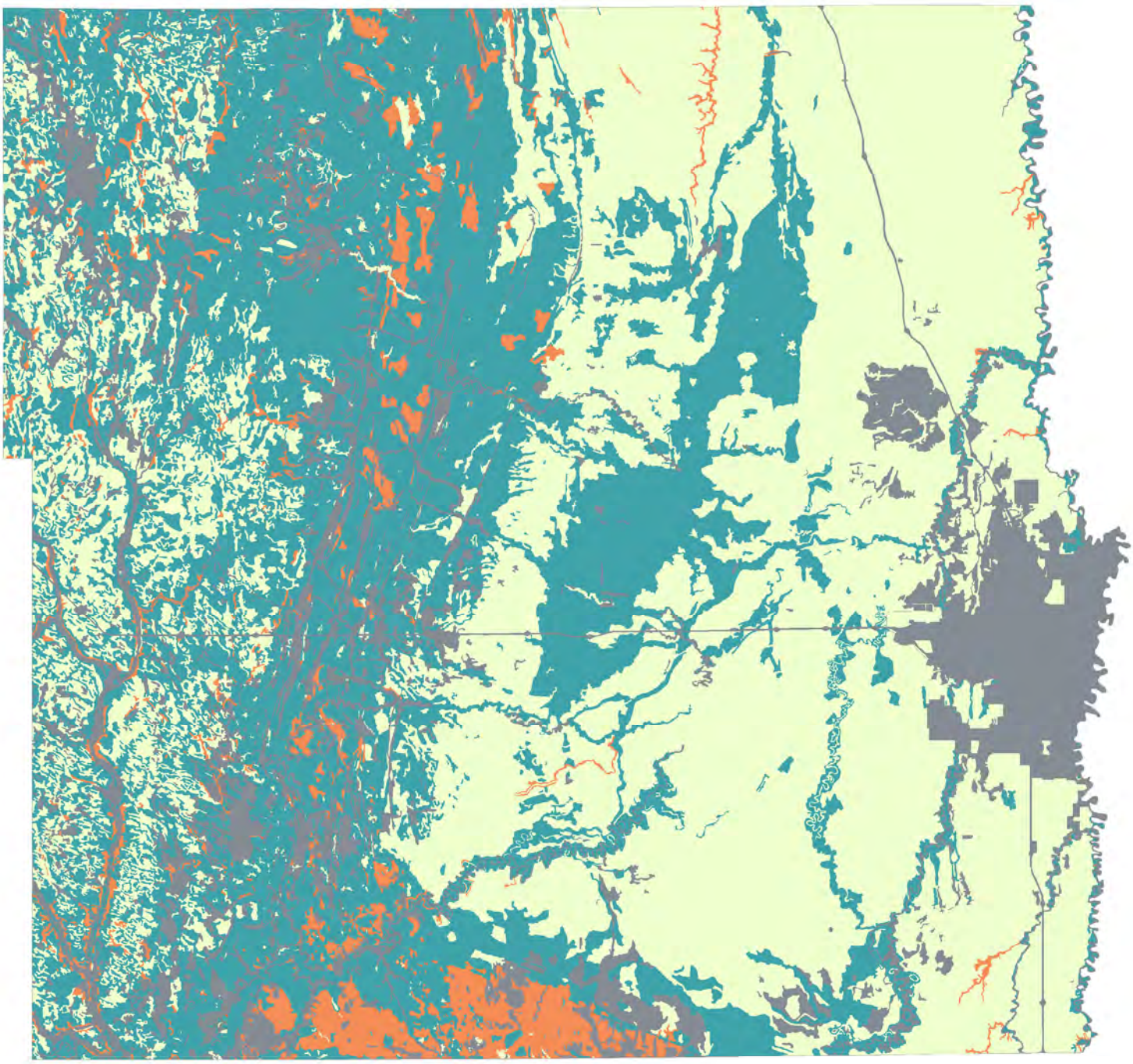
Prime Farmland

Once at the bottom of glacial Lake Agassiz, the soils of Cass County are amongst the richest in the country. This means that much of the County has been identified as prime farmland or prime farmland if drained. Prime farmland is defined by the United States Department of Agriculture as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. These lands typically have adequate and dependable water, favorable temperature and growing season, acceptable acidity or alkalinity, salt, and few rocks. Additional land that meets production thresholds but does not meet all of the physical and chemical characteristic requirements of prime farmland is characterized by the State of North Dakota as Farmland of Statewide Importance. The breakdown of soil classes is shown in Table 2.3 and geographically displayed in Figure 2.25.

Table 2.3: Cass County Soil Classes

Soil Class	Acres	% of Total Acreage
Prime Farmland	411,500	36%
Prime Farmland if Drained	515,850	46%
Farmland of Statewide Importance	43,900	4%
Not Prime Farmland	160,000	14%

Figure 2.25: Cass County Prime Farmland



Cass County Soils

Soil Suitability

- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland
- Prime farmland if drained

CULTURAL RESOURCES

Cass County includes approximately 1,768 square miles. Of this, 116 square miles (74,222 acres) have been inventoried for cultural resources during 308 cultural investigations. Historic-era features account for most cultural resources, with a total of 5,454 buildings, structures, objects, historic districts, and non-standing features recorded as of mid-2017. Many of these are in or near developed urban and commercial areas, with Fargo having over 4,000 recorded locations, Casselton over 325, and Buffalo and Leonard each over 80.

Prehistoric locations are less documented than historic-era locations in Cass County, with 127 currently on record. The paucity of such locations may be due to the low numbers of investigations and inventoried acres in the county and not necessarily due to the area having been avoided by tribal groups.

Of the above cultural resources, the county has 32 architectural and two prehistoric locations listed on the National Register of Historic Places. The architectural locations include

- seven historic districts
- four residential locations
- two high schools
- two railway depots
- two churches
- two NDSU research plots
- two warehouses
- one warehouse and creamery building
- one Masonic Block
- one apartment building
- one department store
- one hospital
- one library
- one hotel
- one theatre
- one lodge
- Cass County Courthouse

Of these, one is located near Enderlin, one is in Casselton, one is in Amenia, one is in Leonard, two are in Buffalo, and 25 are in Fargo.

Table 2.4: National Registry of Historic Places in Cass County

Name	Location
Buffalo High School (1916)	**Buffalo**
Barrington Apartments	Fargo
Burlington Northern Depot	**Amenia**
Cass County Courthouse	Fargo
Casselton Commercial Historic District	**Casselton**
DeLendrecie's Department Store	Fargo
Dibley House	Fargo
Downtown Fargo District	Fargo
Fargo City Detention Hospital	Fargo
Fargo Oak Grove Residential Historic District	Fargo
Fargo South Residential District	Fargo
Fargo Theatre Building	Fargo
Grand Lodge of North Dakota, Ancient Order of United Workmen	Fargo
Lewis house	Fargo
Masonic Block	Fargo
NDSU Historic District	Fargo
NDSU Research Plot 2	Fargo
NDSU Research Plot 30	Fargo
North Side Fargo Builder's Residential Historic District	Fargo
North Side Fargo High Style Residential Historic District	Fargo
Northern Pacific Railway Depot	Fargo
Old Stone Church	**Buffalo**
Pence Automobile Company Warehouse	Fargo
Powers Hotel	Fargo
Robert Lindermann house	**Near Enderlin**
St. Stephen's Episcopal Church	**Casselton**
Great Northern Freight Warehouse	Fargo
James Holes house	Fargo
Knerr Block, Floyd Block, McHench Building and Webster and Cole Building	Fargo
Union Storage & Transfer Cold Storage Warehouse and Armour Creamery Building	Fargo
Watts Free Library	**Leonard**
Woodrow Wilson School	Fargo

SUMMARY OF PUBLIC INPUT

SUMMARY OF PUBLIC INPUT

Public involvement occurred regularly throughout the study process and brought together a diverse set of stakeholders and opinions. The following includes a summary of the public input process.

Study Review Committee Meetings

Six times throughout the process, the project's Study Review Committee met to discuss, review, and refine methods, assumptions, and technical analysis. Members of the SRC included representatives from Cass County (staff and elected officials), Fargo-Moorhead Metorpolitan Council of Governments, Fargo Cass Public Health, Greater Fargo-Moorhead Economic Development Corporation, Valley Senior Services, Southeast Cass Water Resource District, North Dakota Department of Transportation, and Federal Highway Administration.

Task Force

Three times throughout the process, the project's Task Force met to discuss special topics and technical analysis. Members of the County Task Force included local school districts, township supervisors, Red River Valley and Western Railroad, Cass County Water Resource District, Cass County Extension, NDSU, Casselton Job Development Authority, Cass County Emergency Management, Cass County Historical Society, Cass County Housing Authority, City of Casselton staff, Cass County staff, Cass County elected officials, and Fargo-Moorhead Metropolitan Council of Governments.

Personnel Workshops

Twice throughout the process, the Cass County staff met to discuss technical analysis, policy, and implementation.

Included in the personnel workshop were staff from the were staff from the following departments: Assessor, Auditor, Emergency Management, GIS, Highway, NDSU Extension, Planning, Recorder, Sheriff, Social Services, Veterans Services, and Youth Commission.

KEY COUNTY STAFF MEETINGS

A subset of the Study Review Committee comprised of key county staff, met twice to review and discuss critical aspects of the plan development. The first meeting focused on goals and resulted in the development of the Guiding Principles. The second meeting reviewed and discussed details pertaining to the transportation element of the Plan.

Public Input Meetings

Twice throughout the process, the public was asked to review and comment on the plan.

- At the first meeting, the public identified and prioritized issues. Meetings were held at three locations across the county (Buffalo, West Fargo, and Casselton). Each meeting included a short presentation followed by an open house. Nearly 50 people attended one of the open houses at the first public meeting.
- At the second meeting, the public was asked to comment and review the draft final plan. The meeting was held at the Cass County Highway Department and included a formal presentation and an open house.

Elected Officials Meetings

Throughout the process, multiple meetings were held with elected and appointed officials, including:

- Planning Commission
- Township Officers
- Cass County Board of Commissioners

Figure 3.1: Discussion at First Public Input Meeting

Figure 3.2: Presentation at First Public Input Meeting

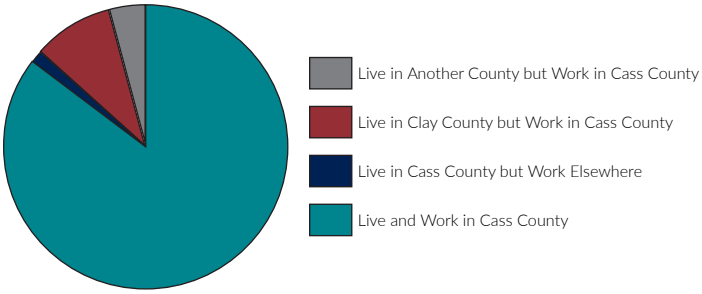
SURVEY SUMMARY

A 20-question survey was also conducted to obtain feedback on a range of issues from people who live and/or work in Cass County. There were 257 completed surveys by respondents representing 27 different local jurisdictions. Since this was not a systematic random sample survey, it's results are not necessarily representative of Cass County. Although the results cannot be considered a referendum, they do offer insight into the issues and opportunities ahead for Cass County. A brief summary of selected survey questions and their responses are shown below. The full survey responses are included in the appendix.

Where do you live and work?

» 85.3 percent of total respondents live and work in Cass County.

Figure 3.3: Survey Question - Where do you live and work?



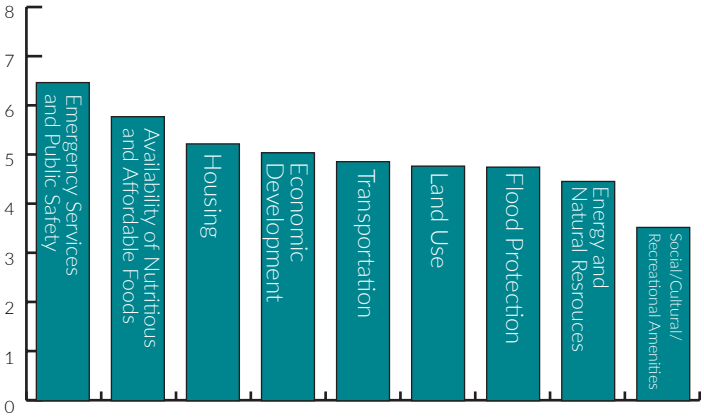
As Cass County plans for the future, what is the order of importance that should be given to each of the following topics?

» 58 percent of respondents ranked emergency services and public safety first, second, or third.

» 45 percent of respondents ranked housing first, second, or third.

» 38 percent of respondents ranked availability of nutritious and affordable food first, second, or third.

Figure 3.4: Survey Question - What is the order of importance that should be given to each of the following topics?



What are the most pressing issues facing Cass County?

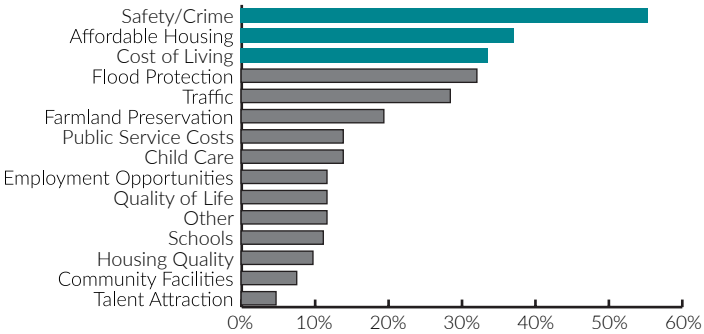
» Over half (55.2 percent) said safety and crime was one of the most pressing issues.

» Over one-third (37.1 percent) said affordable housing was one of the most pressing issues.

» About one-third (33.5 percent) said cost of living was one of the most pressing issues.

» Other issues listed include transportation infrastructure, growth and land use patterns, and property taxes.

Figure 3.5: Survey Question - What are the most pressing issues facing Cass County?



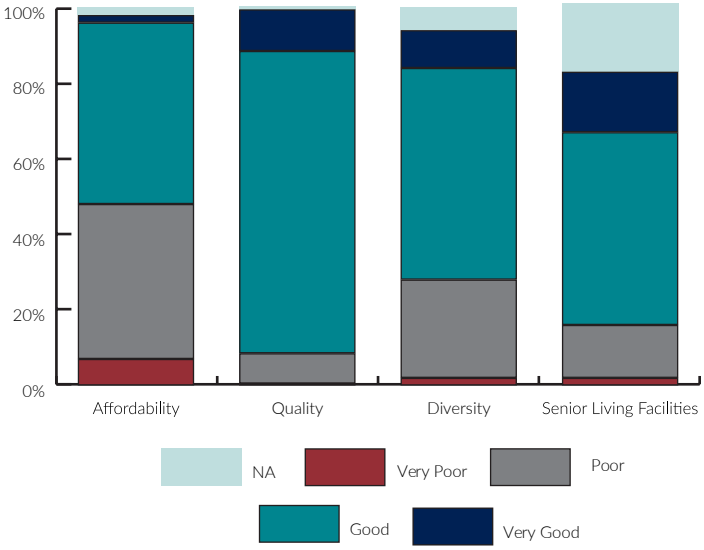
Please rate your satisfaction with each Housing topic as it relates to Cass County.

» Around half of respondents felt housing affordability (47.8 percent), housing diversity (55.7 percent), and senior living facilities (50.7 percent) were good.

> Around 41 percent of respondents felt housing affordability was poor.

> Around 26 percent of respondents felt housing diversity was poor.

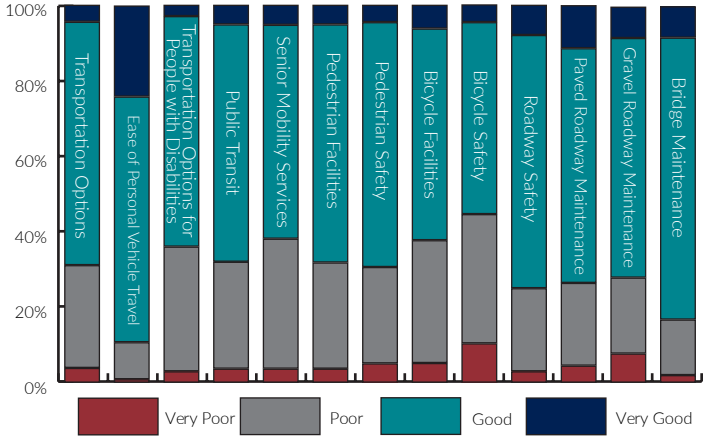
Figure 3.6: Survey Question - Please rate your satisfaction with each Housing topic as it relates to Cass County.



Please rate your satisfaction with each Transportation topic as it relates to Cass County.

- Overall, most respondents felt transportation in Cass County was good.
- Around one-third of respondents rated four categories as poor: public transit, transportation options for people with disabilities, bicycle facilities, and bicycle safety.

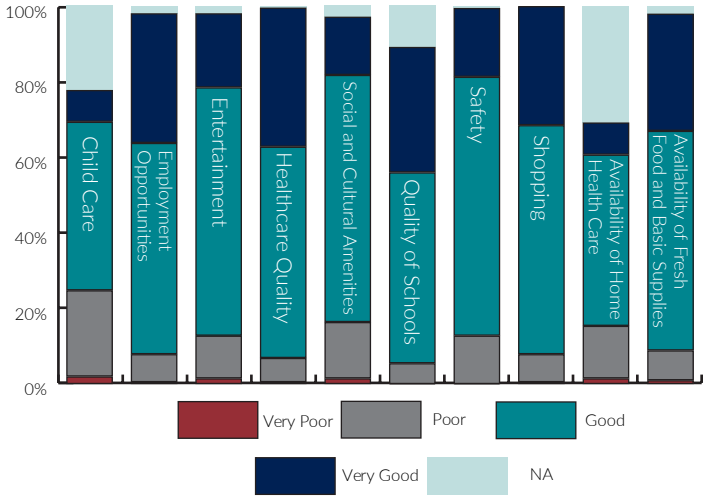
Figure 3.7: Survey Question - Please rate your satisfaction with each Transportation topic as it relates to Cass County.



Please rate your satisfaction with each Quality of Life topic as it relates to Cass County.

- Around one-third of respondents rated five quality of life issues as very good: employment opportunities, healthcare quality, quality of schools, shopping, and availability of fresh food and basic supplies.

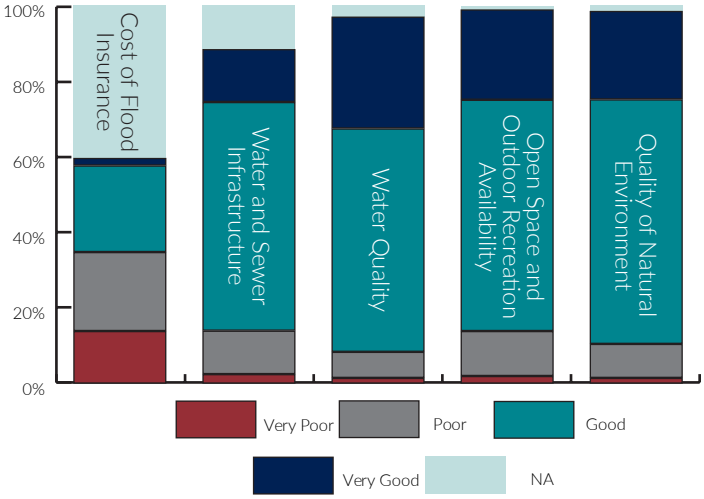
Figure 3.8: Survey Question -Please rate your satisfaction with each Quality of Life topic as it relates to Cass County.



Please rate your satisfaction with each Other topic as it relates to Cass County.

- Around 60 percent of respondents rated water and sewer infrastructure; water quality; open space and outdoor recreation availability; and quality of natural environment as good.
- The cost of flood insurance was rated poor by 21 percent of respondents but good by 23 percent of respondents; 40 percent of respondents had no opinion on the cost of flood insurance.

Figure 3.9: Survey Question - Please rate your satisfaction with each Other topic as it relates to Cass County.



VISION AND PRINCIPLES

COUNTY PLAN FRAMEWORK

The result of the public input processes was a broad set of topics with specific issues and opportunities to be addressed in the Comprehensive Plan. Collectively, they suggested a framework of three different viewpoints from which to consider the future direction of the County. First, the role and vision for Cass County government service functions. Second, overarching Guiding Principles which are the main goals for the future of Cass County. Third, the key issues which define the most important needs and opportunities facing Cass County. The role, vision, and guiding principles are summarized in this chapter, with the key issues identified in the following chapters on Community Development, Growth Management, and Transportation.

The Role of Cass County: Coordinated, Responsive and Innovative

The new comprehensive plan provides an opportunity for Cass County to develop a new vision of the role of county government. In working with stakeholders from across Cass County and within the county government, a handful of core county functions were identified. Each of these functions involve a broad range of essential services provided by Cass County. Core county functions include:

- Public Safety (e.g. law enforcement, emergency services, 911, flood risk reduction, etc.)
- Transportation (e.g. roads, transit, active transportation)
- Education and Training (e.g. extension services)
- Social and Human Services (e.g. Veterans Affairs, Health and Human Services)
- Public Records (e.g. property records, marriage and divorce records)
- Financial Administration (e.g. tax collection and distribution)

The new vision for Cass County government services is to consciously focus on providing its services in ways that are responding to the changes confronting local governments and citizens alike. This includes an approach where "silos" are avoided and county departments excel at coordinated activities for meeting citizen needs. It includes understanding the underlying needs of citizens so that services can anticipate them. And, it means looking for ways to innovate in order to be coordinated and responsive.

Embracing a Vision

Cass County will focus on improving quality of life for county residents through the delivery of its broad range of services.

The services and programs the county provides are often a "pass through" of state and federal initiatives (and funds). Cass County plays a critical role as an intermediary between state and federal programs and local program implementation. Therefore, the focus for Cass County government is on service delivery models that are efficient. Cass County should aim to be virtual and connected, decentralizing access to core programs and resources.

Government programs and services need to be structured to efficiently provide core services to improve quality of life. The county should focus on integrated and coordinated service delivery models in key areas (e.g. housing, veterans benefits, and transportation).

The county has a large role to play, directly with townships and water resource districts, in the provision and maintenance of transportation and other county infrastructure. Cass County also plays a critical role regarding the delivery of core social service programming (health, welfare, etc.) provided to residents of Cass County.

Cass County government should focus on creating connections between services, programs, and departments. A key role for the county is to support the growth of small towns and rural communities through the provision of leadership and guidance on issues which have a county wide impact. The basis of many county policies need to remain agriculturally focused, with an eye towards the primary sector economy, as well as emerging technologies.

Understanding changing trends and dynamics in core industries (e.g. agribusiness, processing, production, etc.) is critical to the success of small towns and rural communities of Cass County. To prepare the county for change, it should also embrace economic opportunities in the areas of energy and technology.

The county shouldembrace change. The county should be forward looking to adopt technology to assist its residents and their communities thrive. To ensure all of Cass County can succeed, the government needs clarity of function. This comprehensive plan embraces a vision for the future.

GUIDING PRINCIPLES

The Cass County Comprehensive Plan establishes three ***guiding principles*** which embody the vision, values, and functions of Cass County government. They serve as building blocks for the development of the comprehensive plan. Each principle provides general guidance for the development and eventual implementation of the plan.

Planners have used the terms livability, resilience, and regionalism for at least two decades. However, to fully understand how they relate to Cass County's issues and opportunities, they must be defined within the specific framework of the county and this comprehensive plan. As such, they are defined below.

Livability

At its roots, Cass County is made up of people with a broad spectrum of values, needs, living situations, and locations. A fundamental value of Cass County is to serve and enhance the life of each person who lives or works in Cass County, both now and in the future. Livability identifies desirable characteristics of Cass County that support this value. Livability speaks to the quality of life for all people and means endeavoring to enhance the characteristics of the socioeconomic and physical environments in which people live, work, and play. Livability can be described in terms of the following concepts:

- Sufficient multi-modal transportation choices
- Equitable and affordable housing
- Economic opportunities
- Support for existing communities
- Healthy and safe communities and public spaces
- Well maintained and appropriate infrastructure systems
- Coordination and leveraging of resources

Resilience

Cass County faces existing and future challenges stemming from economic, natural, man-made, and political sources. A fundamental value of Cass County is to become more capable of responding to each of these challenges. Resilience refers to strategies and attitudes that support this value. It speaks to the broad range of challenges to which the County, its communities, residents, and businesses, must respond to survive and thrive both now and in the future. Resilience is the capacity of individuals, communities, institutions, businesses, and systems within Cass County to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks are experienced. Increased resilience helps to maintain the Cass County's livability.

Regionalism

Cass County is made up of a collection of local governments, and other organizations which serve the residents of the county. To effectively enhance the livability and resilience of the entire county, Cass County government must both lead and collaborate in efforts to build a collective future that supports these values. Regionalism summarizes this strategy. Regionalism speaks to the way Cass County must act to build the future of the County. Regionalism focuses on collaboration between individual jurisdictions and organizations to promote a better quality of life and more effective use of resources while maintaining the uniqueness and independence of each.

Tying It All Together

These three guiding principles serve as an overarching set of concepts by which to measure and direct the more specific objectives, policies, strategies, and action plans that emerged out of the planning process. It is useful to note that the guiding principles are a nested set of concepts as illustrated in Figure 4.1. Livability is at the heart of the desired future state of Cass County. Resilience establishes ways to ensure livability is maintained. Finally, regionalism recognizes that to effectively achieve livability and resilience, they must be pursued in a collaborative, multi-jurisdictional context.

Figure 4.1: Relationship of Guiding Principles

COMMUNITY DEVELOPMENT

COMMUNITY DEVELOPMENT

Cass County is home to 27 incorporated municipalities and many smaller unincorporated places. The guiding principles of this comprehensive plan recognize the importance of encouraging and supporting policies and actions that will help all communities in Cass County become stronger and better able to manage change. Community Development focuses on the socioeconomic aspects of this effort.

Changing conditions have caused many smaller communities to lose population and businesses over the last several decades, but experts point to several key ingredients that can reverse this trend and grow healthy vibrant communities. Schools, limited retail, and public facilities are critical ingredients to resilient communities in Cass County. Communities such as Kindred and Casselton are seeing the benefits of having these features. Even small communities like Buffalo maintain key community ingredients such as a bank, a post office, a volunteer run grocery store, and a restaurant. Other critical ingredients include high speed internet access, community leadership, responsive higher education, and "people attraction strategies."

Quality of Life Facilities

There is a matrix of quality of life facilities that support livability in communities. The county can look for policies and strategies to help maintain basic access to some or all of these facilities.

- Post office
- Schools
- Bank
- Religious facilities
- Grocery/basic retail
- Community/recreational/social facilities
- Medical care
- Restaurants

Figure 5.1: Quality of Life Facilities Matrix

Limited services in smaller towns increase the need for mobility services. For the aging population, especially in rural areas, the lack of core essential services increases the need for transportation and can reduce their ability to age in place. It is important to identify amenities, services, and facilities in small communities which could reduce travel demand, specifically for vulnerable populations who may be mobility limited. The county may be able to improve access by decentralizing certain public services (when applicable).

People are aggressively community shopping, seeking out schools, housing, and easy commutes. The most attractive features appear to be small school districts and housing affordability. People are choosing to move further out to find affordable housing options; Kindred is one such example. Small towns should continually evaluate a baseline matrix of services that may assist with attracting new businesses and households.

In addition to the critical ingredients noted previously, community development also encompasses a number of other topics:

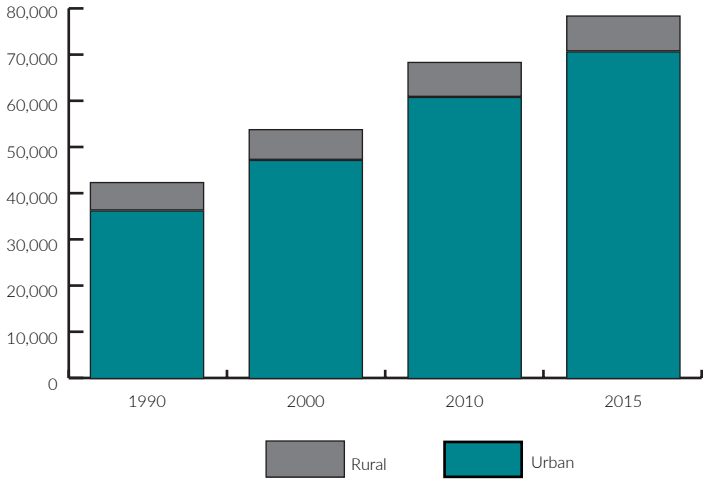
- Housing to fit a full spectrum of household income groups, ages, and living situations.
- Economic development is in many ways synonymous with community development. Economic development and community development disciplines need to collaborate to be effective.
- Food systems is especially concerned with eliminating food deserts by making sure everyone has ready access to healthy, affordable food.
- Emergency management is essential to community resilience and managing disruptive changes.
- Public infrastructure and facilities is about providing the underlying systems to provide for housing, economic development and community growth.
- Energy is increasingly a community development topic as people seek to use energy more wisely and to lower their carbon footprint. The use of renewable energy sources is a key aspect of this.

HOUSING

Existing Conditions

In 2015, there were more than 78,200 housing units in Cass County, representing 21.6 percent of all housing units in North Dakota. From 2000 to 2010, the number of housing units grew 26.9 percent; from 2010 to 2015, the number of housing units grew another 14.6 percent. Housing units for Cass County are shown in Figure 5.2.

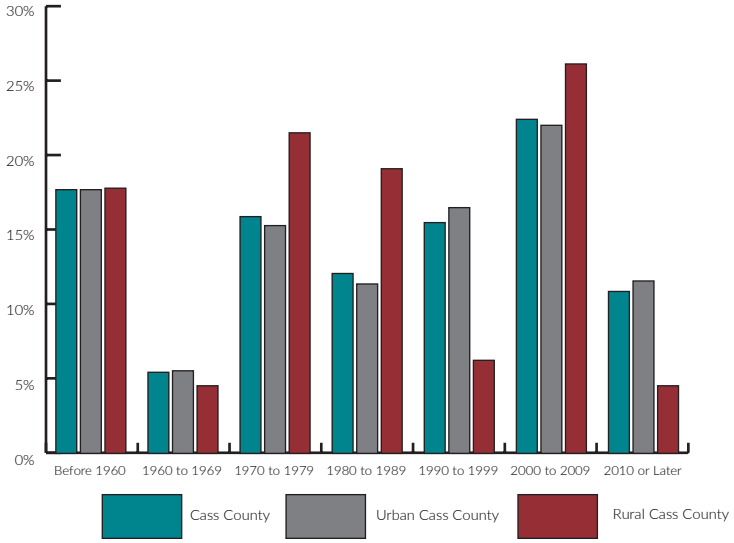
Figure 5.2: Housing Units



Age of Housing Stock

In Cass County, the age of the housing stock is well distributed across multiple decades. However, if housing construction continues at its current pace, nearly half (44.1 percent) of the housing stock will have been constructed since 2000. The age of housing units is shown in Figure 5.3, it includes the distribution of housing unit age for Cass County as a whole, urban Cass County (Fargo and West Fargo), and rural Cass County.

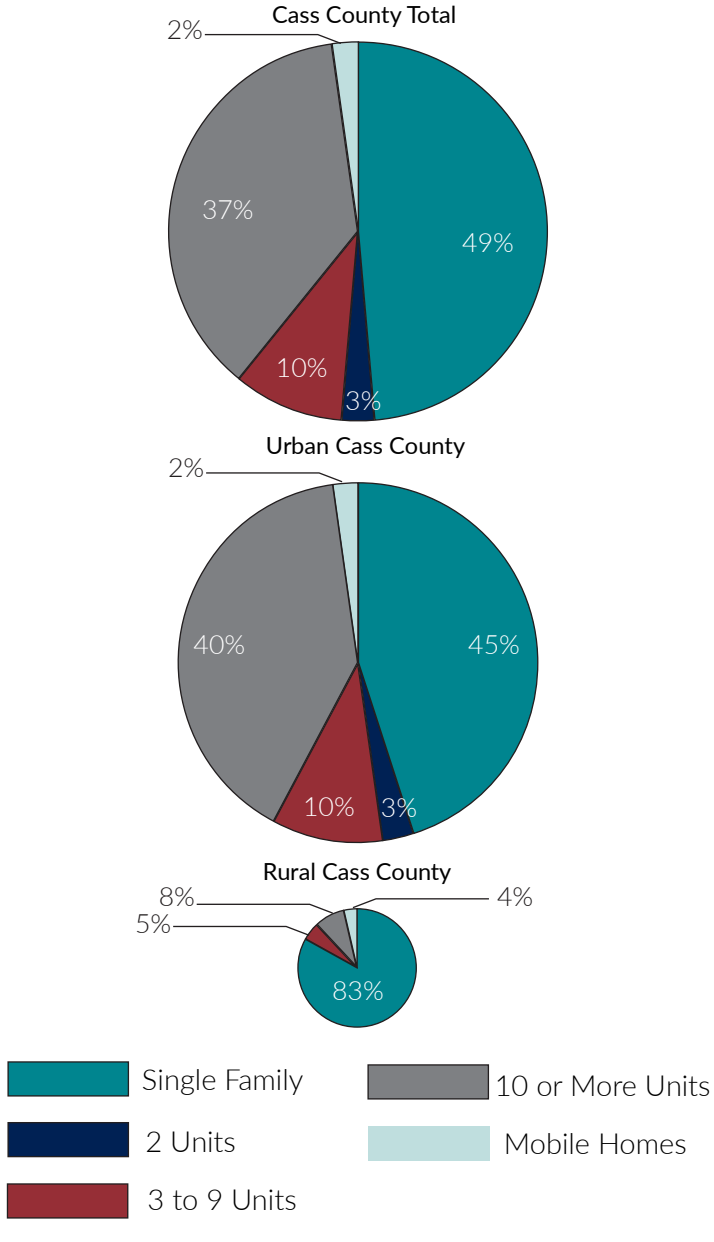
Figure 5.3: Age of Housing Units



Type of Housing Stock

There are a variety of housing types in Cass County, the most prevalent is the traditional single-family home, which is 41.3 percent of all housing units in the county, followed closely by units in buildings with 20 or more units. This dynamic shifts when Fargo and West Fargo are excluded from the distribution; single-family homes are 83.1 percent of all units in Cass County, outside of Fargo and West Fargo. The distribution of different types of housing units is shown in Figure 5.4.

Figure 5.4: Type of Housing Units

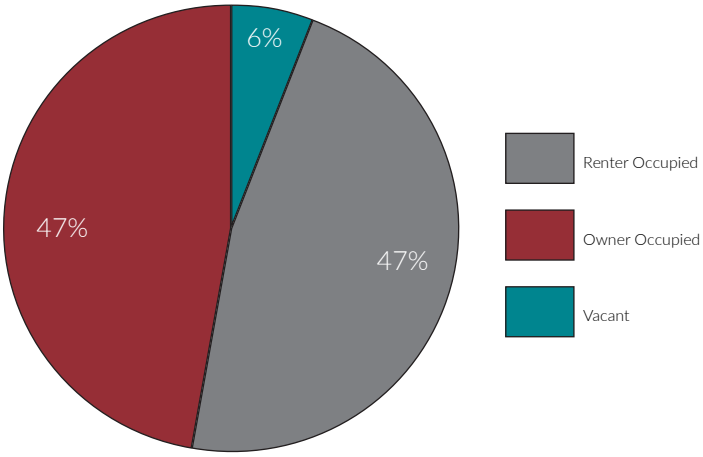


Occupancy and Tenure

In 2015, Cass County's overall vacancy rate was just 6.1 percent. While this is higher than it was in both 2000 (4.6 percent) and 2010 (5.5 percent), it is still less than half of the North Dakota statewide housing vacancy rate of 13.6 percent. The homeowner vacancy rate was less than one percent and the rental vacancy rate was around 5.3 percent.

There were 73,440 occupied housing units in Cass County, almost evenly split between owner occupied (49.8 percent) and renter occupied housing (50.2 percent). However, when Fargo is excluded, the split between owner and renter occupied changes to 71.5 percent and 28.5 percent, respectively. Occupancy and tenure for Cass County is shown in Figure 5.5.

Figure 5.5: Occupancy and Tenure for Cass County Housing Units



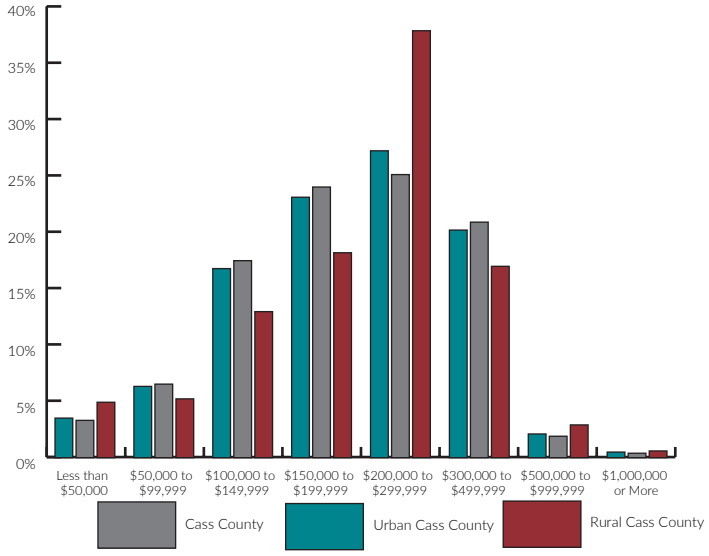
Owner Occupied Housing Costs

The median home price in Cass County was $200,500 in 2015. This represents an increase of 103.8 percent since 2000 and 28.7 percent since 2010. This is slower than the statewide increase of 143.1 percent since 2000 and 47.1 percent since 2010.

The 2015 median home price in Cass County is 10.8 percent higher than the statewide median. Homes valued between $150,000 to $200,000 made up about 23 percent of all housing stock in Cass County; homes between $200,000 and $300,000 made up about 27 percent of all housing stock in Cass County. In urban Cass County, 49 percent of housing units are between $150,000 and $300,000, comparable to Cass County. In rural Cass County, 38 percent of homes are valued between $200,000 and $299,999. This is likely due to the high home costs in places like Harwood and Reiles Acres and homes on large lots. Distribution of home prices is shown in Figure 5.6.

Based on the median income of Cass County, an affordable home would cost around $160,000, yet just under 32 percent of homes were valued at that level or below.

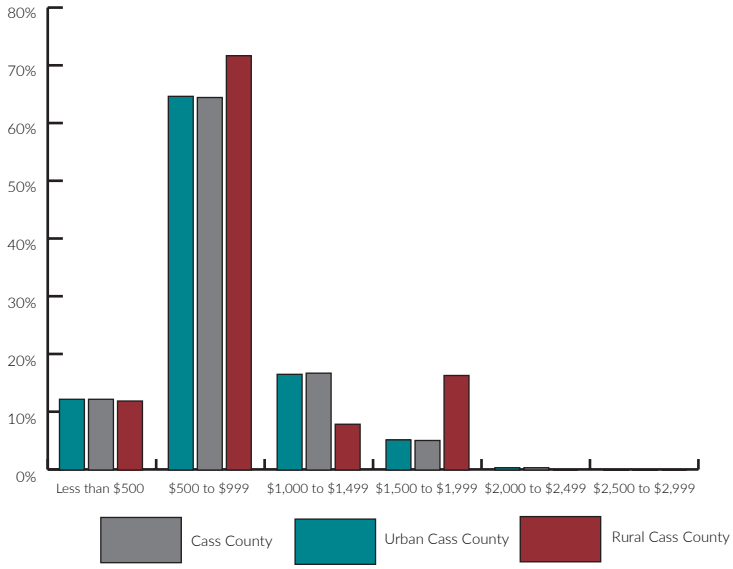
Figure 5.6: Home Prices



Renter Occupied Housing Costs

The median rental price in Cass County was $756 in 2015. This represents an increase of 63.3 percent since 2000 and 22.5 percent since 2010. Rent in Cass County increased at a slower rate than the statewide average, which increased 88.1 percent since 2000 and 32.9 percent since 2010. Additionally, the 2015 median rent in Cass County is 2.5 percent lower than the statewide average. This is compared against 2010, when median rent in Cass County was 5.8 percent higher than the statewide average. The distribution of rent asked is shown in Figure 5.7.

Figure 5.7: Rent Asked



Rent of $500 to $999 is the highest percentage of all rental units in urban and rural areas of Cass County; 17 percent of rural units have rent between $1,500 and $1,999, which is a much higher proportion than urban Cass County.

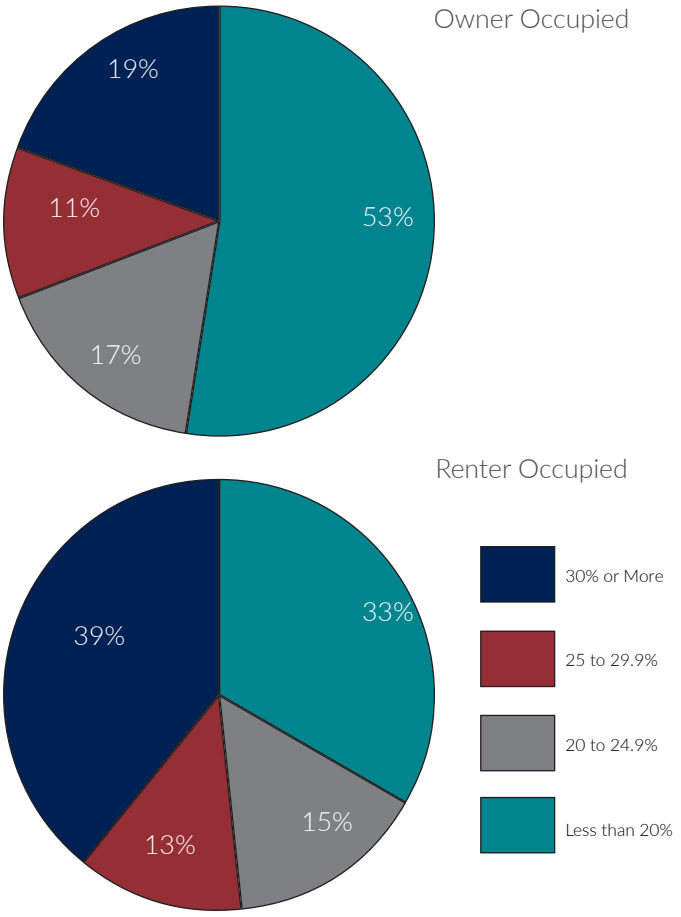
There have been more than 6,200 new rental units built in Cass County since 2010. Based on the 2015 ACS estimates, units with rent less than $500 decreased more than 42 percent, while rental units between $1,000 and $1,500 increased more than 49 percent. This increase in rents likely indicates that rents less than $500 have been pushed upward due to low supply in combination with increased construction of "luxury" rental units.

Based on the median income of Cass County, an affordable rental unit would cost between $1,400 to $2,000. More than 90 percent of rental units are at or below $1,500.

Affordability

The threshold for affordable housing is typically set at 30 percent of the household income. In 2015, 39 percent of renters and 19 percent of homeowners in Cass County were paying more than 30 percent of their income on housing (Figure 5.8). Statewide, 39 percent of renters and 16 percent of homeowners paid 30 percent or more of their income for housing.

Figure 5.8: Housing Costs as Percentage of Income



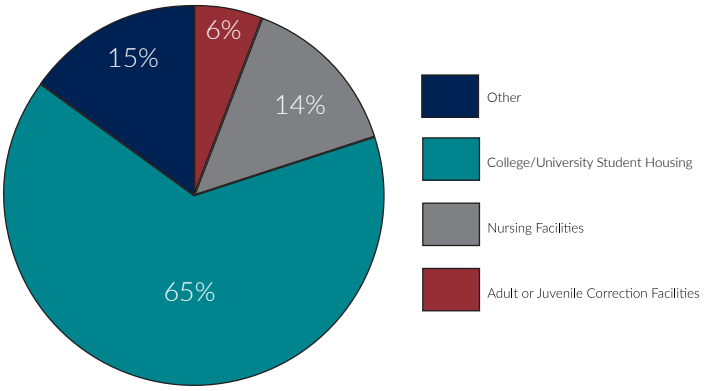
Since 2010, the percent of people paying 30 percent or more on housing increased in Cass County from 18 percent of homeowners and 38 percent of renters to 19 percent and 39 percent respectively.

However, at the state level, the percent of people paying 30 percent or more on housing decreased from 19 percent of homeowners and 40 percent of renters to 16 percent and 39 percent, respectively. The downward trend statewide is likely associated with decreased commodity prices, changing the demand for labor, and thus housing for those workers. However, the strong economy in Cass County, and specifically the Fargo-Moorhead metropolitan, continues to put pressure on the housing market.

Group Housing Quarters

Group housing is a place where people live or stay in a group living arrangement owned or managed by an entity to provide housing and services for residents. This typically includes adult and juvenile correctional facilities, nursing/skilled nursing facilities, dormitories, and military quarters. As of 2010, Cass County had more than 5,000 people in group quarters as shown in Figure 5.9; 98 percent of which are in Fargo.

Figure 5.9: Group Housing



Housing Authority of Cass County

The Housing Authority of Cass County began in 1951, making it the oldest housing authority in North Dakota. They currently operate public housing in West Fargo, Casselton, and Kindred and administer the Section 8 Housing Choice Voucher Program.

- The Housing Authority manages 213 units in West Fargo (143 public housing units and 18 tax credit units for seniors), 40 units in Casselton (public housing), and 12 units in Kindred (public housing). The wait list for these units depend on the location. The West Fargo units have a wait list of six to 24 months, depending on the unit size, while Casselton has a vacancy rate of 18 percent and Kindred 42 percent.
- The Housing Authority also assists 353 units with Section 8 rental assistance. The wait list has been closed for two years.

The Housing Authority has identified a need to replace 60 of the public housing units in West Fargo with Tax Credit units, mostly one bedroom units. They also are preparing for a significant increase in the demand for affordable senior housing.

Recently Completed Studies

City of Fargo Housing Study

In September 2015, the City of Fargo completed a comprehensive housing study. While its focus was the City of Fargo, there are important themes for the County. These include an increase in single-family home values and higher demand, but lower supply for single-family housing. Based on the expected growth for the City of Fargo, this housing study recommended annual construction needs to meet the demand through 2020.

- The study found around 590 to 640 rental units per year would be necessary through 2020, with many needed in the low to moderate income range (less than $900 a month). Expanding rental assistance, subsidized housing, and tax credits would improve affordability for very low and low income households.
- The study found around 540 to 600 owner occupied units per year would be necessary through 2020, 25 percent of these are likely to be single-family attached units. From 2010 through 2014, Fargo has only constructed an average of 305 single-family detached and around 100 single-family attached units. Since 2010, West Fargo has averaged 330 single-family units (detached and attached). While West Fargo may have been able to support Fargo's housing needs in the interim, they are reaching full build-out.

Based on this analysis, there are opportunities for smaller communities in Cass County to fill the gap in housing.

- Smaller communities with schools and other basic services may be able to attract demand for affordable rental and owner occupied housing.
- Owner occupied housing will continue to lean towards attached housing units like twin homes and independent senior living. Attracting this market segment will require a broader mix of housing choices.

While the rural areas of Cass County, are unlikely to attract a significant portion of the rental demand in Fargo, there are likely opportunities for additional single-family housing. Small communities like Horace and Casselton are likely to see the most growth, based on the recently completed Demographic Forecast Study.

North Dakota Statewide Housing Needs Assessment

In September 2016, the Housing Finance Agency (HFA) completed the Statewide Housing Needs Assessment which included a county level analysis of housing needs to 2029. The needs identified for Cass County are primarily based on the increase of first-time homebuyers and elderly homebuyers, cohorts which are expected to increase 26.0 and 92.1 percent respectively from 2014 to 2029. The statewide assessment estimated a need of new households between 1,610 and 2,780 annually across the county and across all income levels. It is likely that half or more of these units will occur in Fargo.

The assessment also identified a lack of affordable housing across the state, but specifically in Cass County. Figure 5.10 shows the percent of owner-occupied housing units that are affordable to specific income levels. While the Median Family Incomes (MFI) are different for North Dakota ($69,600) and Cass County ($72,100), the distribution remains relevant. Affordable housing stock is scarce for extremely low (30 percent or less of the MFI), very low (31 to 50 percent MFI) and low-income (51 to 80 percent) households in Cass County where affordable home purchase prices are around $42,000, $70,000, and $113,000, respectively. These purchase prices assume a 30-year fixed loan at four percent interest, five percent down payment, and payment no more than 20 percent of income. Even at the highest income levels (140 percent of MFI), only 79.6 percent of homes are considered affordable.

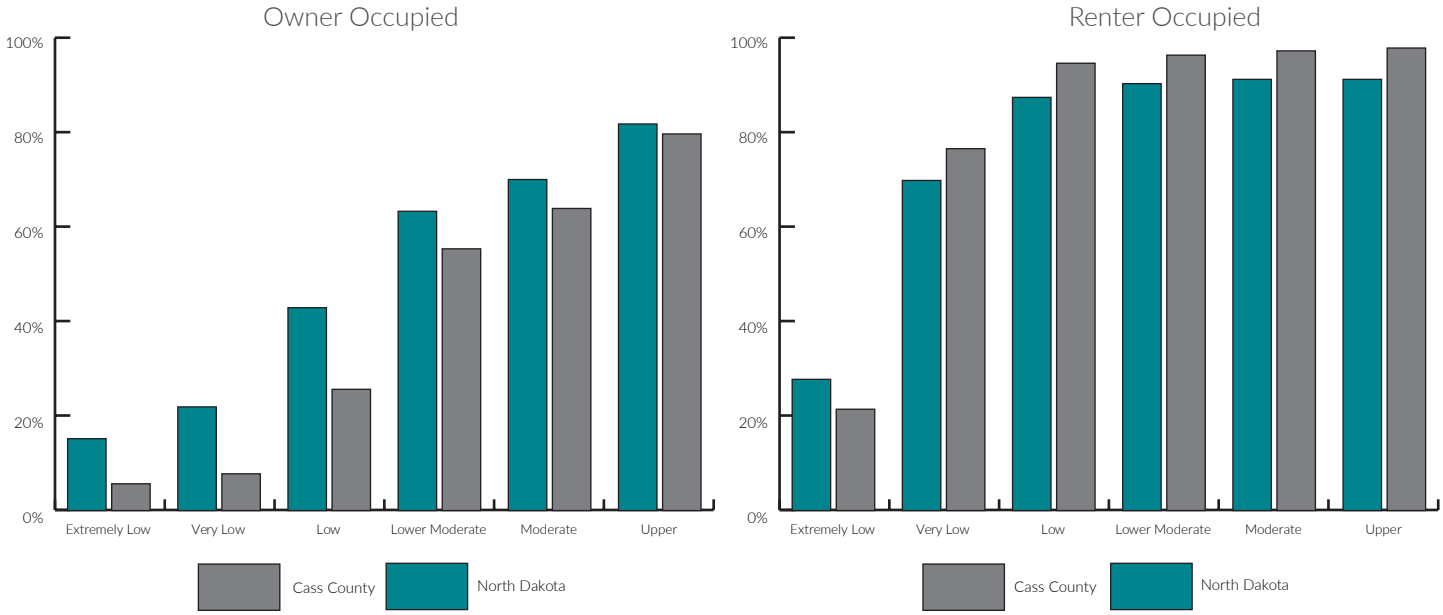
Figure 5.10 also shows the percent of renter-occupied housing units that are affordable to specific income levels, based on the same MFI. Again, affordable rental housing stock is scarce for the extremely low income household, but it improves for most other income levels. At the lower moderate income levels (81 to 115 percent MFI) and higher, approximately 90 percent of all rental housing units are considered affordable.

Regional Workforce Study

Despite the high population growth, during the last decade Fargo-Moorhead's economy has also grown tremendously. The unemployment rate has remained under five percent, typically considered full employment. Therefore, workforce has emerged as a key challenge for the region. As a result of this ongoing issue, the Greater Fargo Moorhead Economic Development Corporation has led an initiative to recruit, retain, and develop talent to support business growth in the region. A Regional Workforce Study was completed in 2015 to identify the key factors needed to address the workforce need.

One of the key findings of this study was the understanding that approximately 45 percent of the current and short-term workforce need was for workers that fit the lower wage occupational brackets. To attract and retain these workers, the three critical pillars of childcare, transportation, and affordable housing must be addressed. The affordable housing pillar is important because vacancy rates of affordable rental housing seem to be very low, the average rental rate is climbing, home ownership is increasingly out of reach, and new construction is mostly market rate.

Figure 5.10: Percent of Units Affordable at Specific Income Levels



Issues and Opportunities

What We Heard

Issue

There is continued real demand for rural, small town residential living. Some towns in Cass County are seeing significant housing growth. Lower costs (property taxes, special assessments, etc.) and available land in small communities adds to the attractiveness of these communities. Longer commutes can reduce attractiveness of lower cost small town housing. However, fuel prices have stabilized substantially in recent years reducing the perceived risk of longer distance commuting by automobile.

Housing is a critical issue facing Cass County. Several issues regarding housing in Cass County will require partnerships among agencies: affordability issues for multiple demographics and a variable mix of housing types in Cass County, specifically small towns. Niche groups such as veterans and the elderly face challenges to finding affordable housing through non-metro Cass County.

Opportunity

Efforts are needed to ensure communities and agencies in Cass County are utilizing State and Federal programs to support rural affordable housing. Enhanced coordination is needed among non-profit groups who have a potential role to support rural housing. Additionally, there is a lack of private sector interest in affordable housing due to low profit margin.

A key component to preserving good life cycle housing in Cass County is ensuring existing housing stock is maintained in good repair through continual and gradual investment. These efforts are typically spurred through rehabilitation programs. However, these programs are best supported through public-private partnerships, such as the Neighborhood Revitalization Initiative (NRI) program in the City of Fargo.

Overall, better data is needed on housing demand (type, price, etc.) to assist small communities make decisions on housing development needs. These data sets could be provided through the development of a County wide housing market needs study. The development of a county wide housing needs study and market analysis would likely include a partnership of key stakeholders including: Cass County, Fargo Housing Authority, Cass County Housing Authority, the Greater Fargo-Moorhead EDC, FM Area Foundation, among others.

Housing Affordability

Issue

Affordable housing is not a metropolitan Fargo and West Fargo issue. It is a critical issue for all the communities of Cass County to maintain a local workforce and growing economy. A multi-faceted approach to housing is needed in order meet present and future housing Cass County needs. The current and anticipated economic growth of Cass County needs to be supported by a full spectrum of housing opportunities. From a household income standpoint, this includes:

- Emergency Shelters
- Public Housing and Section 8 Rental Assistance
- Workforce Housing
- Market Rate Rentals and Homes
- Luxury Homes and Second Homes

There is a very strong housing construction industry in the Fargo-Moorhead region. This industry is very good at meeting upscale housing and even at meeting middle income housing. But the market is not meeting the full spectrum of housing needs. In the single-family market, this means new homes that typically sell for $300,000 or more. But there is a significant shortage of lower cost new homes being built.

The affordable housing spectrum includes more than single family housing. It also includes homeless shelters, short-term rental assistance, rental-reduction programs, low-income tax credit, a variety of HUD and USDA programs, and various programs aimed at supporting and increasing home-ownership.

Opportunity

No one housing style or price point can supply the needs of every worker, so a range of rental and owner options, as well as different styles and price points are needed. Although there are some options for alternative housing in rural communities, there appears to be a need to support facilities like the Arthur Good Samaritan Center which could help local senior citizens remain in their communities. Additionally, the current mix of housing alternatives in Cass County does not include:

- Community Land Trust
- Live/Work Housing
- Tiny Homes
- Other housing types often termed the “missing middle”

As an outgrowth of the Regional Workforce Study, the FM Area Foundation has been leading efforts to identify solutions to the affordable housing issue. While the exact number of affordable housing units has not been quantified, estimates have ranged between 1,000 and 3,000 units are needed in the short term. While much discussion about the issues has occurred, there are some critical roadblocks that need to be overcome:

- Lower income households often lack the capacity for a typical mortgage down-payment
- Poorer credit rating or lack of credit rating
- Limited availability of lower cost housing

Further complicating private sector development of affordable housing are new changes to North Dakota law. These changes allow counties and school districts to opt out of tax breaks granted by cities within their boundaries. In the past, the County has typically only used tax incentives for business development, but now will have a role in evaluating and approving/denying tax credits for affordable housing. The County will need to establish criteria, guidance, and/or policy to address low income housing tax credits.

Strategies and Policies

Potential approaches to address housing include the following:

- Develop a Community Land Trust (CLT) similar to ones already established in Grand Forks and Minot. A regional approach would allow a wider base of potential housing locations that fit the CLT model.
- If cities own vacant lots or very low value properties, they may be potentially part of the mix for an affordable workforce housing project.
- Broaden the role of the Cass County Housing Authority to include Redevelopment and Rehabilitation programs.
- Utilizing TIF programs to encourage and support investment in affordable workforce housing properties.
- Employer, Philanthropic, and Religious contributions to support/match targeted affordable workforce housing projects.
- Housing levy dedicated to affordable workforce housing projects.
- Prioritize affordable workforce housing projects for the use of CDBG funds.
- Encourage development of small city Renaissance Zones to further incentivize housing rehabilitation and redevelopment.
- Work closely with ND HFA and the Bank of North Dakota to capitalize on other funding resources.
- Establish a clearinghouse that provides information on affordable housing strategies and programs and connects affordable housing opportunities with financial capability services.
- Task force to prepare for and potentially take advantage of Diversion labor force housing issue.
- Encourage and support completion of a County-wide needs analysis with a strong emphasis on affordable workforce housing.
- Establish guidance on the approval of low income housing tax credits.

Economic Development

The value of incorporating economic development into comprehensive planning is becoming increasingly significant. Economic Development as a discipline has changed dramatically since the 1960s and 1970s. This is due in part to changes in technology and in the increasingly globalized economy. Technology changes have resulted in reductions in human power needed for production in areas such as agriculture, manufacturing, and financial services. Technology has also resulted in the capacity for vastly more interconnected economic activity. Additionally, due to changes in national policy and technology, many former United States industries and jobs have shifted to other parts of the world.

Collectively, these and other factors have resulted in a shift in economic development from chasing a single major employer to provide jobs and a solid economic base for a community to a much more diversified approach to economic stability and growth. The role of land use planning that responded to the "smokestack chaser" approach was primarily about providing the land and infrastructure such a large employer would need to establish a business location in the community. Today, economic development is more multi-faceted. Instead of focusing on landing a large primary sector employer, the increasingly popular concept of economic gardening is about supporting economic growth of businesses and business sectors already in a community.

A robust economic development strategy includes at least nine components. There needs to be land (and sometimes, buildings) for economic activity to happen. There needs to be infrastructure to support the buildings and land. And economic activity requires people to do the work. Oftentimes, financing and/or incentives are needed to encourage the location or expansion of economic activity. Attracting or maintaining an adequate workforce includes factors which lead to a high quality of life in the community. Housing is often a critical factor in determining whether the workforce is attracted or maintained. Childcare is often another critical factor in determining whether the needed workforce can be attracted or maintained. Sometimes, incubator facilities, technical assistance, or other types of business assistance are important to encouraging or supporting startups or expansions. And, it is seldom that a single entity or organization is able to do all of this on their own. Instead it is important to develop partnerships that allow a team approach to building and maintaining a strong economic development environment.

Economic Gardening

There are two meanings of economic gardening in common usage. The generalized meaning of economic gardening is "an entrepreneurial approach to economic development that seeks to grow the local economy from within." In this generalized meaning, any effort to encourage or support the growth of home-grown business is economic gardening. This may mean providing incubator space for a start-up business, working within a community to increase the availability of childcare and affordable housing. Or it could be initiating a buy local marketing campaign. [5]

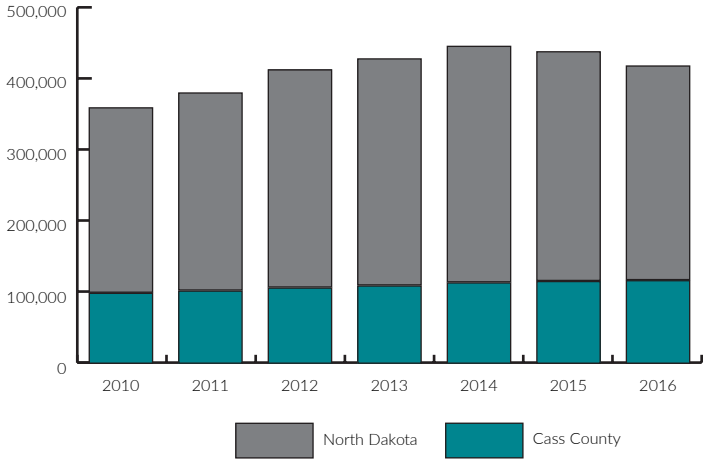
Second, it means a very specific effort to "target second-stage companies already operating in a community. It helps these existing businesses grow larger by assisting them with strategic issues and providing them with customized research." This specific approach was developed by Chris Gibbons in response to a major workforce reduction by a large employer in Littleton, Colorado. "Economic Gardening specialists leverage sophisticated corporate databases, geographic information systems, SEO and Web marketing tools to help these businesses..." [6]

Existing Conditions

Employment

In 2016, Cass County had 116,906 jobs in all sectors of the economy. Despite a statewide decline in jobs since 2014, Cass County has seen a continual and steady increase in employment since 2010, increasing around 2.8 percent each year. Cass County represents 28.0 percent of all jobs in the state of North Dakota. Total employment is shown in Figure 5.11.

Figure 5.11: Employment in Cass County



Employment by Sector

There are more than 20 industries within Cass County's economy. However, the top six industries by employment, shown in Table 5.1, account for nearly half of the total employment in the county.

Table 5.1: Top Industries in Cass County

Industry	2016 Employment	% of Total Jobs	% Growth Since 2010
Health Care and Social Assistance	17,399	14.9%	29.8%
Retail Trade	13,323	11.4%	8.1%
Government (Local, State and Federal)	12,861	11.0%	11.2%
Accommodation and Food Services	10,382	8.9%	12.9%
Manufacturing	8,583	7.3%	10.1%
Finance and Insurance	8,363	7.2%	29.3%

These top five industries do not necessarily represent the fastest growing industries in Cass County. The fastest growing industries in Cass County are shown in Table 5.2.

Table 5.2: Fastest Growing Industries in Cass County

Industry	2016 Employment	% of Total Jobs	% Growth Since 2010
Construction	8,291	7.1%	46.3%
Health Care and Social Assistance	17,399	14.9%	29.8%
Professional and Technical Services	6,149	5.3%	29.4%
Finance and Insurance	8,363	7.2%	29.3%
Educational Services	410	0.4%	27.3%

Top Employers

The top ten employers in Cass County hold more than 21,665 full-time jobs or job equivalents (i.e. two part-time jobs equals one full-time job equivalent). All are located in Fargo.

- Sanford (6,665)
- North Dakota State University (4,238)
- Essentia Health (2,540)
- Fargo Public Schools (1,816)
- West Fargo Public Schools (1,432)
- Fargo VA System (1,114)
- Microsoft (1,000)
- Noridian Healthcare Solutions (958)
- U.S. Bank Service Center (955)
- City of Fargo (948)

The largest rural employers are not available.

Competitiveness

Additional analysis was completed to understand competitiveness of Cass County's industries. Both the location quotient and shift share analysis attempt to identify industries that have a competitive advantage in Cass County due to unique characteristics.

Location Quotient

Location quotient analysis compares a region (Cass County) to a larger reference region (North Dakota) to understand how clustered an industry is in a region. Industries with a high location quotient have a competitive advantage in the region and bring money into the region. For Cass County, the most competitive industries are:

- Manufacturing
- Wholesale Trade
- Information
- Finance and Insurance
- Real Estate and Rental and Leasing
- Professional and Technical Services
- Management of Companies and Enterprises
- Administrative and Waste Services
- Health Care and Social Assistance
- Arts, Entertainment, and Recreation
- Accommodation and Food Services

Shift Share

Shift-share analysis determines how much of the regional (Cass County) job growth is attributed to national trends and how much can be attributed to unique regional factors. It is based on three components:

- National growth: the contribution national employment trends have on regional employment trends
- Industry mix: the difference between local and national employment mix
- Regional shift: the change in regional employment due to unique characteristics specific to the region

The shift-share analysis identified the following industries as basic industries:

- Construction
- Wholesale Trade
- Management of Companies and Enterprises
- Health Care and Social Assistance

Summary of Competitiveness

Both the location quotient and shift-share analysis pointed to competitive advantages for multiple industries in Cass County including Wholesale Trade; Information; Finance and Insurance; Health Care and Social Assistance; and Management of Companies and Enterprises.

While these industries are heavily influenced by activities in Fargo and West Fargo, there are likely opportunities to expand these industries into the county.

Labor Market

A regional workforce study was completed in June 2015 for the greater Fargo-Moorhead area.

- Labor Shed. The labor shed represents the geographic area where the Fargo-Moorhead metropolitan area gets its workforce. The laborshed for the Fargo-Moorhead area includes workers throughout an 11-county area. More than 25,000 people commute from these areas to the Fargo-Moorhead metropolitan area for work.
- Labor Demand. This workforce study identified 6,700 open jobs in the Fargo-Moorhead metropolitan area in 2014 and projected more than 30,000 openings over the next five years. Barriers to employment in the area include affordable housing, childcare, and transportation. The authors of the study also cited talent attraction and retention from other areas of the country and a skills mismatch as difficulties in filling these jobs.

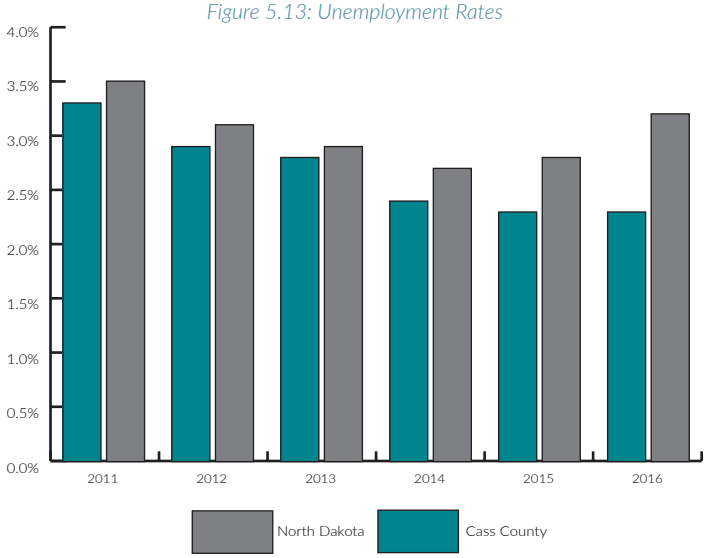
Figure 5.12: Labor Shed

Unemployment

Since 2011, unemployment in Cass County and North Dakota has been significantly lower than the national rate, which has ranged from 4.9 percent in 2016 to 8.9 percent in 2011, shown in Figure 5.13. While unemployment in North Dakota been ticking upwards since 2014, unemployment in Cass County has leveled off around 2.3 percent since 2014.

Full employment is the level of employment where all those who are willing and able to work are working. This level is typically around three to five percent. Cass County has been well below this rate for many years, resulting in many unfilled jobs.

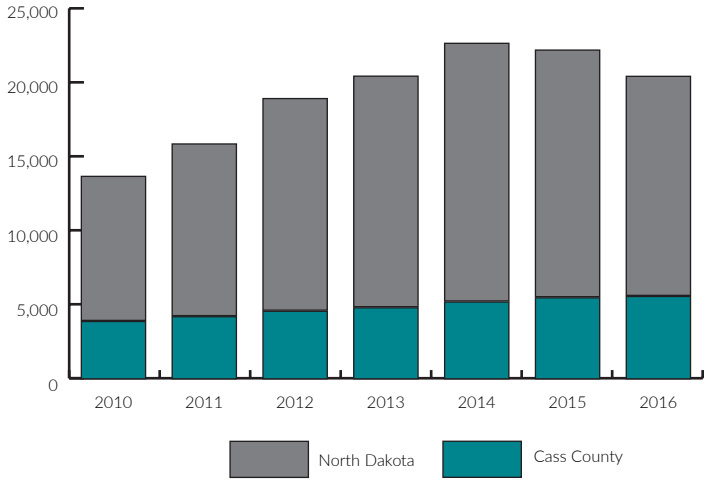
Figure 5.13: Unemployment Rates



Wages

In 2016, Cass County had total wages exceed $5.6 billion. On average, Cass County's wages grew 6.2 percent annually since 2010, slower than the statewide average of 7.3 percent annual growth. However, looking at just 2015 and 2016, Cass County has still experienced positive increases in total wages of 5.4 percent and 1.6 percent, respectively while statewide, total wages have declined 2.0 percent and 8.0 percent respectively. In 2016, wages in Cass County were 27.5 percent of total wages in North Dakota. Total wages in Cass County are shown in Figure 5.14.

Figure 5.14: Total Wages (in Millions)



Wages by Industry

Wages in the top five industries accounted for 55.7 percent of total wages in Cass County, as shown in Table 5.3.

Table 5.3: Wages by Industry

Industry	2016 Wages	% of Total Wages	% Growth Since 2010
Health Care and Social Assistance	$922.6 M	17%	49%
Government	$676.7 M	12%	26%
Finance and Insurance	$523.4 M	9%	57%
Wholesale Trade	$519.9 M	9%	38%
Construction	$479.4 M	9%	91%

Taxable Sales and Purchases

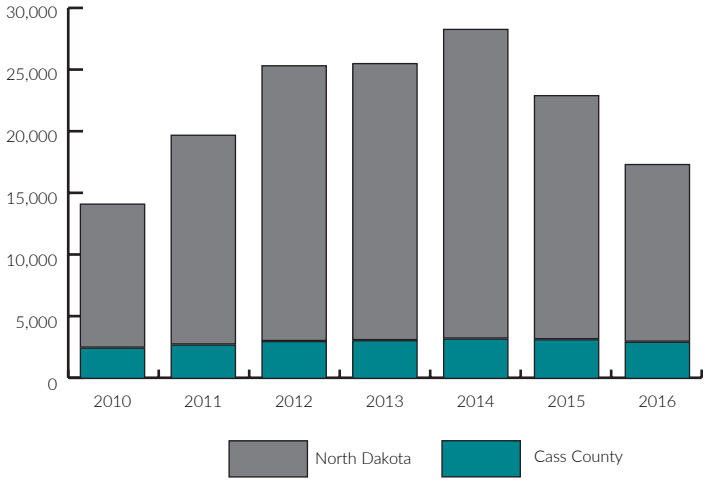
Taxable sales are the sum of all sales tax applied to all taxable sales in Cass County under North Dakota law. Taxable purchases are purchases of taxable items or services purchased by businesses for business use or contractors installing taxable goods into real property of businesses when the seller was not required to collect sales tax. The sum of these two represent the total sales of taxable items in Cass County and is useful as a proxy of overall economic activity in the County. It is a component of Gross Domestic Product. It does not, however, account for retail service activity which is also a significant component of the overall economic activity of the County.

Since 2010, Cass County's taxable sales and purchases have increased 18.9 percent. This is slightly lower than the

overall North Dakota taxable sales and purchases, which have increased 22.6 percent during the same time period. In 2016, Cass County's taxable sales and purchases were 17.3 percent of North Dakota's taxable sales and purchases. Taxable sales and purchases are shown in Figure 5.15.

Since 2010, Taxable Sales and Purchases in Fargo and West Fargo have accounted for around 97.0 percent of total Cass County taxable sales and purchases.

Figure 5.15: Total Taxable Sales and Purchases (In Millions)

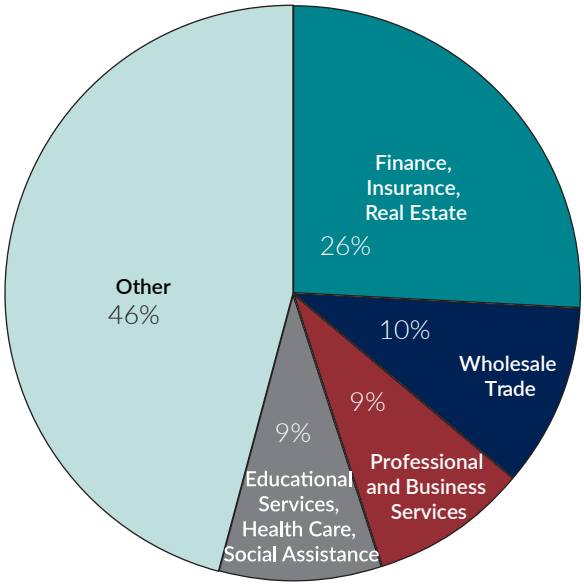


Gross Domestic Product

The gross domestic product (GDP) of an area is the total value of goods produced and services provided in a given time period. GDP is available for the Cass County, North Dakota and Clay County, Minnesota metropolitan statistical area by the Federal Reserve Bank. Since 2011, GDP for the metro area has more than doubled, from $6.7 billion in 2011 to $15.4 billion in 2015.

In 2015, the largest industries as a percent of GDP were finance, insurance, and real estate; wholesale trade; professional services; and educational and health care services, as shown in Figure 5.16. Healthcare is the largest industry both in employment and wages. Finance also appears in the top industries for employees and wages.

Figure 5.16: Largest Industries as a Percent of GDP



Agriculture

Agriculture is a major component of Cass County's economy. In 2012, there were 968 farms holding more than 1.1 million acres. This is up from 913 farms and 1.04 million acres in 2007.

In 2012, the median acreage of farms in Cass County was 485 acres, but there are still 389 farms holding 1,000 acres or more. Cass County farms produced $567.1 million in agricultural products in 2012, more than twice the 2007 value of $267.9 million. Number of farms by acreage is shown in Figure 5.17.

Nearly all (96.8 percent) agricultural products sold in Cass County in 2012 were crops, including nursery and greenhouse crops, up from 94.1 percent in 2007. However, 88.8 percent of all agricultural products sold were just three crops: corn (46.1 percent), wheat (7.2 percent), and soybeans (35.6 percent). In addition to these three major crops, barley has seen a significant increase in acreage harvested and bushels produced. Top crops are shown in Table 5.4. Crop cover is shown in Figure 5.18.

Livestock was just 3.2 percent of all agricultural products sold in Cass County in 2012, compared to 5.9 percent in 2007. The cattle inventory and value of sales has remained fairly stable since 2007, however, the inventory of hogs has decreased by nearly half, while the value of the hogs sold has remained fairly stable. Top livestock are shown inTable 5.5.

Figure 5.17: Farm Size

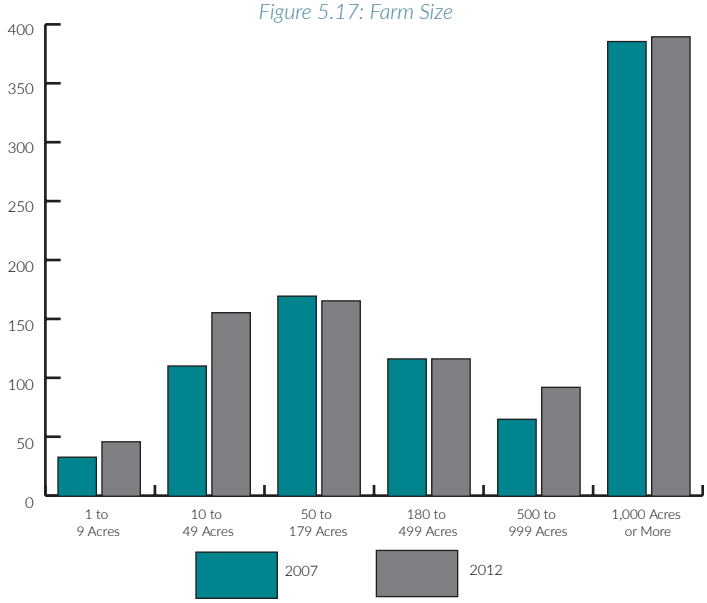


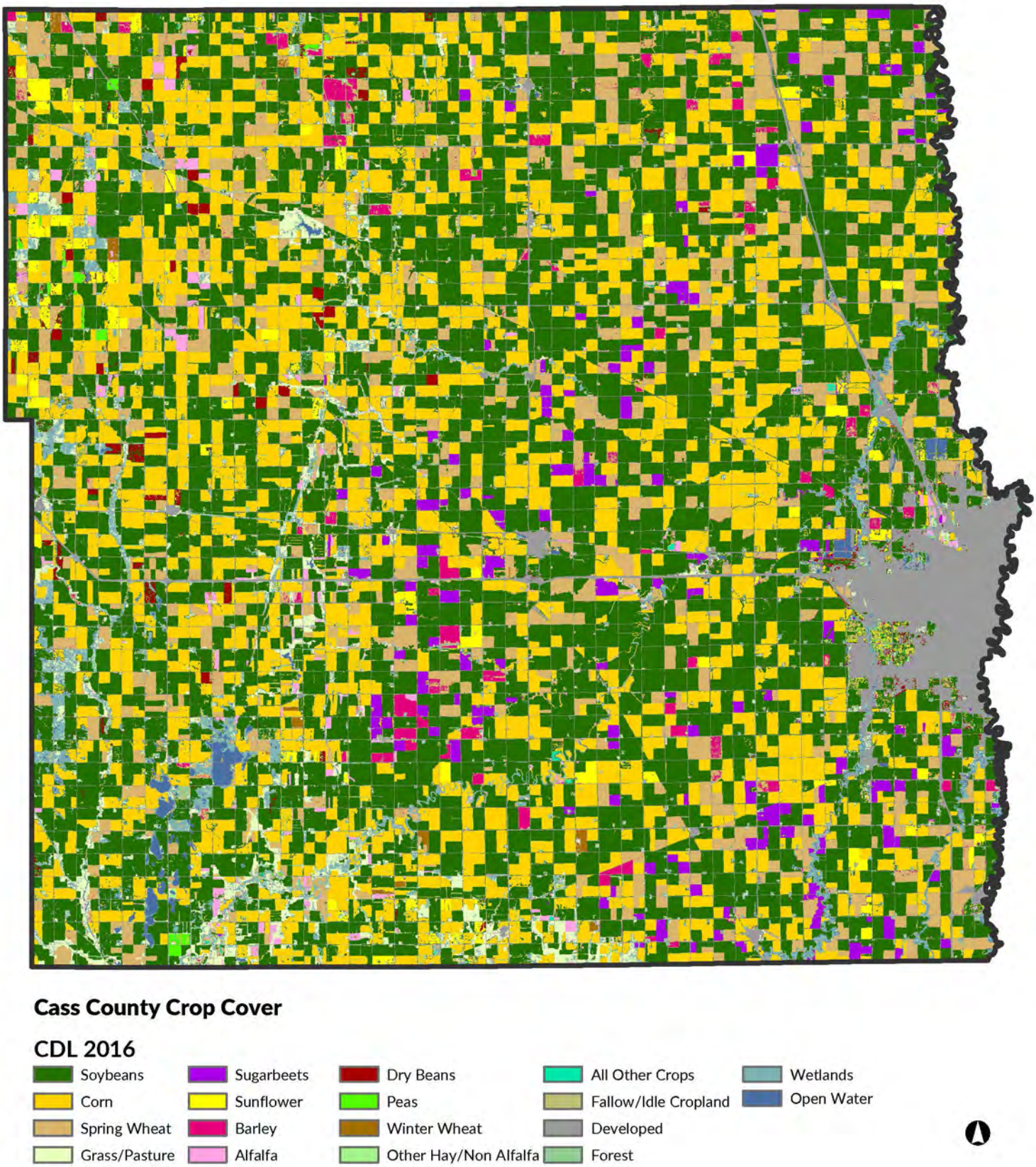
Table 5.4: Top Crops in Cass County

Crop	2007			2012			2016		
	Acres Harvested (Thousand)	Bushels (Million)	% of Ag Products Sold	Acres Harvested (Thousand)	Bushels (Million)	% of Ag Products Sold	Acres Harvested (Thousand)	Bushels (Million)	% of Ag Products Sold
Corn	238.0	28.2	31.2%	347.7	44.9	46.1%	291.5	53.4	NA
Wheat	182.0	6.3	14.5%	95.2	5.3	7.2%	94.9	6.4	NA
Soybeans	413.5	13.4	37.4%	487.5	16.1	35.6	476.0	21.6	NA
Barley	6.1	0.3	0.3%	10.9	0.7	0.8%	13.7	1.2	NA

Table 5.5: Top Livestock in Cass County

Livestock	2007		2012		2015	
	Inventory	% of Ag Products Sold	Inventory	% of Ag Products Sold	Inventory	% of Ag Products Sold
Cattle	12,014	3.8%	13,881	1.7%	12,600	NA
Hogs	9,014	0.7%	4,657	0.3%	4,800	NA
Sheep	2,074	NA	1,985	0.02%	2,000	NA

Figure 5.18: Crop Cover



Issues and Opportunities

A critical focus of economic development in Cass County has been the Workforce Initiative undertaken by five partners: Greater Fargo Moorhead Economic Development Corporation, Fargo-Moorhead Visitors Bureau, Fargo Moorhead West Fargo Chamber of Commerce, FM Area Foundation, and the United Way of Cass and Clay counties. This initiative documented the tremendous need for more employees in the greater Fargo Moorhead area, and identified key strategies to attract and retain them.

In addition to the Greater Fargo Moorhead Economic Development Corporation, there are four other active economic development organizations in Cass County.

- Casselton Job Development Authority
- Buffalo Economic Improvement
- Arthur Job Development Corporation
- City of West Fargo Economic Development

What We Heard

Communities may benefit from guidance on economic development strategies similar to that which Casselton is receiving through the Greater Fargo Moorhead EDC. Small communities may need more help in understanding community infrastructure needs, expansion concepts needed to manage growth, and help in planning to manage growth. Additionally, the focus from the State of North Dakota on Main Streets is also appropriate to integrate into the Cass County Comprehensive Plan.

Main Street Initiative

To maximize the rural character, historic nature, and critical economic role of town centers of communities in Cass County, the comprehensive plan should embrace key elements of the Main Street Initiative being supported by the State of North Dakota. The focus statewide with the Main Street Initiative has been on larger communities (with populations greater 5,000). The Main Streets and downtowns of small communities in Cass County are no less important, and in fact are key growth points for each of these communities.

One priority of North Dakota Governor Burgum has been the Main Street Initiative. The overall objective of this initiative is to build a North Dakota that is resilient and equipped to take on the challenges of the 21st century. The three pillars of this initiative are a skilled workforce; smart, efficient infrastructure; and healthy, vibrant communities. These three pillars are consistent with the guiding principles of the comprehensive plan: Livability, Resilience, and Regionalism. Livability includes the concepts of appropriate infrastructure systems and healthy communities that are centers of social and economic activity. Resilience includes the concepts of households, communities, businesses, and workforces that are equipped for the natural and economic challenges of the future. Regionalism recognizes developing a skilled workforce and smart, efficient infrastructure happens more effectively with a collaborative approach.

The Main Street Initiative encourages community leaders, entrepreneurs, students, and interested citizens to work strategically to capitalize on their community's strengths and make sound planning decisions to position their community for a vibrant future. The initiative recognizes that for communities to survive and thrive in the 21st century economy, they must attract and retain workers who are prepared to meet the challenges of a changing economy, that in order to effectively attract families and workers, communities need to continue to become unique places brimming with activity and spaces that offer a high quality of life and a diverse business environment. To successfully achieve this, the initiative recognizes the need of communities to make smart infrastructure investments that meet the needs of businesses and households in cost efficient ways so that they can afford to remain in the communities.

The Main Street Initiative is not a new financial assistance program for North Dakota local governments. Instead it is a reframing of existing North Dakota government policies, practices, and funding mechanisms to encourage local governments, businesses, and citizens to think carefully about how to accomplish the Initiative's vision.

Some key concepts embodied in the Initiative are:

- Encouraging infill development and higher density development to result in a better return on infrastructure investment.
- Carefully evaluating investment in new infrastructure to ensure that it will pay for itself.
- Recognizing that the reasons people pick a certain job now commonly have more to do with the community where the employee will live than the job itself.
- Encouraging a new approach to economic development that focuses on creating the kind of community and workplace environment that will attract the worker of today and tomorrow.

» Strengthening capacity to train the needed workforce for constantly changing, increasingly technical careers.

Economic Development Framework

There is general consent for the creation of a county wide economic development framework. The intent of the framework relates to evolving past and current economic practices to meet emerging trends. The framework also requires the county and existing communities respect emerging trends by investing in and embracing new technologies. Look for ways to build clear economic development strategies that are tailored to unique communities/geographies within Cass County. Small towns seek a vision, not a mandate in the area of economic development.

The economic development framework needs to be broad enough to account for the diverse nature of Cass County. It also requires flexibility to allow for the uniqueness of the small towns diversity within the County.

Small towns often lack some of the essential services (medical, retail, etc.) creating need for mobility between rural and urban Cass County. However, opportunities may exist to establish more day to day core retail needs in smaller communities. The Amazon effect and the general proximity of major retail centers in Fargo/West Fargo, make it difficult for small shops to survive, especially without adapting or developing synergies. The county may need to provide technical assistance to help rural communities build capacity and provide limited basic community and consumer services. Rural communities need to develop strategies to attract services and amenities to provide more of the day to day services necessary for its residents.

A key cornerstone of an overall economic development strategy in rural Cass County must account for critical information technology infrastructure. Work to ensure adequate cellular and internet services are available county wide.

Strategies and Policies

Potential approaches to address economic development include the following:

» Encourage rural communities to evaluate community investment to be sure it will pay for itself, and to consider what their true needs are instead of relying on past approaches.

» Encourage and support rural communities efforts to enhance the quality of life through local initiatives.

» Provide technical assistance by inviting rural communities to participate with existing collaboration meetings of the Casselton JDA and the GFMEDC.

» Act as a repository of best practices materials and case studies – housing, childcare, infrastructure investments, strategic planning, etc.

» Initiate and host a community development workshop for all small communities in Cass County that highlights opportunities to obtain assistance and plan for their future, including the concepts discussed in Rewriting the Rural Narrative and the Main Street Initiative.

» Lead efforts to ensure all of Cass County has access to high speed internet.

» Participate in local and regional efforts to create new ways to address affordable workforce housing.

» Support and encourage participation in the National Center for Economic Gardening.

Food Systems

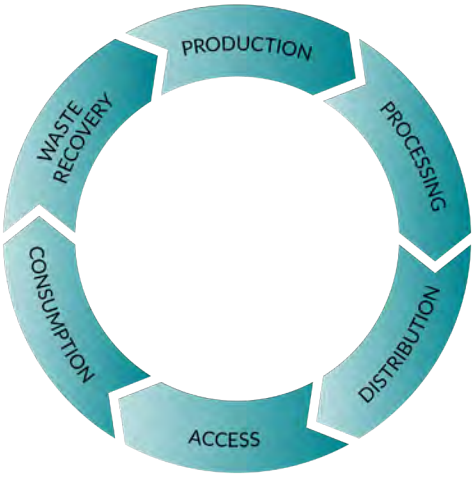
An emerging issue across the country, and in Cass County, is a renewed focus on the food system. Food systems and public health is a broad topic area representing a range of emerging issues related to production, distribution, and access to food within our communities and the impact it has on overall well being. Cass County is currently on the forefront of food systems work in North Dakota through its ongoing partnership with Clay County and Metro COG.

The food system incorporates all aspects of food production, distribution, consumption, and waste recovery (Figure 5.19). There are multiple areas a comprehensive plan can address in regards to the food system, including but not limited to agricultural land preservation, land use rights, and food related policies and programs.

Key inputs and guidance for the Cass County food system include:

- Economic Development - influence development and expansion of local food systems by positively impacting the local marketplace.
- Food Access - increase ease, availability, affordability, and accessibility of safe and nutritious food to all residents.
- Food Infrastructure - facilitate use of local foods among producers, consumers, and institutions throughout the local food system.
- Outreach and Education - improve promotion, production, purchase, preparation, and presentation of local foods.
- Urban Agriculture - influence public policy decisions to support improvement of local food systems and local food production.

Figure 5.19: Complete Food System



Existing Conditions

Building health considerations into policy planning can help improve general health and well-being, as well as individual and community resilience and sustainability. The following indicators begin to identify basic indicators of general health and well being in Cass County.

General Health Reporting

In the 2015 Behavior Risk Factor Surveillance Survey, respondents are asked to self-report their overall health, physical health, and mental health. In general, Cass County adults have better overall health and fewer physically and mentally unhealthy days when compared against North Dakota and the United States (Table 5.6).

Table 5.6: Cass County General Health Reporting

Metric	Cass County	North Dakota	US
Adults Reporting Fair or Poor Health	11%	13%	16%
Physically Unhealthy Days in Past 30 Days	2.6	3	3.8
Mentally Unhealthy Days in Past 30 Days	2.8	3.3	3.8

Obesity and Chronic Disease

Like the rest of the nation, Cass County residents face public health challenges, including chronic disease, diabetes, and obesity issues. In Cass County, 65 percent of Cass County residents are overweight or obese and eight percent of adults have been diagnosed with diabetes. This is a lower instance of overweight and obese and diabetes than the statewide average and the national average (Table 5.7).

Table 5.7: Cass County Obesity and Chronic Disease

Metric	Cass County	North Dakota	US
Overweight	36%	36%	36%
Obese	29%	31%	30%
Diabetes	8%	9%	10%

Health Behaviors Contributing to Disease

Specific behaviors like physical activity, fruit and vegetable consumption, drinking and smoking habits, and more contribute to overall wellbeing. In Cass County, 19 percent of adults do no leisure time physical activity, which is lower than the State of North Dakota and the United States as a whole. Just 16 percent of Cass County residents consume the recommended five servings of fruits and vegetables each day, which is higher than the statewide average but lower than the national average. Smoking prevalance among Cass County adults is lower than the statewide and national average, but binge drinking behaviors are higher in Cass County than in the state and nation (Table 5.8).

Table 5.8: Cass County Health Behaviors

Metric	Cass County	North Dakota	US
Adults Who Do No Leisure Time Physical Activity	19%	23%	26%
Adults Who Consume 5 Servings of Fruits and Vegetables Each Day	16%	14%	23%
Adults Who Smoke	15%	19%	17%
Adults Who Binge Drink	26%	25%	17%

Access to Health Care

Access to health care is a combination of transportation issues and provider availability. Transportation issues for Cass County are discussed in greater detail in the Transportation Chapter. On average, Cass County has better access to primary care physicians, dentists, and mental health providers than North Dakota and the United States. Cass County also has fewer preventable hospital stays and uninsured residents than the state and nation on average. Provider availability as well as preventable hospital stays and the uninsured rate is shown in Table 5.9.

Table 5.9: Cass County Access to Health Care

Metric	Cass County	North Dakota	US
Primary Care Physician Ratio	890:1	1,280:1	1,330:1
Dentists Ratio	1,350:1	1,630:1	1,520:1
Mental Health Provider Ratio	410:1	640:1	500:1
Preventable Hospital Stays per 1,000 Medicare Enrollees	35	46	59
Uninsured	8%	9%	11%

Physical Environment Indicators

Clean air and water, along with commuting and housing patterns provide insight into the physical or built environment and its impacts on public health. In Cass County, there were no drinking water violations reported, but air pollution (density of fine particulate matter per cubic meter) was 1.5 micrograms higher than the statewide average and 1.3 micrograms higher than the national average, however it is still well below the 12 microgram level set by national standards. There are also more severe housing problems in Cass County than the statewide average, but fewer when compared to the US as a whole. Severe housing problems are defined as percentage of households with at least one housing problem: overcrowding, high housing costs, lack of kitchen, or lack of plumbing. Physical environment indicators are shown in Table 5.10.

Table 5.10: Cass County Physical Environment Indicators

Metric	Cass County	North Dakota	US
Air Pollution	9.0	7.5	7.7
Drinking Water Violations	0	5	1,593
Severe Housing Problems	14%	11%	19%

Food System Indicators

The following food system indicators provide a brief snapshot on county food access, availability and security, producers and processing activities.

Food Access, Availability, and Security

Food security is typically defined as the ability to obtain enough food to lead an active healthy lifestyle, which incorporates food access (the ability to obtain culturally appropriate foods for a nutritious diet) and food availability (sufficient quantities of food on a consistent basis). Many of these issues are tied to socioeconomic status, emergency food access, and availability.

Food Assistance

In June 2017, eight percent of Cass County households received Supplemental Nutrition Assistance Program benefits. There are 16 food pantries in Fargo alone. No data is currently available for the number of food pantries in rural Cass County. For calendar year 2016, 11 percent of individuals in Cass and Clay counties used the Great Plains Food Bank emergency feeding network; 38 percent of these individuals were children.

Food Access

As of 2012, there were 21 grocery stores in Cass County, 3 supercenters and club stores, 54 convenience stores, and 10 specialized food stores. Of these stores, 77 accepted SNAP.

Across Cass County, availability of retail grocery varies depending on location. While multiple retail grocery stores existing within Fargo and West Fargo, other rural communities also have full or limited retail grocery stores: Kindred, Casselton, Buffalo, Arthur, and Page. Additional communities have convenience stores with limited grocery availability: Harwood, Horace, Hunter, Tower City, and Grandin. The remaining communities do not have retail grocery available locally.

As of 2010, 15 percent of Cass County residents live more than one-mile from a grocery store in urban areas and ten miles in rural areas. This is significantly lower than the statewide average of 31 percent and the national average of 41 percent. Three percent of Cass County residents are low income and have low access to a store.

Producers and Distribution

There are six known farmers markets in Cass County:

- Farmers Market & Beyond - West Fargo
- Northern Plains Botanic Garden Society Farmers Market - Fargo (West Acres)
- Red River Farmers Market - Fargo
- Hildebrant's Farmers Market - West Fargo
- Enderlin Farmers Market - Enderlin
- Ladybug Acres' Veggie Barn - Fargo

According to the North Dakota Local Food Directory, there are

- five small vegetable farms supplying to local farmers markets (Bayer, Gramps, Rogroden, Solberg, Yellowbird)
- one orchard
- two farms with on-farm sales or direct sales (Bayer, Gramps)
- one roadside farm stand (Gramps)
- no u-pick or wholesale farms in Cass County.

There are no Community Supported Agriculture farms in Cass County. However there are five that serve Cass County (one from Richland County, one from Traill County, and three from Clay County).

There are 11 community gardens in Cass County, all within the Fargo-Moorhead metro area.

- Cooper Community Garden
- Golden Ridge Neighborhood Community Garden
- McKinley Youth Garden
- Nativity Community Garden
- Oak Grove Park Community Garden
- Yunker Farms Community Garden
- Growing Together Community Gardens (5 locations)

Food Processing and Distribution

Food processing and distribution centers can help support the economic and educational benefits of the local food system.

- Prairie Roots is the only food cooperative in Cass County. It is located in Fargo.
- There are no food hubs or urban farms in Cass County.
- Square One is the only publicly available community kitchen. It is a licensed commercial kitchen.
- There are five community kitchens for non-profit educational use in Cass County: NDSU Extension, Fargo Cass Public Health, Sanford Wellness, Dakota Medical Foundation, and Family Health Care).

Issues and Opportunities

What We Heard

One of the more critical services sustaining small communities is access to food. Developing stable and dependable food systems is an emerging issue nationally, and within Cass County. A safe and dependable food supply is critical to any community's resilience. There are currently very few known farmer's markets in rural Cass. However, several thrive in the more urban areas of eastern Cass County (Fargo and West Fargo). Growers going to those markets are typically based in rural parts of the county.

Developing a strategy to support additional farmer's markets in rural Cass County can assist with meeting needs regarding small town food supply. In fact, small town grocers and local growers may benefit from the development cooperative efforts which serve to bring growers and sellers together in small towns.

Improvements to the local food systems in rural Cass County can improve quality of life for all residents, but especially for vulnerable populations. The lack of local grocery supply impacts seniors' ability to age in place. The development

of local food systems and community markets can assist to enhance rural food pantry supplies of healthful foods too, through the donating of unused products during peak growing seasons, a program known as gleaning.

Urban agriculture may resonate in small towns, especially given their potentially greater connection to traditional farming practices. Local codes and ordinances should be reviewed and evaluated to determine the degree to which small towns can support urban agriculture and food system development which are scaled to meet emerging local food market demands.

Strategies and Policies

Potential approaches to address food systems include the following:

- Support the efforts of the Cass Clay Food Partners, which includes the Cass Clay Food Partners Steering Committee, Cass Clay Food Commission, and the Cass Clay Food Action Network
- Encourage development of strategies that support local food including farmer's markets and cooperatives.
- Support efforts to enhance rural food pantry supplies.
- Incorporate the needs of urban agriculture into model ordinances. Specific needs may include beekeeping, chicken keeping, green roofs, etc.
- Support efforts of Cass Clay Food Partners to ensure healhty food availability thoughout Cass County.

Figure 5.20: Red River Market in Fargo

Emergency Management

The North Dakota Century Code recognizes the importance of emergency management organization at state, regional, and local levels. NDCC 37-17.1-07 states that "each county shall maintain an emergency management organization that serves the entire county or must be a member of a regional emergency management organization that serves more than one county. In NDCC 11-33-03 the potential for comprehensive planning to address emergency management is affirmed when it cites that county regulations (and by extension the comprehensive plan behind the regulations) may provide for emergency management. "Emergency management" in NDCC 11-33-03 means "a comprehensive integrated system at all levels of government and in the private sector which provides for the development and maintenance of an effective capability to mitigate, prepare for, respond to, and recover from known and unforeseen hazards or situations, caused by an act of nature or man, which may threaten, injure, damage, or destroy lives, property, or our environment." The NDCC definition includes the four "phases" or functions most commonly used to describe the roles of emergency management: mitigation, preparation, response, and recovery.

This element of the comprehensive plan:

- summarizes the organization of public safety and emergency management functions in Cass County.
- discusses the relationship between emergency management and comprehensive planning.
- offers strategies to enhance emergency management and development practices in Cass County in ways that will promote a more resilient County.

Existing Conditions

Relationship Between Public Safety and Emergency Management

The Cass County Emergency Management Department is responsible for reducing the effects of disasters before they occur. This is done by identifying threats and hazards, and planning for and coordinating the operations and response needed during a disaster. Additionally, the Department manages resources, distributes information to the public in the face of a disaster, and coordinates recovery efforts following a disaster.

Emergency management and public safety are two related, overlapping functions in Cass County. When an emergency occurs, the first level of response is determined by the proximity of first responders and the nature of the emergency. Typically, any communication about an emergency is routed to the Red River Regional Dispatch

Functions of Emergency Management

- Mitigation – Preventing future emergencies or minimizing their effects. The effort to reduce loss of life and property by lessening the impact of disasters – taking action now to reduce human and financial consequences later (analyzing risk, reducing risk, and insuring against risk).
- Preparedness – Planning, compiling resources, and training to handle emergencies. Activities necessary to build, sustain, and improve readiness capabilities to prevent, protect against, respond to, and recover from natural or man-made incidents.
- Response – Reacting safely to emergencies. Responding quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of a catastrophic incident.
- Recovery – Restoring community infrastructure and systems after an emergency. Timely restoration, strengthening and revitalization of infrastructure, housing, and a sustainable economy, as well as the health, social, cultural, historic, and environmental fabric of communities affected by a catastrophic incident.

Figure 5.21: Functions of Emergency Management

Center, which dispatches appropriate first responders to the scene of the emergency. First responders include local law enforcement officers, local fire departments, and local ambulance services. The scale of the response is determined first by the Dispatch Center and then by the on-scene responders. Additional resources are dispatched as warranted by the nature and scale of the emergency. The Cass County Emergency Management Department is pulled into the situation when a complex response beyond local government capabilities is needed.

Operation and Maintenance of E-911 System

The Enhanced 911 response system is operated by the Red River Regional Dispatch Center located in Fargo. Emergency response zones are established based on local ambulance and fire response service areas. Emergency calls from a specific zone will have the first responders responsible for that specific zone dispatched to them. Emergency response zones are shown in Figure 5.22.

In order for accurate dispatching to take place, the entire County is part of a 911 addressing system. The Cass County Planning Office is responsible for maintaining the 911 addressing system for the rural parts of the County. The Cities of Fargo and West Fargo maintain their own addressing system for areas within their municipal boundaries.

Functions of Cass County Emergency Management Department

As noted previously, Cass County Emergency Management Department typically becomes a part of the emergency response only when the nature or scale of the emergency warrants it. Examples of such emergencies are large scale flooding events, large scale chemical spills, or other similar events where the Emergency Operations Center is activated. These response functions are only one aspect of the County Emergency Management Department's responsibility. It is responsible for coordinating the four functions of Emergency Management noted previously (mitigate, prepare, respond, recover).

Cass County Emergency Management Organization and Coordination

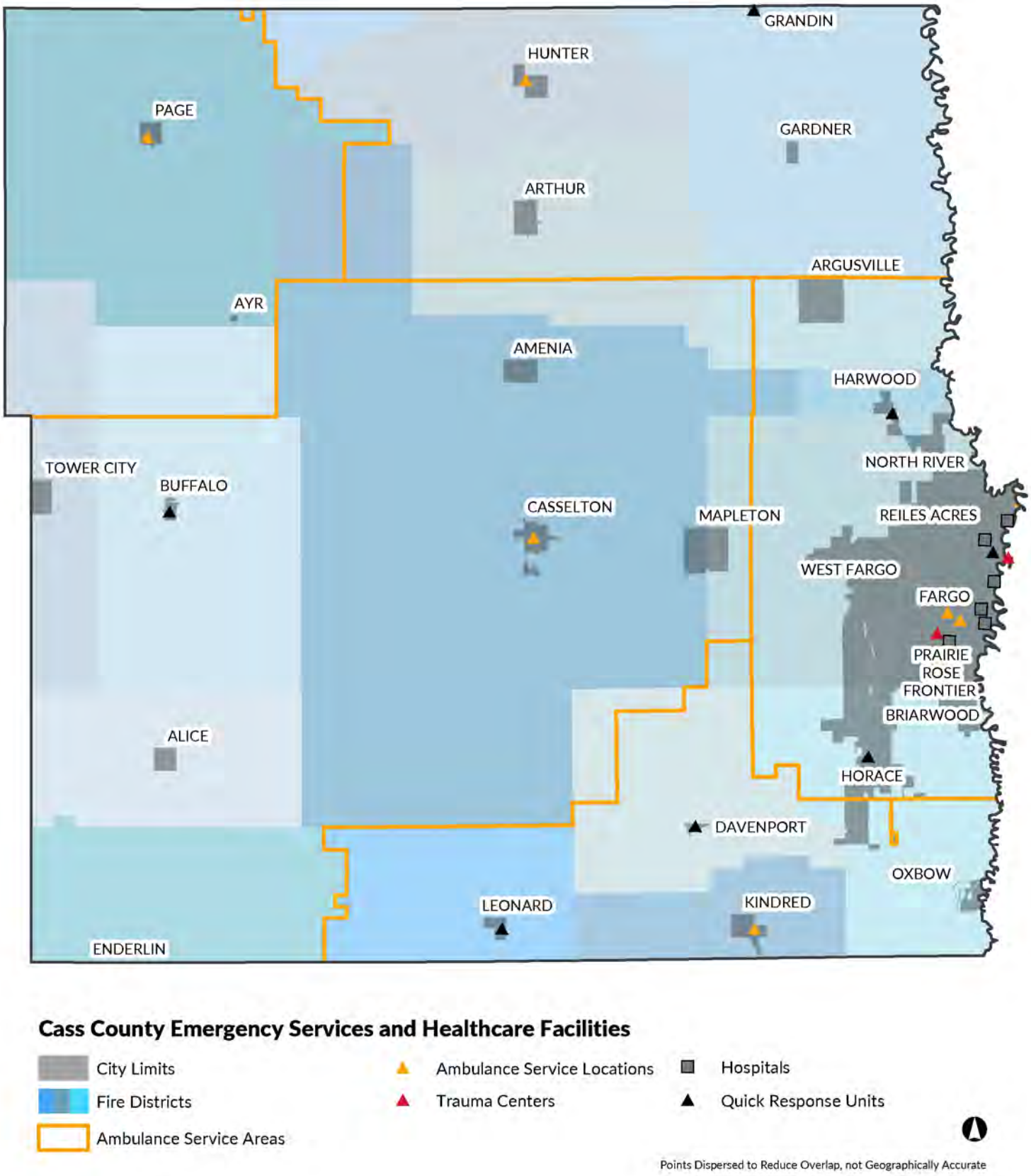
Cass County's Emergency Management Department is led by a Director who has overall responsibility for its functions. The Director reports to the Cass County Board of County Commissioners. Many of the decisions and strategies of the Office are made collaboratively with the Local Emergency Planning Committee. The Cass County LEPC is comprised of members of local public safety organizations and other local government representatives involved in responding to major emergencies. The LEPC is responsible for developing the County's Emergency Operations Plan, and is also heavily involved in the development of other emergency management plans, training activities, and emergency response management. The Director also coordinates closely with a multitude of public and private organizations.

In addition to the lateral coordination with various public and private organizations in the Cass County area, the Cass County Emergency Management Department also coordinates vertically. There are two primary ways in which this happens: disaster responses, and planning/funding. Local emergencies often do not trigger the involvement of the County Emergency Management Department unless the scale or nature of the emergency warrants it. In some cases, the scale or nature of the incident is beyond the capacity of local responders and the County Emergency Management Department. When this happens, response is escalated to the next level which may be to call in additional resources from other nearby counties or cities, or to call in additional resources from the State of North Dakota's Department of Emergency Services. In a few cases, the scale or nature of the incident warrants a national level response. In these cases, the governor of North Dakota must formally request a disaster declaration from the US Government. Such requests are funneled through DHS-FEMA to the President, and when certain criteria are met, the President can authorize a Federal Disaster Declaration. This triggers the availability of national resources and allows funding for response, recovery, and mitigation activities to become available. It is important to recognize that disasters can happen at any time, and that only a fraction of events trigger Federal assistance.

Integrating Emergency Management and Comprehensive Planning

Every community in North Dakota is susceptible to some significant natural hazards such as blizzards or tornadoes that have the potential for loss of life or extensive property damage. Many communities in Cass County are also at risk of flooding, which may also result in extensive property damage, or even loss of life. Cass County Emergency Management updates a Multi-Hazard Mitigation Plan every five years to assess the level of risk from natural and man-made hazards, and to develop an action plan to reduce the impacts of such hazards. Hazards identified in the last Cass County MHMP include dam failure, drought, flooding, geologic hazards such as landslides or riverbank slumping,

Figure 5.22: Emergency Services and Healthcare Facilities



severe summer storms (includes tornados, hail, torrential downbursts, straightline winds, lightening, and extreme heat), severe winter weather (includes blizzards, heavy snow, ice storms, and extreme cold), urban fire, and wildland fire.

One way to help reduce the impacts of such hazards is to integrate hazard mitigation planning with comprehensive planning. Local governments can help manage risk by the way they plan, design, and build their communities. Effective integration can happen when Cass County's "planning framework leads to development patterns that do not increase the risks from known hazards or leads to redevelopment that reduces risk from known hazards.[11]"

A fundamental reason to integrate hazard mitigation into comprehensive planning is because it saves money by reducing the cost of responding to emergencies, the costs of cleanup and rebuilding after emergencies, and the disruption of business activity due to hazards. It can also enhance economic development by creating an environment that is less likely to be impacted by hazards and emergencies.

Typically, across the United States, hazard mitigation happens in a "silo" of people directly involved in emergency management. "Hazard mitigation plans often include mitigation strategies or actions that are focused on a disconnected series of emergency services, structure or infrastructure protection projects and public outreach initiatives with less emphasis on non-structural measures available through local land use planning or policy alternatives.[12]" Historically, Cass County has created its Multi-Hazard Mitigation Plans as stand-alone documents that cover multiple jurisdictions, and does not link the MHMPs to other community specific or county-wide planning tools such as comprehensive plans or development regulations.

Although Federal funding delays have delayed the initiation of the next Cass County MHMP process, and the budget for integrating emergency management into this Comprehensive and Transportation Plan is constrained, several strategies and best practices for integrating mitigation planning and comprehensive planning have been identified as reasonable methods to encourage or support resilient infrastructure and development practices in Cass County.

Strategies and Policies

After reviewing the objectives of multi-hazard mitigation planning in the context of the topics addressed by the Cass County Comprehensive and Transportation Plan, an extensive list of emergency management objectives, opportunities and issues were identified for the Plan. The following paragraphs summarize these objectives, opportunities and issues by topic.

Land Use and Future Development

The historically most impactful hazard in Cass County has been flooding. Development in identified floodplains brings with it the potential for future damages, evacuation, and higher development costs to protect structures and infrastructure from damage. Agricultural uses, open space or recreational uses, and other non-structural uses are more appropriate land uses in floodprone areas. At a minimum, appropriate floodplain management should be supported in order to minimize the risks from flooding.

Flooding is not the only concern for land use and future development. Because Cass County is at the crossroads of two interstate highways, three railroad systems, pipelines, and is a major population center in the upper Midwest, a large amount of hazardous material is transported through or stored in the County. Wherever these hazardous materials travel or are stored there is potential for an incident that can threaten life and property. Land uses and development patterns with low impacts from hazardous materials incidents are more appropriate near the transport corridors. One simple mitigation strategy to address this hazard is to ensure that these high hazard corridors and sites are clearly understood by local permitting agencies. At a minimum, appropriate buffers should be established between these corridors and habitable development areas.

Transportation

Transportation networks are a critical aspect of emergency management. Without appropriate access, emergency response equipment cannot be quickly transported to needed sites. Certain sites and transportation corridors are much more susceptible to hazardous materials incidents and should be buffered from habitable development. Transportation networks are also an essential component of evacuation procedures in the event that one is needed. A distributed transportation network has the advantage of providing more alternate routes if some of the routes in a given area are blocked. New development proposals should be evaluated with regard to maintaining or enhancing the transportation network for emergency management

objectives. Additionally, transportation routes and development go hand in hand. To discourage development in high risk areas, transportation routes should be designed or limited to minimize the potential for development in such areas.

Housing

In addition to discouraging development (including housing) in high hazard locations, it is important to recognize appropriate standards for urban housing can reduce potential hazards. Critical aspects of emergency management related to housing include: ensuring that developments are designed with multiple egress routes to enhance the potential for emergency vehicle access and inhabitant evacuation, encouraging disaster resistant design and construction, and requiring adequate capacity and proximity for sheltering in place for housing that has low disaster resistance. Additionally, because local or personal preparedness is the best first step for emergency management, personal and neighborhood level resiliency planning should be highly encouraged.

Public Facilities and Infrastructure

Public facilities and infrastructure are especially important to emergency management because they support basic health and safety needs of whole communities. This is why critical facilities lists are an important element of MHMPs. The high cost of these facilities often leads to pragmatic decisions aimed at efficiency. However, these efficiencies also may result in higher risks for the public. Recent examples of this include decisions by local jurisdictions to obtain water or sewage treatment from a single source. From a cost benefit standpoint this is a wise decision, but if a catastrophe were to befall the water or sewage treatment facility, the impact will now extend to almost all the communities in the Metro area of Cass County. A distributed approach to water and sewer treatment would allow a lower impact in the event of a critical incident. Current and future planning for public infrastructure and critical facilities should be mindful of the benefits of distributed systems. In cases where critical facilities are not part of a distributed systems, it is especially important that these facilities be hardened to withstand potential hazards.

Community Facilities

In addition to public facilities and infrastructure, there are large number of community facilities that serve critical functions to the population and communities of Cass County. These include places that store critical resources, provide critical services, or can be used as safe harbors for sheltering displaced populations. Again, the concept of distributed systems offers the benefit of being more accessible, and having less of an impact if access is denied. This benefit supports the concept of resilient neighborhood design noted in the land use and development discussion.

Historic and Cultural Resources

Communities often have historic and cultural resources that are irreplaceable. Although their physical or functional value may be limited, their cultural, historic, or social significance may be tremendous. These resources also merit consideration by emergency management planning. As an example, the Old Stone Church in Buffalo is an iconic representation of the community and its roots. If the building were destroyed, it would be a major loss to the community.

Natural Resource Protection

The Red River Valley may not often be thought of as having natural resources to be protected, but at a minimum the rich soils of the valley are a tremendous resource that supports a significant element of the regional economy, and is foundational to many of the rural communities in the County. Other potential resources to be protected include trees, natural wetlands and drainageways, and surface and groundwater. We are dependent on the water for water supply. Wetlands help reduce erosion and sediment loss into local rivers and thus help to maintain the water carrying capacity of those streams.

Drought Considerations

Cass County local governments are more typically concerned about addressing the problem of too much water rather than too little. However, drought is an essential issue to consider in the context of emergency management. Studies show a severe drought similar to that of the 1930s, will likely repeat by the year 2050. As the population in Cass County continues to grow, so does its demand for potable water. Because of the uncertainty of surface water supply and the limited groundwater supply which is nearly fully appropriated, another source of water is an important element in addressing drought conditions. The Red River Water Supply Project has been initiated to provide a reliable supply of quality drinking water for the Red River Valley including Cass County. It is important that Cass County Government, in collaboration with other local governments, continue to advocate for the completion of this Project. Although this long range project will ultimately help address concerns about drought conditions, it is also important that Cass County Emergency Management lead efforts to mitigate the impacts of this critical natural hazard.

Public Infrastructure and Facilities

Public infrastructure and facilities refers to the basic utilities of sewer, water, and broadband internet, which are fundamental to the desired quality of life in Cass County.

Existing Conditions

Sewer

Sewage collection and treatment in Cass County is handled either by onsite septic systems with drainfields, or by community collection and treatment systems. Single lot development and rural subdivisions in Cass County almost always rely on onsite septic systems. Due in part to the heavy clay soils throughout much of Cass County, these septic systems need carefully designed drainfields to operate effectively. Even when well-designed they often have a lifespan of 20-25 years. In a few cases near the City of Fargo, rural subdivisions have participated in a rural community collection system that is ultimately treated by the City of Fargo's sewage treatment plant. Due in part to the significant cost involved in maintaining or expanding sewage treatment facilities, several communities near Fargo have elected to contract with Fargo for sewage treatment. The remaining small communities in Cass County use lagoons to address their sewage treatment needs.

Water

Although there are four aquifers in Cass County, most rural development and almost all the cities in the County obtain their water from the Sheyenne or Red Rivers. Again Fargo provides municipal water supply to several small communities and rural subdivisions in the metro area. In some cases, this is through a contract arrangement with the Cass Rural Water District. Cass Rural Water serves the small cities of Casselton, Mapleton, Kindred, Argusville, Gardner, Buffalo, Amenia, Davenport, Arthur, Hunter, Page, and Tower City, as well as 5,400 rural residences and farms.

Broadband Internet

Broadband internet is a high-speed always-on internet connection. Broadband internet is often considered a critical infrastructure for education and economic development.

The National Telecommunications and Information Administration launched the State Broadband Initiative (SBI) in 2009 in coordination with the Recovery Act. The SBI awarded grants to each state to support the efficient and creative use of broadband technology to allow local economies to better compete with the digital economy. It also collected data twice a year, until 2014, to support the development of the National Broadband Map. North Dakota received almost $3.7 million from this grant program.

As of 2014, residents of Cass County have exceptionally high access to broadband internet, relative to the United States as a whole. This is predominately delivered through wirelines, often the telephone line. Cass County broadband access information is shown in Table 5.11.

- Three of four people in Cass County have access to 1 Gigabit internet, generally considered to be the fastest available speed, compared to less than one in ten in the United States.
- Nearly 98 percent of people in Cass County have access to 3 Megabit internet, generally considered the slowest broadband speed, compared to 95 percent of the United States.
- 82 percent of people in Cass County have 3 or more wireline broadband providers to choose from, compared to just 56 percent of the United States.
- There is less than 0.1 percent speed difference between urban and rural homes in North Dakota.

Table 5.11: Broadband Internet Access

Metric	Cass County	North Dakota	United States
Population with Access to 1 Gigabit Speed (Wireline)	76.2%	59.3%	7.9%
Population with Access to 3 Megabit Speed (Wireline)	97.8%	95.1%	95.4%
3 or More Providers Available (Wireline)	81.7%	61.2%	56.0%
Rural-Urban Speed Differential	<0.1%		1.3%
Rank (Speed and Availability)	266/3234 Top 10%	15/50 Top 30%	-
Household Access to Internet Enabled Device	89.0%	86.2%	86.8%

Energy

Existing Conditions

Cass County is served by two power utilities: Cass County Electric Cooperative, based in Fargo, North Dakota, and Xcel Energy, based in Minneapolis, Minnesota.

Figure 5.23 illustrates Cass County's energy consumption in kilowatt-hours and Figure 5.24 illustrates its power demand as provided by the combined power utilities from 2007 through 2016. Energy consumption is the actual amount of electricity consumed and is typically measured as kilowatt-hours (kWh). The United States average energy use per home is around 750 kWh per month.

Figure 5.23: Cass County Energy Consumption (kWh)

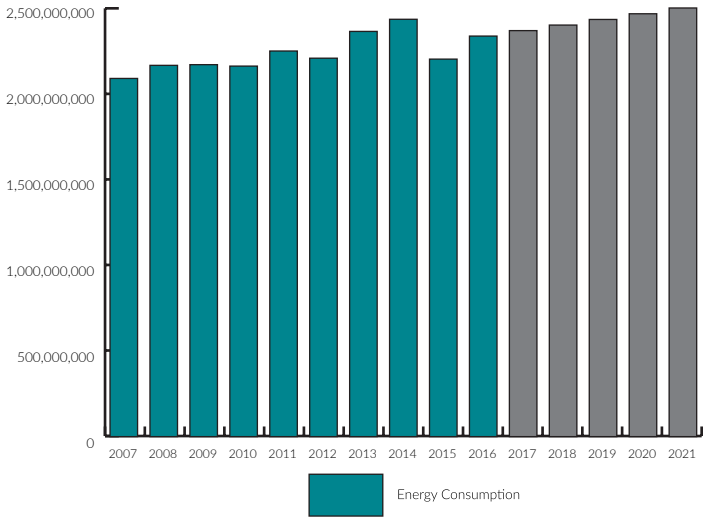
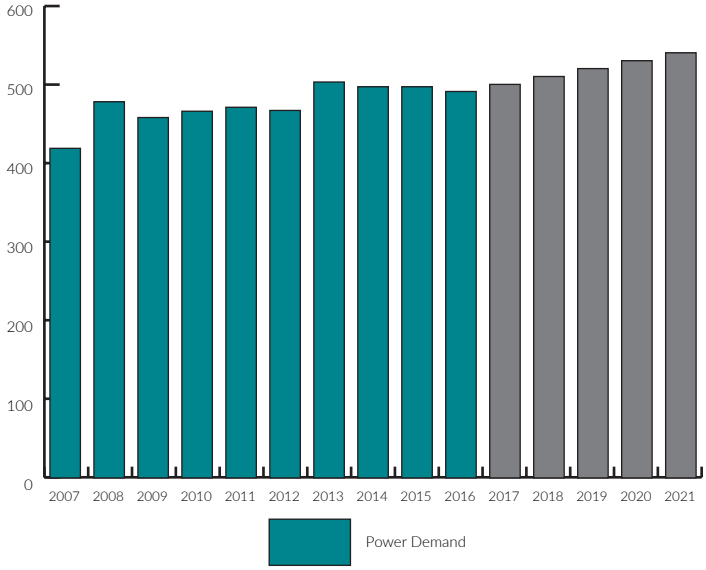


Figure 5.24: Cass County Power Demand (MW)



Power usage fluctuates daily and seasonally. To maintain sufficient power for the demands of the moment, power companies must transmit enough power through their infrastructure to meet those demands as they fluctuate. The amount of power that the utility company is required to make available is power demand. A rule of thumb is that a typical home has a demand of about two kilowatts (kW). This means that power companies would need to maintain 2,000 kW of generation to power 1,000 homes.

The overall trend for energy consumption and power demand in Cass County is increasing. The average growth in energy consumption from 2007 through 2016 was 1.36 percent. This is not surprising given the continued population and business growth in the county. The average growth in power demand from 2007 through 2016 was 1.91 percent. Thus, in addition to an increasing number of users, the power load required by those users at a given time is also increasing.

Issues and Opportunities

Renewable Energy Options

There is an increasing interest on the part of energy supply companies and citizens in reducing reliance on finite energy resources, and exploring renewable energy options. Renewable energy is commonly considered to be energy from a source that is replaced rapidly by a natural process. The list of commonly considered renewable energy options includes:

- Wind
- Solar (photovoltaic & solar thermal)
- Geothermal technologies
- Biogas
- Biomass
- Hydroelectric power

Of these options only wind power and solar power are viable at a commercial or utility scale in Cass County. The Geronimo Energy Solar project just announced in 2018 is evidence of solar power viability. It covers over approximately 1,600 acres of land in Harmony Township. Neither wind and solar power can totally replace other energy sources because of their limitations:

- Non-scalable – they can't be turned off or on to adjust to peak electric demand
- Inefficient – they have very low capacity factors

» Siting – must be built where conditions are suitable, not necessarily where electricity is needed

» Land – require vast amounts of land area to produce significant amounts of electricity

Despite these limitations, Cass County can expect growth in solar and wind power systems because they help stretch non-renewable energy sources and the County is in the path of major electrical power transmission lines capable of transmitting electricity downstream to areas of high demand.

Life Cycle Costs for Renewable Energy

There have recently been a number of studies completed on the life cycle costs for renewable energy options. One of the most respected sources is the U.S. Energy Information Administration. A report produced by the EIA, based on what appear to be reasonable assumptions on cost factors, suggests that costs for solar and wind power generation might soon become competitive with coal and natural gas energy production costs. But as noted previously the capacity factors for wind and solar (approximately 30 percent) are so much lower than coal and natural gas power (approximately 80 percent) that the investment needed to produce the same amount of energy is higher. Table 5.12 shows levelized cost of electricity for new generation resources entering service in 2022 and provides a reasonable way to compare life cycle costs.

Table 5.12: Estimated Levelized Cost of Electricity for New Generation Resources Entering Service in 2022[13]

Plant Type	Capacity Factor (%)	Levelized Capital Cost	Levelized Fixed O&M	Levelized Variable O&M	Levelized Transmission Cost	Total System LCOE	Levelized Tax Credit	Total LCOE Including Tax Credit
Coal with 30% CCS	85	84.0	9.5	35.6	1.1	130.1	NA	130.1
Coal with 90% CCS	85	68.5	11.0	38.5	1.1	119.1	NA	119.1
Conventional CC	87	12.6	1.5	34.9	1.1	50.1	NA	50.1
Advanced CC	87	14.4	1.3	32.2	1.1	49.0	NA	49.0
Advanced CC with CCS	87	26.9	4.4	42.5	1.1	74.9	NA	74.9
Conventional CT	30	37.2	6.7	51.6	3.2	98.7	NA	98.7
Advanced CT	30	23.6	2.6	55.7	3.2	85.1	NA	85.1
Advanced Nuclear	90	69.4	12.9	9.3	1.0	92.6	NA	92.6
Geothermal	90	30.1	13.2	0.0	1.3	44.6	-3.0	41.6
Biomass	83	39.2	15.4	39.6	1.1	95.3	NA	95.3
Wind, Onshore	41	43.1	13.4	0.0	2.5	59.1	-11.1	48.0
Wind, Offshore	45	115.8	19.9	0.0	2.3	138.0	-20.8	117.1
Solar PV	29	51.2	8.7	0.0	3.3	63.2	-13.3	49.9
Solar Thermal	25	128.4	32.6	0.0	4.1	165.1	-38.5	126.6
Hydroelectric	64	48.2	9.8	1.8	1.9	61.7	NA	61.7

LAND USE

LAND USE

Cass County has long been the largest population center of North Dakota, and typically the largest economic engine in the state. These twin roles highlight the dual nature of the county: three percent of the County is the site of most of the Fargo-Moorhead metropolitan area and 85 percent dedicated primarily to agricultural production. The County contains 27 incorporated cities, several additional unincorporated villages, 49 townships, and four water resource districts. The Cass County Comprehensive and Transportation Plan responds to existing issues, projected needs, and opportunities identified by the public, key stakeholders throughout the County, and additional planning team analysis. This plan develops strategies and recommendations to assist Cass County in managing land development under its control, and supporting land use management with its cities, townships, and water resource districts.

Intergovernmental

With more than 90 different government entities (county, cities, townships, water resource districts, school districts, park districts, etc.), intergovernmental coordination is imperative for meeting the three guiding principles of this plan. Several key topic areas relate to intergovernmental issues including schools, parks, housing, growth management, and transportation. Each of these issues involve a degree of needed intergovernmental coordination to assist with maximizing opportunities in Cass County.

Schools

There are multiple school districts in Cass County. Some districts have land in more than one county and depend on good communication and information sharing about a range of political subdivisions in Cass County. Rural school districts are facing growing needs to provide a range of new and challenging social and community services needs within their populations. Greater coordination among and between districts, city, and county government may serve to provide efficient service models to assist in meeting these needs.

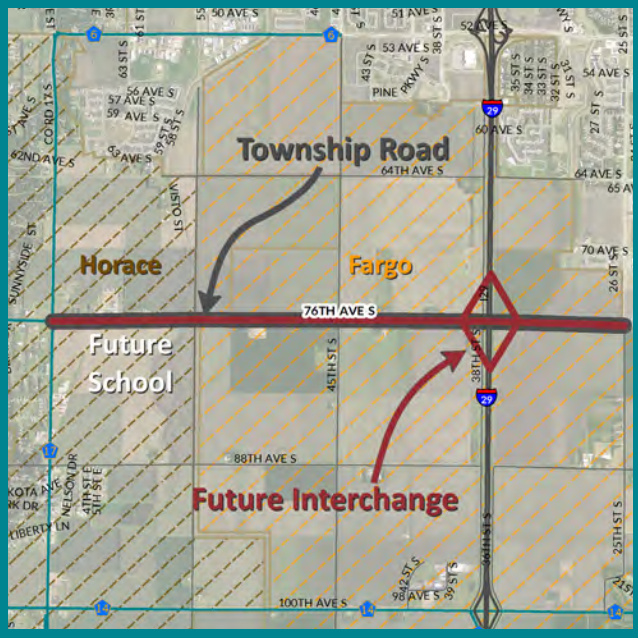
Greater emphasis on skills training and development in the K-12 curriculum is a growing trend emerging in Cass County. In the changing economy, there is more pressure on rural school districts to provide post-secondary options in K-12 curriculum, as well as more technical based skill sets to students. There is an emerging need for a collaborative approach between school districts, post-secondary institutions, and some of the regional largest primary sector employers to meet workforce skills training.

Intergovernmental Coordination and Schools

The need for intergovernmental coordination presents itself in the areas between Fargo and Horace, specifically related to school facility placement being considered by the West Fargo School District. The West Fargo School District is currently proceeding with the development of a nearly 100-acre site for a future High School and Middle School south of 76th Avenue.

76th Avenue is currently a gravel township road with legacy land development patterns which will likely run contrary to future corridor needs. It is a proposed future major arterial with an interchange on I-29. It currently runs between Fargo and Horace city boundaries, but the two communities have had little deliberation on the preferred approach to how the transportation elements of the corridor should develop. The intersection of 76th Avenue and County Road 17 will develop into a major future intersection. Proactive planning and coordinated decision making in this area is critical to ensuring the timely and long lasting placement of public infrastructure. Through potential efforts to temporarily assume control of 76th Avenue, Cass County has an opportunity to assist in corridor management in this critical growth area.

Figure 6.1: Intergovernmental Coordination and Schools



Development trends (including housing) are also a big factor for rural school districts. Understanding growth and development trends around the county (and within their districts) is helpful to understanding future enrollment projections. Future development also impacts transportation costs and considerations for rural school districts. Improved communication and dialogue between the County, cities, townships, and each school district has the potential to establish an atmosphere of proactive facility and infrastructure planning on the part of all parties in Cass County.

Growth Management

Land development and growth management between townships, cities, school districts, and the County is a critical issue. Significant efforts are needed to continue a series of good practices currently in place. However, more attention is needed to address a range of emerging issue areas involving intergovernmental growth management.

By state statute, communities can exercise some degree of extraterritorial (ET) land use and zoning. In some cases, communities are not using this authority. In other, better coordination is needed between townships, cities and the county regarding implementation of ET growth management.

City and township coordination and collaboration on growth management and development are important issues. ET management practices can serve to improve land use and transportation decision making between urban or rural areas. However, if not implemented correctly, inefficiencies can develop. For example, townships are often left with responsibility for roads adjacent to urbanized areas (E.g. 19th Avenue North and 45th Street North); more proactive planning is needed to transition these corridors back to cities, joint jurisdictions, or the county to make sure maintenance and safety are managed appropriately.

Reed Township

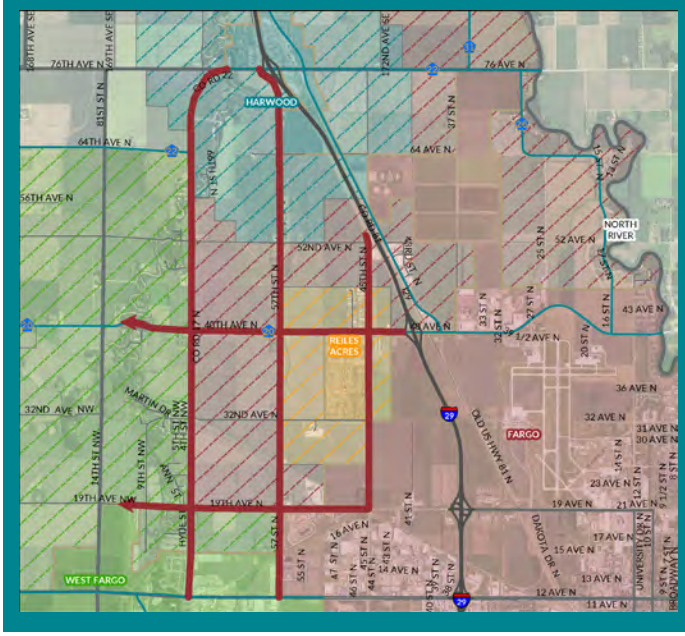
Reed Township provides an interesting look at several opportunities for improving growth management between cites, townships, and the County. Currently Reed Township sees an overlap of no less than four ET boundaries: Fargo, West Fargo, Reile's Acres and Harwood.

Within Reed Township are several existing and future emerging Principal Arterial roadways which run along section lines. Many of these corridors are currently township roads, or county roads on the verge of urbanizing. Along many of those corridors, corridor management responsibilities are not well defined and have been addressed in a reactive approach.

Floodplain management is another critical issue in Reed Township. The multitude of overlapping jurisdictions requires communication and a clear set of standards to ensure wise land use and infrastructure management in the area.

In areas such as Reed Township, growth overlays may assist in providing clearer guidance among a host of affected jurisdictions on how to address common infrastructure and land use issues.

Figure 6.2: Reed Township



Existing Physical Conditions

Terrain and Land Cover

The eastern three-fourths of Cass County is a part of the Red River Valley of the North which is a lake plain formed by glacier melt waters. The sediment in the glacier melt formed a flat valley ranging from 15 to 70 miles wide. The remaining western portion of Cass County is commonly referred to as the "Drift Prairie" and consists of slightly eroded glacial drift forming low and relatively rough hills and gentle rolling topography. Figure 6.3 illustrates the terrain and the surface geology of the County. Prior to the development of bonanza farming in the late 19th century the natural land cover in Cass County was predominately tall prairie grasses. Today, the majority of the County land area is used for crop production.

Water Bodies and Wetlands

The general direction of surface drainage across the County is from northwest to southeast into the Red River. Five rivers comprise the major components of Cass County's surface drainage systems, but they are supplemented by a significant number of legal drains which allow water to drain more quickly out of the fields and developed parts of the County. The flat nature of the Red River Valley, the minimal gradient of the rivers, and the northerly flow of the Red River make the area prone to extensive flooding during spring melt. Cass County has 32 small lakes averaging 42 acres in size, and 10 artificially created lakes averaging 36 acres in size. These lakes and reservoirs provide flood protection, irrigation, and recreation. The wetlands in Cass County are primarily located in the more broken terrain of the Drift Prairie. The wetlands provide surface and subsurface water storage, nutrient cycling, retention of sedimentation, and plant and animal habitats. According to the National Wetlands Inventory, Cass County has over 21,000 acres of wetlands (excluding lakes and rivers).

Soil Suitability and Prime Farmland

The soils left by receding glacial Lake Agassiz in the Red River Valley are among the most productive in the world. Most of the soils in Cass County are characterized by a thick black organic topsoil and limey subsoil. General soil types include loam, clay loams, sandy loams, and clay. Figure 6.4 illustrates the vast majority of land in Cass County has the capacity for very high levels of agricultural productivity. According to the 2012 Census of Agriculture there were over 1.1 million acres of land in farms in Cass County. Some of that acreage is not used for farming. There are over 964,000 acres land in agricultural use in the County. The typical underlying soils in Cass County have high shrink-swell properties and plasticity that are problematic for construction and on-site septic systems.

Figure 6.3: General Geology and Terrain

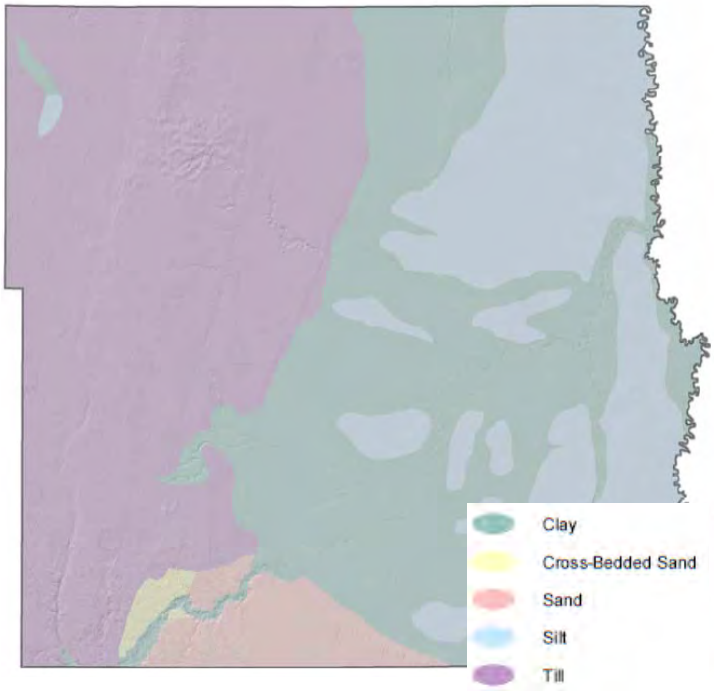
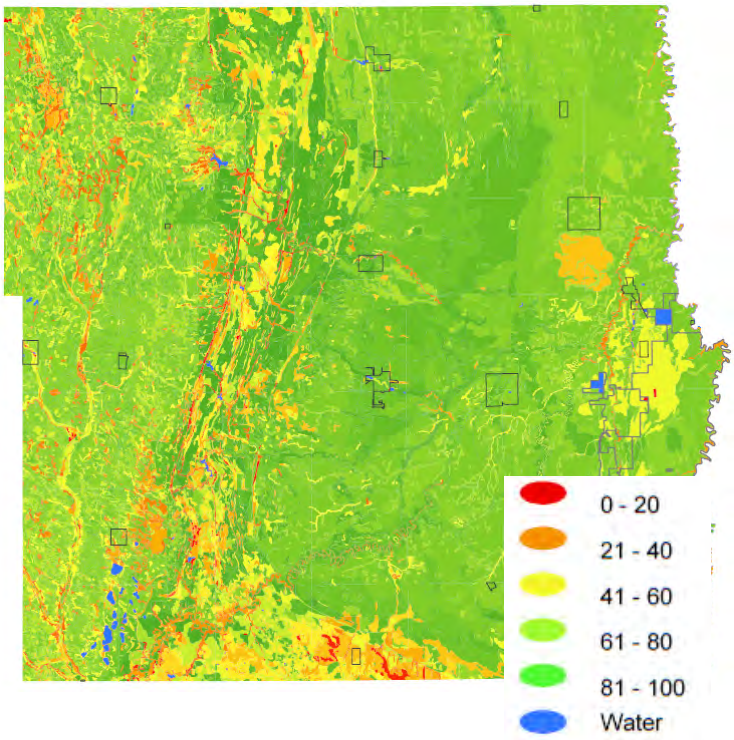


Figure 6.4: Farmland Productivity Map



Existing Land Use

Cass County includes more than 1.13 million acres or 1,767 square miles, covering an area roughly 44 miles wide by 42 miles long.

Of the county's entire area, 65,000 acres, or 5.8 percent, is incorporated into cities. The acreage within cities can be further stratified into agriculture, commercial, single-family residential and other public and government owned land categories:

- 28 percent of all acreage in incorporated cities is public land, government owned properties and right-of-way, and water.
- 26 percent of all acreage in incorporated cities is commercial property, which also includes industrial, multi-family residential, and trailer parks.
- 24 percent of all acreage in incorporated cities is still classified as agricultural.
- 22 percent of all acreage in incorporated cities is single-family residential.

The remaining 1.07 million acres is unincorporated and includes

- 89 percent of all unincorporated acreage is agricultural.
- 8 percent of all unincorporated acreage is single-family residential.
- 3 percent of all unincorporated acreage is public land, government owned properties and right-of-way, and water.
- Less than one percent of all unincorporated acreage is commercial uses, including commercial and industrial uses.

The breakdown of different land use categories is shown in Figure 6.5. An existing land use map is shown in Figure 6.6.

Figure 6.5: Land Use Categories by Incorporated Cities and Rural Areas

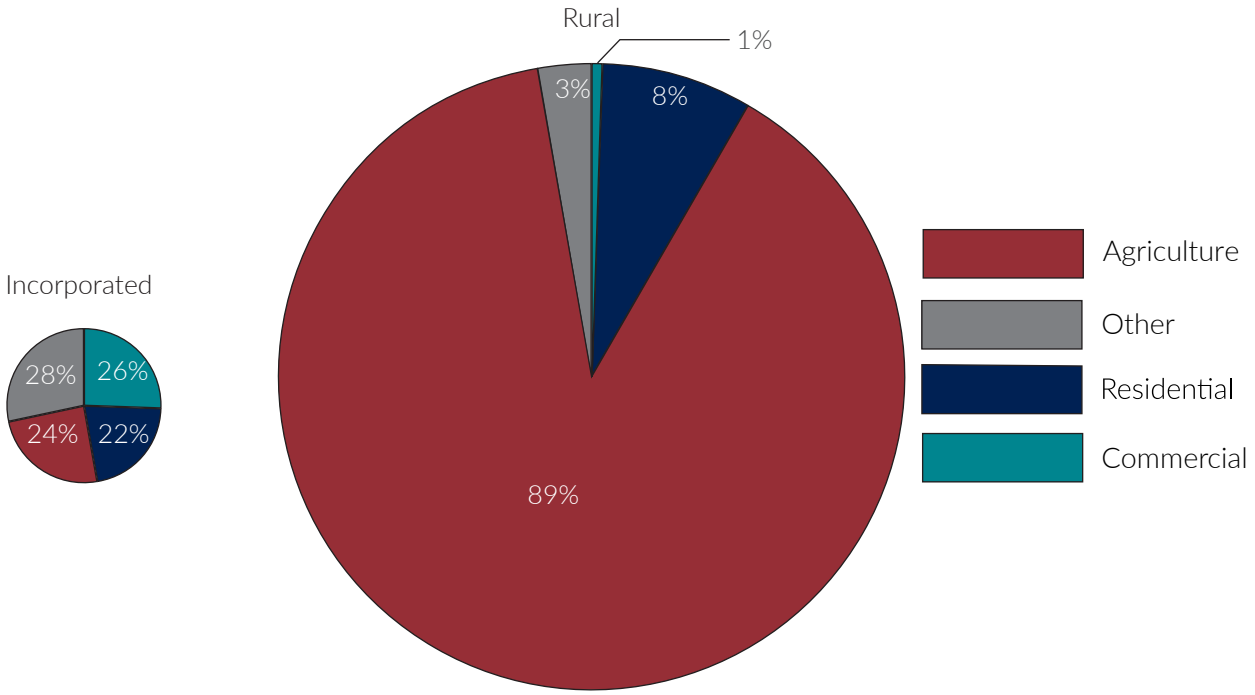
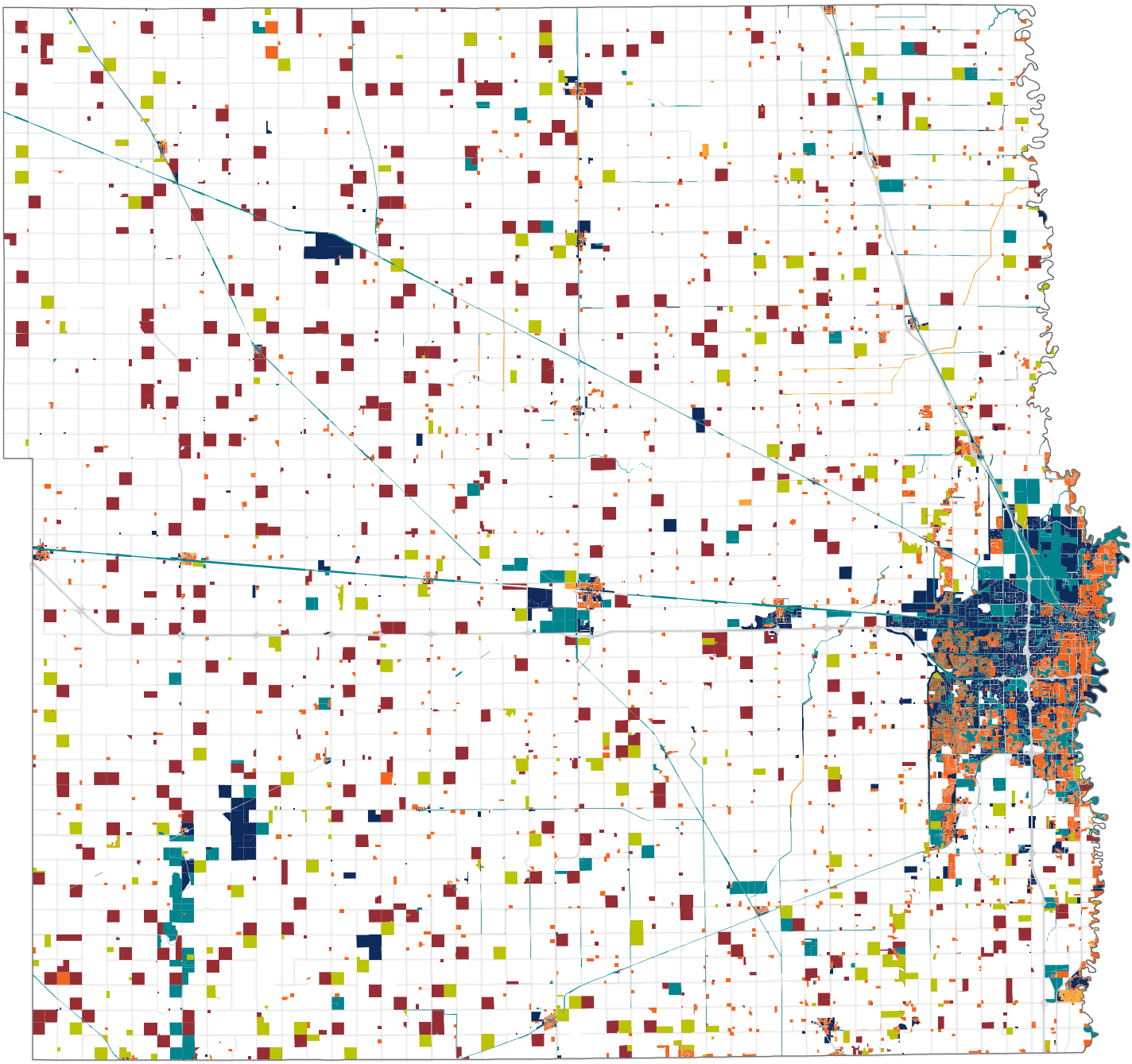


Figure 6.6: Cass County Land Use



Cass County Land Use

- Ag With Residential
- Farm Exempt
- Public/Non Taxed/Unknown
- Commercial/Industrial/MF Residential
- Drains, Flood Control, Other
- SF Residential
- Ag
- Roads

Development Patterns

There are nearly 37,000 acres of land in platted subdivisions in Cass County. While most of that land is located inside incorporated municipalities, approximately 4,650 acres is located outside of those cities.

- 23 percent of the land in these subdivisions is in commercial or industrial use.
- 21.5 percent remains in agricultural use even though it is platted.
- Approximately 45 percent of the land is used for residential purposes.
- It is estimated that approximately 10 percent of these subdivisions are located in rural unincorporated villages such as Erie or Absaraka.
- It is further estimated that approximately 77.5 percent of the land in these subdivisions is located in the 100 year floodplain.

While 16 of the 27 cities in the County have been growing in population since the 1990 census, only 11 have grown in area during the same time period. The cities of Casselton, Davenport, Fargo, Harwood, Horace, Kindred, Leonard, Reile's Acres and West Fargo have all had significant annexations that have increased their land area by at least 40 percent. It should also be noted that a few cities have a large amount of land that remains in agricultural use within their municipal boundaries. This includes 7,879 acres of land in the cities of the metro area.

Land Use Analysis

Community Growth Capacity

Past growth is not an indicator of future growth. A number of factors were evaluated to consider the growth potential of cities in Cass County. Factors considered were municipal water supply capacity, sewage treatment capacity, available residential lots, zoning ordinances and future land use plan, planning commission, and the existence of certain desirable services (restaurant, bank, school, gas station/convenience store, and grocery store). Two communities fit every factor. An additional four communities fit all but one factor. A number of communities (mostly in the metro area) do not anticipate any growth either because they are surrounded by existing development, or because they have some other limitation that prevents any additional growth.

Based on the evaluation of growth capacity and location in the County, four different types of communities are apparent in the County:

- Metropolitan cities with full range of services and significant growth capacity.
- Urban residential communities with few services of their own.
- Rural centers with resources to grow.
- Rural residential clusters with limited potential to grow.

Community growth capacity is shown in Figure 6.7.

Townships were also evaluated to understand growth capacity. The dominant factors considered were past development levels, zoning categories, and proximity to the metro area. Generally speaking, the higher the past development, the more zoning categories, and the closer to the metro, the more townships were considered to have growth potential.

Special Land Uses and Issues

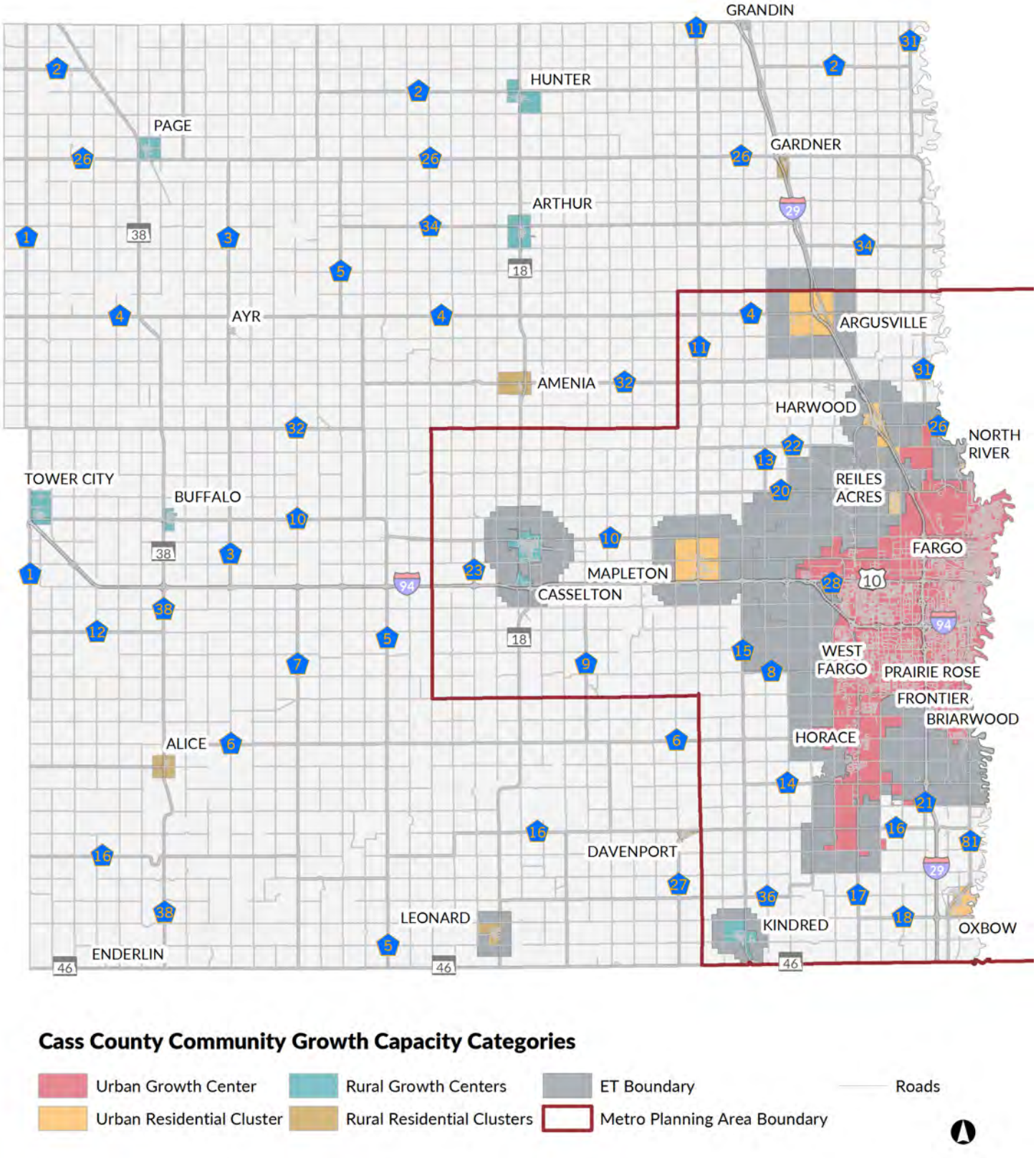
Emerging Topics

While Cass County has not established zoning authority, all of the townships have established zoning authority. County involvement happens when subdivisions are proposed in the areas under township zoning authority. The most common development activity Cass County reviews is rural one lot subdivisions. However, there are a number of existing and emerging land use issues that merit consideration in this planning process. They are significant because of the potential to result in land use conflicts, substantially change or disrupt the dominant pattern of land use, and/or increase the need to expend local government resources to respond to the development activity. These include:

- Animal Feeding Operations
- Wind Farms
- Solar Farms
- Marijuana Manufacturing Facilities
- Waste Disposal Facilities
- Temporary Housing Facilities
- Temporary Construction Materials Yards

Each of these potential activities may raise concerns because of perceived impacts to property values, landscape character, traffic volumes and safety, and creation of nuisances such as trash, noise, odor, light, and dust.

Figure 6.7: Growth Capacity



Hazardous Materials

Although not so likely to raise concerns because of perceived or potential impacts, there are other land uses which also merit special consideration. Generally, these relate to the storage or transport of hazardous materials. The train derailment near Casselton in 2015, and the tank farm fire in West Fargo in 2018 illustrate the incidents that need to be considered when evaluating development proposals. It would be appropriate for Cass County to establish or recommend development buffers around transportation routes, chemical storage facilities, and other locations that contain hazardous materials.

FM Diversion

The anticipated construction of the FM Diversion suggests an additional consideration. The use of publicly owned lands for recreational and community purposes was identified as an opportunity during the planning process. Flood buyout properties and land in the vicinity of the proposed FM Diversion are potential locations for these uses.

Some initial conceptual land uses have been noted by the Diversion Authority. However, a coordinated approach to land use in the vicinity of the diversion would help ensure the best use of this potential asset. A more detailed discussion of this topic is addressed in the section on the F-M Diversion.

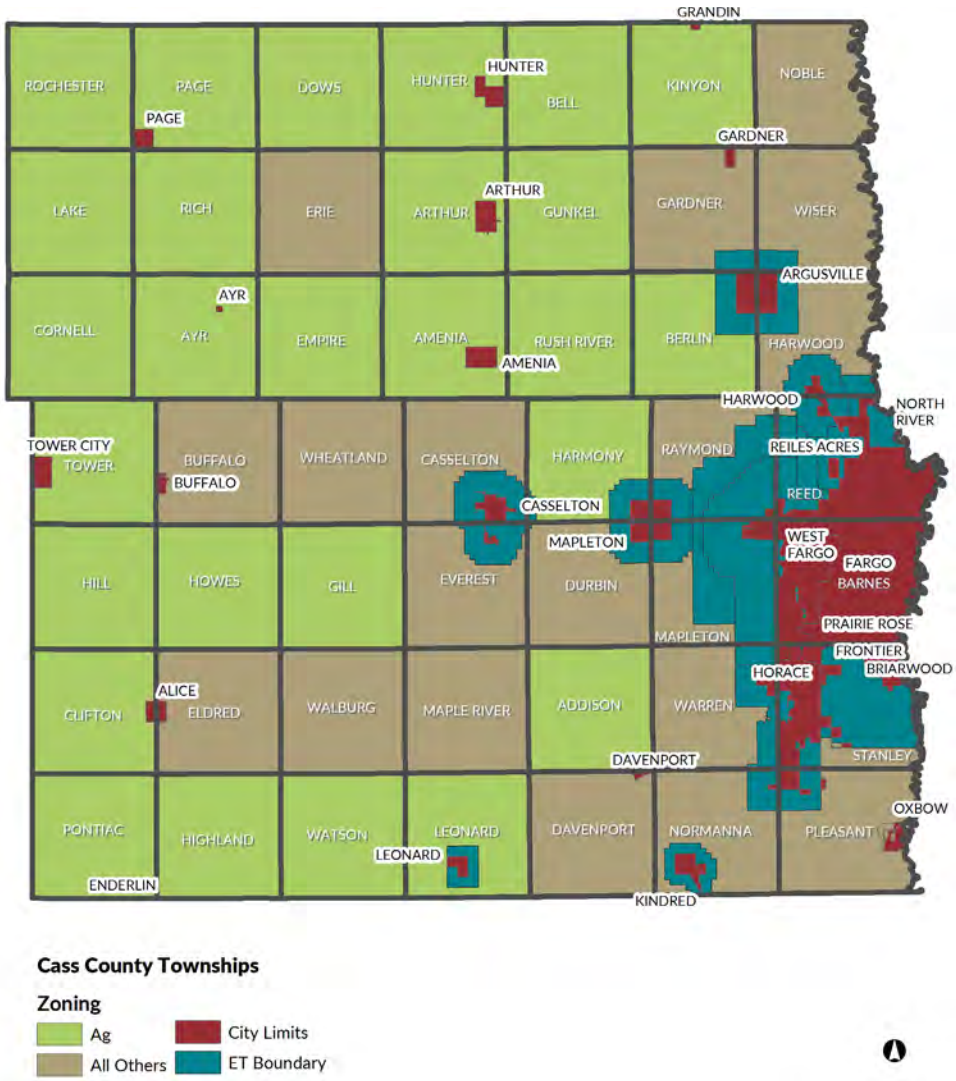
LAND USE AND GROWTH MANAGEMENT

Land Use Jurisdiction

Cass County does not regulate land use through zoning. However, each of the 49 townships in Cass County and many of the cities have established zoning authority. A few of the cities have established extraterritorial authority outside there municipal boundaries as well. Figure 6.8 illustrates which cities have established zoning authority and extraterritorial authority, as well as showing the type of zoning established by the townships.

Generally, the townships have established a single district zoning ordinance or they have zoning ordinances with multiple zoning districts. The townships with single districts are invariably focused on agricultural preservation, and have a township wide agricultural zoning district. The remaining townships have multiple zoning districts which infer greater potential for non-farm development. Most of these ordinances are variations of one of three model ordinances. Two of these models are fairly old and may not reflect current best practices. One of the model ordinances was developed by the Cass County Planning Office. Most townships and many cities in Cass County do not have full-time staff to act as planners, zoning administrators, or building officials. In some cases, development activity happens too infrequently that local governments may not be cognizant of what their regulations or procedures require. It may be that the regulations and procedures end up not

Figure 6.8: Township and City Zoning



being followed. It would be a real benefit for these townships and small cities to have some technical assistance or training readily available to them.

One of the fundamental growth management issues for townships and cities relates to extraterritorial zoning authority. The North Dakota Century Code establishes limits for the distance extraterritorial zoning can be expanded beyond municipal boundaries, based on the population of the city (see Table 6.1). For each of the three city sizes, the first half of the distance belongs unilaterally to the city. However, the second half of the distance must be shared with any adjacent jurisdiction that has established zoning authority.

Table 6.1: Distribution of Zoning Authority in Extraterritorial Areas

Distribution of Zoning Authority in Extraterritorial Areas by Size of City			
City Population	<5,000	5,000-24,999	>25,000
Unilateral Zoning Authority	first 1/2 mile	first mile	first two miles
Shared Zoning Authority	second 1/2 mile	second mile	second two miles

There are several potential procedural issues for cities and townships related to extraterritorial authority:

- Cities do not automatically have extraterritorial zoning. They must establish zoning in their extraterritorial area using the same ordinance process used to establish zoning inside it municipal boundaries.
- There should be township representation on cities' planning commissions.
- There is a specific procedure involving the township for how any application in the second half of the extraterritorial area must be reviewed and approved.
- There is a specific procedure for how changes or expansions to extraterritorial area must be completed to ensure orderly extension of the city's zoning to areas previous zoned by the township.

One other frequent issue related to growth management, especially for townships, pertains to potential high impact land uses that often involve state agency procedures and rules. These include animal feeding operations, solar farms, wind farms, marijuana manufacturing facilities, and solid waste facilities. They also tend to be controversial projects. There are other potential land uses which also have significant impacts and the potential for controversy. These include temporary housing (commonly called mancamps), adult entertainment, and bars that may spring up when there is a large influx of temporary workers as could possibly occur for construction of the FM Diversion project. In all these cases, it would be beneficial for local jurisdictions to have zoning and guidance in place to address their potential before faced with an actual application.

Land Use and Growth Management Strategies

The following strategies involve Cass County Government supporting effective land use management and taking initiative to offer assistance to local governments in the County:

- Volunteer to provide zoning maps for all townships and incorporate those zoning maps into the interactive GIS system available to the public.
- Refine the existing County Planning Office township zoning model into two separate model township zoning ordinances. One would be aimed specifically at agricultural preservation and be very short and simple to administer. The other would be a multiple zoning district model which addresses the potential complexities related to special land uses noted previously. To the maximum extent possible these models would share definitions, standards, and procedures to provide the opportunity for consistency throughout the county.
- Host township land use management workshops on a regular basis for small groups of townships in the same vicinity. This is an opportunity to learn, resolve common issues occurring in the same area, and offer technical assistance to enhance zoning ordinances and procedures.
- Consider developing a city zoning model or guide that aims to create a business friendly environment to help stimulate economic development. It would potentially address specific uses which may not be addressed by most city zoning ordinances including mixed uses, urban agriculture, and alternative housing types which are not practical with current zoning.
- Compile best practices materials and other educational materials on various land use and land management topics for both counties and cities. Make a strong effort to distribute this information widely (example: Living With a River from the ND Department of Health).

FLOODPLAIN MANAGEMENT

Natural Features and Propensity for Flooding

The major physiographic feature making up the eastern three-fourths of Cass County is the Red River Valley. The main stream in Cass County is the Red River of the North which flows northward along the county's eastern border, and eventually drains into Lake Winnipeg in Canada. The Red River Valley is one of the flattest regions on earth. The plain of Lake Agassiz has a northward slope of 1.5 feet per mile and an eastward slope ranging from 2 feet per mile near the Red River to 20 feet per mile farther west. Five rivers flowing through Cass County form its major surface drainage system. They are supplemented by legal drains which also move significant amounts of runoff into the rivers.

Flooding during the spring thaw is a common occurrence. The Red River's northerly flow and the spring thaw in the region progressing northward along the valley results in the southern valleys snow melt merging with fresh runoff as it moves north increasing the total amount of water in the river. Furthermore, the river's inconsistent thaw can cause ice jams as large broken pieces of ice moves north reaching impassable frozen sections of the river creating ice dams retaining the water upstream. Finally, as the river moves north its gradient also decreases causing the river to pool upstream.

Flood Risk and Development Impacts

The geological formations of the Red River Vally and its potential for flooding cannot be changed. With significant investments, flooding on already established neighborhoods and developments can be lessened, if just slightly. However, with a proactive approach, it is possible to lessen the damage of floods for new developments by taking a proactive approach. This will not fix past mistakes, but can help to eliminate or lessen burdens created by flooding for future development. Allowing development in flood prone areas by adding fill or diking puts structures at risk of unanticipated flooding levels, and also reduces the natural storage area and creates bottlenecks in the flow of the river. Restricting growth in these naturally low-lying areas allows the storage areas to hold flood waters and helps lower the peak of the flood elevation.

The Red River of the North has exceeded the National Weather Service flood stage of 18 feet in 52 of the past 114 years, and every year from 1993 through 2011. Flooding in Fargo-Moorhead typically occurs in late March and early April. The flood of record at Fargo-Moorhead was the 2009 spring flood with a stage of 40.8 feet on the Fargo gage. With an estimated peak flow of 29,200 cubic feet per second (cfs), the 2009 flood was approximately a 2-percent chance (50-year) event. Equivalent expected annual flood damages in the Fargo-Moorhead metropolitan area are estimated to be over $194.8 million in the future without project condition. Although emergency measures have been very successful, they may also contribute to an unwarranted sense of security that does not reflect the true flood risk in the area.

Because emergency measures have been very successful in the past, they may also contribute to an unwarranted sense of security that does not reflect the true flood risk in the area. History has shown that the people in the study area will stay to fight a flood rather than evacuate to safer locations. A loss of life analysis conducted for the FM Diversion feasibility study estimated that as many as 200 people could perish if emergency levees failed suddenly during a 1-percent chance event. Flood water may be extremely cold, just above freezing, and anyone caught in the water would suffer hypothermia in a short time.

Flood insurance is a critical component of the overall strategy to manage risk from flooding. However, there is a tendency for people to not maintain flood insurance every year. For instance, there was a 40 percent drop in Cass County flood insurance policies from 2011 to 2012, probably because it was a relatively dry year. Policies have to be in effect for 30 days for flood damage to be covered, which means not maintaining annual coverage could leave property-owners without coverage under the right circumstances. In high-risk flood zones, there is a 25 percent chance of flooding during a 30 year mortgage, but only a four percent chance of experiencing a fire. According to the latest available information there are 4,022 total flood insurance policies in force in Cass County, of which 532 flood insurance policies are rated in 100 year floodplains. The total coverage of these policies is $1,210,323,700.

The previously noted FM Diversion feasibility study identifies a high risk of flood damage in the 85 square mile study area. This includes damage to urban infrastructure from the Red River of the North, the Wild Rice River (ND), the Buffalo River, and the Sheyenne River and its tributaries, the Maple River, Lower Rush River, and Rush River. It also includes damage to rural infrastructure and agricultural land and disruptions of transportation and access to properties within the study area. The study area has an estimated average annual flood damage cost of more than $194.8 million. There is localized flooding and subsequent risk of damage

in many parts of Cass County outside the FM Diversion feasibility study area as well.

Existing and Anticipated Floodplain Studies

The risk of flooding in Cass County is not caused solely by conditions in Cass County, and the elements to floodplain management cannot all be accomplished within Cass County. In 2009, the Red River Basin Commission, an international Red River basin-wide organization was asked to spearhead an effort to develop a comprehensive, proactive approach to managing and mitigating flooding throughout the Red River watershed. A comprehensive analysis was completed in 2011 that developed recommendations to accomplish the project objectives. The analysis evaluated factors contributing to flooding, summarized the costs of flooding throughout the basin, defined basin-wide principles to guide the development of mitigation strategies, and defined "three basin-wide approaches to floodplain management with a combined goal of creating a more flood resilient basin.[14]" The three basin wide approaches were:

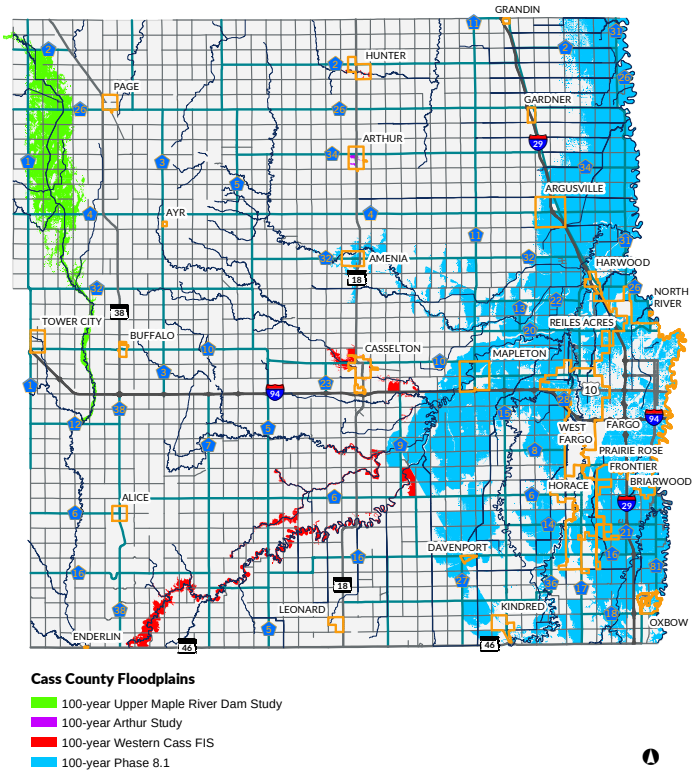
- Nonstructural strategies must be implemented to mitigate existing development and protect future growth to higher standards, including greater efforts at managing development, and education.
- Levels of protection must be raised for an integrated approach for urban and rural areas, critical infrastructure, small cities, rural residences and farmsteads, cropland, critical transportation systems, and emergency services.
- Retention was recognized as a potential key to taking the peak off floods and a full exploration of this tool was recommended.

The *Long Term Solutions Report* additionally recognized the critical need to establish "immediate permanent protection measures." It is important to recognize that these basin wide approaches are still critical to Cass County, and the principles behind these approaches should be applied wherever floodplain management throughout Cass County.

Floodplain management is a requirement of participation in the National Flood Insurance Program. When the Federal Emergency Management Administration establishes official flood hazard areas in a jurisdiction, it requires the jurisdiction to administer floodplain regulations over the identified flood risk areas. Continued floodplain administration assures the jurisdiction has access to disaster funding in the event of a declared disaster for that jurisdiction. Currently there are 18 cities and 16 townships, as well as Cass County itself, participating in the National Flood Insurance Program (NFIP). There are currently two ongoing Flood Insurance Studies being completed for parts of Cass County. When the Western Cass and the Upper Maple River Flood Insurance Studies are completed, there will likely be three to five additional townships and one additional city that become participants in the NFIP with officially designated floodplains and FIRMs. In addition to these ongoing studies, a collaborative effort between FEMA and the North Dakota State Water Commission is currently underway to complete a RISK mapping program. This program uses available data to develop a model of potential flooding locations in areas which may not have existing Flood Insurance Rate Maps (FIRMs). The results of RISK mapping program will serve as best available information for areas which experience flooding but have low development and population densities, and are therefore unlikely candidates for Flood Insurance Studies (FIS).

Figure 6.9 illustrates the best available information of the areas in Cass County at risk of 100 year flood events. However, a large portion of these 100 year floodplain areas are based on information that is essentially out of date. The 100 year floodplain for the southeastern part of the County is based on a period of record ending in 1991, and since that time a number of significant floods have occurred in the Red River Valley. In fact five of the 10 greatest floods have

Figure 6.9: Floodplain Best Available Information



occurred in the time period from 2000 to 2017. This is not just an issue in the metropolitan area of Cass County. For instance in Wiser Township, the 1984 FIRM identifies a 100 year flood elevation of ranging from 878 to 882.9. This is typically a foot lower than the flood events occurring in the Township in the last 20 years. In 1984, the highest flood of record had occurred back in 1897.

A new floodplain map became effective for the southeastern portion of Cass County in 2015. As a result, there are now approximately 2,300 structures are in the floodplain. But local officials anticipate a future floodplain map which does account for more recent flooding will become effective within the next few years, and that the new 100-year floodplain elevation will be more than 1.5 feet higher than that of the 2015 100-year floodplain. The result of this will be that approximately total 11,000 structures will be in the floodplain and need to carry flood insurance. Additionally, a new floodplain map for what is essentially the Maple River watershed which covers much of the remainder of Cass County will become effective in the not too distant future. These maps will help minimize risk from flood damages to new development, but in the meanwhile, great caution and common sense needs to be applied to prevent development with insufficient flood protection. In Wiser Township this has meant requiring development to be a foot higher than the highest flood elevation on record. In the City of Fargo, it has meant requiring development to be flood protected to an elevation 2.5 feet above the currently effective 100 year elevation.

The ongoing efforts to provide permanent flood protection for the metropolitan area of Cass County is addressed separately in the following section on the F-M Diversion. The section explains the proposed project, its objectives, and summarizes its effects inside and outside the project footprint.

Strategies for Floodplain Management

To enhance floodplain management in Cass County the following strategies are recommended:

- Continue participation in the RISK mapping program, and incorporate the final products of RISK mapping into the Cass County interactive GIS system available to the public. This will require careful explanation so that RISK maps, which are best available information and only advisory, are not confused with FIRMs which have regulatory implications.
- Collaborate with County Water Resource Districts in providing appropriate information or technical assistance pertaining to floodplain management.
- Make existing dam failure emergency response plans or information available to discourage inappropriate development siting in related hazard areas.
- Host regular floodplain management workshops for local jurisdictions. A prominent focus of these workshops should be common sense approaches to development siting to eliminate potential flood damage.
- Compile and distribute floodplain best management practices information through the Cass County website and other means as there is opportunity.
- Compile and distribute information on the value of flood insurance through the Cass County website and other means as there is opportunity.
- Maintain and expand information on appropriate setbacks from watercourses and on bank failure and related issues in order to encourage appropriate development in potential hazard areas.
- Consider offering floodplain management services for small jurisdictions with limited capacity.
- Collaborate with the Emergency Management Department on public education related to flood protection.

FM DIVERSION

Purpose and Background

The previous section documented the level of risk for major flooding in the Red River Valley. Although efforts in recent years to protect life and property have generally been successful, those flood fighting efforts came at significant cost. Many homes located along the Red River and the Wild Rice River were flooded. Millions of dollars were spent building temporary flood protection and thousands of hours were lost from work production. However, this was all to fight floods that were less than base flood levels. Base floods are those which are computed to have an elevation with a one percent chance of happening in any given year.

As a point of reference, the worst flood on record in Fargo was the 2009 flood which rose to 40.84 feet at the Fargo gauging station, and had a maximum daily flow of approximately 29,000 cubic feet per second. A 100 year event would have a maximum daily flow of approximately 33,000 cubic feet per second. A 500 year event would have a maximum daily flow of 46,000 cubic feet per second. The probability of having consistently successful flood fighting efforts in the future must be considered extremely low, especially for events larger than the 1-percent chance event. Therefore, the need for permanent flood protection as noted in the Red River Basin Commission's 2011 Long Term Solutions for the Red River Basin Final Report was identified as a critical action to protect life, property, and even the economy of the Fargo-Moorhead area.

When the flood of 1997 happened, Cass County initiated a Flood Mitigation Study to investigate ways to protect people and property from future major events. In 2001 that Study recommended that a Southside Flood Protection Project be initiated. In the following years many alternatives were investigated and many public meetings held to discuss options for flood protection. In 2008 a reconnaissance report recommended that the US Army Corps of Engineers undertake a Feasibility Study to investigate flood issues in the Fargo Moorhead Metropolitan Area, identify flood risk management measures that could be implemented, document the findings, and if appropriate recommend implementation of a federal project. The resulting feasibility study, integrated with a National Environmental Policy Act document, investigated measures to reduce flood risk and analyzed the potential for federal participation in a flood risk management project in the Fargo Moorhead Metropolitan Area.

The alternatives considered included:

- No action
- Non-structural measures
- Flood barriers
- Increased conveyance
- Flood storage

The final result of the study process ultimately concluded that the most appropriate plan for flood risk management was a locally preferred plan that combined levees, flood storage, and increased conveyance to best protect the study area while maintaining a positive benefit-cost ratio, and meeting NEPA requirements.

Following the finding and recommendations of the Feasibility Study, in 2013, a legal entity called the FM Diversion Authority was formed by Cass County, the City of Fargo, the City of Moorhead, and Clay County to pursue project development and implementation of the recommended flood risk management project.

Planned Facility and Operation

The recommended and approved Diversion Project is a 20,000 cfs 36-mile long, 1,500 foot-wide diversion channel with 32,500 acres of upstream staging as illustrated Figure 6.10. However, progress on the project reached an impasse when a judge concluded that the project could not proceed until the Minnesota Department of Natural Resources had completed a process to review, approve, and permit the project. This resulted in a Governors' Task Force being formed to address several concerns about the project being expressed by project opponents. The result of the Task Force's efforts is a "Plan B" that shifts the southern embankment of the project further north, and reduces the amount of land impacted on the Minnesota side of the Red River. It also greatly reduces the size and anticipated use frequency of the upstream staging area. See Figure 6.11 for the Plan B revised footprint of the project. The southern embankment, and the inlet and control structure part of the Diversion Project was modified, but the diversion channel was not changed in Plan B. The Diversion Authority has officially submitted Plan B to the Minnesota DNR, and anticipates finding out the results of the DNR review process in the fall of 2018. Pending the issuance of the DNR permit, construction of the diversion channel, and of the outlet and control structure will begin. It is anticipated that the completion of the project will be in the year 2025.

As identified in Plan B, the Diversion Project is expected to operate only when major flood events occur. This is estimated to be on average once in every 20 years. A major flood event generally means one with flows in the range of 35,000 cfs or higher.

Project Impacts

There will be both positive and negative benefits from the Diversion Project.

- The primary benefit is protecting an estimated 230,000 and 11,000 structures from the effects of flooding. Without the Diversion Project, the owners of 11,000 impacted structures would likely pay a total of $77 million annually in flood insurance. It also has the ultimate benefit of reducing the costs of fighting floods. And based on some estimates, it has a significant impact on the capacity of the Fargo-Moorhead metropolitan area to maintain a healthy and growing economy.
- The primary negative of the Diversion Project is that it impacts properties that typically do not experience flooding to the degree that they will under the same flood event. There are approximately 16,000 acres of farmland, and 54 rural residences and farmsteads which will be impacted by the water of major flood events that will pool in the staging area on the south side of the southern project embankment. Additional negative impacts, include the cost for paying for the Diversion Project which are spread out among people who would not be impacted directly be major flood events in the project area.

Land Use Issues and Opportunities

As illustrated in Figure 6.11, there are nine local governments with jurisdiction over land that is a part of the Diversion Projects footprint. The area within and adjoining the Diversion footprint will undergo either temporary or permanent land use changes. Land within the area of protection by the Diversion will be available for development. Some of the land on the outside of the Diversion project will be in the floodplain and should remain without structural development. Other parts of the land outside the Diversion project will be above the floodplain and will have potential for development. There will be both public and private development opportunities when the Diversion is completed. One important public opportunity is to use the Diversion footprint for recreational activities. This kind of opportunity has already been identified by the Diversion Authority. However, what is missing is a clear, comprehensive, and coordinated plan to take advantage of the potential for recreational activities. Some have envisioned significant facilities that are a major benefit to local residents, and perhaps even attract tourists from across the region. A multi-jurisdictional approach to planning future land use is needed in order to take advantage of this opportunity, and to ensure that future land use development in the vicinity of the Diversion does not conflict. Some potential concepts for consideration include:

- A combined walking/biking trail along the entire length of the Diversion channel that provides a connecting linkage to existing and planned biking and walking facilities within the metro area.
- River access locations for canoeing and kayaking on the Red River.
- Regional parks that offer opportunities for specific activities requiring large linear footprints.
- Neighborhood parks that link to a regional trail system.
- Camping and service locations for long distance bicyclists that travel through the Fargo Moorhead metro area.
- Outdoor educational sites for K-12 learning projects
- Community gardens

Figure 6.10: Fargo-Moorhead Diversion Concepts

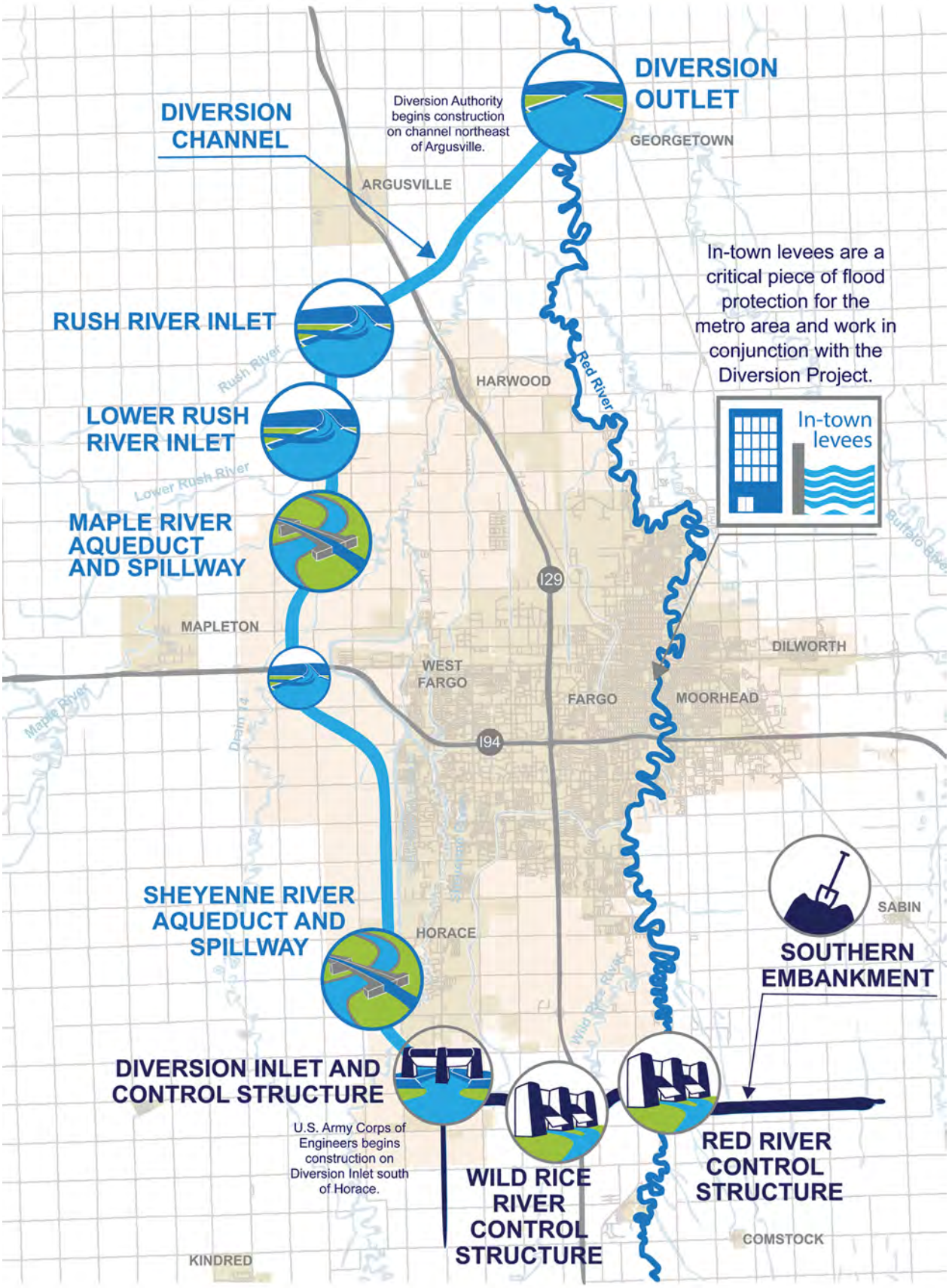
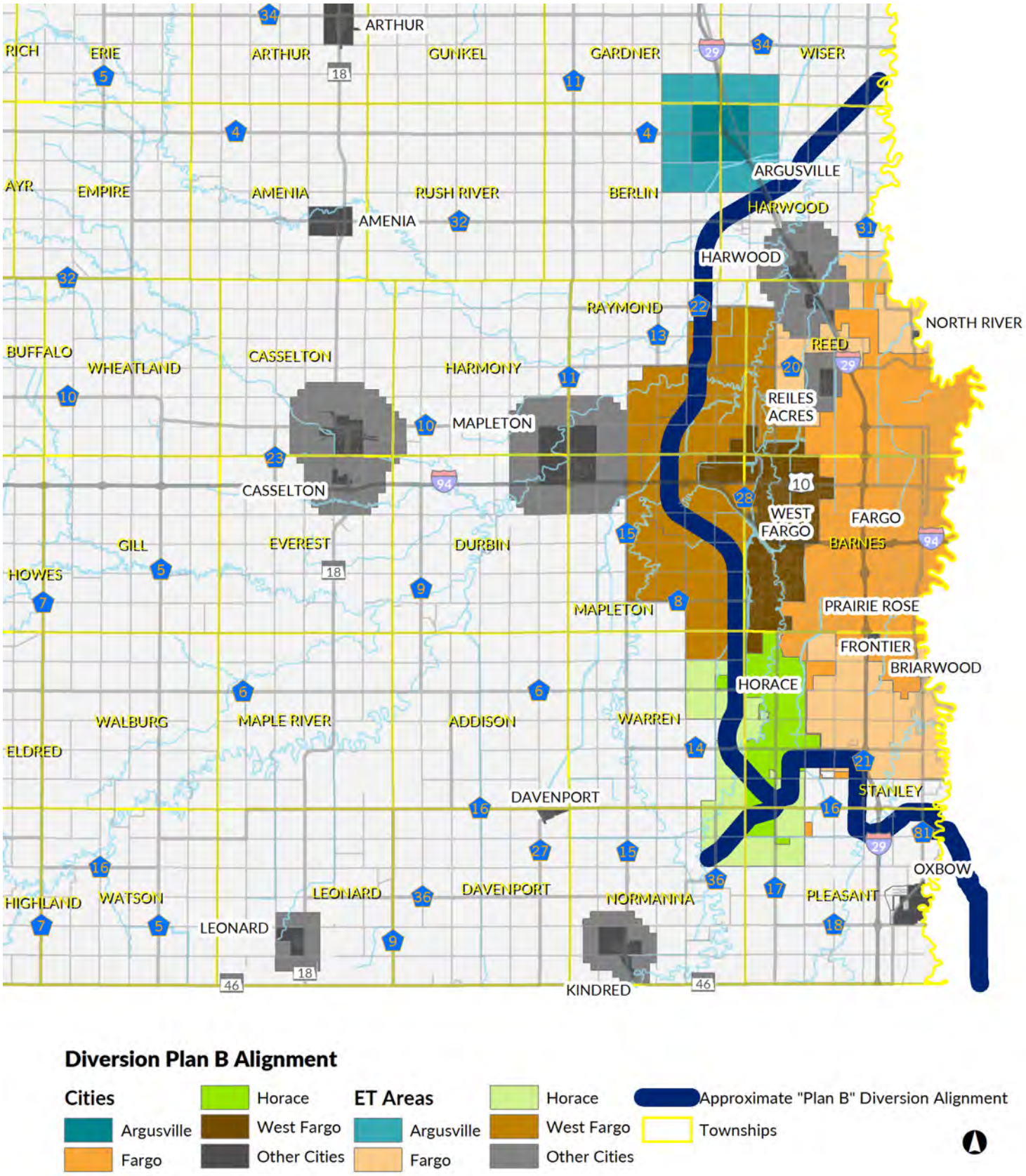


Figure 6.11: Fargo-Moorhead Diversion Alignment



TRANSPORTATION

INTRODUCTION

One of Cass County's primary functions is maintaining the county transportation network. The county maintains 628 miles of roadway and 541 bridges. Public transit, railroads, and airports are also essential elements of the transportation system in Cass County. This element of the Comprehensive and Transportation Plan responds to existing issues and projected needs identified by the public and key stakeholders throughout Cass County. Based on existing and projected conditions, this element of the plan will develop strategies and recommendations to assist Cass County in making future investments in its transportation system.

EXISTING CONDITIONS

Traffic Volumes

Average daily traffic volumes show how many cars travel on the road on an average day. Outside of the urban area of Cass County, traffic volumes are quite low. The highest volumes are along roadways with good connectivity or to major economic centers. Cass County collected data in 2017, the traffic volumes are shown in Figure 7.1.

Truck Traffic

The most recent traffic counts included truck counts. Truck traffic ranges from less than two percent of total traffic to more than fifty percent. Despite these high truck percentages, the actual truck counts are quite low. Truck traffic is shown in Figure 7.2.

Pavements

The 634 miles of county roadways (excluding State, Township, and Municipal roadways) are almost evenly split between paved (all pavement types) and gravel surfaces. Paved roadways are typically found on higher traffic corridors or corridors with good connectivity to economic centers, while gravel roadways are typically found on low volume corridors.

Roadway surface type is shown in Figure 7.3, with a breakdown by surface type and mileage shown in Table 7.1.

Table 7.1: Roadways by Surface Type

Surface Type	Miles	% Split
Paved	309	48.7%
Gravel	325	51.3%
Total	634	100.0%

Pavement Management Trends

The quality of Cass County's roads can be attributed to a high quality pavement management system. Since 2000, Cass County's pavement management plan has invested in more than 40 percent of paved roadways once every five years (Table 7.2). This included nearly 600 miles of improvements since 2000. However, these trends have been heavily influenced by a substantial influx of state funds from oil tax revenue.

Table 7.2: Maintenance Trends

Total Miles/ Year	% of System Treated/Year	% of System Treated Every 5 Years
26.2	8.2%	41.0%

Table 7.3: Chip Seal and Paving Trends

	2000-2003	2004-2008	2009-2015	2016-2020
Total Miles	70	137	266	122
Average Miles/Year	23.0	27.4	38	17.5

Pavement Conditions

Cass County recently completed a pavement condition survey in 2017. The last pavement condition survey was completed in 2012. Between 2012 and 2017, the overall pavement condition of Cass County has improved from an average PCI of 82.9 to 88.4, both "Good". As of the 2017 data collection, there are fewer miles in "Fair" and significantly more miles in "Good" condition and the average PCI of those miles is higher. The overall increase in pavement quality is a direct result in highway funding for counties in the first half of the current decade. This has since tapered off, but the County continues to maintain high quality paved roads. Pavement management strategies and priorities will be discussed later. PCI data for 2012 and 2017 is shown in Table 7.4; PCI for 2017 is shown in Figure 7.4.

Table 7.4: Pavement Conditions

	2012 Miles	Average PCI	2017 Miles	Average PCI
Poor (0-65)	22.7	44.1	0.5	65.0
Fair (66-80)	98.1	75.5	12.8	76.4
Good (81-90)	99.5	85.5	182.4	86.2
Very Good (91-100)	98.6	96.8	113.3	95.1
Total	319.0	82.9	309.0	88.8

Figure 7.1: Traffic Volumes

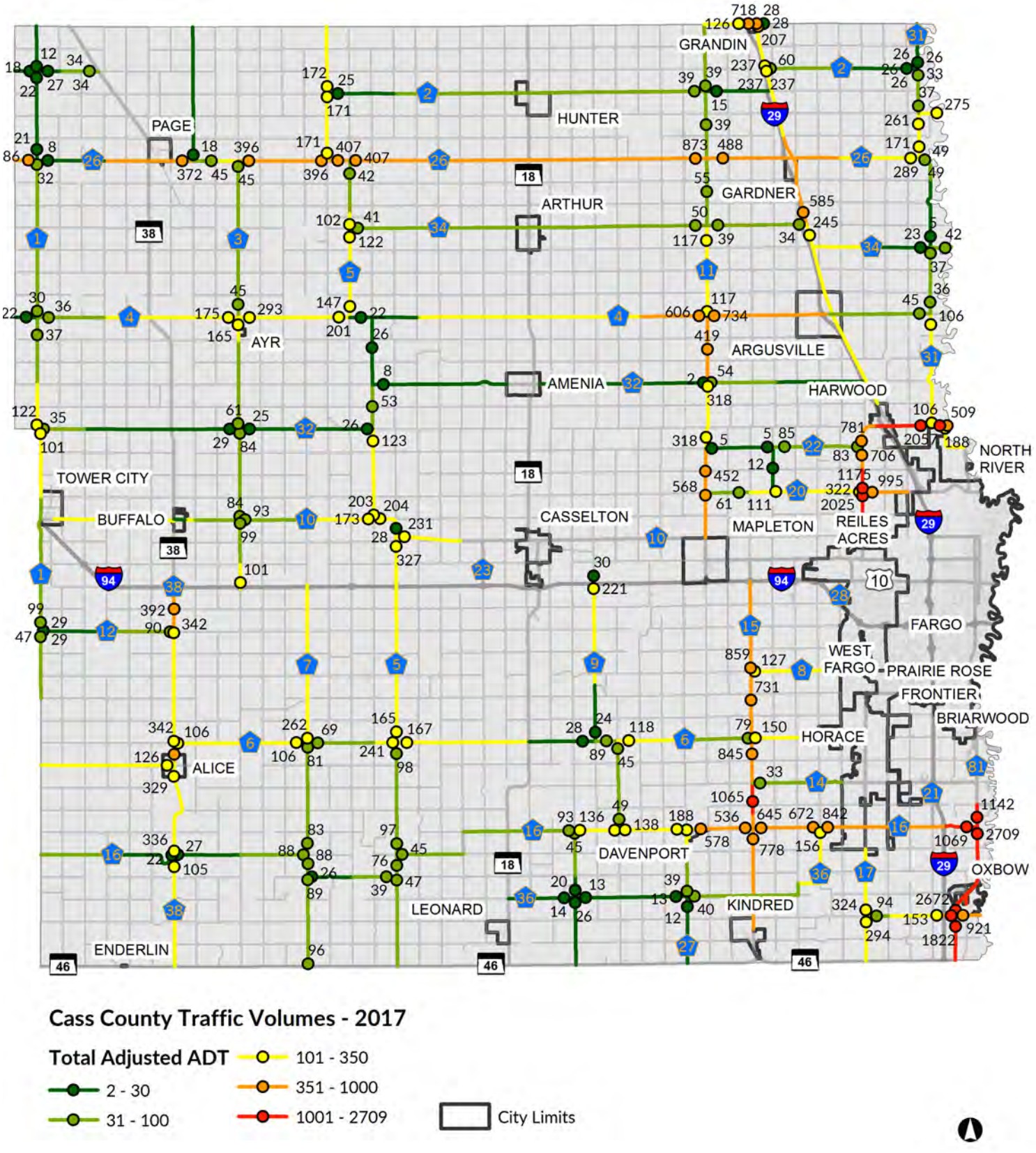


Figure 7.2: Truck Traffic Volumes

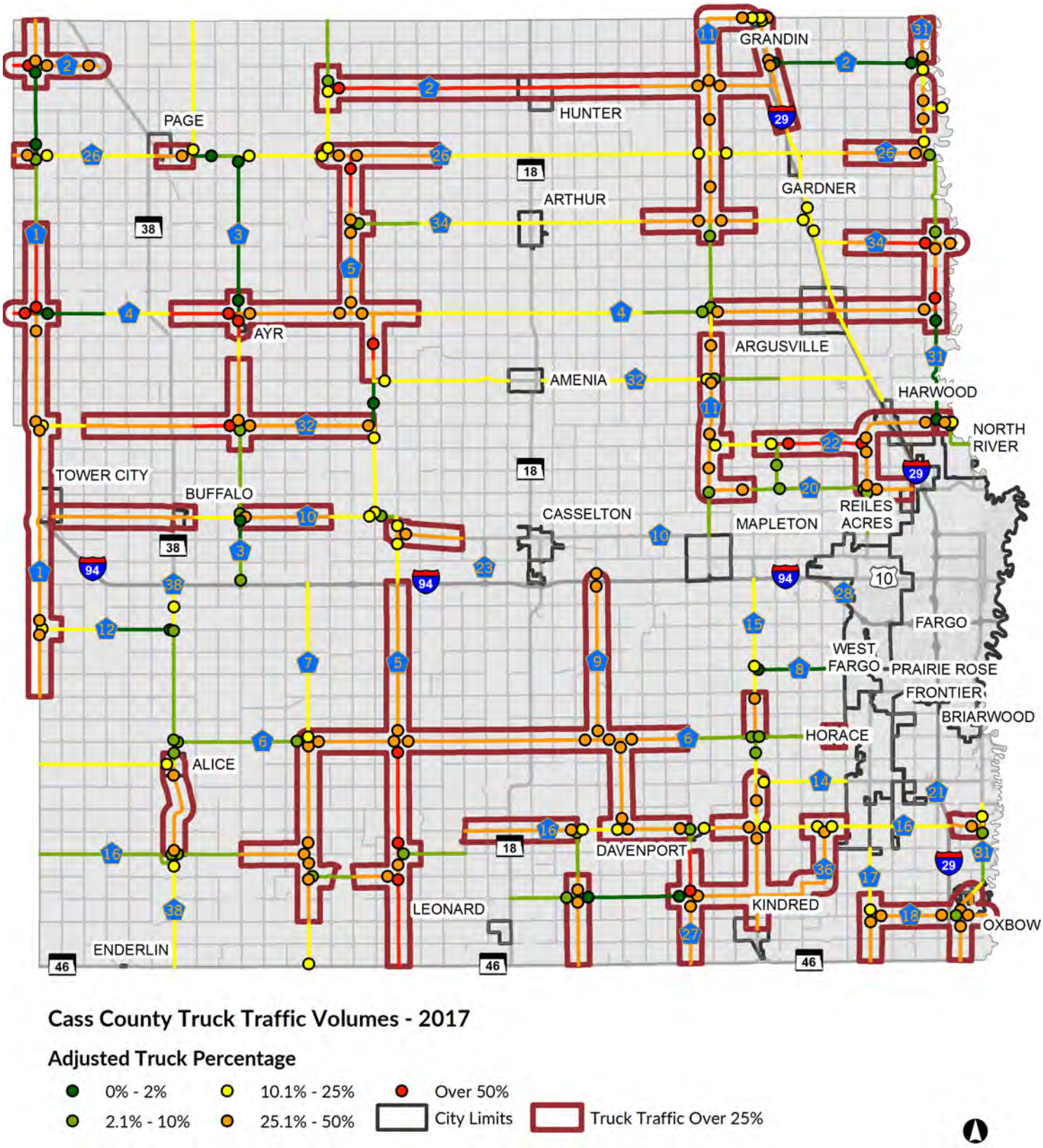


Figure 7.3: Surface type

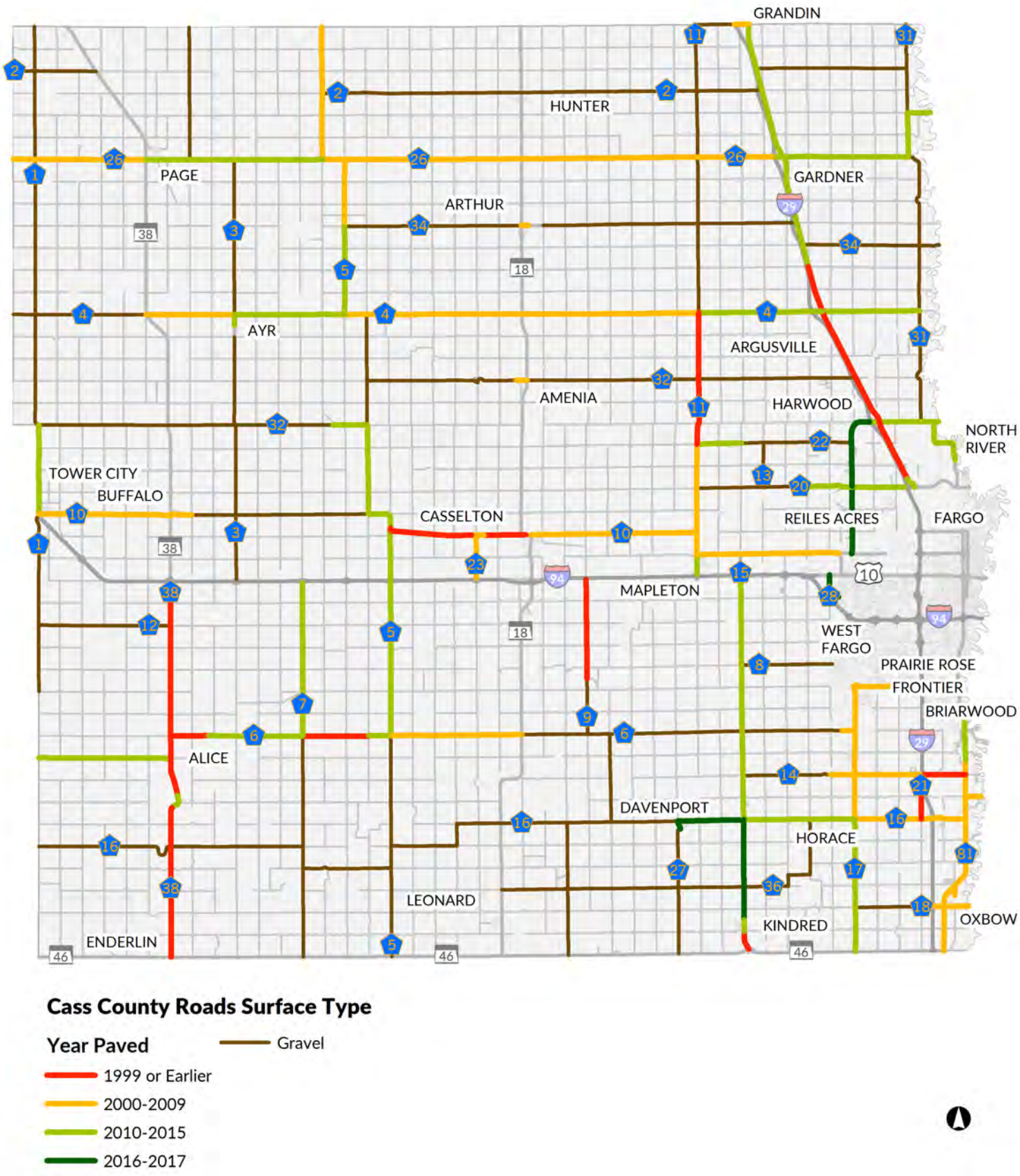
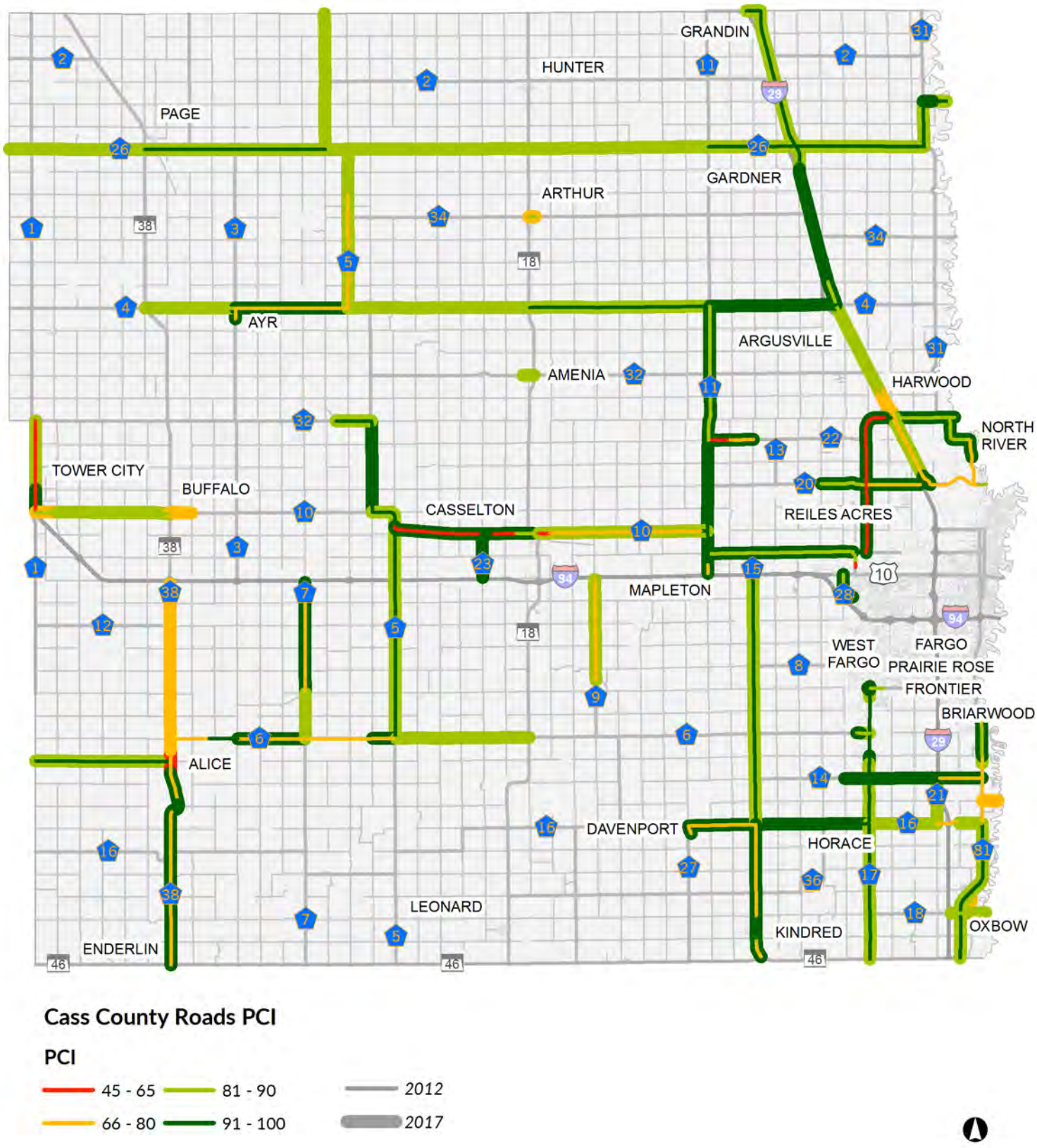


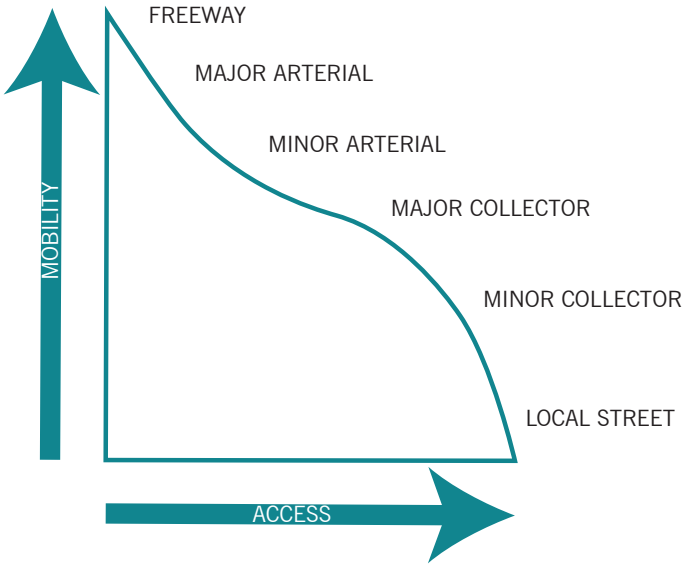
Figure 7.4: Pavement Conditions



Functional Class

Roadways must balance access and mobility. The function of the roadway is dependent on classification; an interstate prioritizes mobility and has very strict access controls, permitting high speeds, while a local road prioritizes access over mobility (Figure 7.5).

Figure 7.5: Functional Class Hierarchy



There are many functionally classified roadways throughout the county: Federal, State, County, Township, and City roadways. Many of the county highways are classified as major collectors. Functionally classified roadways are shown in Figure 7.6

Safety

As part of the Local Road Safety Program through the North Dakota Department of Transportation, Cass County completed a safety analysis in 2014. This analysis identified safety trends to develop a safety plan, which is summarized below.

From 2008 to 2012, there were more than 12,260 crashes in Cass County, less than two percent of these were severe injury or fatal crashes.

- All of the severe intersection crashes occurred at through-stop intersections, where the minor approach is stop controlled. Factors that contributed to this trend include intersection skews, sight line impacts, high access density, or high ADT cross products (major street volumes multiplied by minor street volumes).
- More than 84 percent of total crashes occurred in Fargo and West Fargo. A variety of factors including geometry, speed, capacity, and access contributed to these crash trends.

Based on these trends, and others identified, 34 rural projects, with a cost of $268 thousand, were recommended for the county.

Regionally Significant Corridors

Regionally significant corridors (RSC) are integral to internal movements of traffic within Cass County. Public and stakeholder input was gathered to assist with identifying the RSC network. Interregional and interstate traffic movements through Cass County are handled on corridors like I-29, I-94, ND-18, and ND-38. Even though these corridors are regionally significant, they are not Cass County's jurisdiction so are not included in the RSC.

RSC's connect important destinations throughout the county. The designation considers the following variables:

- Economic Development Corridors are corridors that are currently or projected to see increased traffic based on economic development opportunities within Cass County.
- Economic Development Nodes are specific areas that have been identified as economic growth opportunities.
- Freight Corridors are corridors where truck traffic is typically above the county average, or where existing or projected agricultural traffic occurs.

The RSC network is important to the county's transportation plan because it assists with prioritizing investments in the county roadways, especially for pavement treatment options. The RSC network also identifies significant corridors and gives the public a better understanding of what corridors are likely to see the largest share of future county investment and related maintenance and operations. The RSC network builds upon the current prioritization of corridors currently identified by Cass County. Figure 7.7 shows the currently priority levels in relation to the identified RSC network.

Figure 7.6: Functional Class

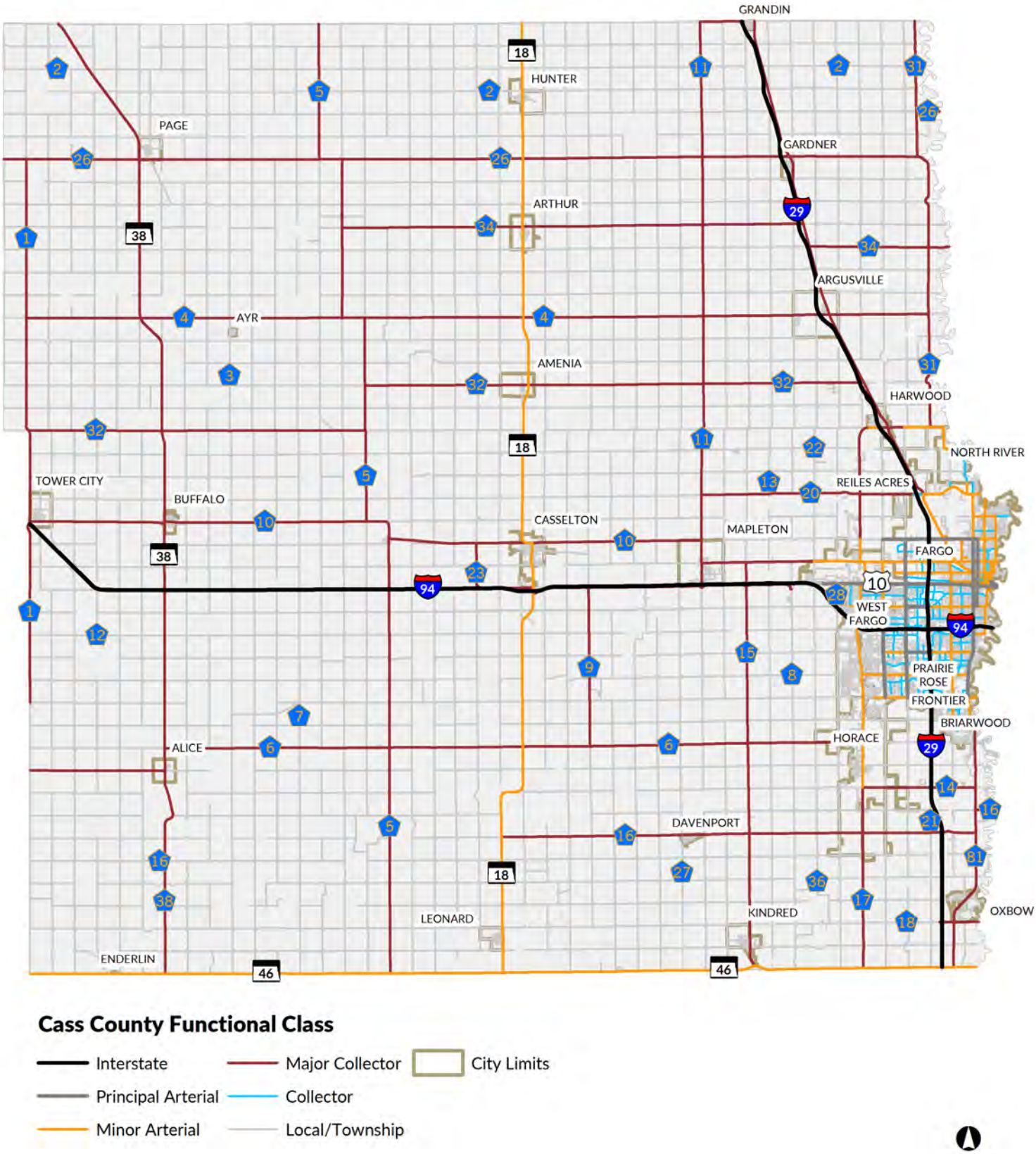
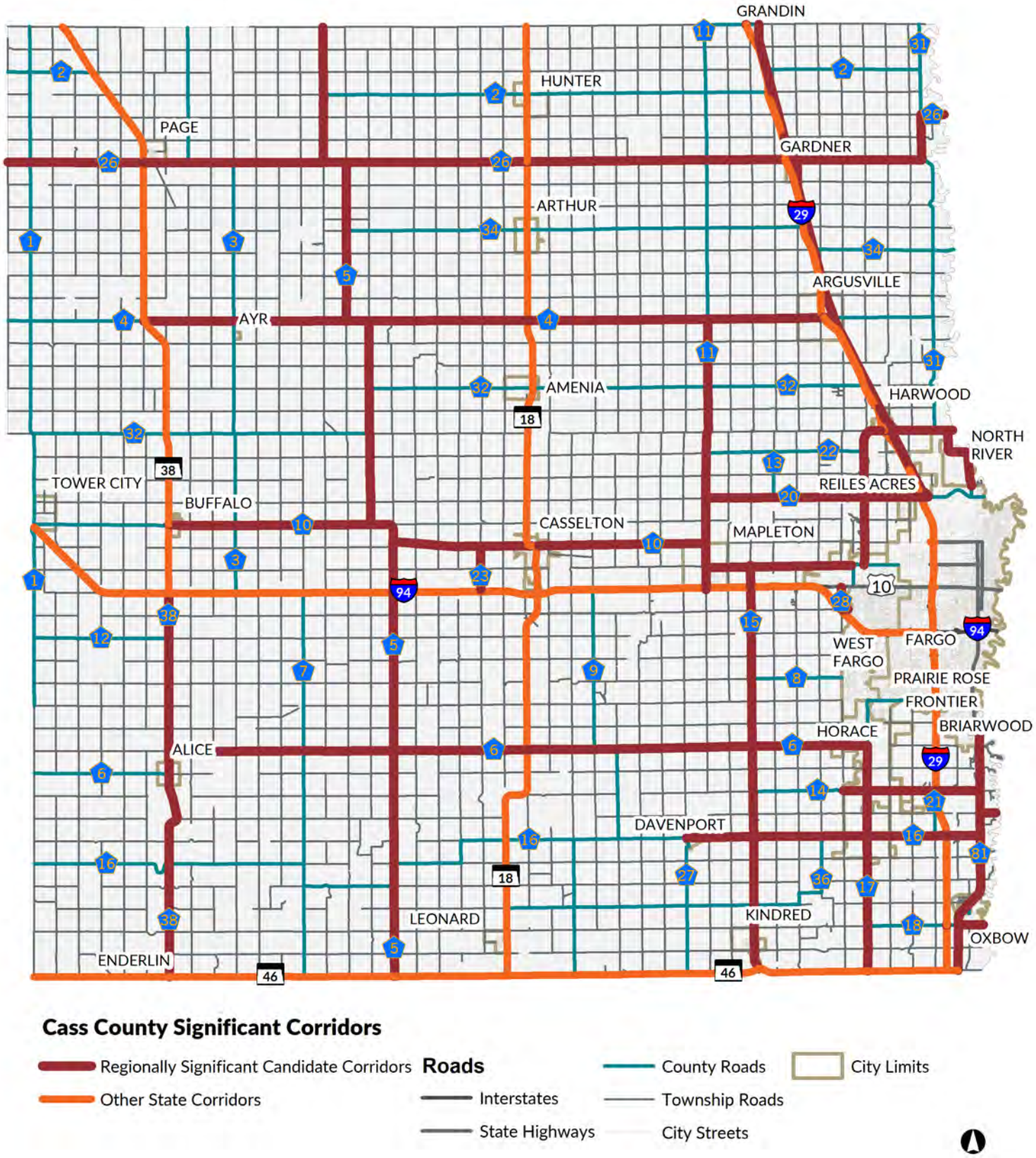


Figure 7.7: Regionally Significant Corridors



Bridges

Cass County maintains 541 bridge structures, 240 bridges span more than 20 feet. Of these structures, 29 percent were built before 1960 (Figure 7.8). Bridges built pre-1960 are often functionally obsolete due to width, height, and weight restrictions.

Of the 240 bridges greater than 20 feet, 78 percent have a sufficiency rating of 80 or greater with another 17 percent having a sufficiency rating between 50 and 80. Just 11 bridges (five percent) have a sufficiency rating below 50. Bridge sufficiency is shown in Figure 7.9.

Bridge location and sufficiency is shown in Figure 7.10.

Figure 7.8: Year Bridges Built

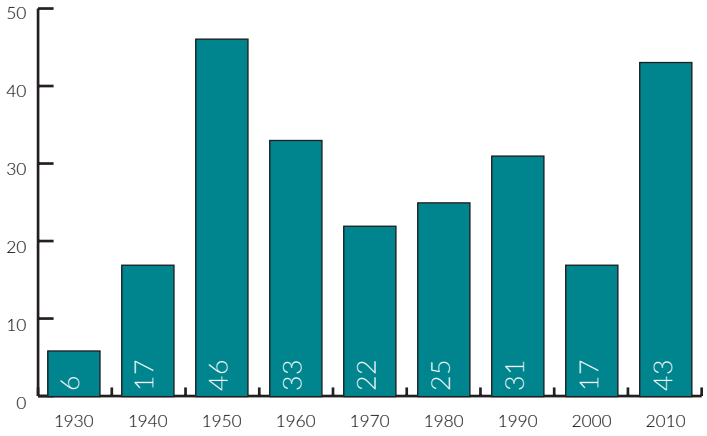


Figure 7.9: Bridge Sufficiency

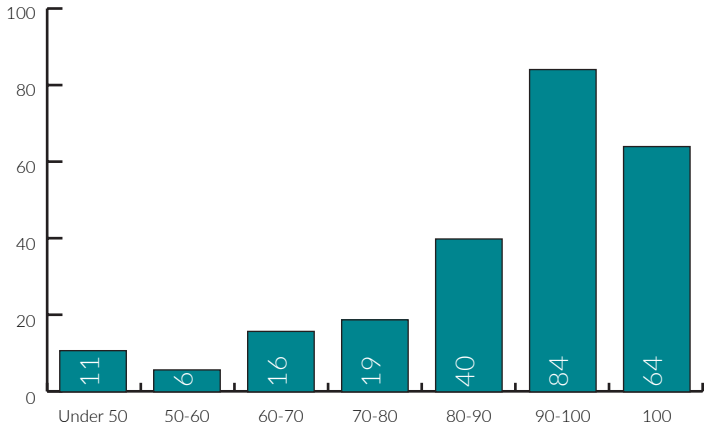
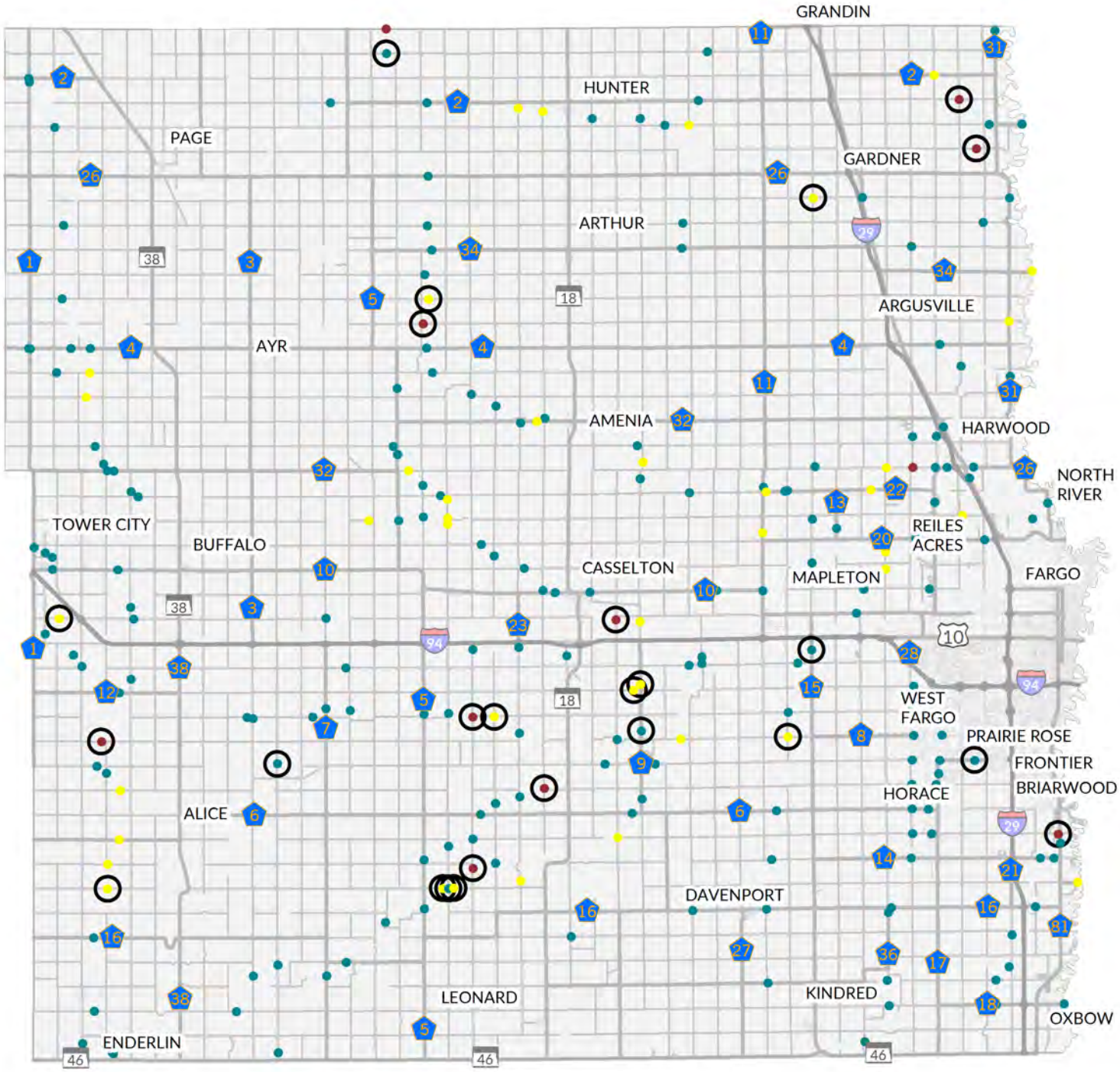


Figure 7.10: Bridge Location and Sufficiency



Cass County Bridge Sufficiency

Bridge Sufficiency 2017

- 0 - 49.9
- 50 - 79.9
- 80+
- Bridges Programmed 2018-2022

Bridge Evaluation and Investment Review

A major component of the Cass County transportation plan is a bridge investment strategy. Cass County maintains 541 bridge structures. Of these structures, 240 are more than 20 feet long. Many of these bridges were built before 1960 and are functionally obsolete due to width, height, and weight restrictions. These 240 major structures are generally in good shape, with 78 percent having a sufficiency rating at 80 or greater. Through a review and assessment of these bridges, a prioritized list of investments has been developed.

Bridge Prioritization Methodology

A County bridge prioritization process was performed based on the county's existing inventory of structures based on existing NBI data sheets for Cass County. For the purposes of this analysis, it was assumed that existing bridges in the 2018-2022 Cass County Capital Improvement Plan (CIP) would remain the highest priorities for future investment. Beyond the top 25 structures in the current Cass County CIP, the analysis also flagged three bridges with a Code 3 ranking and one additional structure that is fracture critical.

- Bridges were prioritized based on sufficiency rating, posting limit, and average condition of the structure.
  - Bridges were analyzed in four sufficiency bins, those with sufficiency ratings less than 50, those between 50 and 75, those between 75 and 90, and those greater than 90.
  - Within each quartile ranking, bridges were prioritized based on three primarily planning level data inputs: sufficiency rating, posting limit, and average condition of the structure. Condition average was developed based on a combination of inputs involving the superstructure, substructure and deck rating
  - Analysis and prioritization within each sufficiency bin was completed based on posting values (scaled between zero and five) and the condition average of greater than or less than six. This matrix was used to determine the final ranking.

This method was used to sort the remaining 211 bridges after the 29 county priority, Code 3, and fracture critical bridges mentioned above. At the latter end of the prioritization matrix, the output is really more illustrative and less useful in demonstrating overall asset value of bridges in Cass County based on anticipated future investment bands. However, in the nearer term, specifically for bridges prioritized between number 26 and number 75, these are likely structures more certainly needing investment and evaluation over the life of the current planning process.

Cost Assumptions

Cost assumptions were developed for both bridges and box culverts. Bridge cost was estimated using the following:

- National Bridge Inventory information was used to determine length.
- All replacement bridges would have a deck of thirty feet.
- $225 per square foot.

Box culvert cost was estimated depending on whether the culvert was on a county road or township road:

- $275,000 per box culvert if on a county road
- $175,000 per box culvert if on a township road

Summary of Bridge Investments

A summary of the bridge ranks and estimated replacement cost is shown in Table 7.5. The bridge condition average is shown in Figure 7.11. The full bridge analysis can be found in a separate technical appendix.

Table 7.5: Estimated Bridge Replacement Costs

Bridge Ranks	Phase	Estimated Replacement Cost (2018 $)
1-25	Programmed	$7.5 M
26-50	2023-2027	$14.6 M
51-100	2028-2037	$25.6 M
101+	>2037	$66.4 M

Diversion Bridges

The FM Diversion will construct 15 new bridges, many of these will be on the county system. The public-private partnership operators will manage the bridges for 30 years. At the end of the 30-year period, the operators must make any necessary repairs to the bridge to ensure a base condition, before the county takes ownership. This means any maintenance necessary will be more than 30 years out. As will discussed in later elements of this plan, the location of future FM Diversion crossings impacts decisions on the location and investment in other existing and future Cass County roads. FM Diversion bridge locations are shown in Figure 7.12 and Figure 7.13.

Figure 7.11: Bridge Condition Average

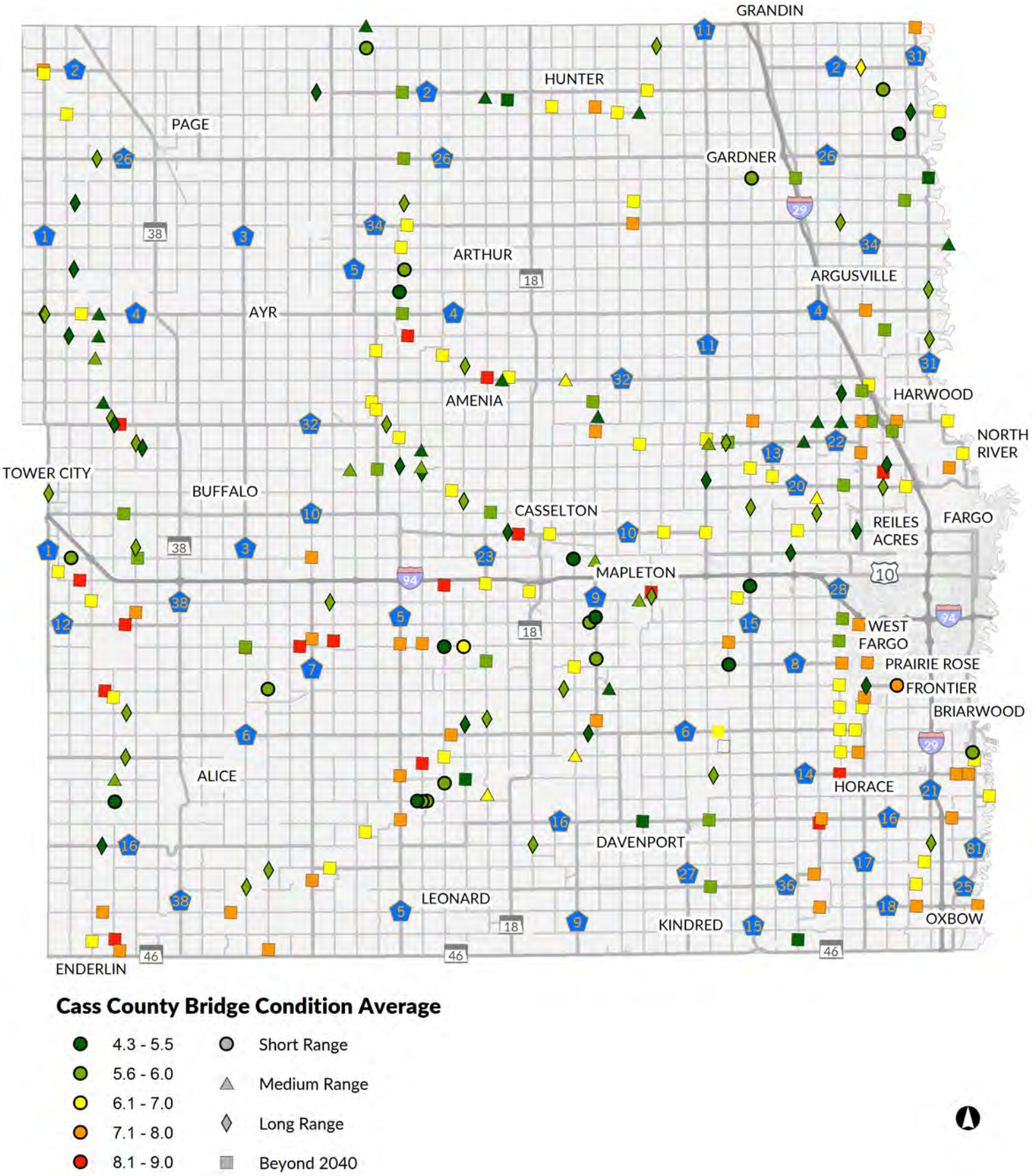


Figure 7.12: North Side Diversion Bridge Locations

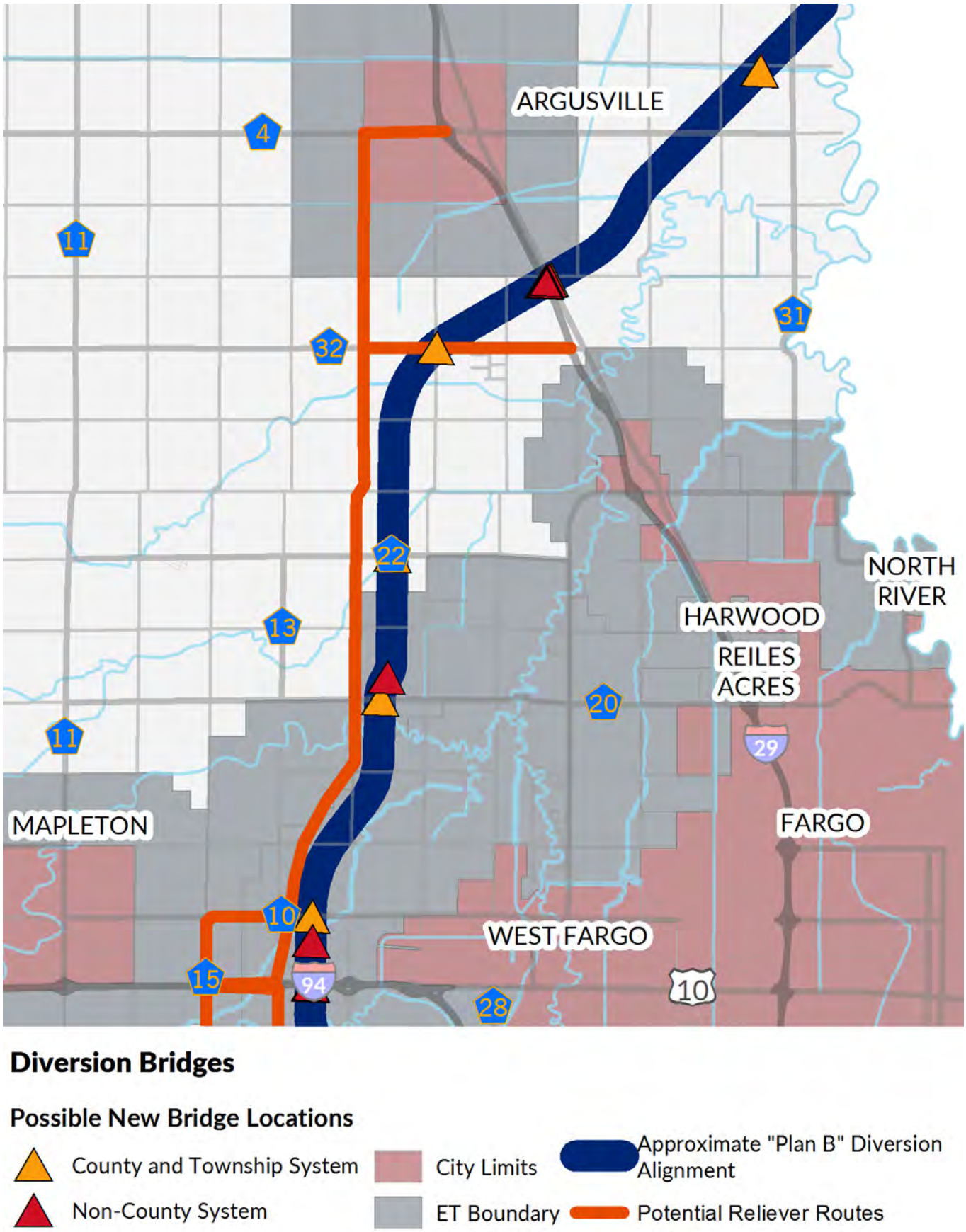
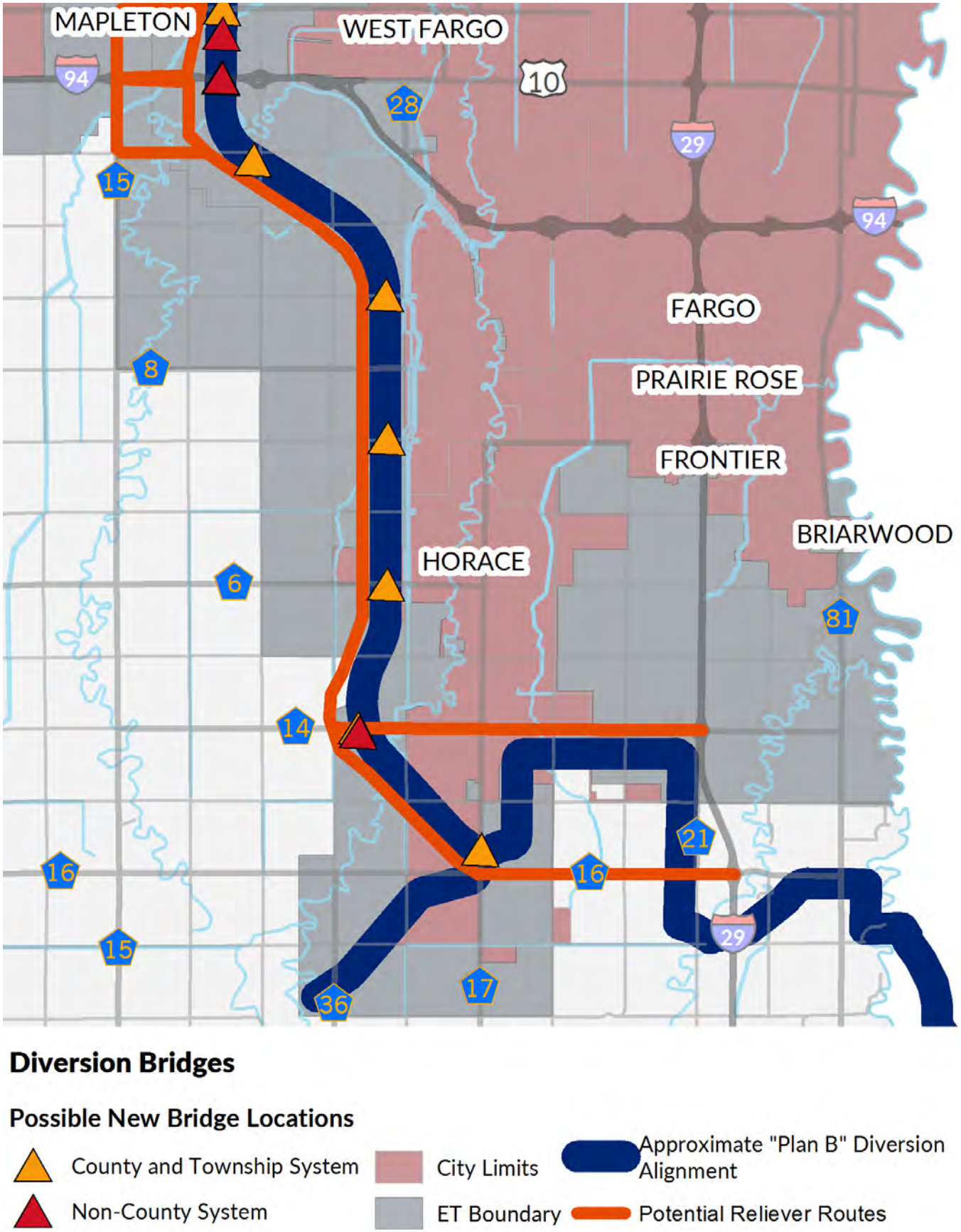


Figure 7.13: South Side Diversion Bridge Locations

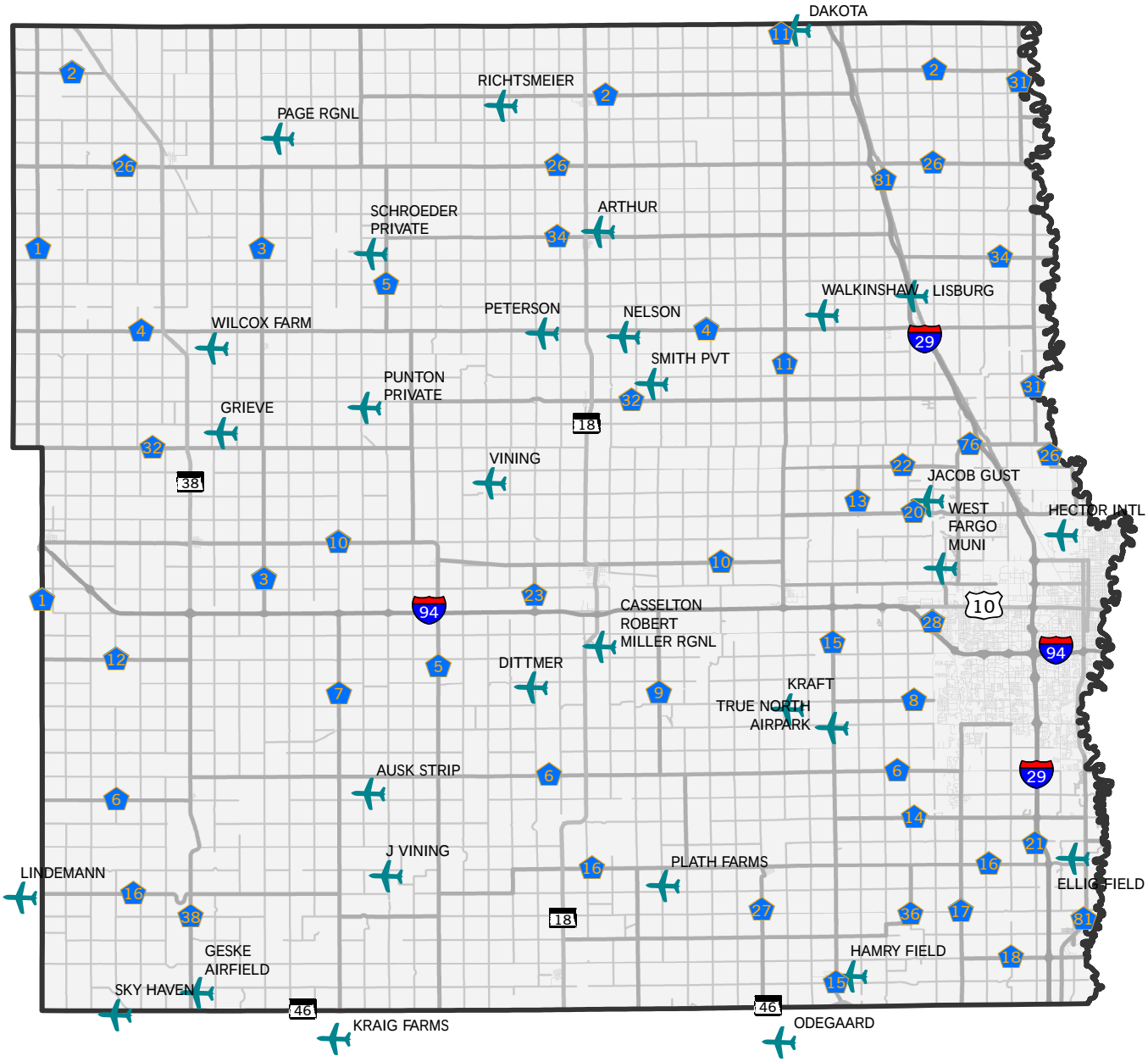


Airports

There are 30 airports in Cass County, including one commercial airport, Hector International in Fargo, seven general aviation airports (Page, Arthur, Casselton, West Fargo, Kindred, Leonard, and Enderlin), and 22 private airports. These airports are shown in Figure 7.14.

Hector International Airport is a civil and military airport that serves the Fargo Air National Guard, commercial passenger carriers (Allegiant Air, American Eagle, Delta, and United), and cargo carriers (Alpine Air Express, Encore Air Cargo, FedEx, and Martinaire). In 2016, Hector International Airport served more than 789,000 passengers, this is a 12 percent decrease from the historical high of nearly 895,000 passengers in 2014.

Figure 7.14: Cass County Airports



Cass County Airports

Airports

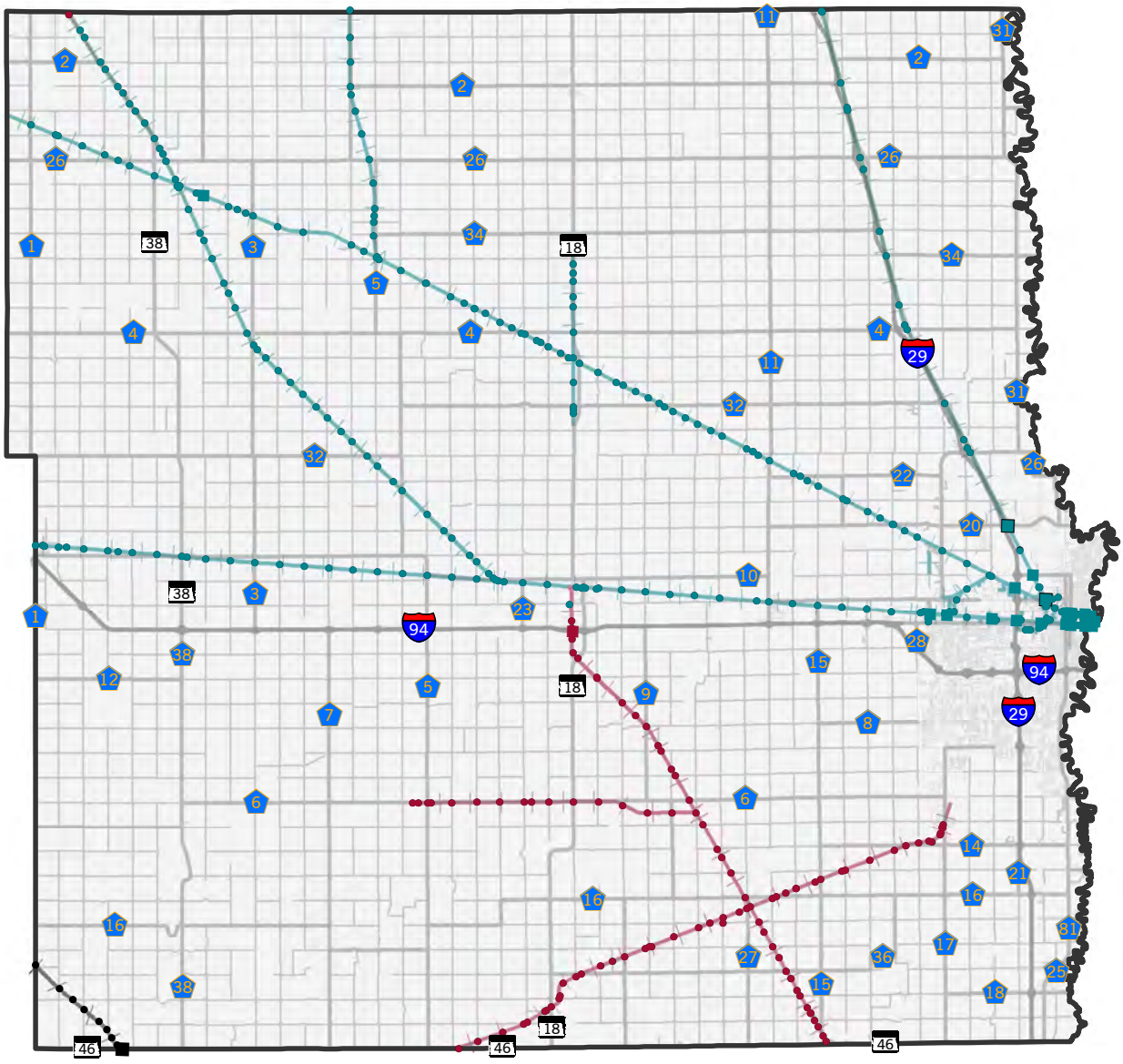
Railroads

Three railroad companies provide freight service to and through Cass County:

- Burlington Northern Santa Fe (BNSF) has 253 miles of track in Cass County with 250 at-grade crossings and 21 grade separated crossings, all but one are in the Fargo-Moorhead urban area.
- Red River Valley and Western has 58 miles of track in Cass County with 100 at-grade crossings and one grade-separated crossing.
- Canadian Pacific has 10 miles of track in Cass County with eight at-grade crossings and one grade-separated crossing.

Railroads and their crossings are shown in Figure 7.15.

Figure 7.15: Cass County Railroads



TRANSPORTATION ANALYSIS

Through the development of the Cass County Comprehensive and Transportation Plan a series of key issues and study areas were prioritized for detailed analysis. The following sections attempt to more closely evaluate a series of critical issues and corridors for Cass County and the county roadway system. Specifically, this element of the plan will analyze the following issue areas:

- Speed Limits: Opportunities and limitations to increase speeds limits on certain Cass County roadways.
- Corridor Management Strategy: Evaluate investment needs and jurisdictional issues on a series of roads being impacted by urbanization in eastern Cass County. Evaluate pavement management and jurisdictional issues on certain roads in Cass County.
- Corridor Studies: General overview of planning and investment considerations for a series of corridors in Cass County.

Speed Limit Analysis

Across North Dakota there is growing interest at the county level for exploring increases in speed limits. As part of the public input process for the development of Cass County Comprehensive and Transportation Plan, the public has requested increased speed limits on county roads. Current State law allows the County to adjust speeds on a county wide basis, or on a corridor by corridor basis. The most logical approach, given varying conditions across Cass County, may lend itself to a case by case basis as improvements are made to account for inherent design issues of various corridors.

However, increasing speed limits is not just about replacing speed signs. Instead it must consider multiple factors of the roadway such as horizontal and vertical curves, capacity of bridge structures, and continuity to ensure safety of the roadway and compliance with posted speeds. Cass County has completed preliminary analysis on many of the county roads to identify which corridors may be feasible, based on design factors, for higher speed limits. The output of this analysis is considered in Figure 7.16.

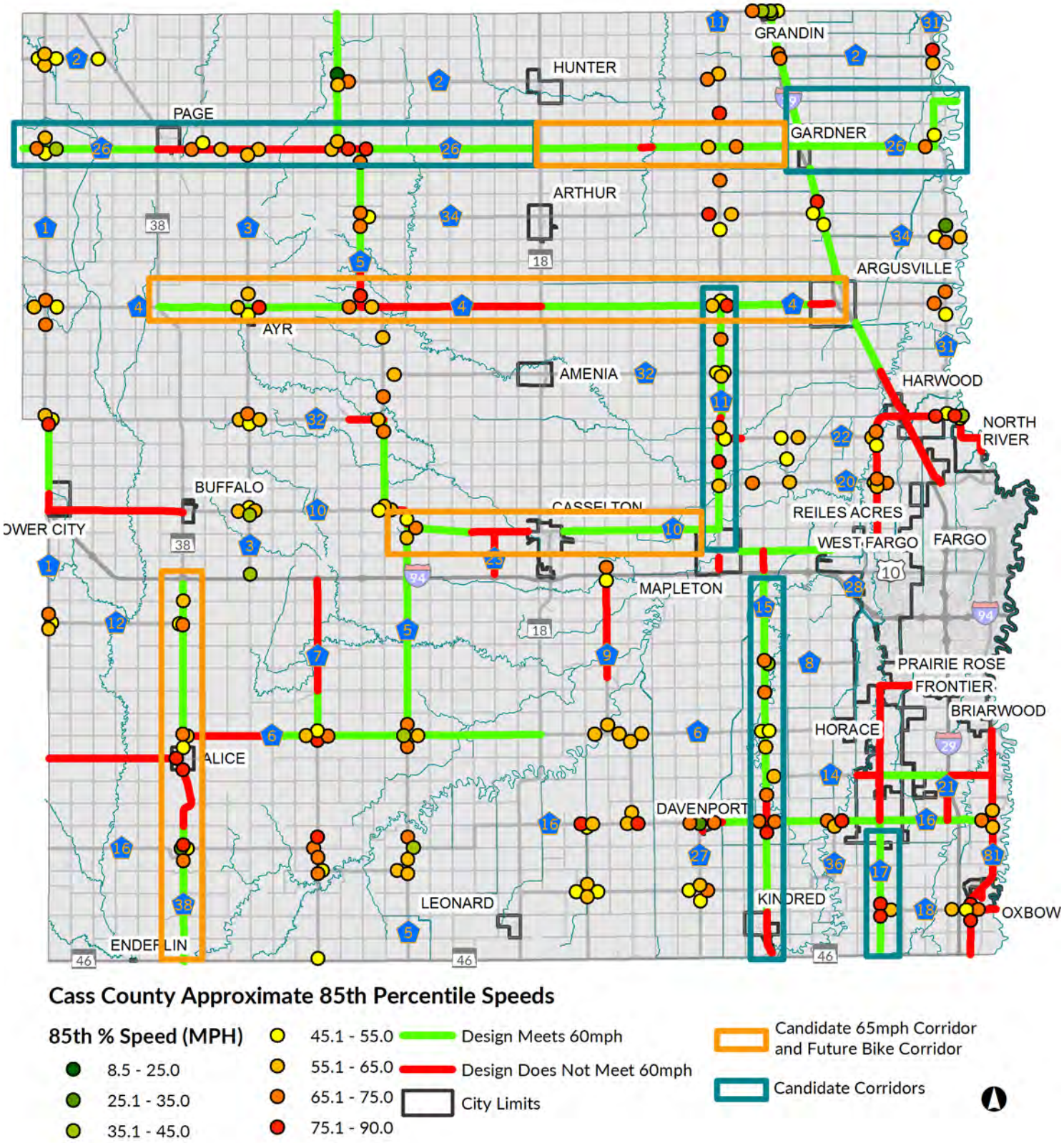
Tentatively, the following corridors were identified as candidates for increased speeds based on horizontal and vertical grades, shoulders, and collected speed: County Road (CR) 4, CR 10, CR 11, CR 15, CR 17, CR 26, and CR 38. These corridors may be candidates for increased speed limits based on additional engineering analysis.

Additional analysis is necessary and should consider crashes, speed, and road condition/clear zone. The State of Minnesota recently completed a statewide study to evaluate speed limits on rural two-lane highways. Their evaluation considered eight factors:

- Less than 10 access points per mile.
- Six-foot paved shoulder.
- Three percent vertical grade over the segment.
- Hazard free clear zone.
- Crash rates below 5-year statewide crash rate for comparable segments and ensure there is not a speed related crash problem.
- Passing zones are adequate.
- 85th percentile speed and 10 mile per hour pace indicates the speed most drivers are willing to accept given the prevailing road conditions.
- Quarter-mile minimum length.

In addition to these criteria, the County should also consider the multimodal utility of the corridor. In general, the higher the speed and truck traffic of a roadway, the more incompatible that roadway is to support bicycle movements without further shoulder enhancements. Design guidance suggests shoulders up to 10 feet for very high speed, high volume corridors, which current Cass County design standards would not meet.

Figure 7.16: Preliminary Speed Limit Analysis



Corridor Management Strategy

Transportation from a countywide perspective is critical to connecting communities and supporting economic development. Two different corridor management strategies are discussed below. They are stratified by urban and rural.

- Urbanizing corridor: These corridors are evaluated based on a series of transportation needs and factors. Most specifically urbanizing corridors are evaluated in terms of strategic development to ensure a smooth transition of these corridors from a rural to urban context. The analysis of these urbanizing corridors considers future roadway improvements and considerations for potential turnback of these corridors to adjacent urban communities. As will be shown, Cass County is likely facing several significant investment decisions in urbanizing corridors in the southeast Cass County.
- Rural corridors: Rural corridors are evaluated for a series of issues focusing most specifically on surface and pavement management. This analysis provides recommendations and considerations for potential pavement management strategies as well as possible considerations for conversion of various roads from township to county jurisdiction, or vice versa.

Urbanizing Corridors

Urbanizing corridors are those nearest to the cities of Fargo/West Fargo. Given their proximity to the urban area, they are facing increased development pressure leading to an ever-increasing complexity of issues not akin to typical county roads in Cass County.

Some urbanizing corridors are candidates for turn back to a city road based on urban growth. In a typical turn back process, the County pays to improve the roadway to county standards, or contributes that value to the city as part of a larger urban scale reconstruction if the roadway is to be improved beyond county standards. Improvements beyond county standards are likely to include curb and gutter and sidewalks. After these improvements, the county gives jurisdictional authority and ownership to the urban community. In this case, urban communities refer to Fargo and West Fargo currently, but is likely to include Horace once its population exceeds 5,000. However, in the case of Horace, there may be instances where major scale investments are made in various county roads without the turnback of those corridors to the city.

Since 2000, the county has turned over more than 20 miles of roadway to Fargo and West Fargo and total county lane miles have been reduced by about 30 miles since 2005. Over the life of this plan, there are likely to be multiple segments of county roads that will require significant investment and likely require consideration for turning those corridors back to an adjacent city. Based on guidance from the County, a prioritized list of urbanizing corridors was evaluated regarding future potential investment needs and consideration for future turnback to a city.

- CR 6/76th Avenue
- CR 17
- CR 81/University Drive
- CR 14/100th Avenue

Figure 7.17: County Road 17

CR 6/76th Avenue: CR 17 to 38th Street

Issue: 76th Avenue is currently a township road between CR 17 and 38th Street. Because of increased development pressure and the imminent location of a new West Fargo High School/Middle School, Cass County has taken the step of programming future improvements to this three-mile stretch of corridor. It will eventually include an I-29 interchange and connect major growth areas, including a West Fargo School District high school and possible middle school in Horace and Fargo Davies High School.

Opportunity: Much of the area surrounding the 76th Avenue corridor has not yet been developed, but is within the City of Fargo's Extraterritorial area or within the city limits of Horace. The growth area plans completed for this area suggest commercial development and medium to high density residential development. The most recent demographic forecasts suggest there could be more than 4,500 new jobs and more than 3,000 new households along this corridor. Travel demand model estimates from the Southwest Metro Transportation Plan suggest traffic volumes approaching the interstate will exceed 20,000 vehicles per day.

To address projected development along 76th Avenue and to respond proactively to the multijurisdictional nature of the corridor, Cass County has elected to take over jurisdiction of 76th Avenue and add to its county road network as CR 6. The addition of 76th Avenue as future CR 6 will maintain the corridor for future mobility and an eventual connection to I-29. The County has programmed investments for this corridor for 2019 (grading and surfacing from CR 17 to the future 45th Street) and 2021 (grading and surfacing from the future 45th Street to 25th Street). Cass County will need to work diligently to preserve right-of-way and access control consistent with City of Fargo arterial standards.

Recommendation: Improvements to this corridor will occur in two parts. First, the county's programmed improvements to occuring in 2019 and 2021 will improve the gravel section to a paved rural section. While the county has currently included the mile segment east of I-29 to 25th Street, this area is fully within the City of Fargo boundaries, who should manage its urban transition without County assistance. Once paved, the county should maintain jurisdictional control over the roadway work to preserve operations of the corridor and access management.

At such time when the corridor requires conversion to an urban section and a 76th Avenue interchange is programmed for construction, the county may need to further upgrade the corridor to an urban section, but would be eligible for Urban Roads program funds. After urbanization, the county should turnback 76th Avenue from 57th Avenue (western edge of Fargo city limits) to 38th Street to the City of Fargo. The remaining segment of the corridor from Sheyenne Street could be turned over to the City of Horace, when they are prepared to manage a future major arterial roadway.

Depending on the extent of the grading and surfacing project, the County is estimated to need $5.25 million to improve this corridor to a paved rural sections shown in Table 7.6. More funding may be necessary if they participate in the urbanization of the corridor. The Southwest Subarea, including CR 6/76th Avenue is shown in Figure 7.18.

Table 7.6: Estimated Cost for CR 6/76th Avenue Corridor Improvements

CR 6 Segment	Year	Length	Estimated Cost
CR 17 to Future 45th Street	2019	2 miles	$3.75 M
Future 45th Street I-29	2021	1 mile	$1.5 M
Total		3 Miles	$5.25 M

CR 17: 52nd Avenue to 100th Avenue

Issue: Significant investments are being planned and programmed along Sheyenne Street (old CR 17) north of 52nd Avenue. Development south of 52nd Avenue on CR 17 is already placing significant pressure on corridor management efforts. A proactive corridor management approach is needed on CR 17 between 52nd Avenue and 100th Avenue (CR 14). While the CR 17 corridor is fully within the Horace city limits, it is likely that Cass County will need to drive most future corridor management and investments along the corridor until it is converted to an urban section, specifically the northern two miles.

Opportunity: This four mile stretch of CR 17 from 52nd Avenue to 100th Avenue is fully within the Horace city boundaries. It transitions from a paved rural three-lane section with a center left-turn lane to a rural two-lane section. Cass county has made significant intersection upgrades along all of this corridor.

The 2045 Demographic Projections recently completed for the Fargo-Moorhead Metropolitan Council of Governments projected more than 1,650 new households in Horace, between 76th Avenue and 100th Avenue (CR 14).

Over the last five years, traffic volumes from on CR 17 from 52nd Avenue to 100th Avenue have been fairly stable growing around one percent per year on the northern end (52nd Avenue S) to three percent per year on the southern end (100th Avenue S). However, future traffic projections in the most recent travel demand model has projected volumes will range from 13,000 to 20,600 by 2040 between 52nd Avenue S and 76th Avenue.

Generally, a two-lane undivided roadway can carry between 12,000 and 15,000 with acceptable operations, depending on traffic control, turn lanes, and access density. The projected volumes will certainly require roadway modifications for acceptable operations which exceed the current design of the north two miles of the CR 17 corridor. The 2040 Long Range Transportation Plan recommended a four- or five-lane urban section on CR 17 from 52nd Avenue to 76th Avenue, with an estimated total cost of $11 million. The project would likely be necessary between 2031 and 2040. However, if Horace develops following more recent growth projections, these improvements may be necessary before 2031.

South of 76th Avenue, future traffic volumes are unlikely to warrant roadway improvements. However, as development continues in and around Horace, the need for future roadway investments should be anticipated. At a minimum, the County should anticipate further enhancements in the way of turn lanes and related access considerations for the southern two miles of CR 17 between 76th Avenue and 100th Avenue (CR 14).

Recommendation: The northern two-mile segment of the CR 17 corridor is likely to need investment prior to 2030. To integrate the recommendations of the current LRTP, it is assumed a 4/5 lane urban section will be needed from 52nd Avenue to 76th Avenue over the life of this plan. The county would also likely need to install traffic control signals at the 64th and 76th Avenue intersections.

The southern two-mile segment of this corridor is likely to need investment before 2030 in the form of enhancements to the current 2 lane rural section, which is dependent on the intensity and timing of the growth of Horace. The county should continue to limit accesses onto CR 17 and monitor growth to develop more accurate timing of improvements.

Horace will soon exceed the 5,000 population threshold to become an urban area and thus be eligible for Federal funding. However, all of CR 17 from 52nd Avenue to CR 14 is currently in the Metro COG Urban Area boundary, making any future investment in the corridor eligible for NDDOT Urban Roads funds, regardless of Horace's population. Therefore, currently, any major investment strategy along CR 17 can be led by Cass County with Urban Roads funds if they choose to submit those projects for consideration by Metro COG and NDDOT.

It is likely Cass County will need to lead the effort in managing and investing in CR 17 south of 52nd Avenue. Future improvements should be considered for NDDOT Urban Roads funding through Metro COG. However, consideration of turning any of these four miles back to the City of Horace would not be recommended until major investments are programmed in Metro COGs TIP and implemented. The estimated cost for CR 17 improvements is shown in Table 7.7. The Southwest Subarea, including CR 17 is shown in Figure 7.18.

Table 7.7: Estimated Cost for CR 17 Corridor Improvements

CR 17 Segment	Year	Length	Estimated Cost
52nd to 64th Avenue	2031	1 mile	$5.8 M
64th to 76th Avenue	2031	1 mile	$5.8 M
76th to 88th Avenue	2040+	1 mile	$5.5 M
88th to 100th Avenue	2040+	1 mile	$5.5 M
Total		4 miles	$22.6 M

CR 81/University Drive: 52nd Avenue to 100th Avenue

Issue: CR 81/University Drive is currently a paved three-lane rural section (one-lane in each direction with a center left-turn lane) from 52nd Avenue to 70th Avenue and a two-lane rural section south past 100th Avenue. The City of Fargo recently expanded its southern border beyond 100th Avenue South and has zoned primarily residential and limited commercial land uses along the CR 81/University Drive corridor. The Davies High School campus is south of 70th Avenue between 25th Street and CR 81/University Drive. As this area develops, it is likely this corridor will need improvements to adequately serve the transportation demand. Improvements might include medians, bicycle and pedestrian facilities, and curb and gutter.

Opportunity: Generally, a two-lane undivided roadway can carry between 12,000 and 15,000 with acceptable operations, depending on traffic control, turn lanes, and access density. On the northern end of this corridor, around 52nd Avenue, traffic has grown around four percent annually since 2005, but has been nearly constant further south. The current travel demand model for the Fargo-Moorhead metropolitan area projects varied levels of growth along this corridor through 2040. Updated household and employment projections, along with most recent traffic counts, suggests this area is developing faster than anticipated. However, given the low traffic volumes and good pavement condition, this corridor is not likely a candidate for turn back in the near- or mid-term, especially with the prospect of a 76th Avenue interchange, which would draw significant traffic volumes off of CR 81/University Drive.

Recommendation: This corridor is unlikely to need significant investment before 2030, however is highly dependent on the rate of urbanization around the Fargo Davies High School and a 76th Avenue interchange. Continue to limit accesses onto CR 81/University Drive and monitor growth and development surrounding the corridor. The Southeast Subarea, including CR 81/University Drive is shown in Figure 7.18.

CR 14/100th Avenue: I-29 to the Sheyenne River

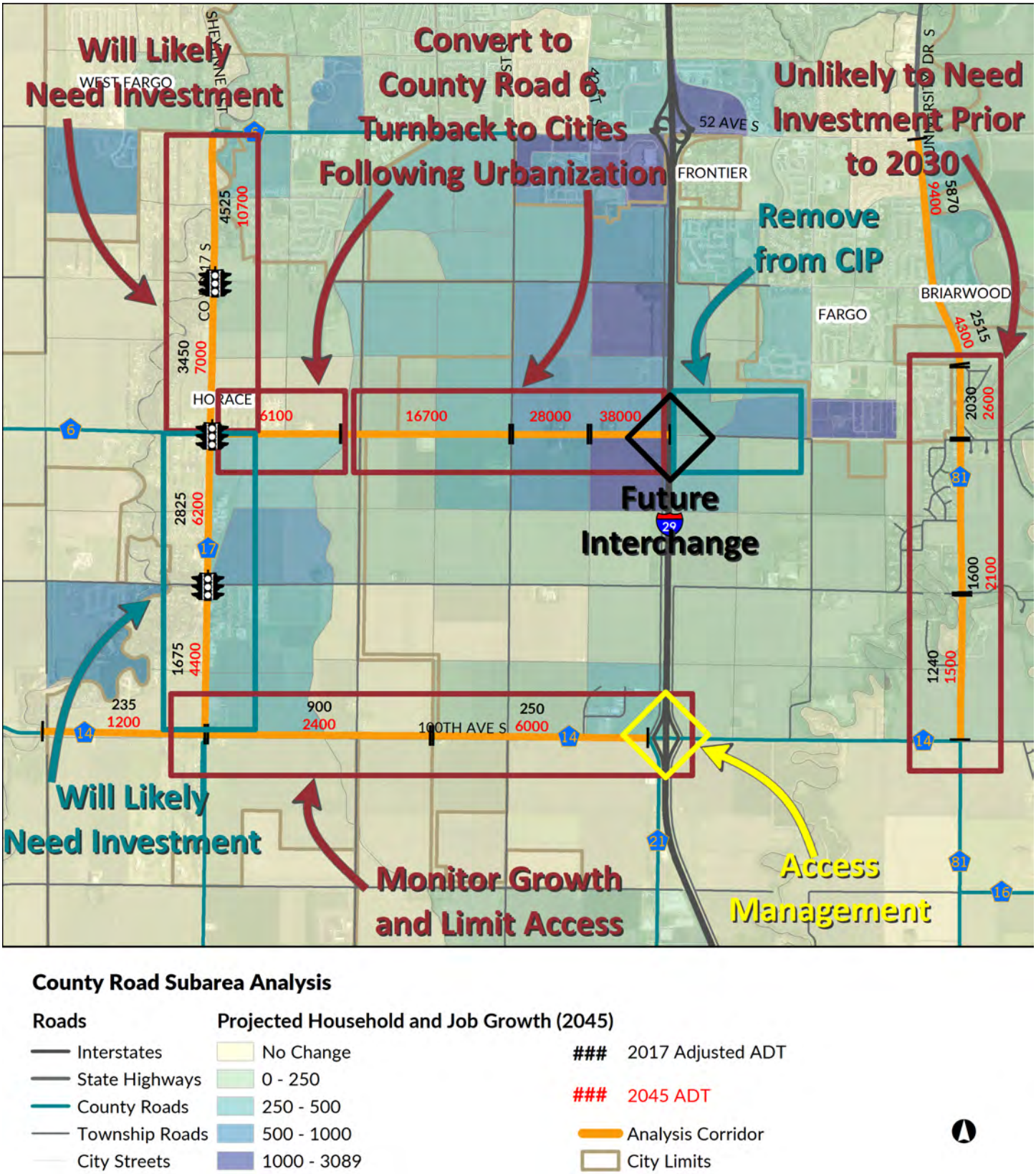
Issue: While most of this area will require permanent flood protection to be financially feasible, the area remains attractive for development. County Road 14/100th Avenue will be an important corridor for far south-side mobility, with connections across I-29 and the future FM Diversion.

Opportunity: CR 14/100th Avenue is a paved rural two-lane section from the Sheyenne River to CR 81/University Drive. It is a low volume roadway with volumes on the west end less than 300 vehicles per day to 1,230 vehicles per day at the interchange with I-29. Outside of Horace, there is no household or employment growth projected through 2045. Additionally, the Southwest Metro Transportation Plan did not anticipate significant growth around this corridor, nor did it expect a jurisdictional transfer from the County to the City of Fargo and City of Horace before 2040.

Beyond 2040, the CR 14/100th Avenue corridor is likely to be an important transportation connection across the south metro area. There is an existing interchange, it is expected to have an FM Diversion crossing, and has the potential to cross the Red River and connect to Cass County Road 65 in Minnesota.

Recommendation: This corridor is not anticipated to be necessary for a turn back to the City of Fargo and City of Horace before 2040. Continue to limit accesses onto CR 14/100th Avenue and monitor growth and development surrounding the corridor. Additional effort should be focused on one-quarter mile access spacing to allow for 38th Street to convert to a frontage road if necessary for interchange operations. The Southeast Subarea, including CR 14/100th Avenue is shown in Figure 7.18.

Figure 7.18: Southwest Metro Subarea Urbanizing Corridors



CR 20/40th Avenue

Issue: CR 20/40th Avenue provides mobility to the northern metro area. It will be an important connection when the FM Diversion is complete, with a diversion crossing, I-29 interchange and a connection into Minnesota. The segment from I-29 to the Red River has been turned back to the City of Fargo. Industrial development in Fargo and residential development in Reiles Acres may have impacts to mobility across the corridor.

Opportunity: CR 20/40th Avenue connects CR 1 to I-29 and into Minnesota. It cuts through Reiles Acres, a small, primarily low density residential suburb and an industrial park in the City of Fargo. CR 20/40th Avenue will include an FM Diversion crossing. The eastern four miles are paved, with the remaining five miles have a gravel surface. The county has programmed gravel stabilization improvements for 2021.

Traffic volumes on this corridor range from less than 100 on the western edge near CR 11 to nearly 1,000 vehicles per day east of CR 17/69th Street to more than 4,500 by the Minnesota boundary. There is little projected job growth in this area, and future traffic volumes are expected to stay around 4,000 vehicles per day through 2040.

Recommendation: As development continues around CR 20/40th Avenue, the county should maintain proper access standards to limit growth impacts to the corridor. Growth expectations around the corridor are unlikely to warrant changes to the surface type or additional capacity.

The two-mile segment between CR 17 and I-29 is the highest priority for paving and possible turnback to the city. However, turn back should only be considered at such time as this two-mile stretch is reconstructed to an urban two or three lane section. Cass County should actively participate in the pending Northwest Transportation Study proposed by Metro COG which will consider future system needs covering most of CR 20.

CR 22

Issue: There are no imminent issues facing CR 22. Because it falls within the band of area defined as urbanizing with in the overall study area and is considered for a future FM Diversion crossing, additional considerations was given to the CR 22 corridor.

Opportunity: CR 22 runs from CR 11 east to CR 17, where it jogs north to follow 76th Avenue. It runs through Prosper and Harwood, provides access to I-29 and across to Minnesota. This corridor will include a diversion crossing as well. It is paved from CR 11 to 165th Avenue, transitions to a gravel road to CR 17, where it connects to CR 17, a paved road, and then follows the 76th Avenue corridor, which is also paved.

The corridor carries less than 100 vehicles per day between CR 11 and CR 17, along the northern segment, following 76th Avenue it carries nearly 2,500 vehicles per day. The recently completed demographic forecasts expect around 220 new jobs and households along the northern section of CR 22/76th Avenue, which will have limited impacts on corridor operations.

Recommendation: Most of the development that will occur along CR 22 will likely occur within or adjacent to Harwood's city limits. The County should work with Harwood to maintain acceptable access spacing and right-of-way standards. Growth expectations around the corridor are unlikely to warrant changes to the surface type or additional capacity. Since a Diversion crossing has been identified for CR 22, it is very necessary that this corridor stay on the County system. Development trends in the area served by CR 22 could change rapidly once the Diversion is in place. Until changing conditions are understood post construction of the FM Diversion, no substantial changes are suggested to segments of CR 22 west of CR 17.

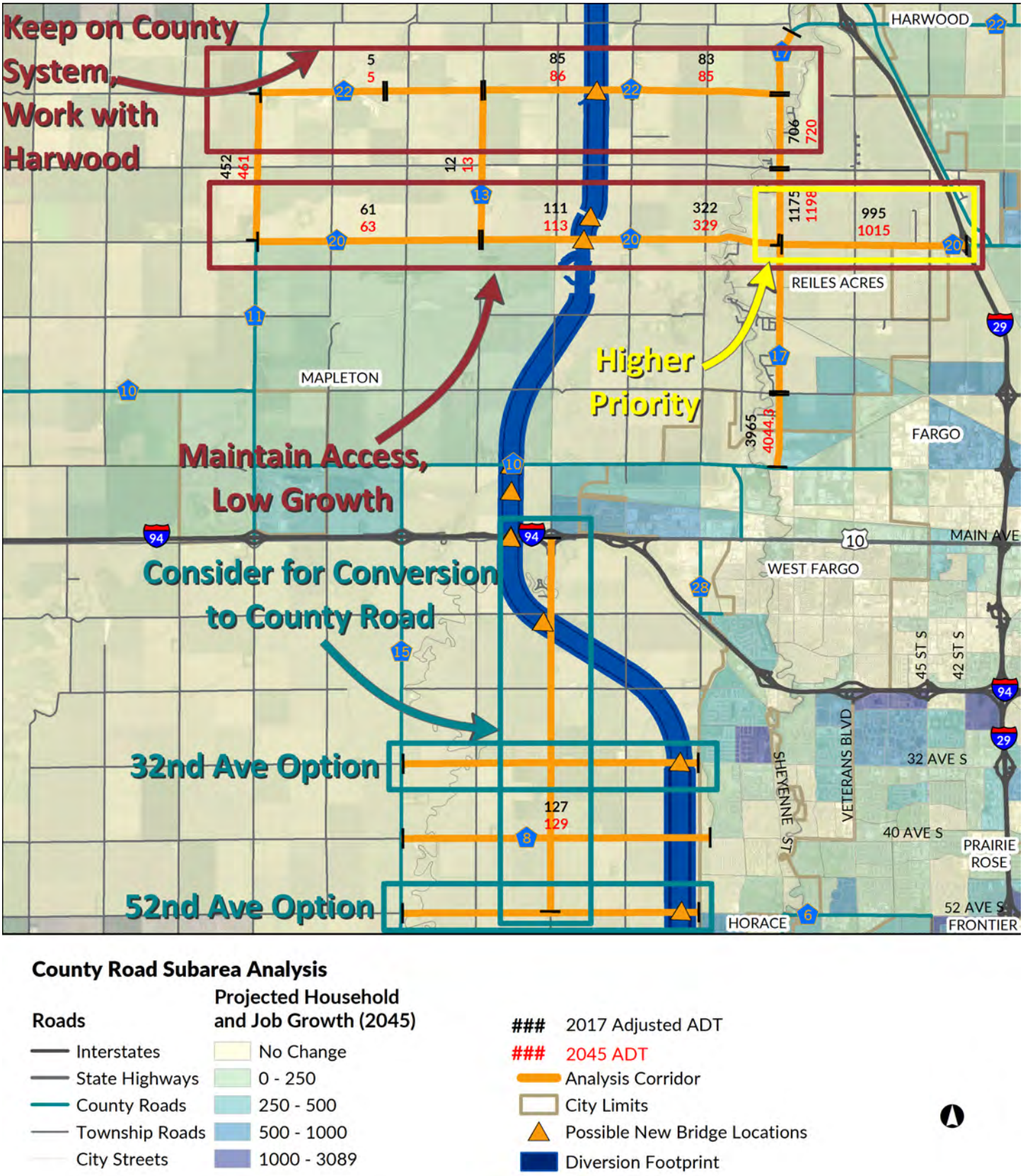
CR 13

Issue: CR 13 has limited connectivity and serves few cars per day. It will be outside the existing diversion alignment. This roadway may best be managed by returning to a township road.

Opportunity: CR 13 is two miles of gravel roadway connecting CR 20 and CR 22. It carries less than 50 vehicles per day. There is no expected growth around the corridor.

Recommendation: Evaluate options to return CR 13 to a township road. Corridor swaps with Raymond Township may be possible to connect different areas that will have permanent flood protection and higher growth potential.

Figure 7.19: North Metro Subarea



Rural Corridors

Management strategies for rural corridors are very different from considerations discussed in the earlier section for urbanizing corridors in Cass County. Cass County will be responsible for these county corridors well beyond the planning horizon of this document and will need to develop a fiscally sustainable plan to ensure proper maintenance. A key consideration will be surface recommendations based on daily traffic, heavy vehicle usage, current pavement condition, and regional significance.

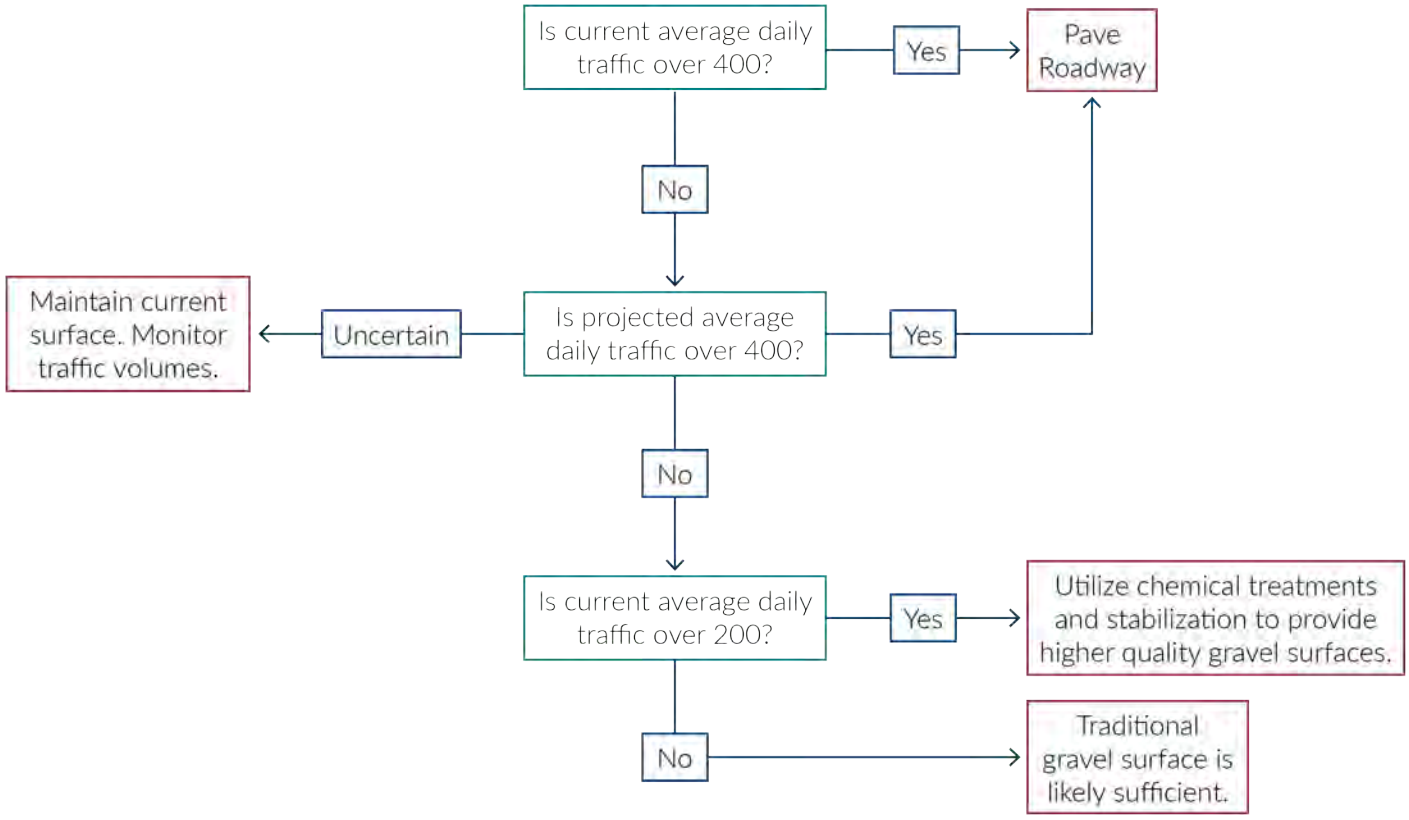
Surface Type

Selecting the proper roadway surface type is challenging for all jurisdictions. Asphalt or concrete roadways are almost always preferred by the public, but their construction and maintenance costs are financially burdensome. Gravel roads are appropriate on low-volume roads, but as volumes increase they need more regular maintenance changing the investment needs and making them financially unsustainable as well. Both gravel roads and asphalt roads may have seasonal load restrictions, which may hinder economic development. Roadway surface types should be selected based on traffic volumes, life-cycle costs, and county access.

In general, the flow chart in Figure 7.20 outlines the decision-making process based on traffic volumes and high level, generalized costs, based on assumptions from the Upper Great Plaints Transportation Institute's Local Road Surface Selection Tool. While this flow chart can help guide decisions, additional considerations at the corridor level may be necessary, especially when considering existing road condition, truck traffic, and freight generators.

Surface type corridor studies were completed for County Road 9 and County Road 10.

Figure 7.20: Pavement Surface Selection Flowchart



County Road 9

Issue: CR 9 current runs from north to south from ND 46 to the I-94 frontage road, the remaining segment to CR 10 is a township road currently maintained by Durbin and Harmony townships. CR 9 currently has a grade separated crossing at I-94. It provides access to a gravel pit, leading to heavier than normal truck traffic on this corridor. Cass County is tentatively planning on making grading improvements to CR 9 in 2021 from CR 10 through Durbin Township. The intent of this analysis was to determine the justification for adding these two miles of unpaved township road to the County system.

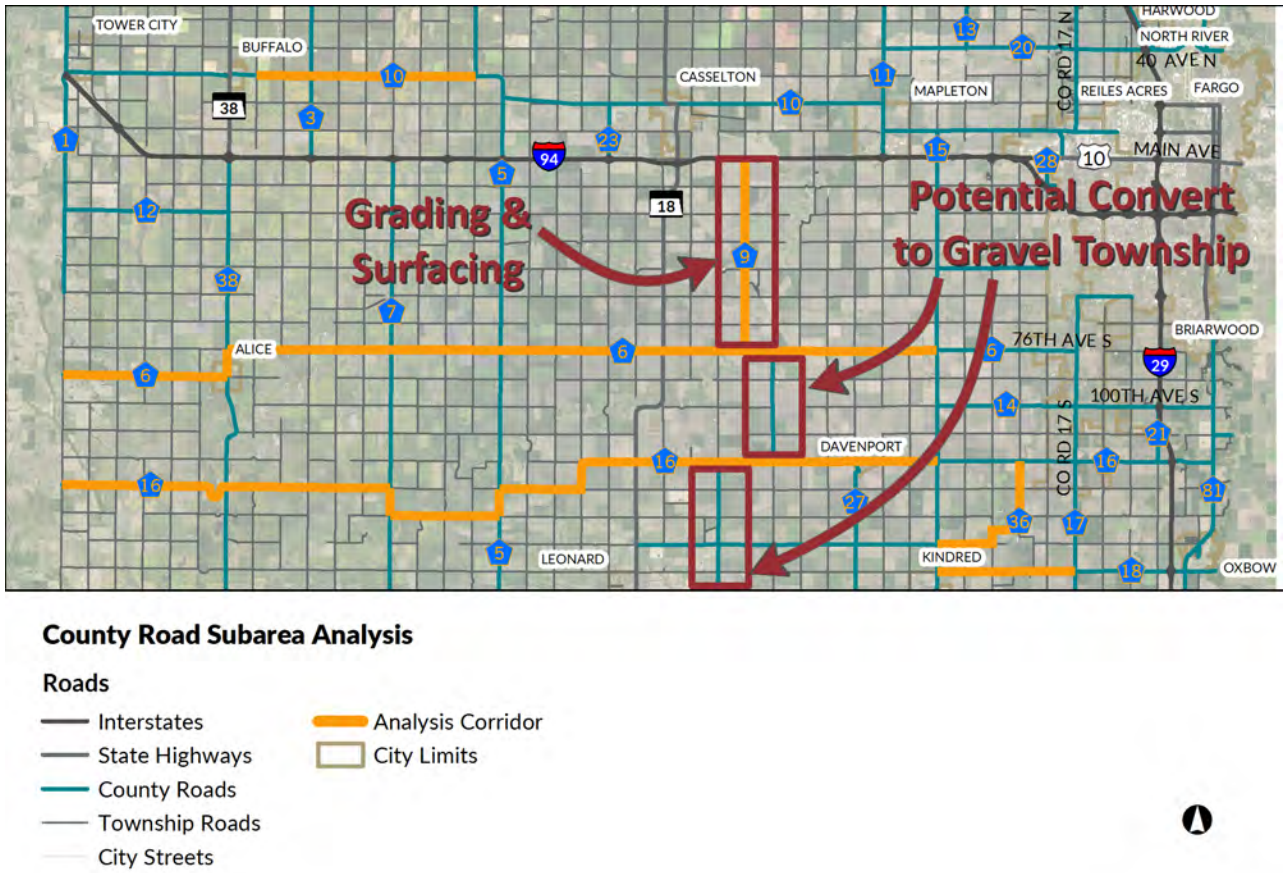
Opportunity: CR 9 begins at the I-94 frontage road south, with eventual connections to multiple east-west county roads. CR 9 carries about 270 vehicles per day north of the gravel pit, which is about 30 percent truck traffic. South of the gravel pit and the township road north of the CR 9 terminus carries around 30 vehicles per day.

North of I-94, the roadway is gravel. South of I-94, CR 9 is paved to 42nd Street around Durbin, where it then transitions to gravel again. The paved section of CR 9 was last paved in 1993, but received a seal coat treatment in 2017. Despite this treatment, the pavement condition is still only rated "Good" with an index score of 81.

This corridor is three miles east of ND-18. This corridor is not on the Regionally Significant Corridor network. Furthermore, collected speed data shows vehicles are already traveling at reduced speeds, which may be due to the roadway quality or the gravel transition.

Recommendation: The county has programmed $3.25 million for a 2021 grading and surfacing project for CR 9 from CR 10 to Durbin. However, given the very low volumes, the county should consider maintaining the two miles north of the I-94 frontage road as a township road with a gravel surface. The county should also consider returning CR 9 to a gravel surface after the gravel pit closes.

Figure 7.21: CR 9 Corridor



County Road 10

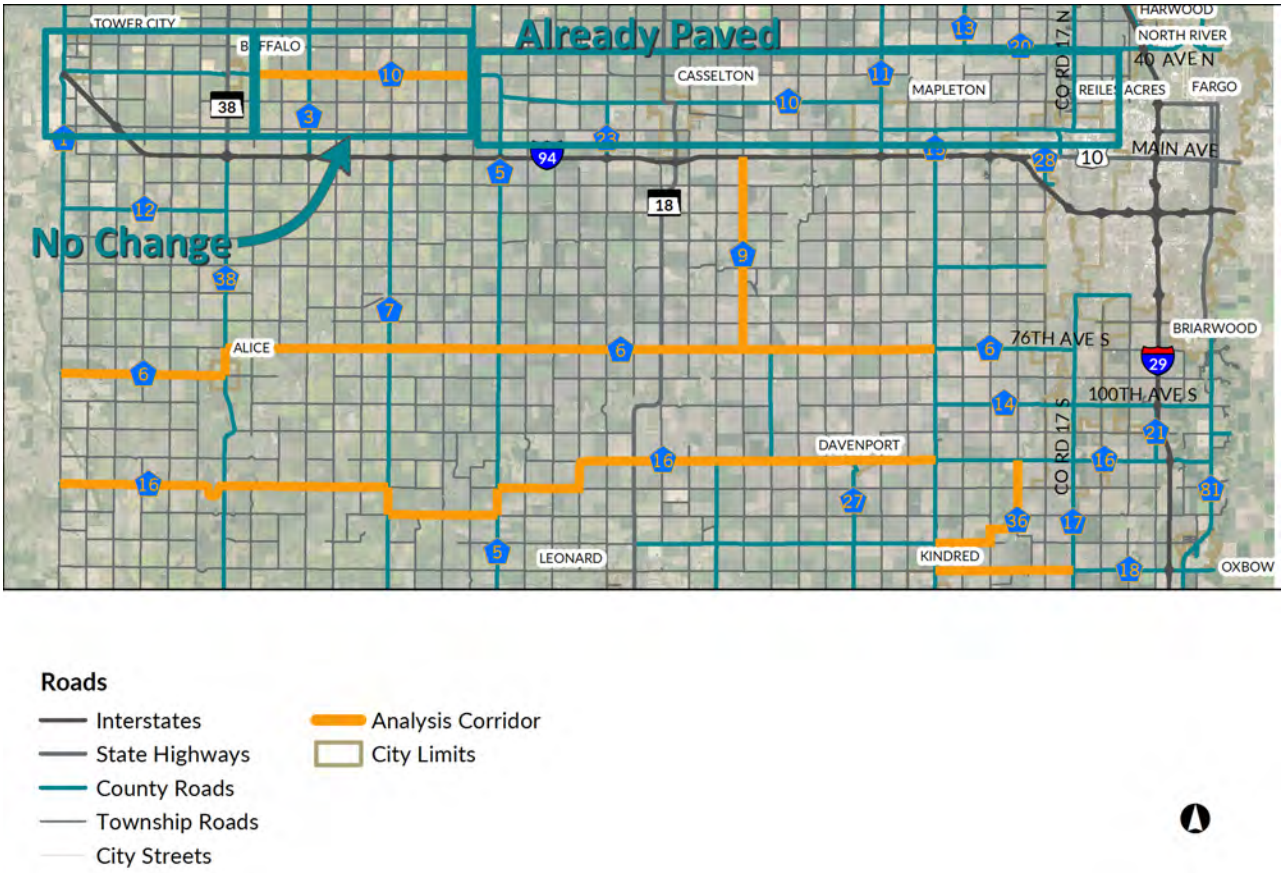
Issue: CR 10 is a significant east-west corridor that runs parallel to I-94 through many rural communities. It transitions from paved to gravel to paved and it moves east to west through the county. An evaluation was requested to determine if CR 10 should be completed as continuous paved corridor across the county.

Opportunity: The public engagement process highlighted the desire to improve CR 10 to a continuous paved corridor across the county. The following analysis includes the entire extent of CR 10, however, only the segment from Buffalo to CR 5 is gravel and would require investment. This is to demonstrate the different characteristics of the roadway as it relates to the surface type.

- The segment of CR 10 that connects Tower City to Buffalo is six miles long and paved. The pavement is in Fair to Good condition. The roadway carries between 450 vehicles per day near Buffalo to more than 800 in Tower City, where CR 10 connects to I-94. Given the traffic volumes, this segment should remain paved.
- From Buffalo to CR 5, CR 10 is eight miles of gravel road carrying less than 200 vehicles per day. This segment of CR 10 does not justify a paved surface due to low traffic volumes. The cost to pave this section would cost around $3.25 million (estimated at $0.325 million for 10 miles).
- From CR 5 to West Fargo, CR 10 is paved. It carries more than 500 vehicles per day west of Casselton, but more than 1,000 vehicles per day east of Casselton. The pavement varies from Good to Very Good. Where the pavement is in Good condition, the county has included three separate grading and surfacing projects in 2018, 2020, and 2021 on this segment. This segment of CR 10 should remain paved.

Recommendation: The segments of CR 10 that justify improved surfaces are paved. While traffic patterns do not necessarily warrant a surface change, the significant public interest may warrant further consideration in managing this corridor. The County could consider improved gravel quality through stabilization and dust control near residential areas.

Figure 7.22: CR 10 Corridor



Corridor Studies

As part of this transportation plan, efforts were made to identify and evaluate key considerations at an areawide level for four specific corridors in Cass County. These corridors were identified by the public and Cass County technical staff.

County Road 8/40th Avenue

Issue: CR 8 currently runs from the Sheyenne Diversion to CR 15. Cass County would like to reassign the CR 8 corridor to an alignment with a future crossing of the FM Diversion. Currently, there are potential crossings of the FM Diversion at both 32nd Avenue and 52nd Avenue.

Opportunity: CR 8 extends from the Sheyenne Diversion, where it connects to West Fargo's 40th Street, and terminates at CR 15, where it connects to 41st Street, a township road. Based on 2017 counts, CR 8 carries around 125 vehicles per day. The primary issue for CR 8 is its eventual connection across the Red River Diversion and the appropriateness of this designation.

Between I-94 and County Road 14/100th Avenue South, the Diversion Master Transportation Plan recommended crossings at 38th Street, 32nd Avenue, and 52 Avenue, none of which are county roads west of the Sheyenne River Diversion. Once the FM Diversion is complete, CR 8 will terminate at the diversion. For these reasons, moving the CR 8 designation to 32nd Avenue or 52nd Avenue will improve connectivity and quality of the roadway. Options for relocation of the CR 8 corridor to an alignment which would align with a future FM Diversion crossing are considered in Table 7.8.

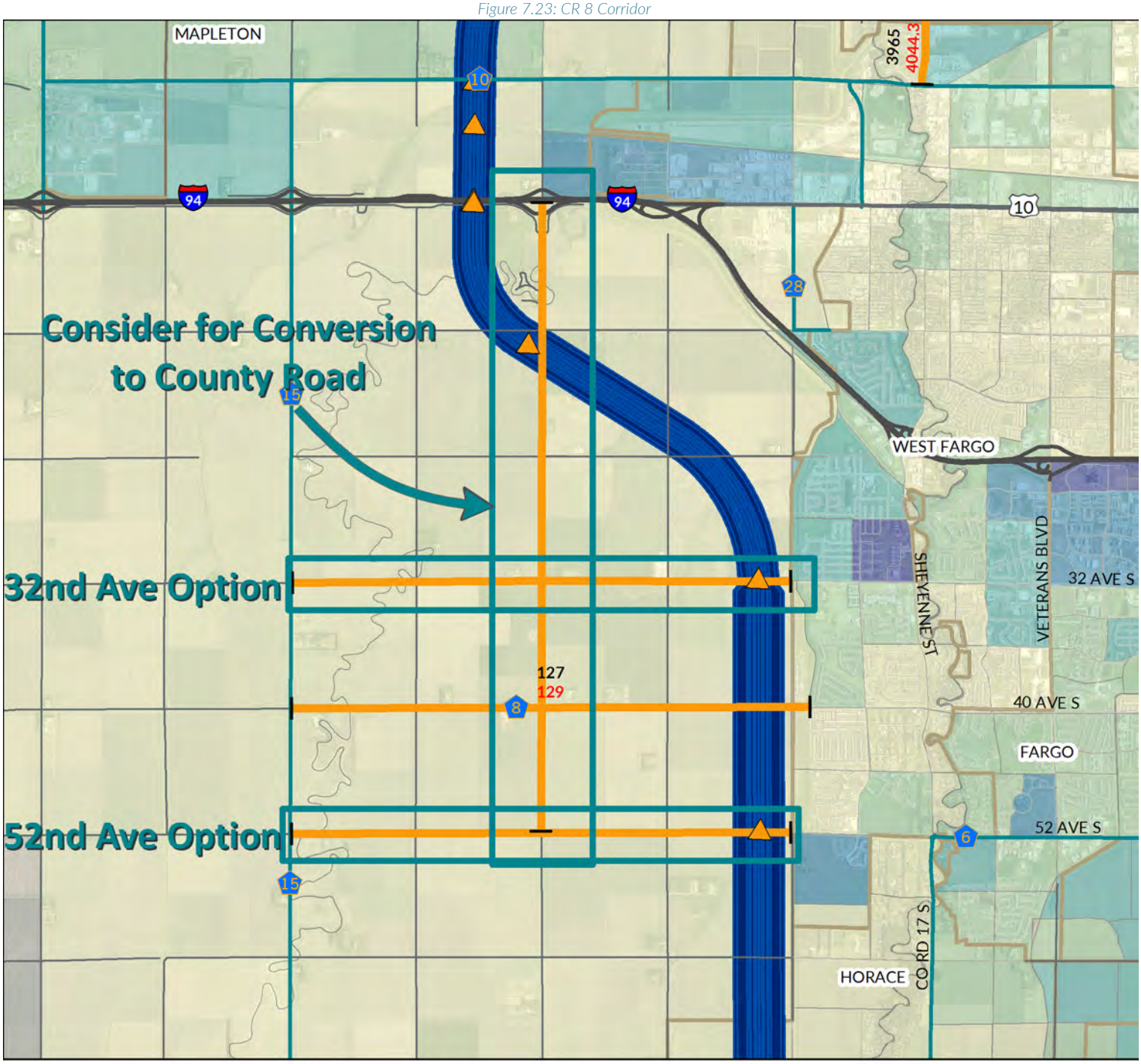
Recommendation: There are multiple options for the CR 8 redesignation.

- Do nothing. This alternative does not improve east-west mobility in the long term after the FM Diversion is complete. This is the lowest cost option, with $0.3 million programmed for gravel stabilization in 2021.
- Design 38th Street as a County Road. This would improve north-south mobility around the diversion at a cost of $2.1 million to improve the section between CR 10 and CR 16.
- Move to 32nd Avenue. This will improve east-west mobility across the FM Diversion, I-29, and commercial areas. Improve to the county's gravel road standard until the corridor urbanizes.
- Move to 52nd Avenue. This will improve east-west mobility across the FM Diversion, I-29, future growth areas, and connection into Minnesota. There are three miles of minimum maintenance roadway that would require additional investment. Improve to the county's gravel road standard until the corridor urbanizes.
- Maintain 32nd Avenue and 52nd Avenue corridors. Both corridors have significant benefits to east-west mobility in the eastern edge of Cass County, with access to I-29 and existing metro destinations. The county could elect to designate both as County Road corridors, improve to gravel road standards until the corridors urbanize. This would be the highest cost alternative.

Table 7.8: Estimated Cost for CR 8 Redesignation Options

Corridor	Estimated Cost	Advantages	Disadvantages
32nd Avenue	$1.2 M	» Direct access to Essentia Health and commercial areas » Access to I-29 » Capacity for traffic volume growth » Spacing between east-west CR corridors » Gravel surface to County Road 15 » Diversion crossing bridge	» Limited east-west connectivity west of CR 15 » No connection into Minnesota » Electric substation at 32nd Avenue and 26th Street may present challenges to any necessary improvements
52nd Avenue	$1.2 M	» Direct access to commercial areas » Access to I-29 » Capacity for traffic volume growth » Connection to Minnesota » Diversion crossing bridg	» Near to CR 6/76th Avenue west of Sheyenne Diversion and CR 14/100th Avenue » 3 miles of minimum maintenance roadway between Sheyenne Diversion and CR 15
38th Street	$3.6 M	» Improved north-south mobility around the diversion area	» Corridor not currently on county system
Do Nothing (40th Avenue)	$0.3 M	» Recently improved east of the Sheyenne River diversion	» No connection to I-29 » No FM Diversion crossing

Figure 7.23: CR 8 Corridor



County Road Subarea Analysis

Roads	Projected Household and Job Growth (2045)		
Interstates	No Change	###	2017 Adjusted ADT
State Highways	0 - 250	###	2045 ADT
County Roads	250 - 500		Analysis Corridor
Township Roads	500 - 1000		City Limits
City Streets	1000 - 3089		Possible New Bridge Locations
			Diversion Footprint

County Road 36/County Road 18 Extension

Issue: The County is seeking guidance on the potential extension of CR 18 along the 52nd Street alignment. Coupled with this extension would be the potential turn back of the current CR 36 corridor to Normanna Township. The County is preparing to study this corridor in a separate study. This preliminary effort serves to more clearly outline issues which can be more fully explored at the corridor study level of detail.

Opportunity: CR 36 is a gravel road that zigs and zags from CR 15 (north-south) to CR 16 (east-west) and carries around 150 vehicles per day. 52nd Street is a gravel road that runs east-west between CR 15 and CR 17. East of CR 17, 52nd Street is designated as CR 18 and connects to I-29, Oxbow/Hickson, and continues into Minnesota over the Red River. This corridor is an important connection for students in Oxbow/Hickson and rural Cass County to access the schools in Kindred.

Extending CR 18 would come with challenges, especially in terms of access management, right-of-way, and geotechnical issues. Within Norman, an unincorporated place, there are 10 access points in 0.6 miles. Access density like this can create safety and operational issues. The Norman Lutheran Church directly abuts 52nd Street. Its proximity to the street, combined with the Sheyenne River bank directly on the south side of 52nd Street can restrict right-of-way and create additional bank stabilization and geotechnical constraints.

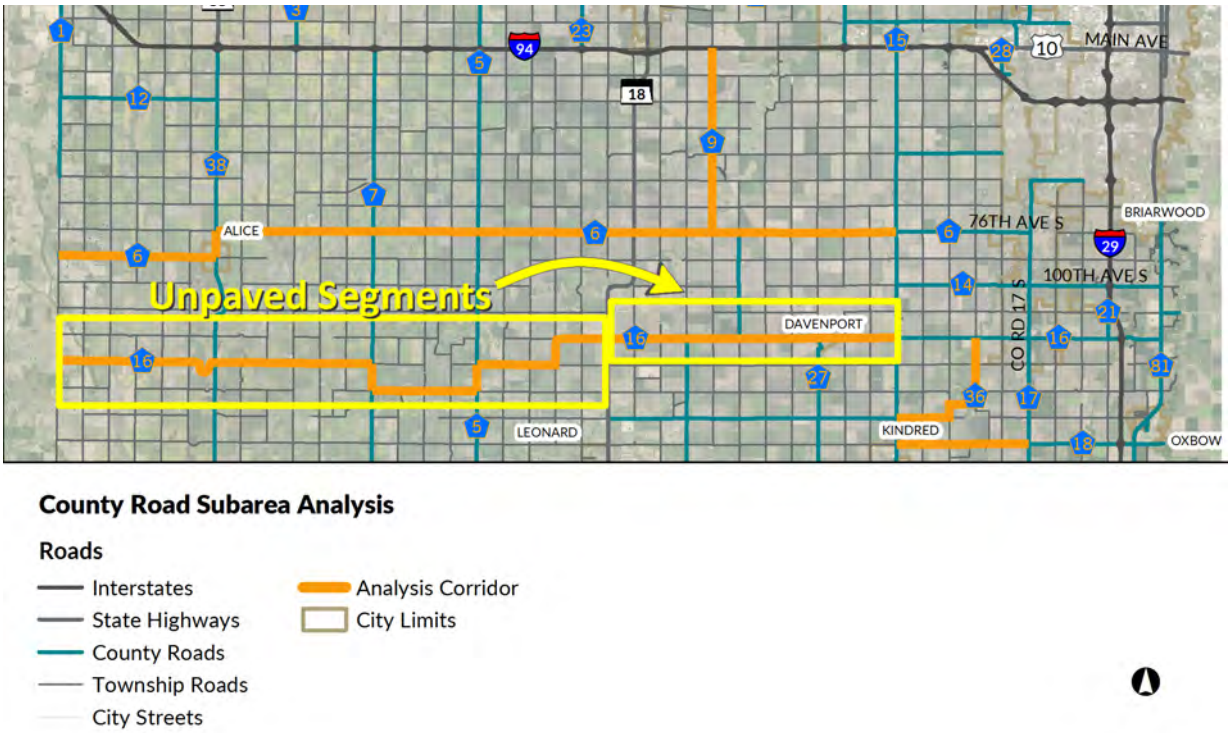
The CR 18 extension would need to come with a jurisdictional turn back of the CR 36 corridor to the Normanna Township. Before the county can make this turnback, they would have to ensure the roadway meets county standards. It is expected grading, with possible stabilization.

Recommendation: Designation of the 52nd Street corridor as a continuation of CR 18 is an opportunity to create a direct east-west route north of Kindred to the interchange at 52nd Street. It would give the county the option to turn back the CR 36 corridor to Normanna Township (six miles) and take ownership of the 52nd Street corridor (five miles) from Normanna and Pleasant Township. There may be initial costs associated with this jurisdictional turnback, to improve the six miles of existing CR 36 and costs to improve 52nd Street, that will need to be balanced. Additional challenges may likely include right-of-way and roadway width to ensure the road meets county standards.

Table 7.9: Estimated Cost for CR 18 Extension

	Length	Estimated Cost
CR 18 Extension	5 miles	$1.5 M
CR 36 Turnback	6 miles	$1.2 M
Total		$2.7 M

Figure 7.24: CR 18 and CR 36 Corridors



Southside Cross-County Paved Corridor

Issue: The County is looking for a continuous paved east-west route south of I-94. The next continuous, paved roadway is 17 miles south on ND-46 which runs along the Cass County and Ransom/Richland County borders. It begins at the western county border and ends at CR 81/University Drive/174th Avenue S. The most likely candidates include County Road 6 (76th Avenue east of CR 17/170th Avenue SE), or using a series of existing or future paved east west corridors which serve to provide a continuos, while not direct east-west paved connection across Cass County.

Opportunity: The CR 6 and CR 16 corridors provide the greatest opportunity for a continuous east-west paved route between I-94 and ND 46.

CR 6 is a continuous segment from the western county line to I-29. It varies from gravel to paved. It would connect to a future interchange at I-29 and have a diversion crossing. Improvements would be necessary to permit an increase in speeds. There are about $27 million in improvements to complete a continuous east-west paved corridor in southern Cass County.

CR 16 is less continuous west of ND 18. It varies from gravel to paved and would connect to an existing interchange. It would also include an FM Diversion crossing. There are around $48 million in improvements to complete a continuous east-west paved corridor in southern Cass County.

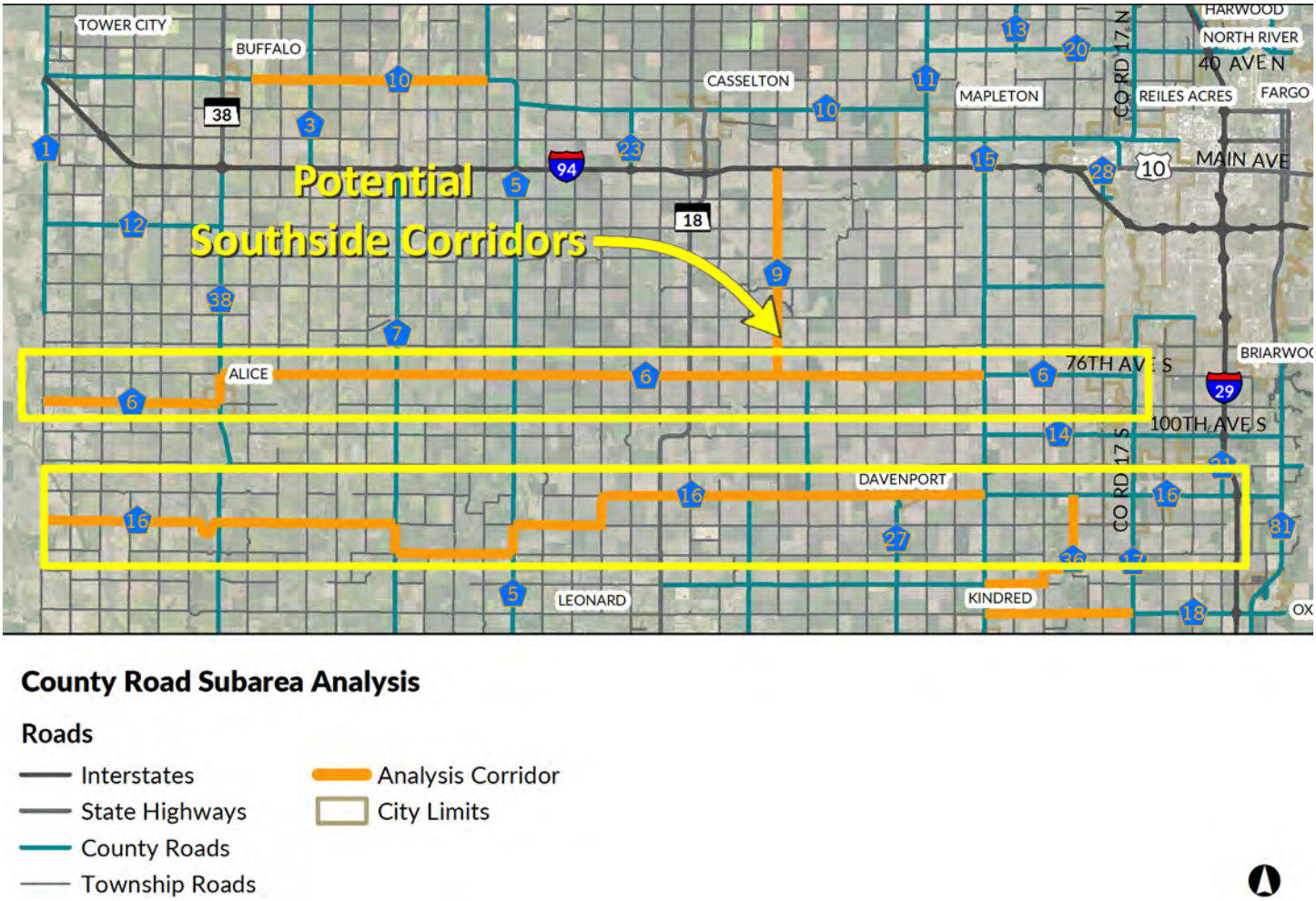
Options considered for a southside cross-county paved corridor are shown in Table 7.10.

Recommendation: Both CR 6 and CR 16 lack some paved segments, but have proposed improvements in the 2018-2022 Cass County Highway Improvement Plan and will include an FM Area Diversion crossing. CR 6 presents the most convenient and direct corridor for a paved cross-county connection in southern Cass County. CR 6 does have some risk, specifically with the 76th Avenue interchange timing and feasibility. If the county does elect to proceed with improvements on CR 6, they should work with the City of Fargo, North Dakota Department of Transportation, and the Fargo-Moorhead Metropolitan Council of Governments to understand the timing of improvements at 76th Avenue.

Table 7.10: Estimated Cost for Southside Cross-County Paved Corridor

Corridor	Estimated Cost	Advantages	Disadvantages
CR 6	$22.5 M	» Opportunity to complete corridor with no realignments » Paved from CR 38 to ND 18 (16 miles) » Seven miles south of I-94, 10 miles north of ND-46 » Future 76th Avenue interchange » FM Area Diversion crossing	» Proximity to I-94 may make CR 6 less desirable » Serves southern Cass County less well » Only segment between ND 18 and 143rd Avenue eligible for speed limit increase to 65 mph » Urbanization east of CR 17 may increase congestion, making the corridor less desirable » Risk if 76th Avenue interchange cannot be constructed
CR 16	$27 M	» Existing I-29 interchange » 11 miles south of I-94, six miles north of ND-46 » Better serves southern communities » FM Area Diversion crossing (shared with CR 17)	» Discontinuity of facilities makes traveling more difficult » Much more significant investment necessary for paving corridor » Only segment east of 163rd Avenue to CR 81/University Drive eligible for speed limit increase to 65 MPH
Do Nothing	$0	» No additional investment necessary	» No improved east-west mobility between I-94 and ND 46

Figure 7.25: South Side Connector



Reliever Route

For multiple reasons, the County Highway Department has discussed potential options to integrate a future Cass County limited access highway into the FM Diversion plan. First, as the Fargo-Moorhead metro grows, congestion on I-94 and I-29 is expected to worsen, a future highway along the FM Diversion could provide additional capacity for traffic moving through the metro. Second, the substantial amount of right-of-way and related earth work required for the FM Diversion, there is likely opportunities to integrate the development of this reliever route within the current construction plan to minimize costs.

To properly plan for a reliever route, right-of-way would be assumed to allow for the potential conversion of the corridor to a four-lane facility if demands warranted. Access standards would be tightly restricted to prevent leap frog development and protect the corridors operational integrity. Since this idea has only just been developed, it has been integrated into the Cass County Comprehensive and Transportation Plan as an illustrative concept. Significant additional planning and preliminary engineering would be needed prior to moving this concept forward.

Initial concerns might relate to how to integrate this potential project into ongoing environmental documentation and permitting related to the FM Diversion itself. The integration of a transportation corridor of this nature with in or adjacent to the FM Diversion would certainly be viewed as having a "logical nexus" from a Federal regulatory and permitting perspective. Therefore, significant additional deliberation is needed on the concept, and the ability to directly tie it to the development and construction of the FM Diversion. More discussion on this concept should be carried forward for discussion through both the FM Diversion Authority and Metro COG. This concept could be forwarded for consideration as part of Metro COG's update of the 2045 Metropolitan Transportation Plan (MTP). Figure Figure 7.12 and Figure 7.13 shows a generalized travel corridor alternate for the potential Reliever Route.

ACTIVE TRANSPORTATION

Active transportation supports healthy, resilient communities and are important for tourism, commuting, and quality of life. Active transportation facilities link local destinations and provide alternative transportation modes for short trips for those who are unable, unwilling, or uninterested to drive. Included in this section are opportunities to establish bicycle corridors and improve policies surrounding county highways as Main Streets.

Existing Conditions

Active transportation facilities are limited in rural Cass County, especially west of County Road 11. Within the metropolitan planning area and the east side of Cass County however, there are a variety of facilities ranging from off-street shared-use paths to bike lanes and wide shoulders. A local group has also converted an abandoned rail corridor to an off-street shared-use path between Hunter and Arthur. The intent with this element of the Plan is to develop a comprehensive future network of both off- and on- road facilities to support active transportation in Cass County.

Creating a Comprehensive Active Transportation Network

There are many opportunities to establish a county-wide active transportation network that can serve multiple purposes and users and connect popular destinations across the county. A network of facilities will focus on two different types of users: active cyclists or commuter cyclists traveling long distances within or through the county and more traditional typical recreational riders who are only traveling short distances. The later require separated facilities, whereas the former are often comfortable with on road riding provided there is adequate shoulder to accommodate safe cycling. The approach to developing a comprehensive active transportation network in Cass County will focus on the following key topic areas:

- On Road Wide Shoulders/Shared Road Facilities: These include corridors which can support on road or shared road facilities along paved Cass County roads.
- Recreational Trails/Separated Facilities: These will include either existing or future proposed corridors which are separated facilities along either existing or future potential rights of way.

Shared Facilities

The County's current design standards for paved roadways include four to six foot paved shoulders on all paved roadways, which is the minimum width to support bicycle activity on roadway shoulders. The county also installs rumble strips on all paved roadways. These wide shoulders are designed to facilitate bicycle movements by avid and confident cyclists and are not necessarily appropriate for families with small children.

According to national guidance, wide shoulder bicycle facilities are appropriate on roads under 12,000 vehicles per day with speeds 55 miles per hour or less. However, as traffic volumes and speed increase, additional consideration should be given to corridors most appropriate for the suggestion of "shared road" facilities.

Regional Recreation Trails

Regional recreation trails do not necessarily need to focus on connecting specific destinations, instead provide a safe, enjoyable environment for people and year-round trail activities. Recreational trails can have a variety of surfaces depending on their purpose. Trails with natural surfaces are more appropriate in environmentally focused areas and should cater to walking or mountain biking. Trails with paved surfaces are more appropriate to ensure accessibility of users or to connect long distances. These types of facilities are more appropriate for all types of users. There are multiple opportunities within Cass County to provide regional recreation trails.

Potential candidate corridors identified for future potential recreational trails would include the following:

- Rush River: Future Red River Diversion to Amenia
- Drain 14: Davenport to CR 15

FM Diversion

With the construction of the FM Diversion, there is a significant opportunity to improve the outdoor recreational activities within the county, including trails. The current diversion channel cross section includes a multi-use trail system.

The county should pursue pedestrian infrastructure at diversion crossings to ensure adequate mobility across this new barrier. As is show in Figure 7.26, the future FM Diversion can provide a significant future connector between many of the proposed active transportation improvements in Cass County.

Rails to Trails

The County can also consider establishing a framework for rails to trails conversions which would seek opportunities to convert shuttered rail lines into recreational trails. Improved coordination with the railroads in Cass County would be necessary to allow the county to acquire the right-of-way before it is sold to private owners.

A local organization has converted an abandoned rail corridor between Hunter and Arthur to a gravel trail. While the corridor is not yet ADA compliant, local groups continue to seek state and federal funding to continue to improve the corridor. Further coordination with BNSF to prepare preservation efforts with the rail section from Arthur to Amenia presents the next best opportunity for a rail to trail conversion. This connection from Amenia, to Arthur to Hunter would create nearly 14 miles of uninterrupted trail within the county.

There is also the undetermined future potential to utilize the current Red River Valley & Western (RRV&W) line from Horace to Davenport and Davenport to Leonord as a future rail to trail candidate corridor. While RRV&W has not indicated that this line is a potential for abandonment, staying abreast of changing conditions of this line is important to a proactive approach to act quickly if portions of this line to enter abandonment proceedings.

Connections to State Network

The State of North Dakota is currently developing a tiered State bicycle Network. They have tentatively identified County Road 81 as a Tier 1 bicycle facility, ND 46 as a Tier 2 facility, and CR 10 and CR 4/26 as a Tier 3 facility. The county should continue to work with NDDOT as the development and adoption of the State Bicycle Network is completed.

Connections to National Trails

Cass County abuts the future alignment of the Heartland Trail, which is expected to follow an alignment through north Moorhead, and is north of the North Country Trail, which runs through Walcott, North Dakota and follows the Sheyenne River.

- The Heartland Trail presents the biggest opportunity for Cass County connections. Working with the City of Fargo, the county could pursue an alignment through the urbanized area of Fargo and connect to the eventual Red River diversion trail.
- The county is unlikely to be able to influence any north-south alignment south of the Cass-Richland county border. However, improved coordination may help identify a route that could be connected to the North Country trail.
- A natural trail following the Rush River is another opportunity to connect existing and future active transportation facilities in the county.

Main Street

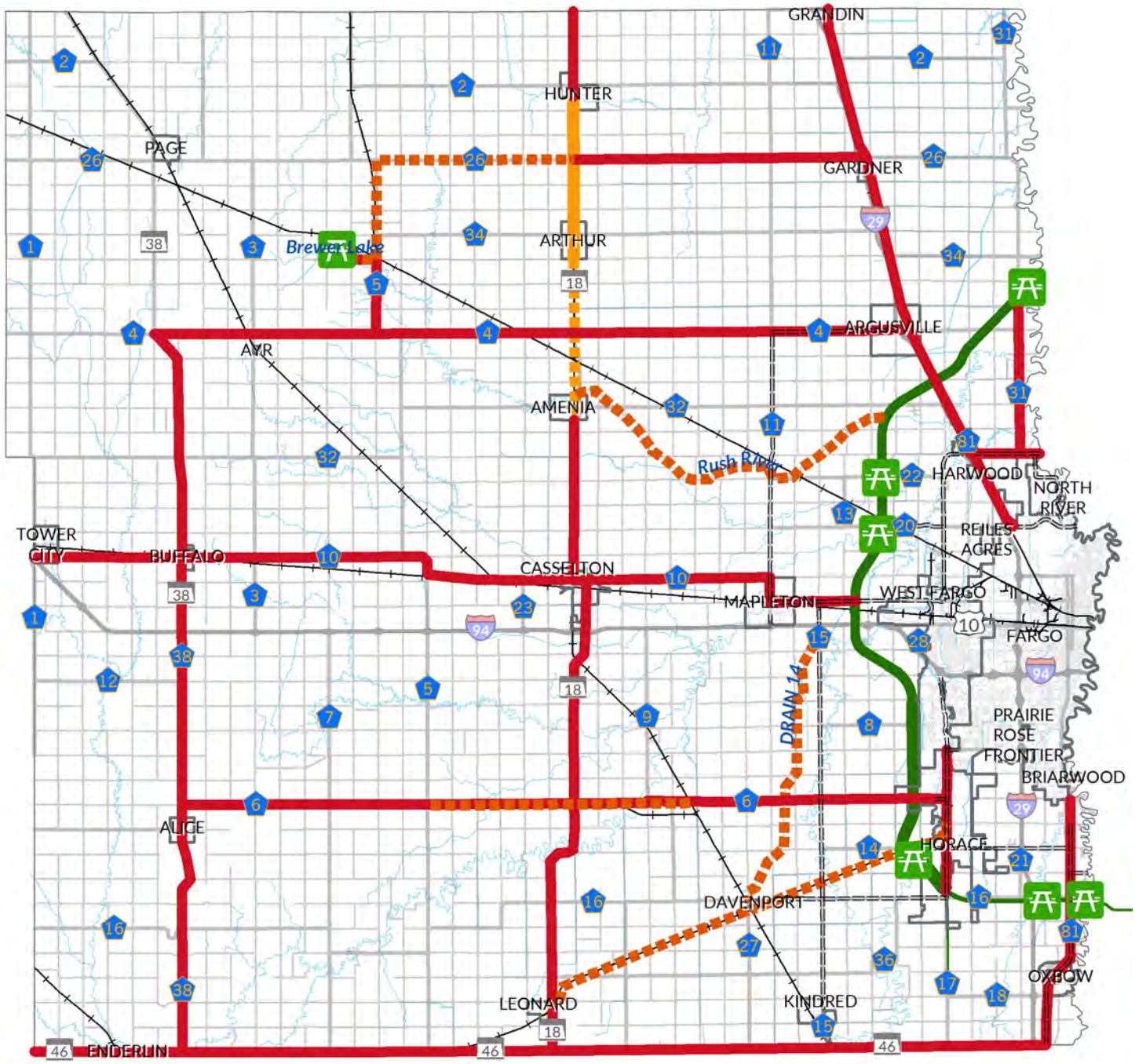
Main Street is often the commercial hub for many small communities and the center for multimodal activity. Multiple small communities in Cass County have county or state highways as their Main Streets. These would include:

- Horace
- Buffalo
- Casselton
- Others

In this context, these highways must support both county-wide traffic movements and local access, and the roadway design should reflect this dual purpose. When reconstruction needs arise, the county should seek to work with the communities to fully understand the needs of the roadway to support the community. These needs may include sidewalks or side paths, on-street parking, or Americans with Disabilities Act compliance.

Most of these communities are unable to tap into the statewide Urban Grant Funds, which is limited to communities with populations over 5,000, but have many of the same needs. Additional information on statewide resources can be found in the Community Development section of this plan.

Figure 7.26: Active Transportation Network



Cass County Multimodal Needs

Bike Corridors & Trails

- Hunter-Arthur Trail
- Hunter-Arthur Trail Potential Extension
- Potential New Trails
- Candidate Bike Corridors
- Existing Shoulder Facilties
- Regional Recreational Feature
- Regional Parks
- Roads

MOBILITY OPTIONS

Improving mobility options through transit can have many positive benefits for rural Cass County. Providing mobility options for seniors can help them age in place, maintaining the social and community structure they know, while allowing them to access the services they need. Providing mobility options for commuters can help increase access to more housing choices and reduce congestion on major corridors.

Public Transit

Valley Senior Services currently provides rural transportation to the general public in smaller communities and rural areas of Cass County. They operate three routes.

- The North Route, running through Hunter, Arthur, Casselton, and Fargo operates on Tuesdays.
- The South Route running through Leonard, Kindred, Horace, and Fargo operates on Wednesdays.
- The Central Route, running through Tower City, Buffalo, Casselton, Mapleton, and Fargo, operates every other Friday but is rarely used.

Riders must call two days in advance to schedule a ride on their corresponding route. From 2015 to 2016, service hours fell by more than 50 percent, but operating costs declined by just 20 percent. Ridership fell 24 percent. From 2016 to 2017, service hours increased by four percent, with operating costs increasing by 13 percent. Ridership fell another 40 percent. Ridership on the North Route is significantly higher than the South Route, even with the recent ridership declines. A summary of operational metrics is shown in Table 7.11

Ridership and service hours decreased for transit service in Cass County provided by Valley Senior Services between 2015 and 2017. However, in recent years the Community of Care organization of Cass County has stepped up to provide a significant amount of transportation in Cass County. In 2017, it was estimated Community of Care served 516 clients, providing 19,772 miles of volunteer transportation which totaled nearly 2,100 of volunteer (driver) hours. These services attracted ridership typically depedent on Valley Senior Services (source: www.communityofcarend.com).

Additionally, Valley Senior Services reported that in 2016 and 2017 vehicles from either Traill County or Steele County were used to provide transportation in Cass County due to driver issues in Cass County. This arrangement is possible since Valley Senior Services operates in these counties as well. So rides provided in Cass County on these vehicles were reported as ridership in those counties, not Cass County.

Carpooling

In Cass County, 9.5 percent of commuters carpooled to work in 2016, and around 40 percent of the County worked outside of the community they live in. A handful of informal park-and-rides have been established throughout the county. As congestion builds in the metro area, commuters from rural Cass County and other surrounding counties may increasingly look for carpooling options and park-and-rides.

To further support carpooling and commuter mobility, Cass County can seek to provide formal park-and-ride facilities. These rural park-and-rides should be located on high traffic, well connected corridors. They should be paved to ensure they are usable year-round and include lighting to improve actual and perceived safety. An example of a formal rural park-and-ride facility in the area is located on Minnesota State Highway 32, north of Trunk Highway (TH) 10.

Table 7.11: Operational Metrics for Valley Senior Service's Cass County Service

	2015	2016	2017	2015-2017 % Change
Vehicles Used	1 Van, 1 Bus	1 Van, 1 Bus	1 Van, 1 Bus	-
Service Hours	1,901	923	963	-49.3%
Operating Cost	$4,216	$35,324	$39,861	-9.8%
Cost per Hour	$23.26	$38.27	$41.39	+77.9%
Total Ridership	2,297	1,752	1,104	-51.9%
North Route Ridership	2,003	1,542	971	-51.5%
South Route Ridership	294	210	133	-54.8%
Cost per Ride	$19.25	$20.16	$36.11	+87.6%

Siting Park-and-Rides

Based on U.S. Census Bureau data (Local Employment Household Destination Origin-Destination Employment Statistics), there are some high commuter origin-destinations that would benefit from formalized park-and-rides. All of these locations are located along the interstate or major county road to increase accessibility.

- Argusville. Based on 2015 data, more than 100 people commute from Argusville, with more commuters coming from Gardner, Grandin, Mayville, Hillsboro, Grand Forks, etc.
- Casselton and/or Mapleton. Casselton has more than 700 people that commute to Fargo for work and Mapleton has more than 400 people. A park-and-ride at either or both communities would serve more than 1,000 commuters. These park-and-ride facilities may also be attractive to the nearly 800 commuters from Jamestown and nearly 500 commuters from Valley City.
- County Road 18 Interchange. The County Road 18 interchange might draw commuters from Oxbow (117 commuters) and Kindred (267 commuters). A park-and-ride facility here might also be attractive to commuters from Wahpeton and Breckenridge.
- Horace. There are nearly 1,900 commuters traveling from Horace into Fargo for work.

There are obviously many more commuters traveling from out of Cass County or rural Cass County than those discussed above, but these locations present the most likely locations for successful park-and-rides given proximity and access to interstate. The siting of future permanent park and rides can be assisted through the development of less permanent informal facilities on a temporary basis. Examples might be the Governors Inn or Grady's Travel Plaza in Casselton. Another candidate site for a temporary park and ride could St. Williams Catholic Church in Argusville. Facilities adjacent to NDDOT corridors (I-94 or I-29) or their right-of-way would likely need to be deveoped and managed by NDDOT while facilities adjacent to county corridors would need to be developed and managed by the county.

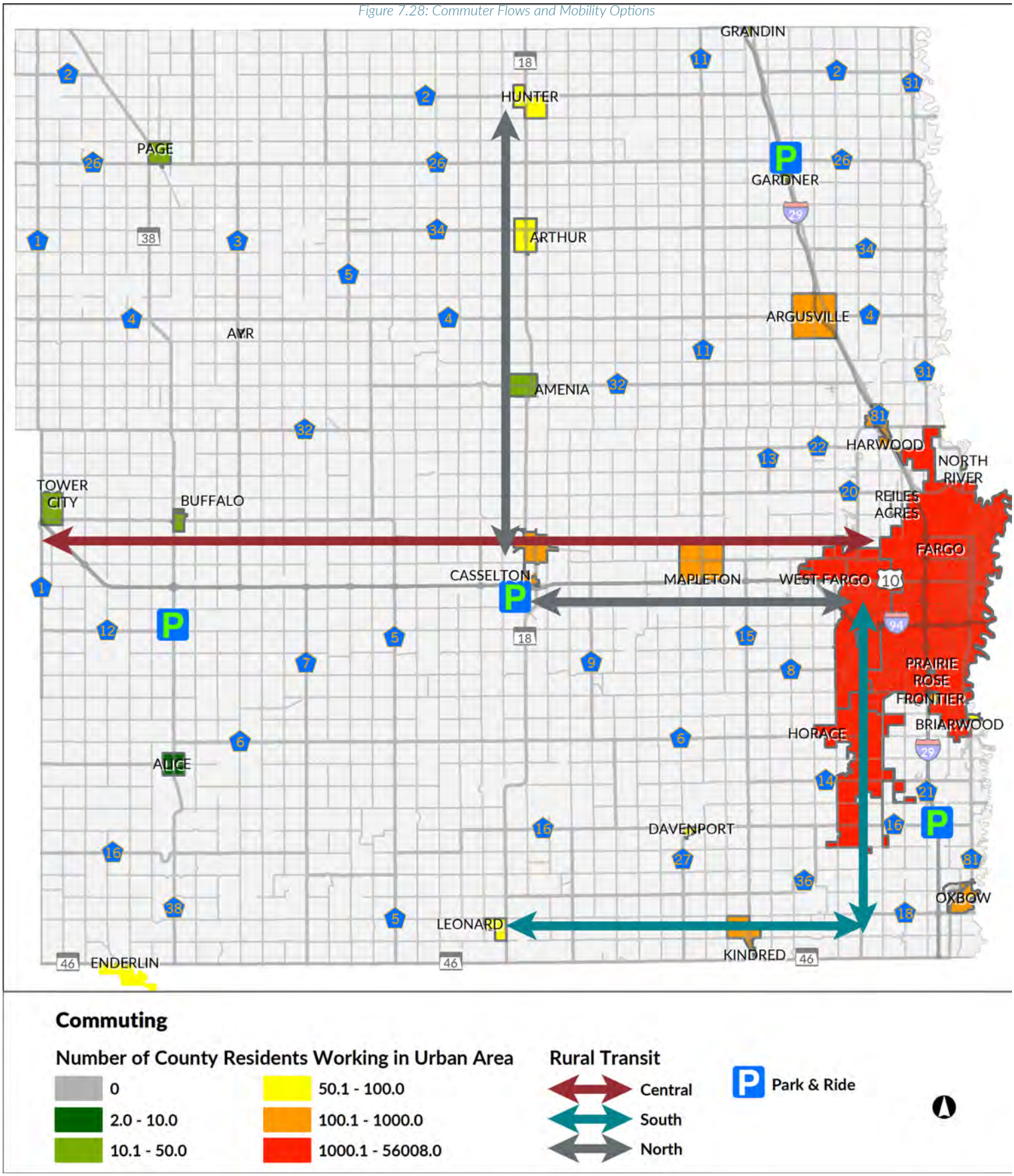
For park-and-ride facilities and carpooling to be effective as a transportation demand management strategy, the county will need to actively coordinate with NDDOT and Metro COG to develop marketing strategies for these facilities and possibly help organize carpools, at least initially.

Electric Vehicle Charging Stations

NDDOT intends to designate I-29 and I-94 as alternative fuel corridors for electric vehicle (ev) charging stations. Within Cass County, there are at least seven ev charging stations - six in Fargo and West Fargo and one in Tower City. All are level 2 stations. Using the funds available from the Volkswagen settlement, NDDOT hopes to add 12 charging stations across the state, likely through public-private partnerships. It is likely that NDDOT will seek to find locations within Cass County for ev charging stations.

Figure 7.27: Park-and-Ride on Minnesota TH 32

Figure 7.28: Commuter Flows and Mobility Options



IMPLEMENTATION

Implementation Strategies, Objectives and Policies

Topic	Reference	Description	Responsibility	Timeframe
Land Use and Growth Management	***Strategies***			
	S-1	Volunteer to provide zoning maps for all townships	Planning Office, GIS	2019
	S-2	Incorporate township zoning maps into interactive GIS maps		
	S-3	Host township land use workshops to support township zoning administration		
	S-4	Be a resource of land use best practices and related educational materials		
	S-5	Refine/develop two model township zoning ordinances		
	S-6	Develop regulations preventing development from occurring in areas prone to soil stabilty problems, preventing land uses accelerating the inherent problem, and protecting the riverfront vegetation helping to stabilize soils		
	Objectives and Policies			
	O-1	**Promote compact and orderly development**		
	P 1-1	Encourage infill development and redevelopment where appropriate		
	P 1-2	Support minor subdivision development in rural areas		
	P 1-3	Guide major subdivisions toward community growth areas		
	P 1-4	Prevent premature development		
	P 1-5	Periodically update the County's subdivision ordinances to compliment local municipalities ordinances and not encourage sprawl		
	P 1-6	Support development patterns that preserve agricultural land and farming of food crops for nearby consumption.		
	O-2	**Prevent incompatible land uses from locating in close proximity to one another**		
	P 2-1	Discourage premature development of farmland		
	P 2-2	Encourage township zoning to address land use compatibility		
	O-3	**Promote major residential subdivision development which will more easily convert to an urban environment**		
	P 3-1	Encourage development whose lots will not become economicially infeasible if annexed into a municipality		
	P 3-2	Maintain infrastructure and urban design standard requirements for major subdivisions		

Topic	Reference	Description	Responsibility	Timeframe
Land Use and Growth Management	**O-4**	**Ensure new development will protect the short and long term health, safety, and general welfare of county's citizens by preventing the problems associated with flooding and soil stability**		
	P 4-1	Deter development which adversely impacts the flooding potential in the County and requiring mitigation		
	P 4-2	Deter development and land uses that will adversely impact soil stability		
	O-5	**Properly address the impact of new development on existing drainage systems**		
	P 5-1	Required new developments to submit a drainage plan to study the needs of the new development drainage system, its impact on the existing drainage system, and any other information required by the water resource board and/or the jurisdictions with authority over relevant roadways.		
	P 5-2	Ensure new development will not adversely impact current drainage systems		
Transportation	S-7	Work with Valley Senior Services, Metro Area Transit, FM Metro COG, and ND DOT to promote the development of formal and informal "park-n-ride" facilities at key intersections in rural Cass County for use by metro bound commuters		
	S-8	Work with Valley Senior Services, Metro Area Transit, FM Metro COG, and ND DOT to promote the development and use of Rideshare and Carpooling programs in Cass County for use by metro bound commuters		
	O-6	**Encourage the use of the existing public transit in rural Cass County by all residents of rural Cass County**		
	P 6-1	Ensure adequate local, state, and federal funding for transit services in rural Cass County by reviewing the existing needs and demands of rural residents on a regular basis		
	O-7	**Prevent new development from placing an economic strain on the county to provide a safe and quality road network**		
	P 7-1	Require those benefiting the most from roads to pay the cost for installation, upgrading, and repairing of subdivision roads and the public roads providing access to the development		
	P 7-2	Prevent development which will have an adverse effect on the public road network, unless mitigated		
	O-8	**Require new development roads to meet the transportation and safety needs of the county's citizens during the initial construcution of the subdivisions (major subd)**		

Topic	Reference	Description	Responsibility	Timeframe
Transportation	P 8-1	Require new development to provide roads meeting both the current and future needs of the county's citizens		
	P 8-2	Prevent development requiring the new land owners and residents of subdivisions from having to fund, plan, and organize upgrades to the subdivision roads to meet their transportation needs or requirements after lots have been sold and homes built		
	P 8-3	Require new developments submit and fund a transportation plan to study the transportation and safety needs of the development and the surrounding area		
	P 8-4	Require developers to pay for and install any necessary street, traffic signs, or lighting features		
	O-9	**Encourage development creating pedestrian friendly design**		
	P 9-1	Require the safety improvements needed for safe pedestrian interaction with the road network		
	P 9-2	Design roads so they complement the neighborhood environment		
	P 9-3	Promote development providing walking and bike paths within the subdivision and connecting to existing or future walking or bike paths		
	P 9-4	Promote development using the corridor along the rivers as public greenway to allow for a future recreational trail system		
	O-10	**Plan new developments so they more easily convert to a future urban transportation environment**		
	P 10-1	Preserve and establish right-of-way that dedicates and deeds the land for the future arterial corridors found along the section and quarter section lines		
	P 10-2	Direct development's road network and accesses so they can more easily transition to an urban road network		
	P 10-3	Restrict the access points along the future arterial roads and ensure proper location of permitted accesses		
Public Facilities	**O-11**	**Ensure new development provides the necessary level of quality services for the county's citizens**		
	P 11-1	Require levels of services for roads, water, stormwater drainage, and all other related services and infrastructure appropriate to the scale of the development		
	P 11-2	Require developers to install, or post a financial guarantee for the installation of all necessary facilities, services, and infrastructure prior to the approval of subdivisions		

Topic	Reference	Description	Responsibility	Timeframe
Floodplain Management	S-9	Consider offering floodplain management services		
	S-10	Collaborate with Emergency Management Department on public education related to flood protection		
	S-11	Be a resource for floodplain management best practices, flood insurance, dam failure response plans, watercourse setbacks, and related educational materials		
	S-12	Continue involvement in RISK mapping program and utilization for floodplain and land use management		
	S-13	Collaborate with Water Resource Districts for floodplain mapping technical assistance		
	S-14	Host regular floodplain management workshops for local jurisdictions		
	O-12	**Ensure new development will protect the short and long term health, safety, and general welfare of county's citizens from flooding**		
	P 12-1	Deter development which adversely impacts the flooding potential in the County and requiring mitigation		
	P 12-2	Discourage development in 100 year floodplains		
Natural Resources	S-16	Work with the proper agencies to help educate the public about the benefits of certain vegetation along the river		
	S-17	Create guidelines to help riverfront owners identify the important vegetation		
	O-14	**Preserve adequate quantity and quality of ground and surface water supplies**		
	P 14-2	Require new developments to provide adequate quantity and quality of potable water for the citizens current and future needs		
	P 14-3	Promote development providing potable water sources which most effiently use the resource		

Topic	Reference	Description	Responsibility	Timeframe
Natural Resources	P 14-4	Encourage development using ground water resources in the most efficient ways with the greatest long term benefit to the county's citizens and long range water conservation		
	O-15	**Protect the natural vegetation along rivers for its ability to help stabilize river banks**		
	P 15-1	Create a conservation easement protecting the natural and important vegetation along the river bank		
	O-16	**Protect the County's wetlands**		
	P 16-1	Identify the county's wetland areas and use this information during the planning and review processes		
	P 16-2	Require new development to comply with all local, county, state, and federal laws, regulations, guidelines, and ordinances relating to wetlands		
	O-17	**Protect the County's surface water resources**		
	P 17-1	Require new development to prevent any harm, damage, or other adverse impact on the County's lakes, rivers, or streams		
	P 17-2	Deter developments transferring sedimentation and pollution in the county's surface water systems		
	P 17-3	Require new developments to meet the standards established by the EPA for storm water pollution protection		
	O-18	**Prevent the introduction of sewage and other harmful agents into the county**		
	P 18-1	Continue working with Fargo Cass Public Health to review, design and inspect new development sewage systems		
	P 18-2	Deter developments using sewage systems with limited life spans necessitating expensive replacement or upgrades		
Housing	S-18	Explore broadening the Cass County Housing Authority role to include housing rehab and redevelopment		
	S-19	Explore the potential use of TIFs to support affordable workforce housing		
	S-20	Explore the potential for a housing levy dedicated to affordable workforce housing		
	S-21	Explore the use of vacant or low value lots for affordable workforce housing		
	S-22	Explore the potential prioritization of CDBG funds for affordable workforce housing		
	S-23	Develop guidance on low-income housing tax credits		

Topic	Reference	Description	Responsibility	Timeframe
Housing	S-24	Participate in a Community Land Trust that includes all of Cass County		
	S-25	Initiate a Task Force exploration of housing demand during the Diversion construction		
	S-26	Initiate a County-wide Housing Needs Analysis		
	O-19	**Support efforts to assure adequate present and future housing supply in Cass County**		
	P 19-1	Encourage employer, philanthropic, and religious groups participation in affordable housing development		
	P 19-2	Encourage small communities to use Renaissance Zone to incentivize housing redevelopment and rehabilition		
	P 19-3	Encourage development of an affordable housing information clearinghouse for Cass and Clay Counties		
Emergency Management	S-27	Explore opportunities to promote neighborhood level resilience		
	S-28	Explore a distributed approach to emergency response resources		
	S-29	Incorporate emergency management principles into model zoning ordinances		
	S-30	Incorporate emergency management-comprehensive plan nexus into the upcoming MultiHazard Mitigation Plan		
	O-20	**Support efforts to assure adequate emergency management capacity for all parts of Cass County**		
	P 20-1	Encourage appropriate floodplain management throughout Cass County		
	P 20-2	Support the completion of the Red River Valley Water Supply Project		
	P 20-3	Encourage disaster resistant design into housing development		
	P 20-4	Encourage protection of community facilities		
	P 20-5	Encourage the preservation or appropriate mitigation of historic and cultural resources		
	P 20-6	Whereever practical, support distributed and redundant community infrastructure		
Food Systems	S-31	Incorporate the needs of urban agriculture and local food supply into model ordinances		
	O-21	**Support activities that both improve healthy food access and advance economic development in Cass County**		
	P 21-1	Support efforts of Cass Clay Food Partners		

Topic	Reference	Description	Responsibility	Timeframe
Food Systems	P 21-2	Encourage development of strategies to support local food including farmers markets, cooperatives, community gardens, urban agriculture, and increasing healthy and fresh food retail locations		
	P 21-3	Support efforts of Cass Clay Food Partners to ensure healthy food availability throughout Cass County		
	P 21-4	Support efforts to enhance rural food pantry supplies		
Economic Development	S-32	Be a resource for best practices in community development that enhances local economic development		
	S-33	Host an annual community development workshop for small communities in Cass County		
	S-34	Lead efforts to ensure County-wide high speed internet		
	S-35	Collaborate with other partners in a regional affordable housing initiative		
	O-22	**Support activities that enhance the capacity of Cass County and its communities to thrive economically**		
	P 22-1	Encourage local participation in the National Center for Economic Gardening		
	P 22-2	Encourage local community efforts to improve quality of life		
	P 22-3	Encourage benefit cost evaluation of community investment		
	P 22-4	Encourage wider participation in GFMEDC technical assistance		
Rural Heritage	**O-23**	**Protect the County's valuable farmland, agricultural traditions, and existing rural character**		
	P 23-1	Identify Cass County's agriculturally productive lands and use this information during the planning process		
	P 23-2	Direct large urban type developments to locate in close proximity to the urban areas		
	P 23-3	Limit development occurring away from the urban fringes to be small in size and scope so as to reduce its impact on the rural atmosphere and existing land uses		
	P 23-4	Support the establishment and use of farm programs and farm protection programs		
	P 23-5	Promote agriculture and its benefits for the entire county		
	P 23-6	Educate the public about the value of the county's soils, farms, and farmland and the consequences of its conversion to nonfarm uses		

Topic	Reference	Description	Responsibility	Timeframe
Communication	**O-24**	**Maintain open lines of communication between the county and all other local entities**		
	P 24-1	Distribute planning agendas to the relevant entities		
	P 24-2	The county planner should attend city commission and planning meetings when necessary		
	P 24-3	The county planner should attend joint township and city meetings		
	P 24-4	The county planner should attend relevent local planning lectures and conferences		
	P 24-5	Encourage review and comments by local entities relating to county planning issues		
	O-25	**Provide public awareness of planning goals, objectives and issues**		
	P 25-1	Provide the media with copies of all agendas and special meetings		
	P 25-2	Hold public meetings for input on current issues and goals		
	P 25-3	Invite public input on regular and special planning issues		
	P25-4	Consider and utilize citizen suggestion when making public decisions		
	P 25-5	Require new developments to distribute plans and information to surrounding landowners of proposed developments		
	P 25-6	Use planning commission to advise the county on issues of growth and development		