



METROPOLITAN PROFILE 2017

ANNUAL REPORT OF THE FARGO-MOORHEAD METROPOLITAN AREA

- community & demographics
- roadway system
- freight & interstate travel
- bicycle & pedestrian network
- transit network

PREPARED BY:
**FARGO-MOORHEAD METROPOLITAN
COUNCIL OF GOVERNMENTS**

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TRACKING THE TRENDS: Regional and Transportation Indicators for 2016

SUMMARY

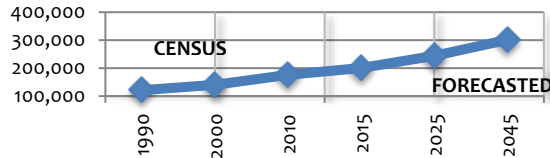
TREND

ANALYSIS

Population of the Urban Area

(Fargo, Moorhead, West Fargo, Dilworth, Horace)

The region is expected to continue to experience significant population growth in the coming decades

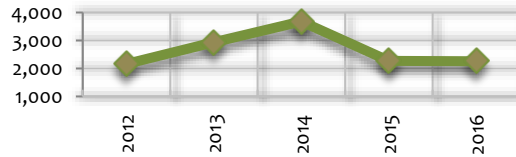


Cities within the urbanized areas have experienced strong population growth over the past three decades, with forecasts showing an urban population over 300,000 by 2045.

Residential Household Permits

(Fargo, Moorhead, West Fargo, Dilworth, Horace)

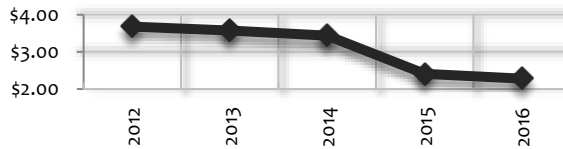
After peaking in 2014, the number of building permits issued has stabilized



After a steady increase from 2010 to 2014, the number of building permits issued declined significantly in 2015 and remained stable in 2016. The ratio of multi-family to single-family homes has decreased over the past two years.

Fuel Prices

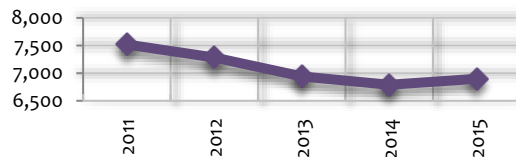
The price of gas has declined 38% from 2012 to 2016



The price of gas dropped sharply in 2015, leading to increased vehicle miles travelled and lower transit ridership in the past two years.

Vehicle Miles Traveled Per Capita

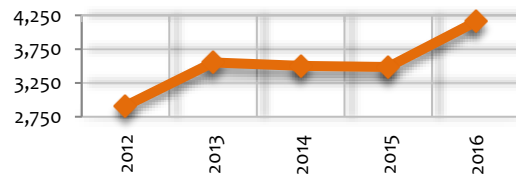
Local VMT has declined nearly 20% since 2008



Nationally, VMT per capita was 9,811 in 2016, significantly higher than at the local level. Local VMT per capita has declined over the past decade.

Safety: Vehicle Crashes within the Urban Area

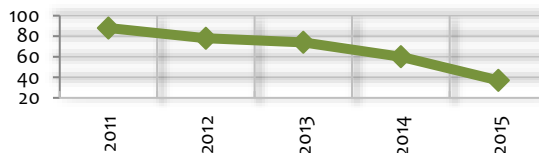
Since 2012, vehicle crashes within the urban area have risen almost 43%



After a steady decrease from 2009 to 2012, the number of vehicle crashes in the urban area rose sharply in both 2013 and 2016.

Safety: Bicycle and Pedestrian Crashes in the Urban Area

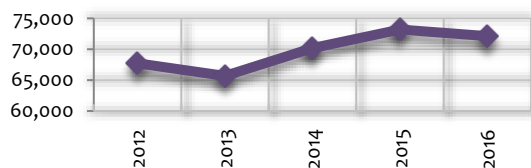
Crashes involving bicycles and/or pedestrians have decreased 58% since 2011



Bicycle and pedestrian crashes have declined significantly in the past 5 years, from 88 in 2011 to only 37 in 2015.

Traffic Volume: AADT at I-94/Red River Bridge

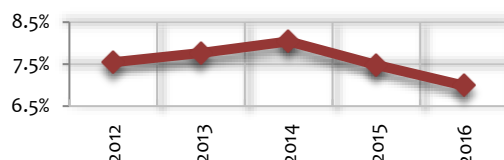
Traffic volume along I-94 on the Red River Bridge reached an all-time high in 2015



The average annual daily traffic volume at the Red River Bridge was 72,120 in 2016, decreasing slightly from a high of 73,191 in 2015.

Truck Volume: Percent Truck at I-94/Red River Bridge

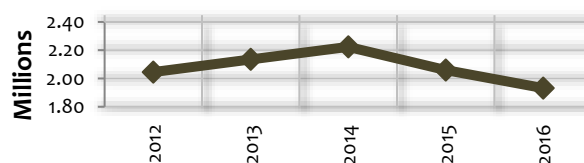
The proportion of truck travel along I-94 has remained relatively stable since 2011



After reaching an all-time high in 2014, truck traffic along I-94 has since moderated. Overall, the I-94 corridor is an increasingly important component of interstate freight movement.

Public Transit: Fixed Route Ridership

Fixed route ridership has decreased 13% since 2014



Fixed route ridership has been declining since 2014, likely due to the combination of low gas prices, the introduction of on-demand taxi services, and the implementation of a bike-share program in Fargo.

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Interested Persons, Stakeholders, Jurisdictions, Agencies and Organizations --

The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) is pleased to present the 2017 Metropolitan Profile (Profile), a document previously known as the Surveillance and Monitoring Report for the Fargo-Moorhead Metropolitan Area. The data presented within this Profile pertains to the 2016 calendar year (January 1, 2016 through December 31, 2016).

As background, Metro COG has produced the Metropolitan Transportation Surveillance and Monitoring Report since 1981. Over time, it has taken various forms in order to ensure compliance and compatibility with relevant surface transportation authorization. Under Fixing America's Surface Transportation Act ("FAST Act"), the Profile has become an essential performance management tracking tool.

The Profile is structured to document and monitor the following:

- (a) Changes, improvements, and projects affecting the transportation system;
- (b) Demographic and socio-economic conditions affecting the region;
- (c) Land use and development patterns;
- (d) The accuracy of projections made within Metro 2040 – Mobility for the Future, Metro COG's Long Range Transportation Plan (LRTP); and
- (e) Implementation of the Transportation Improvement Program (TIP).

The Metro COG Policy Board believes this data to be critical to both accurately represent the state of the transportation network and maintain and implement elements of the Metropolitan Transportation Planning Program such as the TIP, LRTP, and regional travel demand model (TDM).

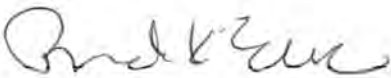
For convenience, the Profile is separated into the following chapters:

- Chapter 1: Community Profile – a summary of demographic, socio-economic, and land use patterns in the region
- Chapter 2: Roadway System – an analysis of the region's roadways and summary of the annual roadway network changes
- Chapter 3: Freight & Interstate Travel – airline passenger and cargo, passenger rail, and freight movement within the region
- Chapter 4: Bicycle & Pedestrian Network – an analysis of the usage, operations, network changes, and safety of the bicycle and pedestrian system
- Chapter 5: Transit System – an overview of the of the operations, performance trends, and inventories of the region's transit system providers

It is Metro COG's goal to continue to enhance the ease and accuracy of collecting and reporting metropolitan transportation data as well as improve accessibility to this information for all interested persons.

Any questions or comments on the content of this document should be directed to Metro COG. Supporting plans, studies, and other transportation data for the Fargo-Moorhead Metropolitan Area is available by contacting Metro COG by phone at 701.232.3242, by email at metrococog@fmmetrococog.org, by visiting Metro COG's website at www.fmmetrococog.org, or in person at Case Plaza, Suite 232, One 2nd Street North, Fargo, ND 58102.

Sincerely,



Brenda Elmer
Chair, Metro COG Policy Board



William Christian
Executive Director, Metro COG

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SUMMARY OF ACRONYMS

AADT	Average Annual Daily Traffic	MPA	Metropolitan Planning Area
ACS	American Community Survey (U.S. Census Bureau)	MPO	Metropolitan Planning Organization
ADA	Americans with Disabilities Act of 1990	MSA	Metropolitan Statistical Area (includes all of Cass County and Clay County)
ADT	Average Daily Traffic	MSUM	Minnesota State University – Moorhead
ATAC	Advanced Traffic Analysis Center	NAICS	North American Industry Classification System
ATR	Automatic Traffic Recorder	NDDOT	North Dakota Department of Transportation
CFR	Code of Federal Regulations	NDSU	North Dakota State University
CSAH	Minnesota County State Aid Highway	PPP	Metro COG’s Public Participation Plan
DNR	Department of Natural Resources	TAZ	Traffic Analysis Zone
FHWA	Federal Highway Administration	TDM	Travel Demand Model
FTA	Federal Transit Administration	TDP	Transit Development Plan
HSS	U.S. Dept. of Health and Human Services	TH	Minnesota Trunk Highway
HUD	U.S. Dept. of Housing & Urban Development	TIP	Transportation Improvement Program
ITS	Intelligent Transportation System	UPWP	Unified Planning Work Program (Metro COG’s bi-annual work program)
LRTP	Long-Range Transportation Plan	USC	United States Code
MATBUS	Metro Area Transit of Fargo-Moorhead	UZA	Urbanized Area (or Federal Aid Urbanized Area FAUA)
Metro COG	Fargo-Moorhead Metropolitan Council of Governments	VMT	Vehicle Miles Traveled
MnDOT	Minnesota Department of Transportation	VSS	Valley Senior Services

INTRODUCTION

The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) is both the designated Council of Governments (COG) and Metropolitan Planning Organization (MPO) for the greater Fargo-Moorhead Metropolitan Area. An MPO is a transportation policy-making organization comprised of representatives from local government and transportation authorities. The Federal Surface Transportation Assistance Act of 1973 requires the formation of a MPO for any urbanized area with a population greater than 50,000. MPOs ensure that existing and future expenditures for transportation projects and programs are based on a comprehensive, cooperative, and continuing planning process, known as the “3-C” process.

The core of an MPO is the urbanized area, which is initially identified and defined by the U.S. Census Bureau as part of the decennial Census update. This boundary is adjusted by local officials and approved by the North Dakota Department of Transportation (NDDOT), the result of which is the official Adjusted Urban Area Boundary (known as the UZA). The UZA boundary is used to determine the type of transportation funding programs potential projects may be eligible to receive. In 2012 Metro COG worked closely with local jurisdictions, NDDOT, and the Minnesota Department of Transportation (MnDOT) to establish an Adjusted Urban Area Boundary for the Fargo-Moorhead area. This Adjusted UZA was subsequently approved by the Metro COG Policy Board, FHWA, and both the Minnesota and North Dakota Departments of Transportation in 2013.

In addition to the urban area (defined as the urbanized jurisdictions plus any additional urban areas immediately adjacent to the jurisdiction limits), the MPO boundary includes any contiguous areas which may become urbanized within a twenty-year forecast period.¹ Collectively, this area is known as the Metropolitan Planning Area, or MPA. Metro COG’s MPA boundary was most recently expanded in 2013 and is comprised of approximately 1,073 square miles (687,000 acres), 14 cities, and 30 townships. The MPA boundary is effectively Metro

COG’s “study area” or area of influence respective to the metropolitan planning program. These areas are significant not only as potential future population centers, but also due to their proximity to existing and future transportation assets of regional significance. Although many of these areas are not developed nor are they likely to experience development pressure in the near future, they are participants in the required metropolitan planning process.

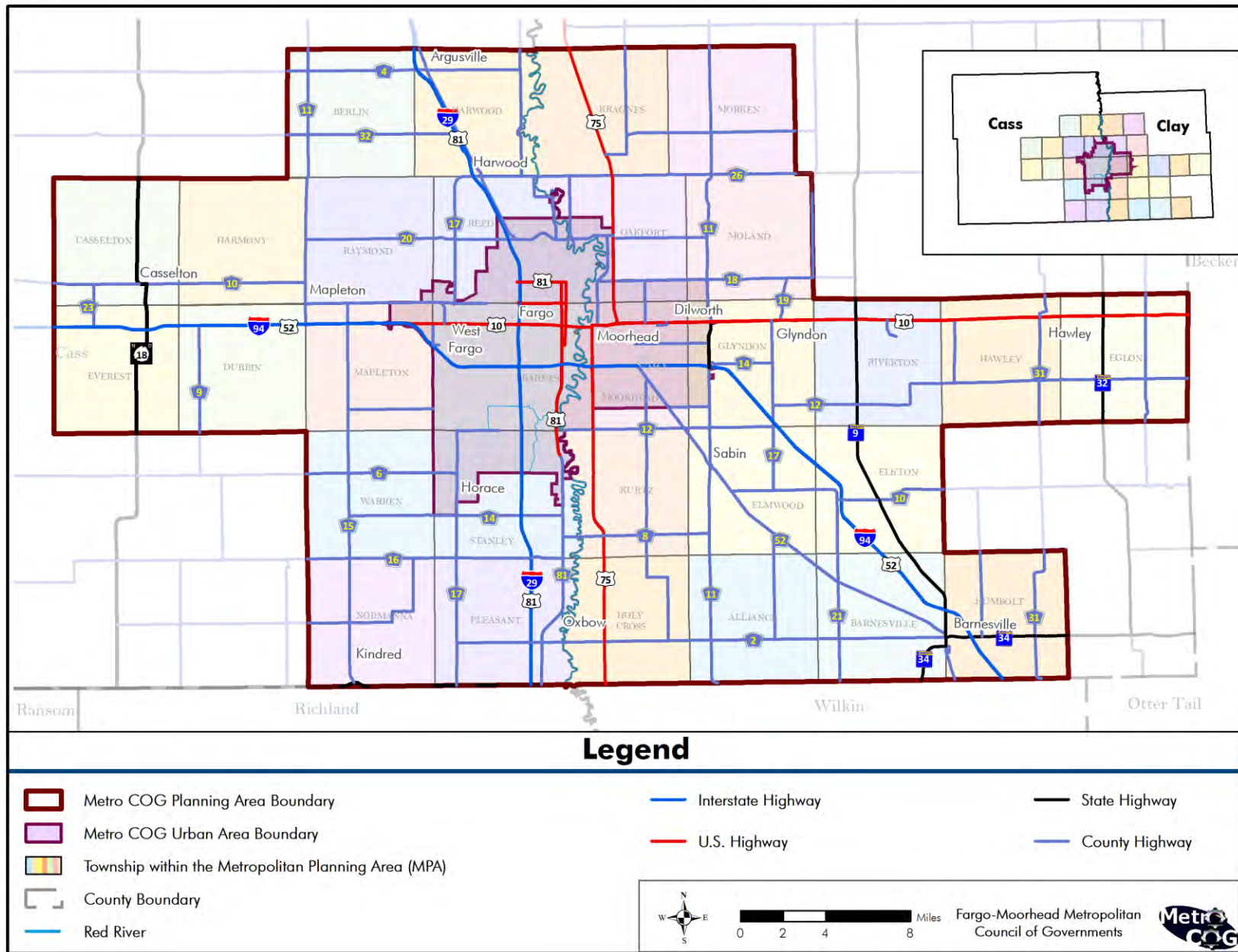
The map on Figure 1 provides an overview of these boundaries for the Fargo-Moorhead area, specifically depicting:

- a) The Metropolitan Planning Area Boundary and townships within the MPA;
- b) The Adjusted UZA boundary; and
- c) Cities within the MPA.

The Metropolitan Profile (Profile) is separated into five chapters, each of which focuses on trends affecting the development patterns and transportation network of the Fargo-Moorhead Metropolitan Area. Together, they provide a comprehensive snapshot of the conditions and trends affecting the metro area as of 2017.

¹ Pursuant to Title 23, Section 450.104 of the Code of Federal Regulations

Figure 1. Fargo-Moorhead Adjusted Urban Area and Metropolitan Planning Area Boundaries



Source: Metro COG, 2017

COMMUNITY PROFILE

This chapter of the Metropolitan Profile (Profile) provides information on key demographic, socioeconomic, housing, employment, and land use trends within the metropolitan area. There are many factors that affect the transportation needs of the area over the next few decades. As the region grows, diversifies, and the population becomes older, transportation needs change. Further, the types of businesses and industries that take root in the region and where people settle all fundamentally impact how the transportation system needs to adapt in order to serve the traveling public and the movement of freight. These factors are essential in assessing the current and future conditions affecting the transportation needs of the region and play a critical role in establishing the transportation planning program.

Many of the figures within this chapter are derived from decennial census data from the U.S. Census Bureau and, where applicable, the 2011-2015 American Community Survey (ACS). Other referenced data sources are cited immediately below the applicable figure/table.

Population

In 2016, Metro COG, in conjunction with local and regional stakeholders, commenced work on updating metro-wide demographic projections for the 2045 horizon year. These figures form long-term population, household, and employment projections for the greater Fargo-Moorhead metropolitan region. These projections help to inform multiple plans and projects Metro COG develops, including Metro COG's Long-Range Transportation Plan (LRTP). The final report, the Demographic Forecast for the Fargo Moorhead Metropolitan Area (Demographic Forecast), was completed and approved by Metro COG's TTC and Policy Board in July 2017.

The growth projections contained within the Demographic Forecast provide a comprehensive assessment of the growth trends affecting communities within the region and provide five-year population, household, and employment projections for communities within the planning area

boundary from 2015 to 2045. As similar studies provided by Metro COG have historically tended to under-estimate growth in the metro area, the updated projections evaluate past methods and assumptions, account for factors that have changed within both the region and the nation, and make appropriate methodological changes. As compared to the previous forecast scenarios, the updated Demographic Forecast anticipates greater overall growth and population totals for the upcoming decades.

The updated Demographic Forecast Study developed two potential scenarios: a "most likely" scenario and a "best case" scenario. While both scenarios examine a number of factors which could affect growth within the region, the "best case" scenario assumes that all of the factors play out in a manner than is most conducive to higher growth. Both scenarios were presented to the TTC and Policy Board in March of 2017, and the "best case" scenario was adopted as the official demographic projections for the region. As such, the projections presented within this chapter are derived from this 'best case' scenario.

Overall, The Fargo-Moorhead Metropolitan Area (MSA) is growing, with a 2010 MSA population of 208,777 and a 2016 MSA estimate of 238,124. The U.S. Census Bureau estimates the 2016 urban area (Fargo, Moorhead, West Fargo, Dilworth, Horace) population to be 205,161. Table 1 shows the area's change in population since 1990 and the future population of the urban and rural MSA as projected by the approved "best case" scenario from the 2017 Demographic Forecast Study.

The 2045 population projection for the MSA represents a 56 percent increase from numbers from the 2010 Census, with the population growth rates occurring prior to 2025. The projections predict that growth will slowly taper after 2025, but still increase at a healthy rate. While the MSA as a whole is projected to experience significant urban growth, the rural portions of Cass County are expected to lose population, with an overall decrease of approximately eight percent. Much of the decline in population in these rural areas can be attributed to lower rates of natural growth due to a projected older population as well as increased

migration of older residents from rural areas to the urban core, which has the services to better accommodate older populations.

Closely monitoring population and demographic changes affecting the region is a critical component of the transportation planning process. Likewise, informed projections of future population and development scenarios provides planners and policymakers the knowledge needed to make decisions to plan for future growth and the ability to better forecast both highway and multimodal improvement scenarios.

Age and Sex

The age and sex composition of a region is fundamental component in projecting future population and economic changes. The population of the U.S. as a whole continues to grow older, with a median age of over 40 in many states. Concurrently, an increase in the number of older-aged individuals is also occurring in many parts of the country. In the coming years, as the “baby-boomer” generation continues to reach retirement age, a dramatic transformation in the labor force will occur. Much like the rest of the nation, the Fargo-Moorhead metropolitan area is aging. Yet as a whole, the median age in our region is significantly younger than that of either Minnesota or North Dakota. A population pyramid representing the age and sex distribution for the MSA is presented in Figure 2.

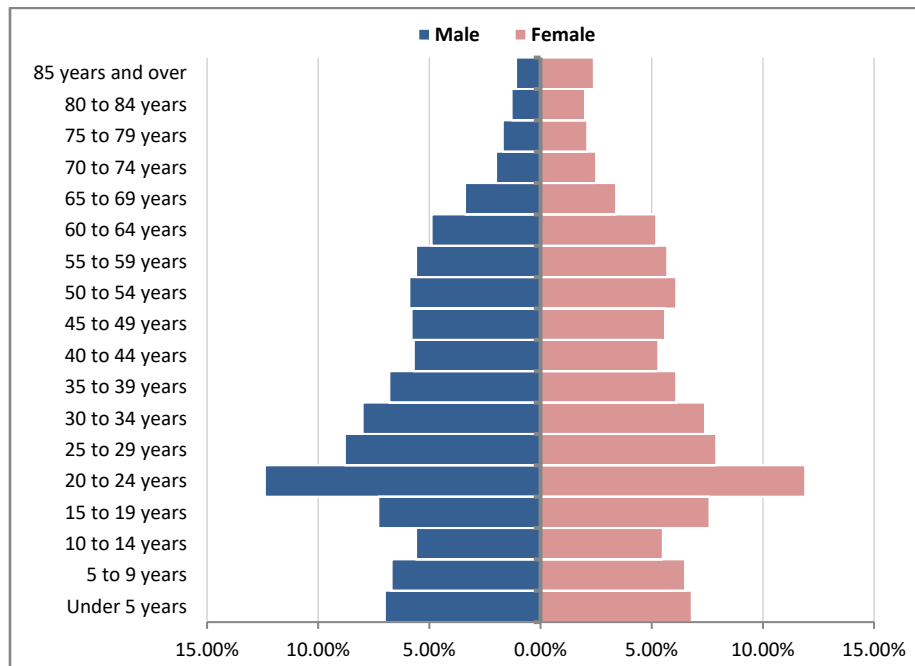
Overall, the median age for residents of the Fargo-Moorhead MSA is just under 32 years. This is significantly less than the median age in North Dakota (36.4), Minnesota (37.6), or the nation as a whole (37.3). The most recent demographic projections predict a median age of 38.2 for the FM area by 2045. This is mainly due to a combination of a predicted reduced mortality rate and a higher in-migration rate of the elderly from the bordering service area in the coming decades. The percentage of those who are 70 years of age and older is projected to increase by over 163 percent between 2015 and 2045, a trend which will have significant implications for region in the coming decades. Table 2 outlines the projected rate of change in each age group between 2015 and 2045 per the most recent Demographic Forecast for the Fargo-Moorhead Metropolitan Area.

Table 1. Fargo-Moorhead MSA Estimated and Projected Populations

Jurisdiction	Population				Population Change		Population Projections						
	1990	2000	2010	2016	1990-00	2000-10	2015	2020	2025	2030	2035	2040	2045
Fargo	74,111	90,599	105,549	120,762	22.20%	16.50%	117,230	129,690	140,030	151,810	162,450	172,140	179,800
Moorhead	32,295	32,177	38,065	42,492	-0.40%	18.20%	43,840	47,120	50,290	53,340	56,390	59,100	61,420
West Fargo	12,287	14,940	25,830	34,858	21.60%	72.80%	32,300	37,370	40,140	42,000	43,240	43,660	43,270
Dilworth	2,562	3,001	4,024	4,397	17.10%	34%	4,300	4,760	5,210	5,620	5,960	6,270	6,510
Horace	662	915	2,430	2,652	38.22%	165.57%	2,620	5,070	8,190	8,940	9,500	9,820	10,040
Urban Total	121,917	141,632	175,898	205,161	16.17%	24.19%	200,290	224,010	243,860	261,710	277,540	290,990	301,040
Urban Cass	87,060	106,454	133,809	158,272	22.28%	25.70%	152,150	172,130	188,360	202,750	215,190	225,200	233,110
Rural Cass	15,814	16,684	15,969	16,977	5.50%	-4.29%	16,780	17,770	18,260	18,600	18,750	19,260	18,830
Cass Total	102,874	123,138	149,778	175,249	19.70%	21.63%	168,930	189,900	206,620	221,350	233,940	244,460	251,940
Urban Clay	34,857	35,178	42,089	46,889	0.92%	19.65%	46,890	50,760	54,480	57,960	61,320	64,270	66,730
Rural Clay	15,585	16,051	16,910	15,986	2.99%	5.35%	17,080	18,600	19,930	21,150	22,140	23,000	23,690
Clay Total	50,442	51,229	58,999	62,875	1.56%	15.17%	63,970	69,360	74,410	79,110	83,460	87,270	90,420
MSA Total	153,269	174,367	208,777	238,124	13.77%	19.73%	232,900	259,260	281,030	300,460	317,400	331,730	342,360

Sources: U.S. Census Bureau: 1990 - 2010 Decennial Censuses and 2015 Population Estimate; Demographic Forecast for the Fargo-Moorhead Metropolitan Area, 2017

Figure 2. Age and Sex Distribution for the Fargo-Moorhead MSA



Source: U.S. Census Bureau, 2011-2015 5-Year American Community Survey

Table 2. Metro COG Projected Percent Change by Age Group, 2015 to 2045

Age Group	% Change	Age Group	% Change	Age Group	% Change
Under 5	10.62%	30-34	39.70%	60-64	38.93%
5-9	23.86%	35-39	56.96%	65-69	67.29%
10-14	48.71%	40-44	69.54%	70-74	126.55%
15-19	33.83%	45-49	79.84%	75-79	166.52%
20-24	6.53%	50-54	40.48%	80-84	193.45%
25-29	20.06%	55-59	40.53%	85 & Over	185.71%

Source: Demographic Forecast for the Fargo-Moorhead Metropolitan Area, 2017

Race and Ethnicity

While traditionally not a racially or ethnically diverse area, minority populations in the Fargo-Moorhead area have been increasing at a higher rate than historical levels. Based upon five-year ACS annual estimates, the percentage of the total population who identified themselves as White fell 1.4 percent over the period between 2010 and 2015, while Black, Asian, and multi-racial populations grew relatively significantly. The majority of growth in minority populations has occurred in the City of Fargo, which experienced a 2.5 percent decline in the proportion of White population since 2010. Table 3 provides an overview of race and ethnicity and the percentage change of the total population over a five-year period of each census-defined ethnic group for individual cities of the urban core; the urban core as a whole; Cass and Clay counties; and the MSA. Figure 3 provides a graph of the overall racial composition of the MSA based on the ACS estimates.

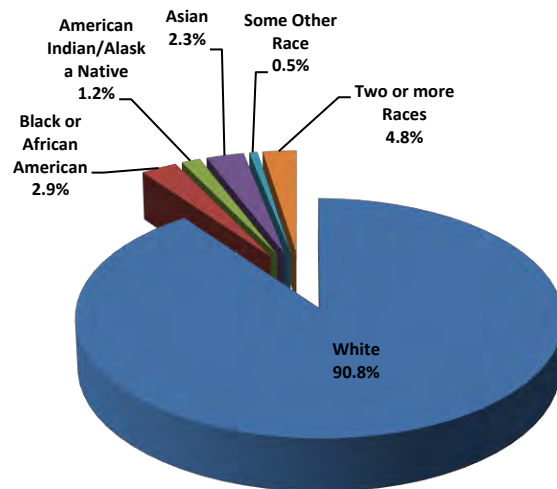
The data illustrates that the urban core is diversifying, with non-white populations growing at a higher rate. International and domestic migration, in part due to a strong local economy, account for a significant amount of the increased minority growth within the region. Data show that the majority of migrants and refugees coming into the area are between the ages of 18 and 35, that is, within an age group where individuals are likely to have children. Continued in-migration coupled with a high proportion of minorities within child-bearing age groups means that the Fargo-Moorhead region will likely continue to diversify in the coming decades.

The map depicted in Figure 4 shows the spatial distribution of minority populations in the urban area of the MSA. Census blocks where 25 percent of the total block population was “non-White” are mapped as minority blocks. The map indicates a correlation between minority and low-income areas. As outlined in the adopted Title VI Plan, which was last updated in January 2017, Metro COG focuses outreach efforts in these areas in order to ensure residents are fully aware of any projects which may affect the area.

Poverty

With a strong and diverse economy and one of the lowest unemployment rates in the nation, the Fargo-Moorhead Metropolitan Area has a poverty rate significantly lower than many similar sized cities. Nonetheless, poverty is undeniably a significant issue in the area and Metro COG understands the importance of identifying the regions of the MSA that are most affected. The map in Figure 4 depicts census block groups which are identified as “low income” per the adopted Metro COG definition. The areas depicted on the map had cumulative median household income less than \$21,681 dollars per the 2011-2015 ACS. The threshold for poverty is based upon the 2016 Health and Human Services (HHS) guidelines and the average household size in the MSA. As is generally the case with minority populations, low-income areas are more concentrated in the urban core, and household income tends to rise on the fringe areas of the UZA. It’s important to note that many of the low-income block groups are largely comprised of students at the three major local universities, which is to be expected for students whose primary focus is on scholastic activities.

Figure 3. Percent of Total Population by Race for the Fargo-Moorhead MSA



Source: U.S. Census Bureau, 2011-2015 5-Year American Community Survey

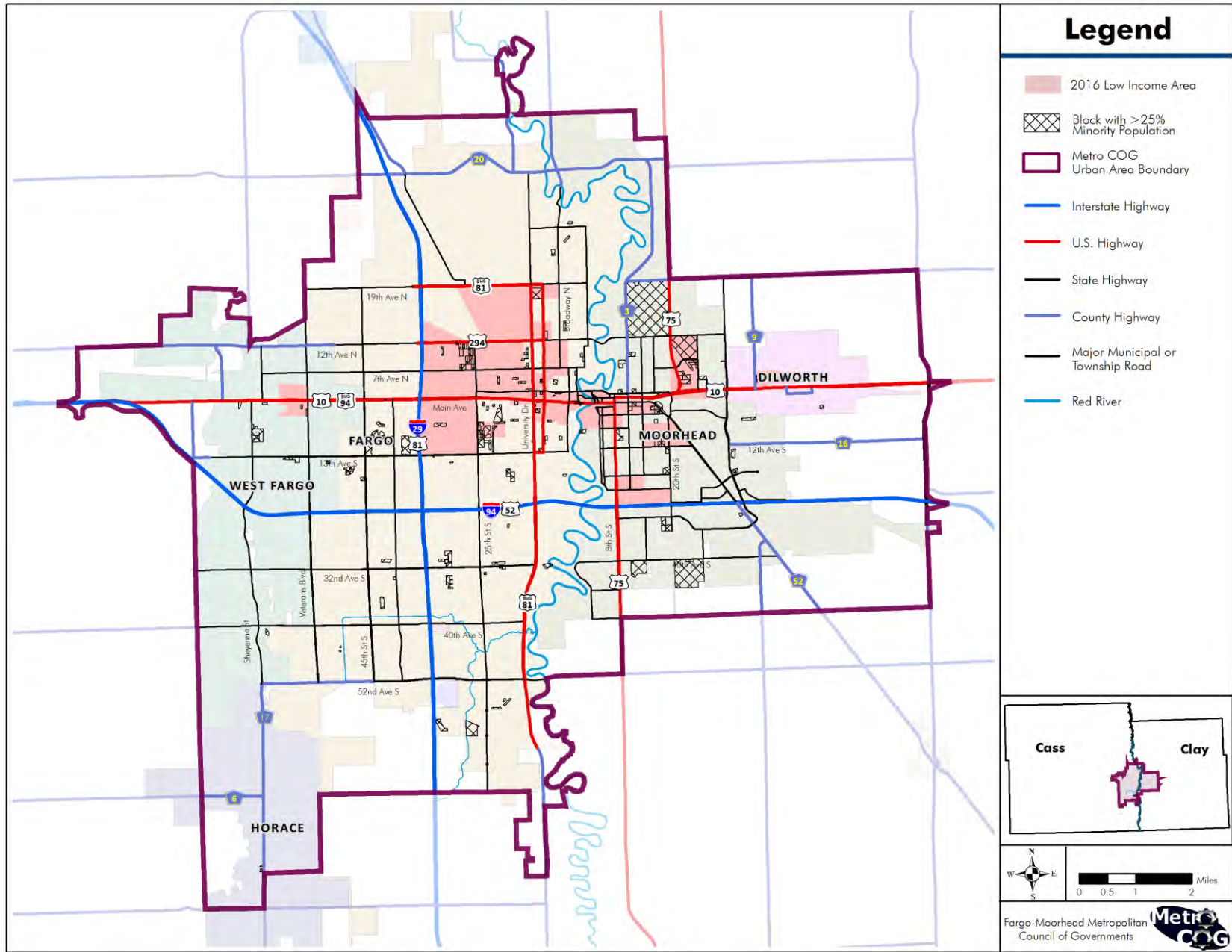
Table 3. Population Composition and Percent Change by Race and Ethnicity

Race and Ethnicity, 5-year ACS Estimate						% Change of Total Population, 2007-2011 to 2011-2015
Race/Ethnicity	2007-2011	2008-2012	2009-2013	2010-2014	2011-2015	
White						
Fargo	90.9%	90.3%	90.0%	89.2%	88.4%	-2.5%
Moorhead	90.6%	90.2%	90.5%	90.3%	91.1%	0.5%
West Fargo	91.2%	91.4%	91.0%	90.9%	92.0%	0.8%
Dilworth	95.1%	95.9%	96.4%	94.2%	93.0%	-2.1%
Horace	98.3%	98.0%	98.5%	98.3%	98.3%	0.0%
Urban Total	91.1%	90.7%	90.5%	89.9%	89.8%	-1.3%
Cass County	92.0%	91.5%	91.2%	90.6%	90.1%	-0.9%
Clay County	92.9%	92.6%	92.8%	92.4%	92.6%	-0.3%
MSA Total	92.2%	91.8%	91.7%	91.1%	90.8%	-1.4%
Black						
Fargo	2.3%	2.6%	2.7%	3.1%	3.7%	1.4%
Moorhead	2.3%	2.3%	2.2%	2.3%	2.7%	0.4%
West Fargo	2.8%	3.0%	3.5%	3.6%	2.8%	0.0%
Dilworth	0.0%	0.0%	0.0%	0.0%	1.2%	1.2%
Horace	0.8%	0.4%	0.3%	0.0%	0.1%	-0.7%
Urban Total	2.3%	2.5%	2.6%	2.9%	3.2%	0.9%
Cass County	2.1%	2.4%	2.6%	2.9%	3.2%	1.1%
Clay County	1.5%	1.5%	1.5%	1.6%	2.0%	0.5%
MSA Total	2.0%	2.1%	2.3%	2.5%	2.9%	0.9%
American Indian/Alaska Native						
Fargo	1.4%	1.5%	1.4%	1.4%	1.3%	-0.1%
Moorhead	2.3%	1.9%	1.9%	1.3%	1.2%	-1.1%
West Fargo	1.4%	1.1%	0.7%	0.9%	1.1%	-0.3%
Dilworth	0.7%	0.6%	0.4%	3.1%	2.1%	1.4%
Horace	0.0%	0.3%	0.2%	0.2%	0.2%	0.2%
Urban Total	1.6%	1.5%	1.4%	1.3%	1.3%	-0.3%
Cass County	1.3%	1.3%	1.2%	1.2%	1.2%	-0.1%
Clay County	1.7%	1.5%	1.5%	1.3%	1.2%	-0.5%
MSA Total	1.4%	1.4%	1.3%	1.2%	1.2%	-0.2%

Race and Ethnicity, 5-year ACS Estimate						% Change of Total Population, 2007-2011 to 2011-2015
Race/Ethnicity	2007-2011	2008-2012	2009-2013	2010-2014	2011-2015	
Fargo	2.9%	2.8%	2.8%	3.1%	3.3%	0.4%
Moorhead	1.8%	1.6%	1.8%	1.7%	1.6%	-0.2%
West Fargo	1.0%	1.8%	2.3%	1.8%	2.1%	2.1%
Dilworth	1.8%	2.6%	0.9%	0.0%	0.0%	-1.8%
Horace	0.2%	0.3%	0.3%	0.3%	0.3%	0.1%
Urban Total	2.3%	2.4%	2.4%	2.5%	2.3%	0.0%
Cass County	2.2%	2.3%	2.4%	2.5%	2.7%	0.5%
Clay County	1.4%	1.2%	1.2%	1.1%	1.2%	-0.2%
MSA Total	2.0%	2.0%	2.0%	2.1%	2.3%	0.3%
Some other race						
Fargo	0.7%	0.7%	0.6%	0.7%	0.6%	-0.1%
Moorhead	0.8%	1.2%	0.9%	1.1%	0.8%	0.0%
West Fargo	1.2%	1.2%	0.7%	0.4%	0.1%	-1.1%
Dilworth	0.3%	0.3%	0.3%	0.0%	0.0%	-0.3%
Horace	0.4%	0.6%	0.4%	0.9%	1.1%	0.7%
Urban Total	0.7%	0.9%	0.6%	0.7%	0.5%	-0.2%
Cass County	0.8%	0.7%	0.6%	0.6%	0.4%	-0.4%
Clay County	0.8%	1.0%	0.8%	0.8%	0.6%	-0.2%
MSA Total	0.7%	0.8%	0.6%	0.7%	0.5%	-0.2%
Two or more races						
Fargo	1.8%	2.1%	2.5%	2.5%	2.7%	0.9%
Moorhead	2.2%	2.8%	2.8%	3.4%	2.5%	0.3%
West Fargo	2.4%	1.5%	1.9%	2.3%	2.0%	-0.4%
Dilworth	2.1%	0.7%	2.1%	2.7%	3.6%	1.5%
Horace	0.3%	0.4%	0.3%	0.3%	0.0%	-0.3%
Urban Total	1.9%	2.1%	2.4%	2.6%	2.5%	0.6%
Cass County	1.7%	1.8%	2.1%	2.3%	2.4%	0.7%
Clay County	1.7%	2.1%	2.2%	2.7%	2.5%	0.8%
MSA Total	1.7%	1.9%	2.2%	2.4%	2.4%	0.7%
Hispanic/Latino (of any race)						
Fargo	2.4%	2.5%	2.7%	2.8%	2.9%	0.5%
Moorhead	4.0%	4.4%	4.5%	4.8%	4.9%	0.9%
West Fargo	1.6%	1.4%	1.0%	1.0%	1.0%	-0.6%
Dilworth	6.2%	5.1%	5.5%	4.0%	3.4%	-2.8%
Horace	1.1%	1.3%	1.2%	1.7%	3.4%	2.3%
Urban Total	2.7%	2.8%	2.9%	2.9%	3.1%	0.4%
Cass County	2.0%	2.1%	2.1%	2.2%	2.3%	0.3%
Clay County	3.6%	3.6%	3.7%	3.9%	4.1%	0.5%
MSA Total	2.5%	2.5%	2.6%	2.7%	2.8%	0.3%

Source: U.S. Census Bureau, 2007-2011 to 2011-2015 5-Year American Community Surveys

Figure 4. Low Income and Minority (Environmental Justice) Areas in the Fargo-Moorhead UZA



Source: Metro COG, 2017

Housing and Dwelling Units

Table 4 summarizes the historical, estimated, and projected number of households within the MSA. The Metro COG/McKibben estimates are based upon the adopted 'Best Case' scenario of the recently updated Demographic Forecast for the Fargo-Moorhead Metro Area. A dwelling unit is defined as any house, apartment, manufactured home, group of rooms, single occupied room, or living quarter. Included in the table are the most recent household estimates from the ACS, which can be used as another estimate of the approximate number of dwelling units within the region.

Table 4. Historical, Estimated and Projected Households

Jurisdiction	U.S. Census Bureau		2016 Demographic Projections (Adopted Best Case Scenario)							2011-2015 ACS
	2000 Census	2010 Census	2015	2020	2025	2030	2035	2040	2045	
Fargo	39,268	46,791	50,870	56,280	60,260	64,650	66,630	70,550	73,530	53,410
Moorhead	11,660	14,304	16,420	17,830	19,190	20,610	21,880	23,010	23,810	16,347
West Fargo	5,771	10,348	12,410	13,460	13,950	14,630	15,540	15,690	15,840	12,231
Dilworth	1,160	1,595	1,660	2,030	2,150	2,290	2,470	2,530	2,630	1,736
Horace	300	810	840	1,730	2,710	2,980	3,190	3,360	3,520	881
Urban Total	58,159	73,848	82,200	91,330	98,260	105,160	109,710	115,140	119,330	84,605
Urban Cass	45,339	57,949	64,120	71,470	76,920	82,260	85,360	89,600	92,890	66,522
Rural Cass	5,976	5,950	6,340	6,850	6,550	5,660	6,490	5,860	6,090	6,668
Cass Total	51,315	63,899	70,460	78,320	83,470	87,920	91,850	95,460	98,980	73,190
Urban Clay	12,820	15,899	18,080	19,860	21,340	22,900	24,350	25,540	26,440	18,083
Rural Clay	5,850	6,380	6,210	6,950	7,290	7,660	7,960	8,150	8,530	6,605
Clay Total	18,670	22,279	24,290	26,810	28,630	30,560	32,310	33,690	34,970	24,688
MSA Total	69,985	86,178	94,750	104,970	112,450	119,850	124,830	130,440	134,930	97,878

Sources: U.S. Census Bureau: 2000 and 2010 Decennial Census and 2011-2015 American Community Survey; Demographic Forecast for the Fargo-Moorhead Metropolitan Area, 2017

HOUSING OCCUPANCY AND OWNERSHIP RATES.

The ratio of single-family to multiple family dwelling units within a jurisdiction is an indication of population, density patterns, home ownership, and vacancy patterns. The City of Fargo has the lowest ratio of single-family to multi-family dwellings at approximately 43 percent while the City of Dilworth has the highest at approximately 74 percent. A summary of the ratios for the last five years is presented in Table 5. Overall, the ratio of single-family to multi-family has remained relatively stable over the past five years, though the longer-term trend has been towards increased density and a higher proportion of multi-unit dwellings.

Table 5. Ratio of Single-Family to Multi-Family Dwelling Units

Jurisdiction	2012	2013	2014	2015	2016
Fargo	43.15%	43.87%	42.68%	41.66%	42.79%
Moorhead	66.03%	66.14%	65.32%	65.21%	64.08%
West Fargo	65.72%	64.89%	65.68%	66.29%	66.30%
Dilworth	73.89%	73.92%	74.09%	74.33%	74.05%
Total	51.59%	50.98%	51.14%	50.60%	51.30%

Source: Metro COG, 2017

Table 6 summarizes housing occupancy and home ownership patterns within the metro area. These estimates, which are based on the American Community Survey 2010-2014 dataset, show an overall owner occupancy rate of approximately 57 percent for the MSA. The ratio of owner to renter occupancy rate has remained relatively static over the past decade for the MSA as a whole, with only moderate change in individual jurisdictions.

Table 6. Housing Occupancy and Ownership by Jurisdiction

Jurisdiction	Total Units	Occupied Housing Units	Owner Occupied Housing Units	Housing Units - Percent Occupied	Housing Units - Percent Owner Occupied
Fargo	53,410	49,962	21,908	93.5%	43.8%
Moorhead	16,347	15,131	9,601	92.6%	63.4%
West Fargo	12,231	11,856	7,935	96.9%	66.9%
Dilworth	1,736	1,643	1,152	94.6%	70.1%
Horace	881	867	822	98.4%	94.8%
UZA Total	84,605	79,459	41,418	93.9%	52.1%
MSA	97,878	91,450	51,774	93.4%	56.6%

Source: U.S. Census Bureau, 2011-2015 American Community Survey

The historical tracking of apartment vacancy rates is an important indicator of the health of the local economy and provides immediate insight into population flux within the region. According to Appraisal Services, Inc., the December 2016 apartment vacancy figures indicate that multi-family rental supply may be outpacing demand in the metro area, particularly in West Fargo.² Table 7 summarizes the annual apartment vacancy rates in the metro area.

Table 7. Multi-Family (Apartment) Annual Average Vacancy Rates

Jurisdiction	2012	2013	2014	2015	2016
Fargo	2.90%	2.70%	3.4%	4.3%	7.1%
Moorhead	5.20%	5.00%	4.1%	7.5%	7.3%
West Fargo	2.60%	2.60%	5.8%	8.9%	10.1%
Dilworth	6.30%	4.50%	6.9%	6.3%	10.5%
Total	3.20%	3.00%	3.8%	5.3%	7.5%

Source: Appraisal Services, Inc., 2017

AVERAGE HOUSEHOLD SIZE

Nationally, the average household size has decreased at a relatively steady rate over the first two decades of the 21st century. Locally, figures from the most current ACS show that the household size in the region has declined from the 2000 Census, but are consistent with numbers reported in the 2010 Census. Table 8 compares the most current ACS estimates for the counties of the MSA and jurisdictions comprising the urban core to the previous two census counts.

Table 8. Average Household Size

Jurisdiction	2000 Census	2010 Census	2011-2015 ACS
Fargo	2.21	2.15	2.17
Moorhead	2.43	2.41	2.45
West Fargo	2.61	2.49	2.51
Dilworth	2.61	2.52	2.53
Cass County	2.32	2.27	2.29
Clay County	2.53	2.48	2.51

Source: U.S. Census Bureau: 2000 and 2010 Decennial Census; 2011-2015 American Community Survey

² Appraisal Services, Inc. Quarterly Report on Multi-Family Vacancy, December 1, 2016.

ANNUAL PERMIT DATA SUMMARY AND METRO COG HOUSEHOLD PROJECTIONS.

Metro COG gathers permit data from jurisdictions with in the MPA on an annual basis. This data, which includes permits issued for new single and multi-family housing construction as well as demolitions, is used to calculate the number of households within the UZA. Table 9 summarizes annual building permit data for 2012-2016 for municipalities within the metro area and the urban core. The overall household projections and rate of change is depicted on Table 10. While the overall growth rate from 2015 to 2016 appears to have declined significantly than in previous years, much of this can be attributed to a higher vacancy rate for multi-family dwelling units. These figures account for the reported multi-family and single-family vacancy rates in each municipality, and do not reflect the total housing stock available within the region.

In total, the five-city urban core permitted approximately 2,258 new units in 2016, a figure which is consistent with the past few years. Multi-family housing unit construction in particular has grown significantly over the past five years. However, that overall apartment vacancy rates have risen since a peak demand in 2013/2014, making it more likely that multi-family construction will taper from its current pace in the next few years. This can be best illustrated in the multi-family construction trends within West Fargo, where no apartment buildings were permitted in 2016.

Figure 5 depicts the spatial arrangement of residential permits for the urban area for permits issued in 2016. The map illustrates that both single- and multi-dwelling unit construction is concentrated in the following regions of the urbanized area:

- South of 52nd Avenue and east of I-29 in Fargo;
- Near 42nd Street and 52nd Avenue in Fargo;
- Near the Shyenenne Street corridor in West Fargo;
- Near US-75 and 40th Avenue S in Moorhead; and
- Near 7th Street NE in Dilworth.

Table 10. Annual Household Projections and Growth Rate

Jurisdiction	2012	11'-12'	2013	12'-13'	2014	13'-14'	2015	15-'16	2016	15-'16
Fargo	50,220	3.17%	50,900	1.35%	53,036	4.20%	53,704	1.26%	53,997	0.55%
West Fargo	11,764	9.57%	12,540	6.60%	13,129	4.70%	13,476	2.64%	13,863	2.87%
Moorhead	15,416	1.13%	15,427	0.07%	15,974	1.83%	16,178	1.28%	16,617	2.71%
Dilworth	1,570	0.96%	1,616	2.93%	1,722	6.56%	1,749	1.57%	1,748	-0.06%
Total	78,970	3.62%	80,483	1.92%	83,862	3.86%	85,107	1.48%	85,460	0.41%

Source: Metro COG, 2017

The spatial distribution of the 2016 dwelling unit construction permits continues the trend of the last few years, which featured growth concentrated primarily in the same areas. As part of the Long-Range Data Development Plan and Demographic Forecast Update, the consultant will be updating the Traffic Analysis Zones (TAZs) used with Metro COG’s Travel Demand Model to more accurately reflect where growth is most likely to occur in the future. In particular, the TAZs south of 52nd Avenue in Fargo, along US-75 in south Moorhead, and throughout Horace will need to be calibrated to accommodate the growth seen in these areas.

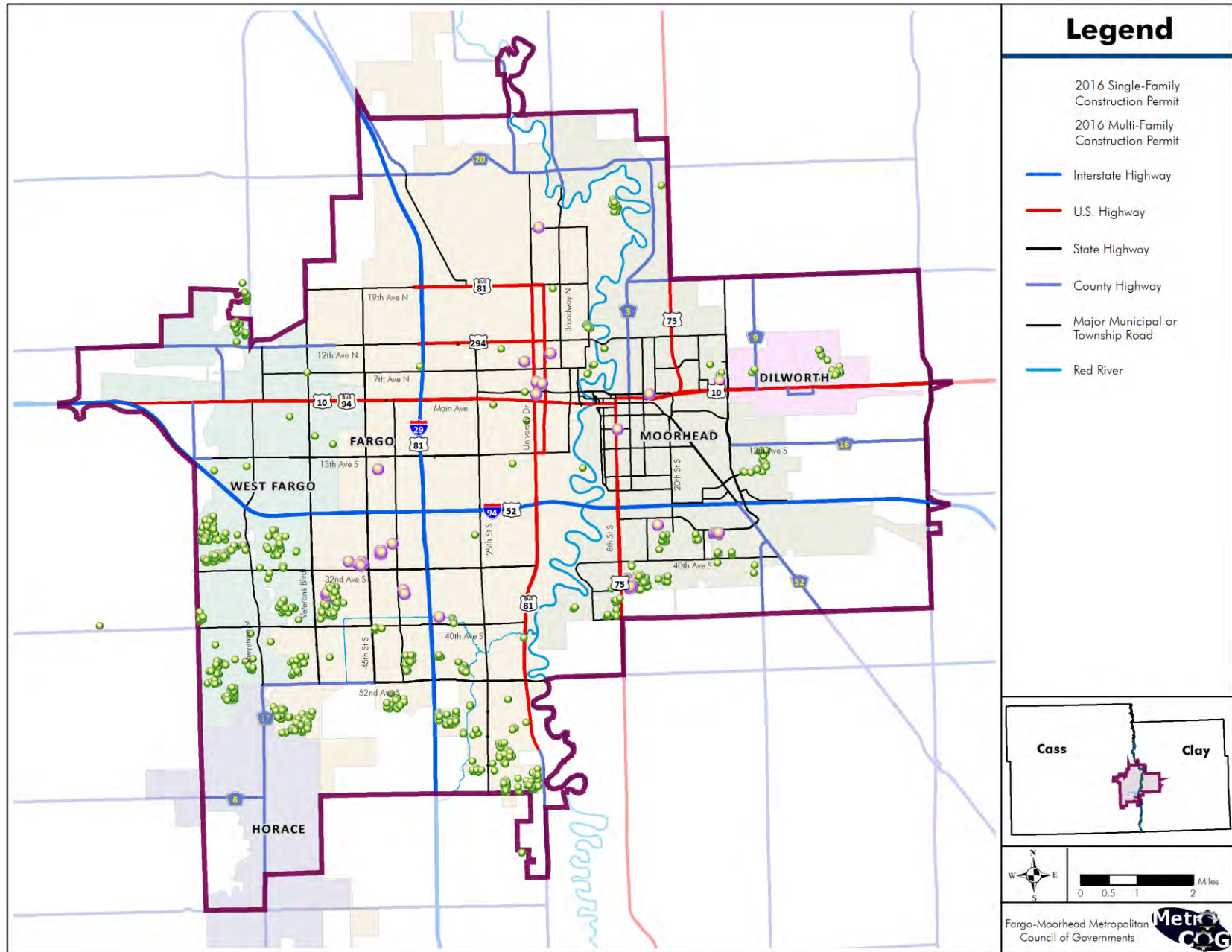
Table 9. Reported Annual Building Permit Data*

Jurisdiction	2012		2013		2014		2015		2016	
	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF
Fargo	403	732	490	1202	336	1897	377	780	429	853
Moorhead	98	60	133	274	162	269	186	308	118	342
West Fargo	411	430	433	372	469	463	390	204	467	0
Dilworth	17	8	34	21	26	59	27	0	20	0
Horace	7	0	5	0	7	0	41	0	29	0
UZA Total	936	1230	1095	1869	1000	2668	1021	1292	1063	1195
Clay County	35	0								
Harwood			14	0					1	0
Glyndon										
Reiles Acres										
Mapleton	13	0	8	0					37	0
Sabin										
Casselton			20	0					1	0
Hawley			9	0	6	34	10	0	6	0
Kindred	5	0	5	0					3	0
Barnesville							6	0	11	0
Oxbow									9	0

Sources: Metro COG; cities of Fargo, Moorhead, West Fargo, Dilworth, and Horace

* Figures account for reported demolitions of single- and multi- family dwelling units.

Figure 5. 2016 Dwelling Unit Construction Permits



Source: Metro COG, 2017

Employment and Jobs Data

The economy of the Fargo-Moorhead Metropolitan Area is strong, with an unemployment rate among the lowest in the nation and employment opportunities across most sectors. Table 11 on the following page summarizes the 2012-2016 MSA employment by industrial sector, showing strong economic growth over the last five years across each employment category. Figure 6 illustrates the spatial distribution of the 2015, 2025, and 2045 job projections within the urbanized area. Using projections based upon Demographic Forecast Update and the factors outlined within the Forecast, Figure 6 shows the anticipated employment by TAZ by 2045. The light pink circles represent 100 employees as of the 2015 base-year data. The darker pink circles depict areas where 100 additional jobs are anticipated to be allocated by 2025. Finally, the darkest shade of pink represents TAZs which are expected to gain 100 additional jobs between 2025 and 2045. Overall, significant job growth is expected to occur within the following areas:

- Downtown Fargo;
- The Main Avenue corridor in Fargo and West Fargo;
- Immediately south of I-29 in Fargo and West Fargo;
- South-east Moorhead; and
- The south-west portion of the Metro Area, especially near 42nd St, 45th St, and 52nd Ave.

EMPLOYMENT PROJECTIONS AND ACCURACY

The 2017 Demographic Forecast Study provided updated 2015 estimates for both individual municipalities as well as the MSA as a whole. As was the case with population projections, two scenarios (Most Likely and Best case) were prepared, and Metro COG's Policy Board formally adopted the 'Best Case' (high growth) projection for use within Metro COG's transportation planning program. Table 12 displays these estimates and compares them to figures provided by a number of other established sources.

Table 11. Total Annual Employment by Industry

Employment Category	2012	2013	2014	2015	2016
Total Nonfarm	129,000	132,200	136,700	139,000	140,600
Total Private	112,000	114,900	119,100	121,300	122,100
Goods-Producing	17,600	18,000	19,000	19,400	19,100
Service-Providing	111,500	114,200	117,700	119,600	121,500
Private Service-Providing	94,500	96,900	100,100	101,900	103,000
Mining, Logging, & Construction	7,400	8,000	8,700	9,400	9,400
Manufacturing	10,200	10,000	10,300	10,000	9,700
Trade, Transportation, & Utilities	28,300	29,100	30,000	30,700	30,700
Wholesale Trade	8,400	8,900	9,100	9,100	9,100
Retail Trade	15,200	15,400	15,800	16,100	16,100
Transportation, Warehousing and Utilities	4,800	4,800	5,200	5,400	5,500
Information	3,300	3,300	3,300	3,100	3,300
Financial Activities	9,100	9,600	10,400	10,800	11,100
Finance & Insurance	7,500	7,900	8,700	9,000	9,200
Professional & Business Services	15,000	15,500	16,100	16,200	15,800
Professional & Technical Services	5,700	5,900	6,200	6,600	6,800
Administrative & Support Services	6,100	6,200	6,500	6,000	5,400
Educational & Health Services	20,600	21,300	21,400	22,000	23,000
Health Care & Social Assistance	17,900	18,600	18,900	19,500	20,500
Leisure & Hospitality	13,100	13,100	13,700	14,000	13,900
Accommodation & Food Services	11,600	11,600	12,100	12,200	12,100
Food Services & Drinking Places	9,500	9,400	9,800	9,900	9,800
Other Services	5,100	5,100	5,200	5,300	5,400
Government	17,000	17,300	17,600	17,600	18,500
Federal Government	2,300	2,300	2,400	2,400	2,400
State Government	5,700	5,700	5,700	5,700	5,800
Local Government	9,000	9,300	9,600	9,500	10,200

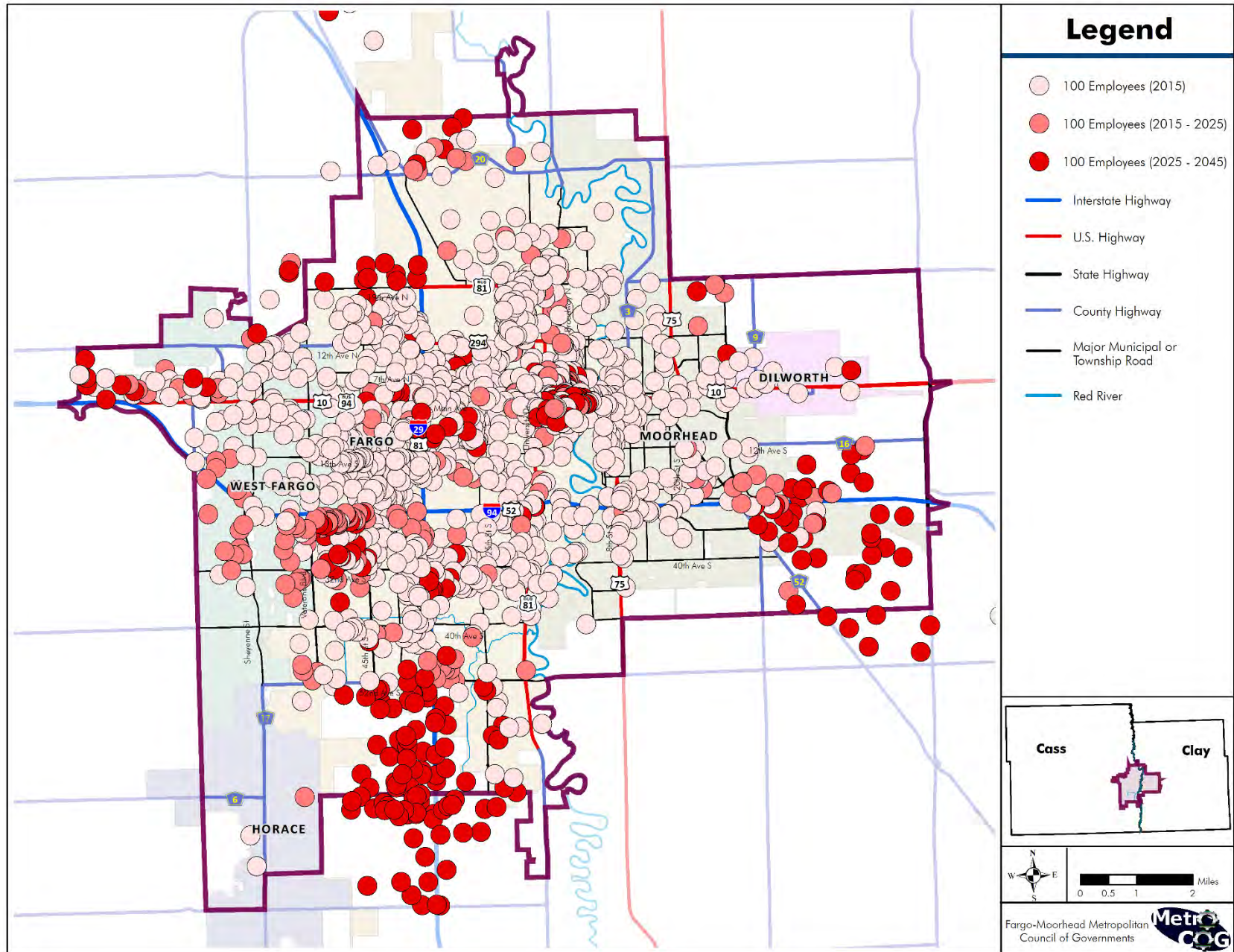
Source: Labor Market Information Center, Job Service North Dakota, CES Unit, 2017

Table 12. Selected Annual Employment Estimates and Projections

Source	2000	2010	2015	2016	2025	2045
U.S. Census Bureau	104,825	118,266				
Job Service ND		120,200	139,000	140,600		
U.S. Dept. of Commerce, Bureau of Economic Analysis		126,519				
U.S. Dept. of Labor, Bureau of Labor Statistics		120,200	139,600	141,800		
FM Demographic Forecast Study, 2017			151,290		170,289	209,363

Source: : U.S. Department of Labor; U.S. Department of Commerce; Job Service ND, U.S. Census Bureau

Figure 6. Forecasted Employment Growth by Traffic Analysis Zone, 2015-2045



Source: Metro COG, 2017.

Land Use

In 2013, Metro COG collected parcel-level land use data from jurisdictions in the UZA. This, in conjunction with existing aerial photography, forms the foundation of the generalized existing land use database, which is represented in the map in Figure 7. Using the aforementioned data sources, Metro COG classified each parcel into a discrete, general, land-use category. This process is useful not only for tracking land use changes within the Fargo-Moorhead Metropolitan Area, but also to ensure proper calibration of the TDM.

In 2016, Metro COG released a Request for Proposal to contract a consulting firm to perform an update of the region’s aerial imagery, LiDAR elevation/contour, and associated datasets. This project, which was initiated in the spring of 2017 and is set to conclude in the fall of 2017, will provide the data necessary to complete an update of the existing land-use map.

It is important to note that these classifications may not be consistent with land use or zoning terminology used within each jurisdiction. The intent of this land use data is to inform the metropolitan transportation planning program and therefore data should be considered in this context by interested individuals or entities.

METROPOLITAN LAND USE COMPARISON BY DECADE

Over the last four decades, the Fargo-Moorhead MSA has realized significant changes in regards to land use, land patterns, density, and growth. These changes impact the transportation system and are thus a critical consideration as the metro area completes project programming and develops long-range strategies to address system needs, issues, and limitations. Table 13 is a summary and comparison of land use data from 1977, 1986, 1991, and 2010.

Table 13. Metropolitan Area Land Use, 1977-2010

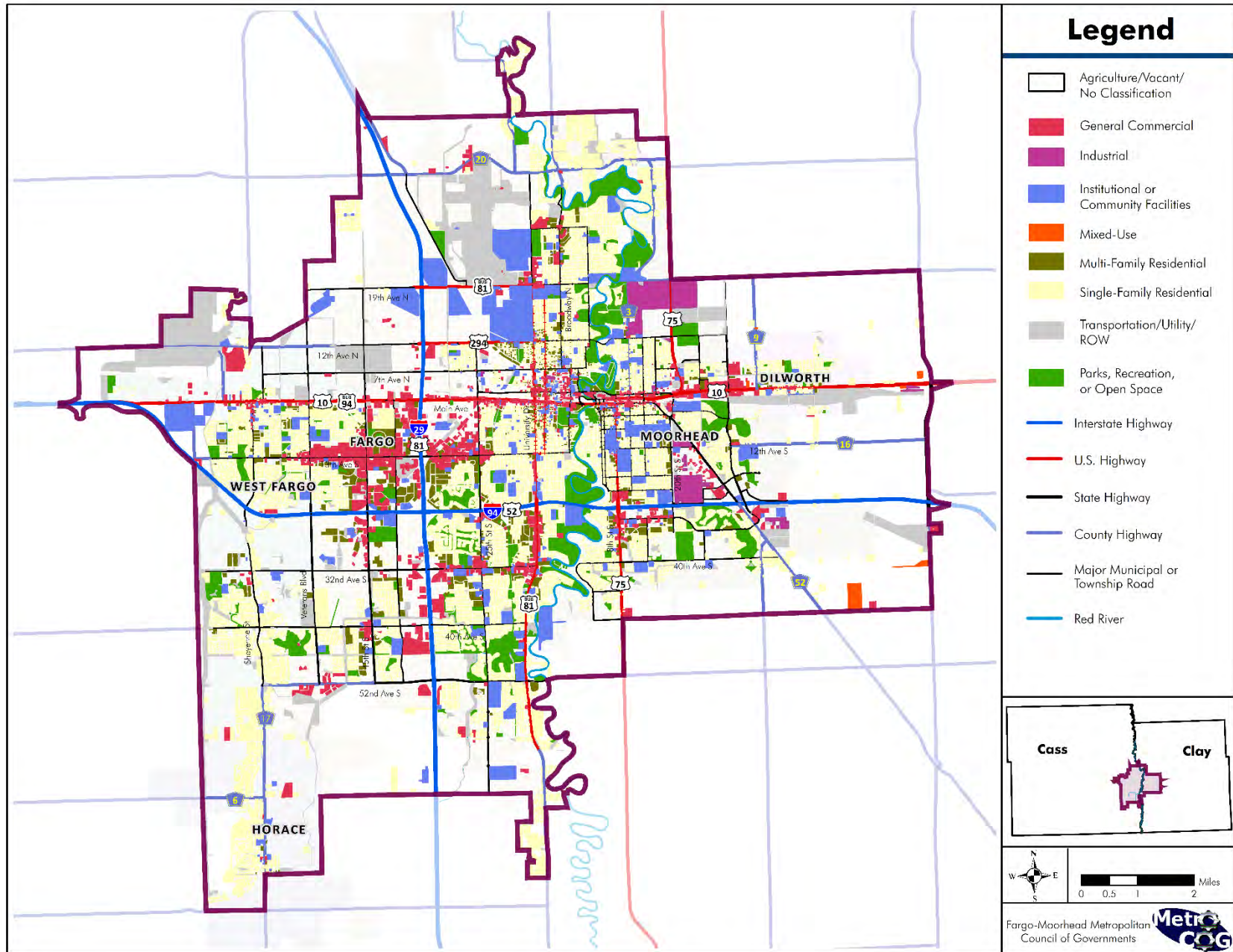
Land Use Category	1977 (Acres)	% of Metro Total	1986 (Acres)	% of Metro Total	1991 (Acres)	% of Metro Total	2010 (Acres)	% of Metro Total ³
Single-Family Residential ⁴	3,862	18%	4,814	17%	5,607	18%	9,713	18%
Multi-Family Residential	636	3%	1,031	4%	1,267	4%	1,693	3%
Industrial	535	3%	661	3%	750	3%	3,106	6%
Commercial	1,375	7%	2,211	8%	2,586	8%	2,521	5%
Transportation, Utilities, Etc.	6,929	32%	9,425	32%	9,480	30%	6,679	12.5%
Parks, Recreation & Open Space	1,349	6%	1,712	6%	2,409	8%	3,796	7%
Agricultural / Vacant / No code	5,728	27%	7,460	26%	7,183	23%	16,512	30%
Institutional / Community Facilities / Public	1,146	6%	1,778	6%	2,623	8%	3,009	6%
Total Acreage	21,560	100%	29,092	100%	31,905	100%	54,386	87%

Sources: Metro COG Metropolitan Land Use Element, 1978; Metro COG Metropolitan Land Use Report, 1986; Metro COG Metropolitan Land Use Report, 1991; Metro COG Metropolitan Profile, 2012

³ Approximately 13 percent of the 2010 total acreage is unaccounted for in Table 13. It is most likely this acreage belongs in the “Transportation, Utilities, Etc.” category.

⁴ Includes “mobile” and “manufactured” housing

Figure 7. Generalized Metropolitan Land Use, 2013



Source: Metro COG, 2017

Based upon information contained within the land use comparison table and maps, the following observations and conclusions can be made in regards to the growth and change experienced in the metro area over the last four decades:

- From 1977 to 2010, significant commercial and industrial growth occurred adjacent to Main Avenue and the I-29 Corridor (north of I-94). The figures suggest industrial/commercial acreage represented approximately nine percent of Metropolitan acreage in 1977 while in 2010 they constituted 11 percent.
- The proportion of single- and multi-family residential housing remained quite stable over time, even as residential housing expanded into fringe areas (e.g. south Fargo, West Fargo).
- Industrial development grew significantly in areas north of Main Avenue from 1991 to 2010.
- On average, the metro area increased by 994 acres per year, a total of 32,826 acres from 1997 to 2010.
- The city limits of Fargo, West Fargo, and Horace expanded significantly over the past four decades. Whereas in 1977 these areas were separated by swaths of vacant and agricultural land, by 2010 the undeveloped land was, by and large, filled in.

FARGO-MOORHEAD POPULATION DENSITY BY DECADE

Using previously documented population and land use data, Table 14 depicts both the current and historical population density (persons per acre and square mile) of the jurisdictions within the urbanized area. While it appears that density has decreased over time, this is more due to both an increase of jurisdictional land area and the incorporation of additional cities into the urbanized area.

Table 14. Fargo-Moorhead Historical Urbanized Area Population and Density

Year	Population	Acres	Persons Per Acre	Persons Per Square Mile
1977	90,734	21,560	4.20	2,694
1986	110,431	29,092	3.79	2,429
1991	121,255	31,905	3.80	2,432
2010	173,468	54,386	3.68	2,041

Source: Metro COG, 2017

⁵ Acreage totals were derived from archived GIS data. Slight variations may exist in the calculated acreage from year to year, which may not indicate actual boundary modification.

As a means of comparison, Table 15 depicts the density of the Fargo-Moorhead MSA to that of selected MSAs outside of the region. The selected cities include not only those with similar characteristics to Fargo-Moorhead, but also those which provide examples of different land use, development patterns, infrastructure opportunities/constraints, and growth strategies.

Table 15. Population and Densities of Selected Metropolitan Statistical Areas

Area	2016 Population	Acres	Persons Per Acre	Persons Per Square Mile
Bismarck, ND MSA	131,635	3,502,831	0.04	24.1
Minneapolis-St. Paul, MN MSA	3,551,036	5,196,600	0.68	437.3
Anchorage, AK MSA	402,557	17,081,397	0.02	15.1
Palm Bay-Melbourne, FL MSA	579,130	674,339	0.86	549.6
Rochester, MN MSA	215,884	1,603,897	0.13	86.1
Fargo-Moorhead MSA	238,124	1,805,150	0.13	84.4

Sources: Metro COG, 2017; U.S. Census Bureau 2016 Population Estimate

INCORPORATED ACREAGE BY JURISDICTION

As of 2015, the five-city urbanized area encompassed a total of 64,611 acres, or just over 100 square miles. The Fargo-Moorhead Metropolitan Area has seen significant change since 2000 with respect to population, transportation, land use, and municipal boundary adjustments. Growth and development pressure is typically the impetus for boundary adjustments and annexations. Table 16 reports the acreage of the five cities within the urbanized area for 2000, 2004, 2008, 2014, and 2015. The data shows a pattern of significant land acquisition and expansion of municipal boundaries, with an increase of the incorporated limits amounting to nearly 68 percent in the last 15 years.

Table 16. Incorporated Acreage of the 5-City Urbanized Area, 2000-2015⁵

City	2000	2004	2008	2014	2015
Fargo	23,563	28,458	30,200	31,209	31,401
West Fargo	4,654	6,255	9,406	9,735	9,768
Moorhead	8,801	9,865	12,628	12,622	14,265
Dilworth	1,276	1,569	2,054	2,054	2,054
Horace	237	1,432	6,968	7,123	7,123
UZA Total	38,531	47,578	61,256	62,744	64,611

Source: Metro COG, 2017

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ROADWAY SYSTEM

Every construction season, the roadway network in the Fargo-Moorhead Metropolitan Area undergoes change. The intent of this chapter is to document these annual network changes as well as certain data collection activities in order to:

- Monitor the Transportation Improvement Program (TIP) implementation;
- Provide a tracking mechanism for development purposes;
- Assess the accuracy of projections and assumptions made within the LRTP; and
- Provide a means to document data collection activities and dataset updates that are critical to Metro COG's transportation planning program.

Federal Functional Classification

The FHWA groups roadways into major classes according to the character of service they are intended to provide. In order to be eligible for federal transportation funding, a roadway must be identified as part of the Federal Functional Classification (FFC) road network. There are three basic highway classifications: Arterial, Collector and Local. In addition to these three classifications, several sub classifications exist, which allows a greater level of detail in describing the character and function of each roadway. All streets and highways are grouped into one of these classes depending on the character of the traffic and the degree of land access that they provide. Higher level facilities, such as interstate highways, have lower access, allowing for higher speeds and capabilities. Conversely, lower level facilities allow for greater access, but have reduced mobility due to lower speeds and capabilities. The relationship between roadway accessibility and mobility is illustrated in Figure 8. The general Federal Functional Classifications are described in more detail in Table 17.

METROPOLITAN ROADWAY NETWORK

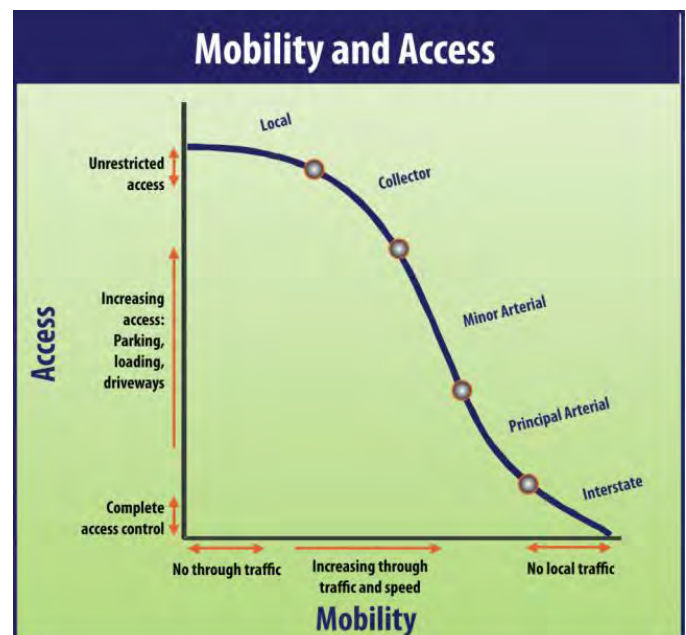
Roadways meeting certain categories under the functional classification system have access to federal transportation funds, which can be utilized for studies, network improvements, and construction. Local facilities, residential

streets, and rural minor collectors (pursuant to CFR 470.103) are not eligible for federal transportation funding assistance. Table 18 delineates functional classification mileage by jurisdiction and overall percentages for the urban area and planning area. It is important to note that FHWA has established guidelines for the appropriate percentage of system mileage within each functional class category.

In 2015, Metro COG worked with both MnDOT and the FHWA in order to complete a comprehensive update to the FFC network for Clay County, Minnesota. This update introduced new recommended roadway types on to the local system, which were first outlined in a document published by the FHWA in 2013.⁶ A map depicting the functional classification network for the area is shown in Figure 9.

In addition to the update of the Clay County FFC, in 2015 Metro COG also worked closely with local jurisdictions to update the Cass County FFC. This was the first major update to the Cass County network since 2006, and resulted in a significant revision of the system. This network was submitted to NDDOT for review in December of 2015; however, it has still yet to be approved as of 2017.

Figure 8. Relationship between Mobility and Access on Roadways



Source: Federal Highway Administration

⁶ For more information, please see "Highway Functional Classification Concepts, Criteria and Procedures." U.S.

Department of Transportation, Federal Highway Administration, 2013. Publication number FHWA-PL-13-026.

Table 17. General Federal Functional Classifications

Functional System	Services Provided
Arterial	Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control. Categories under the Arterial system include Principal Arterial-Interstate, Principal Arterial-Freeway/Expressway, Principal Arterial-Other, and Minor Arterial.
Collector	Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials. Categories under the Collector system include Major Collector and Minor Collector.
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to areas with little or no through movement.

Major Collector	1.15	3%
Minor Collector	2.7	8%
Minor Arterial	1.87	5%
Principal Arterial	4.47	13%
Interstate	0	0%
Local	24.65	71%
Total	34.86	100%

Collector	5.11	12%
Minor Arterial	3.99	10%
Principal Arterial	0	0%
Interstate	0	0%
Local	32.6	78%
Total	41.7	100%

Collector	117.97	11%
Minor Arterial	138.66	13%
Principal Arterial	51.94	5%
Interstate	63.44	6%
Local	662.03	64%
Total	1034.07	100%

Collector	91.59	12%
Minor Arterial	19.81	3%
Principal Arterial	0	0%
Interstate	56.96	8%
Local	575.55	77%
Total	743.91	100%

Rural Clay County (within MPA)⁸	Major Collector	133.05	10%
	Minor Collector	105.65	8%
	Minor Arterial	60.51	5%
	Principal Arterial	51.93	4%
	Interstate	43.88	3%
	Local	795.83	62%
	Total	1288.35	100%

	Collector	448.26	
	Minor Arterial	218.98	7%
	Principal Arterial	103.87	3%
	Interstate	164.28	5%
	Local	2033.41	66%
	Total	3066.33	100%

Source: Metro COG, 2017

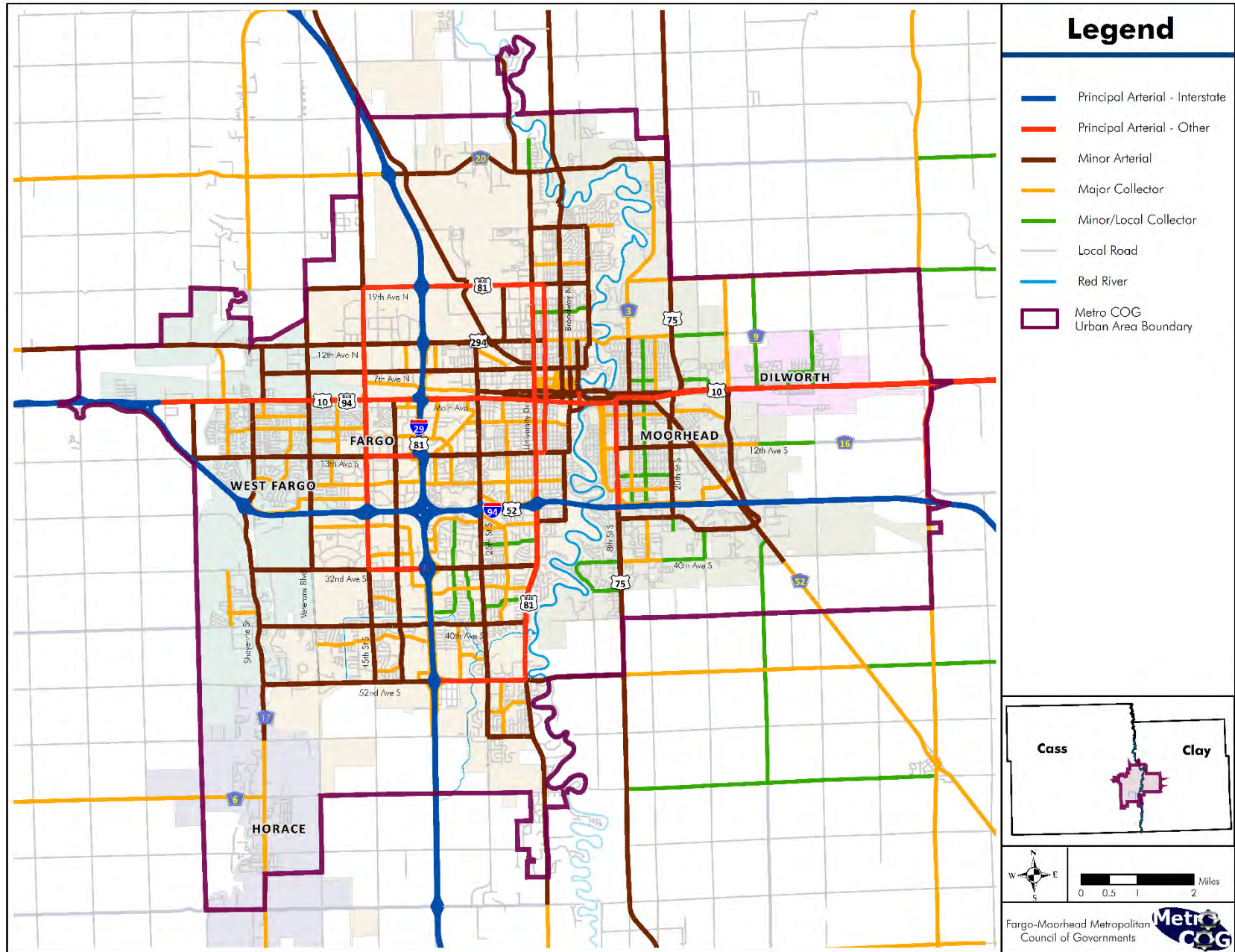
Table 18. Functional Classification Mileage by Jurisdiction

Jurisdiction	Functional Classification	Length	Percent of Network Length
	Collector	50.63	9%
	Minor Arterial	78.24	14%
	Principal Arterial	36.5	7%
	Interstate	45.98	8%
	Local	341.49	62%
	Total	552.84	100%
	Collector	21.89	13%
	Minor Arterial	20.74	12%
	Principal Arterial	4.24	3%
	Interstate	7.21	4%
	Local	113.77	68%
	Total	167.85	100%
	Major Collector	25.74	11%
	Minor Collector	10.75	5%
	Minor Arterial	33.82	14%
	Principal Arterial	6.73	3%
	Interstate	10.25	4%
	Local	149.52	63%
	Total	236.82	100%

⁷ Includes all mileage within Cass County MPA that is not within Fargo, West Fargo, or Horace

⁸ Includes all mileage within Clay County MPA that is not within Moorhead or Dilworth

Figure 9. Existing Functional Classification System



Source: Metro COG, 2017

Traffic Counts

METRO COG COUNTS

Metro COG collects 12-hour turning movement counts, peak turning movement counts, and multi-day volume counts at the request of local jurisdictions to assist in various planning efforts. In addition, every five years Metro COG conducts a metro area-wide traffic count operation which collects 48-hour average daily traffic (ADT) counts and vehicle class counts at certain locations. The purpose of this count program is to help calibrate the Travel Demand Model as well as assist Metro COG and other agencies in planning efforts.

NDDOT COUNTS

NDDOT routinely collects ADT and vehicle class count data across the state. Traffic data in the eastern region of the state (including Fargo/West Fargo) is been collected every two years. Information on these counts can be found on NDDOT's traffic count webpage at:

<http://www.dot.nd.gov/business/maps-portal.htm>

MNDOT COUNTS

MnDOT also routinely collects traffic data across the state of Minnesota. Trunk highways are counted every two years while the local system roads are counted every four years. Results of these counts can be found on MnDOT's traffic forecasting & analysis webpage at:

<http://www.dot.state.mn.us/traffic/data/>

LOCAL JURISDICTION COUNTS

Local jurisdictions often coordinate counts with Metro COG. However, jurisdictions may collect vehicle data on their own. Additionally, some jurisdictions, such as the City of Fargo, have the capability of counting vehicles using vehicle detection systems for signalized intersections. For information on local jurisdiction counts, please contact the jurisdiction or Metro COG.

AUTOMATIC TRAFFIC RECORDER (ATR) COUNTS

ATR stations are traffic volume detection systems that are permanently installed on selected interstate, state, county highways, and urban roadways and provide continuous access to data. These ATR stations are equipped with loop detectors that allow the station to collect traffic volume data and, in certain circumstances, vehicle classification data. NDDOT and MnDOT both currently operate ATR stations.

2016 Roadway System Changes

Pursuant to initiatives set forth within Federal legislation, Metro COG annually tracks the efforts of local jurisdictions to improve and change the roadway network. Roadway system changes include: capacity changes/improvements; roadway

reconstruction rehabilitation and maintenance projects; capacity changes; and other activities (e.g. corridor preservation, ROW acquisition). The information in Table 19, Table 20, and Table 21 reports and summarizes these annual system changes.

Table 19. 2016 Roadway Capacity and System Changes

Jurisdiction	Type / Network Characteristic	Description	Location
Fargo	Roadway Widening/Additional Turn Lanes	Expanded roadway to 6 lane facility with double left turn lanes at 38 th St, 42 nd St, and 45 th St. Added single left turn lane at 43 ½ St.	13 th Ave S from 38 th St to 45 th St
Fargo	Roadway Reconstruction/Turn Lane	Converted roadway into 3-lane facility with center left turn lanes. Added additional turn left turn lane (southbound) at Main Ave	2 nd St from Main Ave to 7 th Ave N
Fargo	New Permanent Signal	New signal at intersection	40 th Ave S at 36 th St
Fargo	New Permanent Signal	New signal at intersection	44 th Ave S at 42 nd St
Fargo	New Permanent Signal	New signal at intersection	44 th Ave S at 45 th St
Fargo	New Permanent Signal	New signal at intersection	36 th Ave S at 45 th St
Fargo	New Permanent Signal	New signal at intersection	42 nd St at 19 th Ave S
Fargo	New Permanent Signal	New signal at intersection	1 st Ave N at 3 rd St
Fargo	New Permanent Signal	New signal at intersection	Veterans BLVD at 26 th Ave S
Fargo	New/Extended Roadway	New two-lane collector roadway with 10' path on east side	51 st St from 30 th Ave S to 28 th Ave S
Fargo	Roadway Widening	Converted 2-lane facility into 3-lane facility	12 th Ave N from 45 th St to 57 th St (9 th St in West Fargo)
Fargo	New/Extended Roadway	Constructed new 3-lane facility with 10' shared-use path on north side	64 th Ave S from University Dr to 25 th St
Fargo	Roadway Reconstruction/Turn Lane Adjustment	Removed one eastbound left turn lane	13 th Ave S at 34 th St
Clay	Turn Lane	New eastbound turn lane to CSAH 9	
Moorhead	New Permanent Signal	New signal at intersection	20 th St S and 30 th Ave S (Village Green Blvd)
Moorhead	Traffic Signal Improvement	Updated Traffic Signal	8 th St (TH 75) and Main Ave
Moorhead	Traffic Signal Improvement	Updated Traffic Signal	11 St & Main Ave
Moorhead	Traffic Signal Improvement	Updated Traffic Signal	14 St & Main Ave
Moorhead	Traffic Signal Improvement	Updated Traffic Signal	8 St (TH 75) & Center Ave
Moorhead	Traffic Signal Improvement	Updated Traffic Signal	11 St & Center Ave
Moorhead	Roadway Reconstruction/Turn Lane	New north-bound right turn lane and channelizing island. ADA improvements	8 th St (TH 75) and Main Ave
Moorhead	Roadway Improvements	Improved roadway with larger corner radii and ADA improvements	8 th St (TH 75) and Center Ave
Moorhead	Railroad Crossing Improvement	Improved roadway railroad crossing	1 st Ave S, 20 th St to Main Ave
Moorhead	Turn Lane/ADA Improvement	New north-bound turn lane and ADA improvements	11 th St and Center Ave
Moorhead	New/Extended Roadway	New 2-lane partially divided roadway with designated turn lanes	
Moorhead	New/Extended Roadway	New 2-lane divided roadway with designated turn lanes	
Moorhead	Roadway Reconstruction/Realignment	½ mile of rural roadway realigned and reconstructed	

Sources: City of Fargo; City of Moorhead; Clay County; Metro COG, 2017

Table 20. 2016 Obligated Roadway Projects

Jurisdiction	Location	Project Description	TIP Project No. / Local
Moorhead	40 th Avenue	Mill and overlay 40th Avenue from 9th Street South to River Oaks Circle	816099
Clay County	TH 34	Install a multi-use trail/sidewalk on TH-34 from TH-9 to Blue Eagle Park in Barnsville.	816087
MnDOT	I-94	Reconstruct TH 75 and I-94 interchange in Moorhead. Add auxillary lanes to I-94. Interchange modification, grading, bituminous and concrete surfacing, bituminous mill and overlay, signals, lighting, ADA improvements, and Bridge #14X11, 14X12	816010
MnDOT	MN 200	JCT TH 59 to Mahnomen-Clearwater County Line - Pavement Rehabilitation	816096
Fargo	1st Avenue N	*Locally Funded Regionally Significant* Reconstruct 1st Avenue N from University Drive to Broadway	414014
West Fargo	City-wide	Emergency Vehicle Preemption (EVP) updated at 13 signal locations in West Fargo.	316010
West Fargo	City-wide	Traffic signals	3162628
NDDOT	I-29	I-29 from Christine to Wild Rice River Northbound Roadway Concrete Pavement Repair	914031
NDDOT	I-29	I-29 from Christine to Wild Rice River Southbound Roadway Concrete Pavement Repair	916040
NDDOT	I-94	I-94 (EB) Casselton to Mapleton Interchange. Concrete Pavement Repair, Milling	9162606
NDDOT	I-94	I-94 (EB) Mapleton Interchange to Raymond Interchange. Concrete Pavement Repair.	9162607
NDDOT	I-94	East of 5th Street South (West Fargo). Lift Station.	9162608

Source: Metro COG, 2017

Table 21. 2016 Roadway Preservation/Transportation Systems Management Activities

Jurisdiction	Location	Project Description	TIP Project No. / Local
Clay County	CSAH 22 from TH 75 to County Line	Mill and overlay with new lane striping and bicycle symbols	Local
Clay County	CSAH 18	Subgrade repair and concrete paving of CSAH 18 from CSAH 3 to TH 75	215021
MnDOT	TH 75	AC Conversion for Mill and Overlay North of JCT of TH 10 to North Clay County Line	815020
MnDOT	MN-34	Pavement Rehabilitation from Jct TH 9 to Dunvilla	815030
MnDOT	I-94	East of Main Avenue in Moorhead. Weigh station modifications; concrete pavement and rehabilitation.	8152601
NDDOT	I-29	I-29 (SB) from Wild Rice River to 0.3 miles north of Main Avenue. Approach slabs, Concrete Pavement Repair, Grinding	914032
NDDOT	I-29	I-29 (NB) from Wild Rice River to 0.3 miles north of Main Avenue. Approach slabs, concrete pavement repair, grinding and structure painting	914033
NDDOT	I-29	PCC Pavement on I-29 Southbound from Argusville to Hunter	915050
Moorhead	11 St from 28 th Ave N to 1 st Ave N	Mill & Overlay and Signal Improvements	Local
Moorhead	11 th Ave N from 7 th St to 11 St	Mill & Overlay	Local
Moorhead	9 th St N from 1 Ave N to 11 Ave N	Mill & Overlay	Local

Source: Metro COG, 2017

Trends in Vehicle Miles Traveled

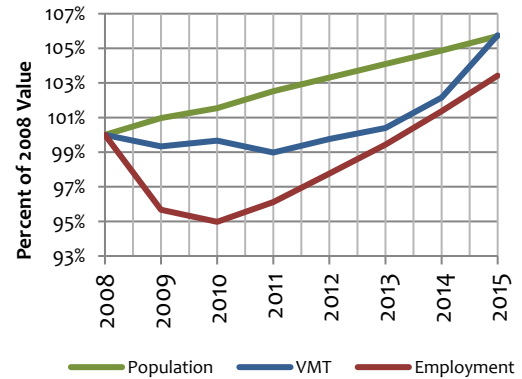
This section presents an overview of vehicle miles traveled (VMT) from both a national and metropolitan perspective, analyzing its relationship to population, employment, and fuel costs. VMT is often used to measure the relative traffic demand on the transportation network, as well as assist with the calibration of the TDM. For the purposes of the Metro Profile, VMT is annualized and refers to the total number of miles traveled by all vehicles on an annual basis.

VMT, POPULATION, AND EMPLOYMENT

The total VMT began to flat-line nationally in 2005 and 2006, and declined in 2008, concurrent with the national recession. VMT has since rebounded to a degree, but with only moderate growth from 2009 to 2013. However, VMT has increased comparatively sharply since 2013, in particular over the course of 2015. Further, VMT per capita realized steady increases over the past several decades and has only recently seen a rather significant decline. Research and reports at the national level suggest and hypothesize that even though VMT growth has steadied, with moderate growth forecasted for the near future, there may continue to be a decline in transportation system performance due to the fact that the system is near capacity and thus susceptible to level of service issues with only minimal increases in demand. Figure 10 and Figure 11 illustrate changes in VMT, population, and employment from 2008 to 2015 as a percentage of 2008 figures for both the Fargo-Moorhead Metropolitan Area and the United States.

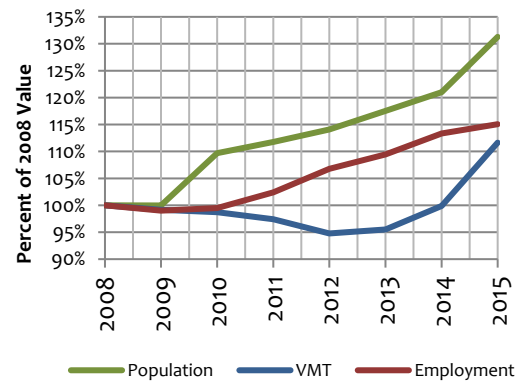
In regards to national trends, while population has increased at a steady pace, VMT has not increased proportionally. VMT dipped slightly from 2010 to 2011 before increasing at a steady pace (though at a rate lower than the increase in population) until 2013. VMT increased sharply in 2015. Employment, on the other hand, decreased sharply between 2008 and 2011, a result of the significant recession seen in the country during that time. The number of jobs has increased since 2011, and now eclipses pre-2008 national levels. While employment and population continue to increase, eight-year data trends show that gross VMT has not risen to the same degree. However, data for 2015 suggest that VMT may be closely tied to gas prices at the national level. This is evident by examining the sharp decrease in gas prices towards the end of 2014 and throughout 2015, which coincided with a spike in national VMT.

Figure 10. National Vehicle Miles Traveled, Population, and Employment Trends, Percent Change from 2008



Sources: FHWA Highway Statistics Series, 2008 – 2015; U.S. Census Bureau, 2008 – 2015; U.S. Bureau of Labor Statistics, 2008-2015

Figure 11. Local Vehicle Miles Traveled, Population, and Employment Trends, Percent Change from 2008



Sources: FHWA Highway Statistics Series, 2008 – 2015; U.S. Census Bureau, 2008 – 2015; U.S. Bureau of Labor Statistics, 2008-2015

Local trends in population, employment, and VMT differ significantly from the national trends. While the nation experienced one of the largest recessions in modern times from 2008 to 2011, the Fargo-Moorhead MSA was comparatively unaffected. Employment remained flat (but did not notably decline) from 2008 to 2010 before rapidly increasing from 2010 to present. Population spiked after 2009 at a rate closely mirroring employment trends. VMT on the other hand decreased from 2008 to 2013. Over the past two years, however, VMT has rebounded. In 2015, VMT rose dramatically in the Fargo-Moorhead urban area, perhaps a reflection of the significant decline in gas prices which occurred during the year.

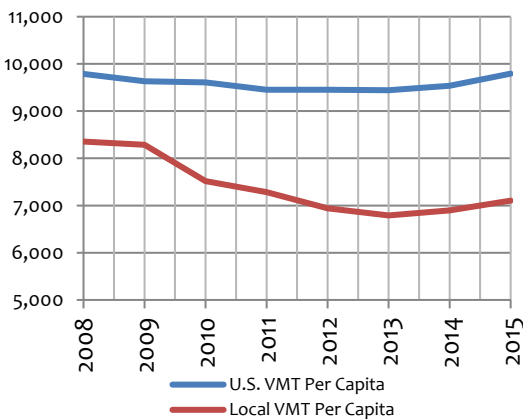
VMT PER CAPITA

VMT per capita – that is, the number vehicle miles traveled per person – is a statistical tool that can shed light on travel patterns, the amount and length of trips people are undertaking, and the use of personal automobiles versus public transit and alternative modes of transportation.

National data suggests that between 2008 and 2013 VMT per capita declined slightly, with the largest drop during the midst of the recession. After the end of the recession in 2011 until 2013, VMT per capita has remained at nearly the same level in spite of economic growth and greater employment opportunities. Since 2013, VMT per capita has rebounded, with 2015 showing a substantial increase VMT per capita at the national level.

Locally, VMT per capita has declined at a greater rate than nationally, dropping nearly 2,000 per year between 2008 and 2013. This is in spite of strong economic and job growth within the metro area. These numbers indicate that there has been a significant shift since 2008 in how people travel and the amount and length of trips undertaken, all of which are seemingly un-tied to economic and job growth. In fact, in this example, an area with a strong economy (Fargo-Moorhead MSA) experienced a much more pronounced decline in VMT per capita than what occurred nationally. Since 2013, VMT per capita in the urban area has increased, mirroring national trends and likely a product of lower gas prices as compared to previous years.

Figure 12. National and Local VMT Per Capita, 2008-2015



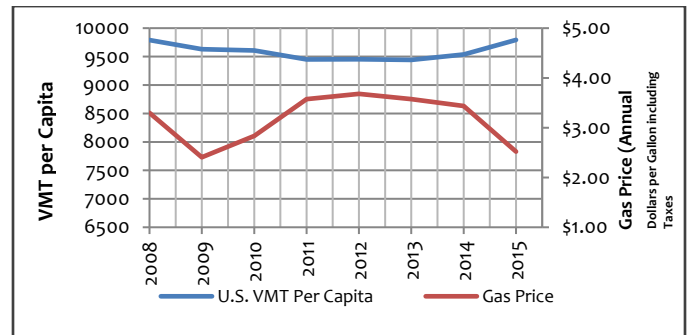
Sources: FHWA Highway Statistics Series, 2008 – 2015; U.S. Census Bureau, 2008 – 2015

VMT PER CAPITA AND FUEL PRICES

VMT is a product of a number of socio-economic, demographic, economic, market, and community variables, which are continually changing and evolving. Some of the factors influencing VMT at both national and local scales include: population and age distribution; household size and composition; vehicle availability; household income; travel time/trip length; land use patterns; and personal decision making. In addition to these factors, one variable which typically trends with VMT is the cost of fuel. Figure 13 and Figure 14 illustrate associations between VMT per capita and fuel prices at both the national and local levels.

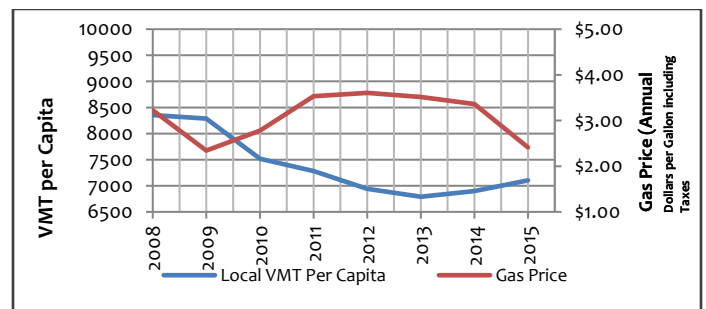
Generally speaking, as gas prices increase, the total VMT in any given area begins to decrease. This relationship is illustrated on both national and local scales, with the latter in particular showing a direct correlation. Contrary to trends over the previous years, VMT per capita grew significantly in 2015, simultaneous to a dramatic drop in fuel prices.

Figure 13. National VMT Per Capita and Annual Fuel Prices, 2008-2015



Sources: FHWA Highway Statistics Series, 2008–2015; U.S. Census Bureau, 2008–2015; U.S. Energy Information Administration, 2008-2015

Figure 14. Local VMT Per Capita and Annual Fuel Prices, 2008-2014



Sources: FHWA Highway Statistics Series, 2008–2015; U.S. Census Bureau, 2008–2015; U.S. Energy Information Administration, 2008-2015

VMT BY FEDERAL FUNCTIONAL CLASSIFICATION

Table 22 details VMT by Federal Functional Classification (FFC) from 2011 to 2015 for Fargo, West Fargo, and the Clay County urban area. Note that these were the only jurisdictions in which VMT by FFC were reported upon. Of

interest is the increase of total VMT in reporting jurisdictions over the past two years, which has risen more sharply than in preceding years. Overall, the proportion of VMT in each FFC has remained relatively static since 2010.

Table 22. 2011-2015 Vehicle Miles Traveled and Rate of Change, by Functional Classification⁹

Year	Jurisdiction	Principal Arterial, Interstate	Principal Arterial, Other	Minor Arterial	Collector	Local Roadway	Total	% Principal Arterial (Interstate)	% Principal Arterial (other) and Minor Arterial	% Collector	% Local
	Fargo	223,590,000	152,692,000	189,994,000	67,735,000	150,415,000	784,426,000	28.50%	43.69%	8.63%	19.18%
	West Fargo	42,466,000	17,474,000	43,297,000	14,669,000	22,730,000	140,636,000	30.20%	43.21%	10.43%	16.16%
	Clay County Urban Area	54,367,845	59,797,585	69,688,355	19,891,405	43,128,400	246,873,590	22.02%	52.45%	8.05%	17.48%
	Total Reported 2011 VMT	320,423,845	229,963,585	302,979,355	102,295,405	216,273,400	1,171,935,590	27.34%	45.48%	8.73%	18.45%
	Fargo	225,562,000	152,257,000	187,357,000	66,950,000	151,321,000	783,447,000	28.79%	43.35%	8.55%	19.31%
	West Fargo	43,659,000	17,474,000	43,472,000	14,555,000	22,847,000	142,007,000	30.74%	42.93%	10.25%	16.08%
	Clay County Urban Area	55,007,238	60,476,376	72,251,328	19,945,902	43,246,560	250,927,404	21.92%	52.89%	7.95%	17.23%
	Total Reported 2012 VMT	324,228,238	230,207,376	303,080,328	101,450,902	217,414,560	1,176,381,404	27.56%	45.33%	8.62%	18.48%
	Fargo	233,463,000	160,587,000	195,778,000	66,338,000	155,848,000	812,013,000	28.75%	43.89%	8.17%	19.19%
	West Fargo	45,633,000	19,151,000	51,440,000	15,541,000	23,531,000	155,296,000	29.38%	45.46%	10.01%	15.15%
	Clay County Urban Area	54,856,945	60,093,600	77,584,035	20,447,300	43,383,900	256,365,780	21.40%	53.70%	7.98%	16.92%
	Total Reported 2013 VMT	333,952,945	239,831,600	324,802,035	102,326,300	222,762,900	1,223,674,780	27.29%	46.14%	8.36%	18.20%
	Fargo	239,319,000	160,919,000	197,525,000	66,467,000	160,544,000	824,775,000	29.02%	43.46%	8.06%	19.47%
	West Fargo	47,248,000	19,170,000	51,946,000	15,800,000	24,237,000	158,398,000	29.83%	44.90%	9.97%	15.30%
	Clay County Urban Area	84,109,741	69,885,845	79,241,864	26,159,340	44,053,814	303,450,604	27.72%	49.14%	8.62%	14.52%
	Total Reported 2014 VMT	370,676,741	249,974,845	328,712,864	108,426,340	228,834,814	1,286,623,604	28.81%	44.98%	8.43%	17.79%
	Fargo	258,455,000	174,888,000	212,867,000	71,717,000	224,053,000	941,980,000	27.44%	41.16%	7.61%	23.79%
	West Fargo	37,089,000	18,452,000	60,789,000	15,717,000	24,820,000	156,867,000	23.64%	50.51%	10.02%	15.82%
	Clay County Urban Area ¹⁰	86,633,033	71,982,420	81,619,120	26,944,120	45,375,428	312,554,122	27.72%	49.14%	8.62%	14.52%
	Total Reported 2015 VMT	382,177,033	265,322,420	355,275,120	114,378,120	294,248,428	1,411,401,122	27.08%	43.97%	8.10%	20.85%

Sources: 2011-2015 NDDOT Annual Traffic Reports, MnDOT Traffic Information System Database

⁹ Figures for the Clay County Urban Area include all incorporated jurisdictions within Clay County, which differs from the Metro COG definition for urban area.

¹⁰ 2015 Clay County VMT was not available at the time of this publication. Per MnDOT guidance, a 3% growth was applied to 2014 VMT totals.

Intelligent Transportation System (ITS)

Metro COG maintains an Intelligent Transportation System (ITS) plan for the MSA and works in cooperation with the Advance Traffic Analysis Center (ATAC) on the maintenance of the Regional ITS Architecture. The ITS Deployment Strategy and Regional ITS Architecture were both updated and adopted by Metro COG in December 2014. The primary recommendations of the ITS Deployment Strategy and Regional Architecture focus on interoperability and regionalization of existing and future ITS deployments and place a high priority on the centralization and integration of signal systems within the MSA.

The Regional ITS Architecture provides guidance for developing and implementing ITS systems through Systems Engineering Analysis and information flows between entities. With inputs from the Regional ITS Architecture, the 2014 ITS Deployment Strategy was developed to further plan for ITS implementation through identification of deployment strategies and initiatives. These strategies and initiatives focus on the following priority areas:

- (a) closed circuit television cameras (CCTV);
- (b) traffic signal systems integration; and
- (c) development of a Traffic Operations Center (TOC) to coordinate traffic management, traveler information, maintenance, management, and data collection.

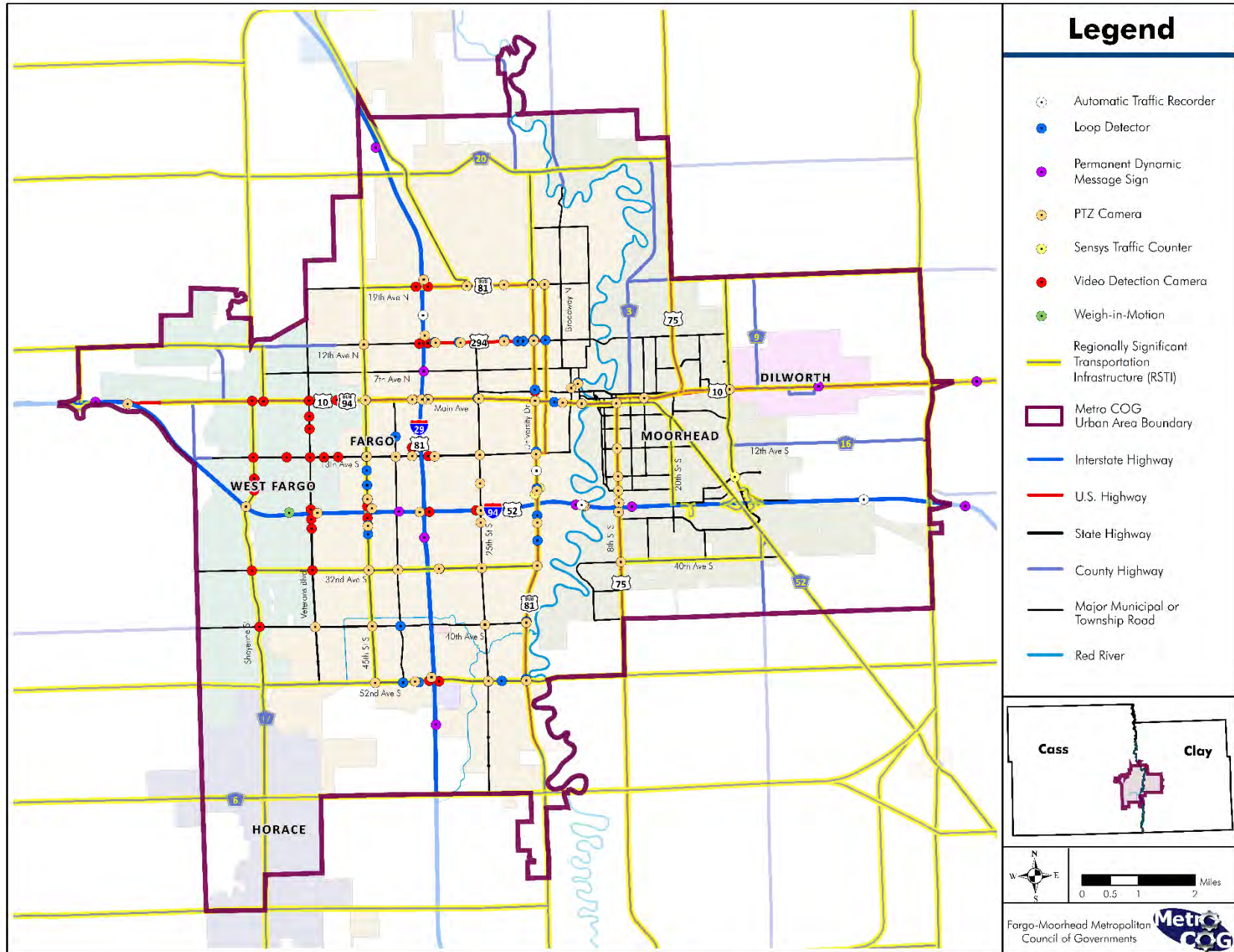
Also adopted in December 2014 was the Concept of Operations Report for a Fargo-Moorhead TOC. This report details steps necessary to implement a traffic operations center for the Fargo-Moorhead area.

In March 2011, Metro COG finalized and adopted the Traffic Operations Incident Management Strategy (TOIMS) to establish a list of improvements to enhance the movement of people and goods in the event of an incident or emergency. Major components of the study include discussion and analysis on identification of a Regionally Significant Transportation Infrastructure (RSTI) network, beltway concepts, and ITS deployment.

These plans are overseen by the Traffic Operations Working Group (TOWG). The TOWG is comprised of traffic experts from Metro COG, local jurisdictions, NDDOT, MnDOT, and ATAC. The TOWG meets regularly to discuss traffic operations issues, oversee the ITS Deployment Strategy and Regional Architecture, and for other ITS issues concerning the metro area.

Figure 15 identifies current ITS deployments within the metropolitan transportation network, including: dynamic vehicle detectors, vehicle detector systems, cameras, dynamic message signs, traffic cameras, and weigh-in-motion stations. Also in Figure 15 is the Regionally Significant Transportation Infrastructure (RSTI), which are corridors that are significant to the safety and security of the region by serving as evacuation corridors during emergency events. It is essential to carefully identify and preserve these critical corridors.

Figure 15. Intelligent Transportation System (ITS) Deployments



Source: Metro COG, 2016

FREIGHT & INTERSTATE TRAVEL

This chapter of the Profile outlines information related to airline passenger and cargo activities, passenger rail (Amtrak) travel, and freight movement within the Fargo-Moorhead Metropolitan Area. Airline and passenger rail systems are essential components of a multi-modal transportation system, and are utilized as travel options by many members of the Fargo-Moorhead area. The region is also increasing in prominence as a regional freight hub, and serves as a center for freight activity for both western Minnesota and eastern North Dakota.

Aviation

While there are five airports within the Fargo-Moorhead area, only Hector International Airport provides scheduled commercial service. In addition to passenger service, Hector is also the primary hub for air-based freight and mail activity within the region. Four commercial passenger lines and seven air cargo carriers provide the majority of service to Hector International Airport. Hector International Airport is also a site for international customs inspections.

COMMERCIAL PASSENGER ACTIVITY

There were 789,182 combined boardings and deboardings in 2016, representing a decline of over eight percent from 2015 totals. Table 23 documents commercial passenger activity by carrier for 2016. These passenger traffic numbers do not include 6,452 charter passengers that also enplaned from various charter operations in 2016. Table 24 summarizes annual passenger activity and annual change over the past five years. There were 6,924 air carrier departures in 2016 averaging 73 seats per flight with an average of 2,162 passengers both arriving and departing daily. Figure 16 depicts the 10 scheduled non-stop routes to and from Fargo.

Table 23. 2016 Commercial Passenger Activity at Hector International Airport, by Airline

Airline	Enplanements	Deplanements	Total	Market Share	Percent Change from 2015
Delta	166,427	164,208	330,635	41.9%	-2.6%
United	94,962	96,134	191,096	24.2%	0.2%
Allegiant Air	70,586	70,488	141,074	17.9%	0.9%
American	63,639	62,738	126,377	16.0%	2.9%
Total	395,614	393,568	789,182		

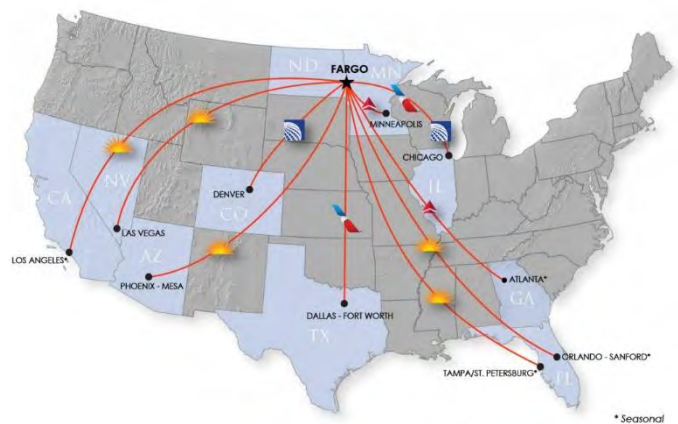
Source: Fargo Municipal Airport Authority, 2017

Table 24. Total Passenger Activity and Annual Rate of Change at Hector International Airport, 2012-2016

Year	Enplanements	Deplanements	Total	Percent Change
2012	364,727	364,702	728,799	--
2013	398,677	398,448	797,125	9.4%
2014	448,844	445,578	894,426	12.2%
2015	429,251	429,731	858,982	-4.0%
2016	395,614	393,568	789,182	-8.1%

Source: Fargo Municipal Airport Authority, 2013-2017

Figure 16. Hector International Airport Non-Stop Routes



Source: Fargo Municipal Airport Authority, 2017

AVIATION PERFORMANCE

Table 25 depicts on-time performance and causes of delay for 2012-2016 at Hector International Airport. In 2016, aviation performance improved by almost two percent over the previous year. This increase in aviation performance can be partially attributed to the decrease in the number of passengers at Hector International Airport along with improved system trends nationwide. Overall, there were fewer national system delays, air carrier delays, weather delays, and late arriving aircraft in 2016 than in prior years.

INTERNATIONAL CUSTOMS ACTIVITY

Hector International Airport is designated as a 'Port of Entry,' meaning a customs officer is present and authorized to accept entries of merchandise and duties, and to enforce various provisions, customs, and navigation laws (19 CFR 101.1). For additional information relating to transactions, inspections, and other customs activities conducted at the Hector International Airport, visit the U.S. Customs and Border Protection website at www.cbp.gov.

Table 25. On-Time Performance at Hector International Airport, 2012-2016

Year	Air Carrier Delay	Weather Delay	National Aviation System Delay	Security Delay	Late Arriving Aircraft	Cancelled	Diverted	On-time Performance
2012	5.84%	0.76%	4.23%	0.00%	6.55%	1.64%	0.25%	80.73%
2013	7.46%	1.24%	6.69%	0.00%	8.30%	2.99%	0.19%	73.13%
2014	9.01%	1.07%	7.91%	0.03%	9.54%	4.15%	0.17%	68.11%
2015	6.03%	1.08%	4.75%	0.01%	6.54%	1.56%	0.18%	79.85%
2016	5.83%	0.75%	4.54%	0.00%	4.90%	1.93%	0.30%	81.73%

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, 2017

Passenger Rail (Amtrak)

Amtrak provides daily passenger rail service to the Fargo-Moorhead Metropolitan Area with long-distance trains. These trains are part of the Empire Builder, which historically has been one of the most productive of all existing Amtrak lines. The Empire Builder runs from Chicago to the Pacific Northwest, with two segments west of Spokane that serve two termini, Seattle and Portland. One eastbound and one westbound train pass through the Fargo station daily. Additionally, Amtrak provides express services for packages and carries mail to certain locations along the route. Table 26 provides ridership data for the Fargo Amtrak station since 2012. After the Empire Builder, the next closest passenger rail service to the region is the California Zephyr, which runs from Chicago via Omaha and Denver, and then on to Utah and California.

Amtrak at the Fargo station has seen a dip in ridership since its peak of 24,152 in 2008, a year of severe spikes in gas prices. Although 2015 and 2016 data represents a downwards trend, boardings in the metro area are approximately 38 percent higher than they were in 2000.

Table 26. Amtrak Ridership and Annual Change, Fargo Station

Year	Ridership	Percent Change
2012	20,304	-
2013	22,497	10.80%
2014	23,314	3.63%
2015	22,829	-2.08%
2016	21,495	-5.84%

Source: National Association of Railroad Passengers, 2017

Roughly 24 percent of all North Dakotans live within 25 miles of a rail station served by Amtrak. Table 27 shows the annual ridership and percent change of all seven North Dakota Amtrak stations. Total ridership at these stations was 106,200 in 2016. In addition, approximately 96,660 riders passed through North Dakota in 2016, boarding and detraining outside the state.

A number of factors have affected regional ridership numbers for Amtrak in recent years. From 2009 to 2011, the Empire Builder had to suspend or alter service due to

flooding from the Red River. In the spring of 2011, high water levels from Devils Lake caused service interruptions on windy days when high waves breached the tracks. From June to July in 2011, flooding from the Souris River near Minot completely blocked the Empire Builder, at which time an eastern route only ran from Chicago to Minneapolis-St. Paul; to the west, the route did not run east past Havre, Montana.

After several years of declining ridership, total state ridership exploded in 2012, increasing by over 41 percent. Since then, ridership has dropped precipitously. In 2016, total ridership in North Dakota fell over 11 percent, continuing its downward trend since 2012.

Cheaper gasoline prices are partly to blame for decreases in Amtrak ridership, having affected public transport of all kinds in recent years. The Empire Builder also suffered from chronic delays caused by severe freight congestion and oil trains serving the Bakken region of western North Dakota from 2012 to 2014. Amtrak passengers also faced delays while track repairs were made to the route in 2015 and 2016.

Regional and statewide ridership numbers also reflect a decline in the number of workers migrating to the Bakken region in western North Dakota. In 2013, at the height of the activity within the Bakken region, ridership totals for Minot, Stanley, and Williston totaled over 100,000 passengers. As of 2016, the total passenger activity to these three stations had declined to approximately 62,400. The reduced ridership to these three stations accounts for the majority of the total decline in ridership statewide.

Table 27. Total Amtrak Ridership and Annual Change, All North Dakota Stations

Year	Ridership	Percent Change
2012	153,700	-
2013	153,500	-0.13%
2014	130,800	-14.79%
2015	119,500	-8.64%
2016	106,200	-11.13%

Source: National Association of Railroad Passengers, 2017

Freight

In August 2016, Metro COG began work on a consultant-led Regional Freight Plan. This plan, to be completed in the fall of 2017, will examine the Fargo-Moorhead Metropolitan Area's place in the national and global economy, as well as develop a better understanding of the transportation service needs of industrial and retail sectors in the regional economy. The plan will also present short and long range planning recommendations integral to the freight network and other metropolitan transportation planning efforts.

The movement and distribution of freight has significant links to the metropolitan transportation network's efficiency and functionality. The Fargo-Moorhead Metropolitan Area functions as a regional economic center for eastern North Dakota and western Minnesota, accommodating numerous big-box retail businesses, a regional shopping center, and a large quantity of restaurants and supporting businesses. The regional transportation network is a vital component in the support of economic development and freight movement. The following analyses use figures and estimates from the states of Minnesota and North Dakota. These figures provide insight into not only the quantity of goods arriving, departing, and moving within the region, but also the modes on which they arrive, both presently and in the future.

REGIONAL FREIGHT MOVEMENT AND DISTRIBUTION

Freight in the Fargo-Moorhead Area arrives, departs and is distributed locally via truck, rail, air, or other modes. The greatest share of freight traffic continues to be transported via truck on the region's roadway and highway network.

According to data from the most recent version of the FHWA freight analysis framework (version 4.1), in 2015 over \$475 billion in domestic freight was moved within, from and to Minnesota and over \$157 billion in North Dakota. The value of this freight is expected increase significantly by 2045 (\$713 billion in MN, \$192 billion in ND). The 2015 total domestic tonnage of shipments travelling within, from, or to was over 626,000,000 tons in Minnesota and 289,000,000 tons in North Dakota. It is projected that this will increase to over 783,000,000 tons in Minnesota and over 324,000,000 tons in North Dakota by 2045.

While rail and air contribute significantly to the movement of freight, most domestic freight movement is transported via truck. In Minnesota over 95 percent of domestic freight within

the state is transported by truck, a figure which is expected to hold steady through 2045. The proportion of domestic freight transported via truck is lower in North Dakota, where trucks account for nearly 80 percent of all domestic freight moved within the state. By 2045, this figure is expected to increase to 85 percent for North Dakota.

The FHWA estimates that in 2015, 35 percent of domestic freight shipped from Minnesota was done via truck while 31 percent was shipped by rail. This is expected to change by 2045, with over 41 percent of domestic freight shipments within the state made by truck and 27 percent by rail. A majority of domestic freight shipments leaving North Dakota are done by rail (34 percent) and by pipeline (57 percent). These trends are expected to hold steady over the next 30 years.

Shipments of domestic freight into both states are dominated by truck, with over 41 percent of movements in Minnesota and 43 percent in North Dakota. Domestic freight shipped into each state via pipeline is the next largest shipment mode, accounting for 33 percent in Minnesota and 38 percent in North Dakota. The mode split by 2045 for domestic freight shipped into North Dakota is anticipated to increasingly shift towards pipeline activity, while in Minnesota truck shipments are anticipated to increase. Table 28 summarizes current and projected shipments of freight within, from, and to Minnesota and North Dakota.

Table 28. Freight Movement Within, From, and To Minnesota and North Dakota -- Percent of Tonnage by Mode for 2015 and 2045

State	Trade	Mode	Within		From		To	
			2015	2045	2015	2045	2015	2045
		Truck	95.78%	96.19%	35.43%	41.25%	41.08%	49.46%
		Rail	4.02%	3.56%	31.67%	27.41%	18.30%	13.77%
		Water	0.00%	0.00%	4.39%	4.07%	5.11%	6.09%
		Air (include truck-air)	0.00%	0.00%	0.02%	0.03%	0.02%	0.02%
		Multiple Modes & Mail	0.13%	0.17%	9.41%	8.48%	2.53%	3.13%
		Pipeline	0.08%	0.08%	19.08%	18.75%	32.97%	27.52%
		Other and Unknown	--	--	---	--	--	--
		Total Domestic	100%	100%	100%	100%	100%	100%
			Truck	0.91%	1.38%	2.35%	2.46%	24.58%
	Rail		3.69%	5.20%	80.34%	85.90%	34.64%	31.47%
	Air (include truck-air)		0.00%	0.00%	0.03%	0.05%	0.30%	0.46%
	Multiple Modes & Mail		0.02%	0.03%	0.90%	2.13%	4.93%	7.17%
	No Domestic Mode		58.00%	43.99%	0.00%	0.00%	0.00%	0.00%
	Pipeline		37.30%	49.20%	13.90%	7.97%	0.20%	0.10%
	Water		0.00%	0.00%	2.42%	1.39%	35.33%	28.94%
	Other and Unknown		0.08%	0.19%	0.06%	0.11%	0.03%	0.04%
	Total Imported		100%	100%	100%	100%	100%	100%
			Truck	6.01%	8.56%	26.37%	36.60%	3.28%
		Rail	62.03%	55.16%	16.73%	15.83%	93.05%	90.92%
		Water	0.00%	0.00%	50.41%	38.24%	0.00%	0.00%
		Air (include truck-air)	0.01%	0.02%	0.84%	1.70%	0.14%	0.35%
		Multiple Modes & Mail	2.09%	2.69%	5.63%	7.60%	3.52%	4.30%
		Pipeline	29.68%	33.39%	0.00%	0.00%	0.00%	0.00%
		Other and Unknown	0.18%	0.18%	0.02%	0.02%	0.00%	0.01%
		Total Exported	100%	100%	100%	100%	100%	100%

State	Trade	Mode	Within		From		To	
			2015	2045	2015	2045	2015	2045
		Truck	79.76%	85.79%	7.26%	10.07%	43.48%	38.16%
		Rail	2.22%	1.63%	33.48%	30.84%	16.50%	12.24%
		Air (include truck-air)	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
		Multiple Modes & Mail	0.03%	0.04%	1.12%	1.37%	1.82%	1.81%
		Pipeline	7.83%	7.84%	56.67%	56.89%	38.18%	47.78%
		Other and Unknown	10.16%	4.70%	1.47%	0.83%	0.00%	0.00%
		Total Domestic	100%	100%	100%	100%	100%	100%
			Truck	13.55%	17.67%	11.20%	15.95%	48.59%
	Rail		15.35%	16.40%	40.31%	51.80%	32.26%	28.21%
	Air (include truck-air)		0.00%	0.00%	0.00%	0.00%	0.74%	1.02%
	Multiple Modes & Mail		0.25%	0.27%	0.24%	0.37%	1.63%	2.05%
	Pipeline		70.82%	65.61%	48.03%	31.70%	0.00%	0.00%
	Water		0.00%	0.00%	0.19%	0.12%	16.69%	20.03%
	Other and Unknown		0.03%	0.05%	0.03%	0.06%	0.09%	0.13%
	No Domestic Mode		--	--	--	--	--	--
	Total Imported		100%	100%	100%	100%	100%	100%
			Truck	50.18%	48.87%	24.69%	22.36%	55.89%
		Rail	49.67%	50.64%	52.10%	51.56%	41.24%	32.17%
		Water	0.00%	0.00%	19.30%	21.63%	0.00%	0.00%
		Air (include truck-air)	0.04%	0.11%	0.08%	0.14%	0.04%	0.05%
		Multiple Modes & Mail	0.11%	0.38%	3.81%	4.27%	2.77%	2.87%
		Pipeline	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Other and Unknown	0.00%	0.00%	0.03%	0.03%	0.04%	0.06%
		Total Exported	100%	100%	100%	100%	100%	100%

Source: FHWA Freight Analysis Framework, 2016

LOCAL FREIGHT MOVEMENT BY TRUCK

According to data published in the Freight Analysis Framework (FAF), in 2007 over 1.6 million kilotons of freight were moved by truck on the FAF network. It is projected that over 5.8 million kilotons of freight will be moved by truck through the region by 2040. Figure 18 identifies the tonnage shipped by truck in 2007 on the FAF network through the Fargo-Moorhead Metropolitan Area. Figure 19 depicts the area projections for 2040. Note that the symbols representing tonnage in 2040, though identical to those in the 2007 map, depict dramatically higher values. In the case of the highest value, depicted as red on the map, the quantity symbolized increases from 25,000 in 2007 to 75,000 in 2040.

More current FAF network data was not available from the FHWA at the time of this publication.

LOCAL FREIGHT GENERATORS

Freight generators are sites that generate or receive regular loads of freight. These sites include manufacturing centers, distribution centers, and large retail centers. The Fargo-Moorhead area has four different industrial parks, with a growing manufacturing and distribution industrial base. This includes Case-New Holland, True North Steel, Cargill, American Crystal Sugars-United Sugars, John Deere, Cardinal Glass Industries, and Integrity Windows and Overhead Doors. Business parks and retail hubs also generate freight in the Fargo-Moorhead area. Additionally, distribution centers such as the Super Valu food product distribution location, Reile's Transfer and Delivery, Praxair Distribution, and other trucking and transportation companies also contribute to freight traffic to, from, and through the Fargo-Moorhead area.

On a five-year timeframe Metro COG purchases employment data for use in the calibration of the TDM. This data, in combination with freight industry consultation and input from Metro COG's Transportation Technical Committee, provides the framework for development of the freight generator database. Figure 20 depicts the 2010 freight generators in the UZA, both as a specific point-based location and a wider area. A freight generator area is identified as aggregated parcels with significant industrial development pursuant to Metro COG's existing land use database. Site-specific freight generators are based on available employment data as of 2010.

RAILROADS

The Fargo-Moorhead Metropolitan Area began as a railroad hub. This continues today as the region is served by the BNSF Railway (formerly Burlington Northern-Santa Fe), along with the Otter Tail Valley Railroad (OTVR), and the Red River Valley & Western (RRVW) Railroad Company. The primary carrier for rail freight in the region is the BNSF. The BNSF is the only Class 1 Railroad operating in the region. BNSF's Northern Corridor, part of the Twin Cities Division, runs through the region connecting Chicago to the Pacific Northwest. The Staples Subdivision (from Minneapolis-St. Paul) connects to the P Line, the Hillsboro Subdivision, Prosper Subdivision, and the KO Subdivision in the Fargo-Moorhead area.

Rail traffic on the BNSF mainline track reached a peak during the fall of 2013 and winter of 2014. A large increase in crude oil production in the Bakken region of western North Dakota, coupled with a cold winter and a record harvest, strained the railroad's ability to handle rail freight traffic. As a result of this spike in activity, BNSF invested over \$400 million in its North Dakota infrastructure, replacing over 100 miles of rail and surfacing, double-tracking 50 miles of mainline, upgrading to Centralized Traffic Control between Bismarck and Fargo, and undercutting over 900 miles of track.

BNSF owns the trackage rights to the Otter Tail Valley Railroad between Moorhead to Fergus Falls. This 54 miles of track has a capacity of 286,000 lbs. and is generally used to transport chemicals, coal, and grain.

BNSF also operates on the Red River Valley & Western track located in the southwestern portion of the Fargo-Moorhead area. The RRVW controls over 517 miles of track throughout North Dakota and Minnesota. This route is used primarily to transport grain.

The BNSF mainline through Fargo-Moorhead is a key part of the nation's Strategic Rail Corridor Network (STRACNET). STRACNET is a 38,000-mile interconnected rail network that serves the deployment and distribution of military resources.

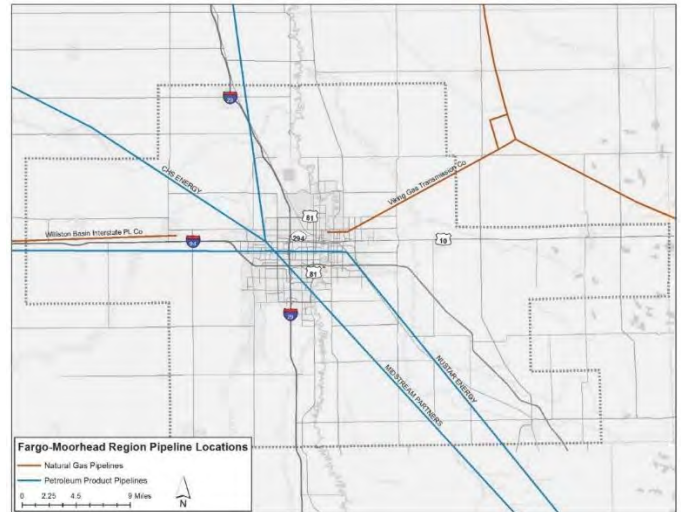
INTERMODAL RAIL FACILITIES

Currently, there are no dedicated, scheduled intermodal facilities located in the Fargo-Moorhead Metropolitan Area. An automotive ramp exists in the eastern portion of the region at the BNSF Dilworth Yard. However, this facility is not used for containerized freight.

PIPELINES

Oil and gas production in western North Dakota has encouraged the expansion of pipeline development throughout the region and the nation. Pipelines move petroleum products from production areas to refineries without the need to utilize surface transportation freight networks. Figure 17 shows existing petroleum and natural gas pipelines in the region. These locations are approximate and based upon publicly available information.

Figure 17. Fargo-Moorhead Regional Pipelines, 2016



Source: US Energy Information Administration, 2016

ACCESS TO BARGE OR WATERWAY FACILITIES

The Red River is not a navigable waterway for barge traffic. The closest port that provides waterway transportation is the Port of Duluth on Lake Superior. Direct access to Duluth is available via BNSF rail or by truck along US 10 via MN 34, MN 200, and US 2. This route parallels the BNSF rail line and totals approximately 240 miles. Interstate access follows I-94 to Minneapolis-St. Paul, connecting with I-35 to Duluth; this route totals 375 miles by truck.

AIR FREIGHT AND MAIL

The movement of freight and mail by aviation is critical to local commerce and market dynamics within a region. Table 29 compares total landed weight for freight and air mail carriers that serve the Fargo-Moorhead Metropolitan Area in 2015 and 2016.

Table 29. Total 2015 and 2016 Cargo Landed Weight at Hector International Airport, by Airline

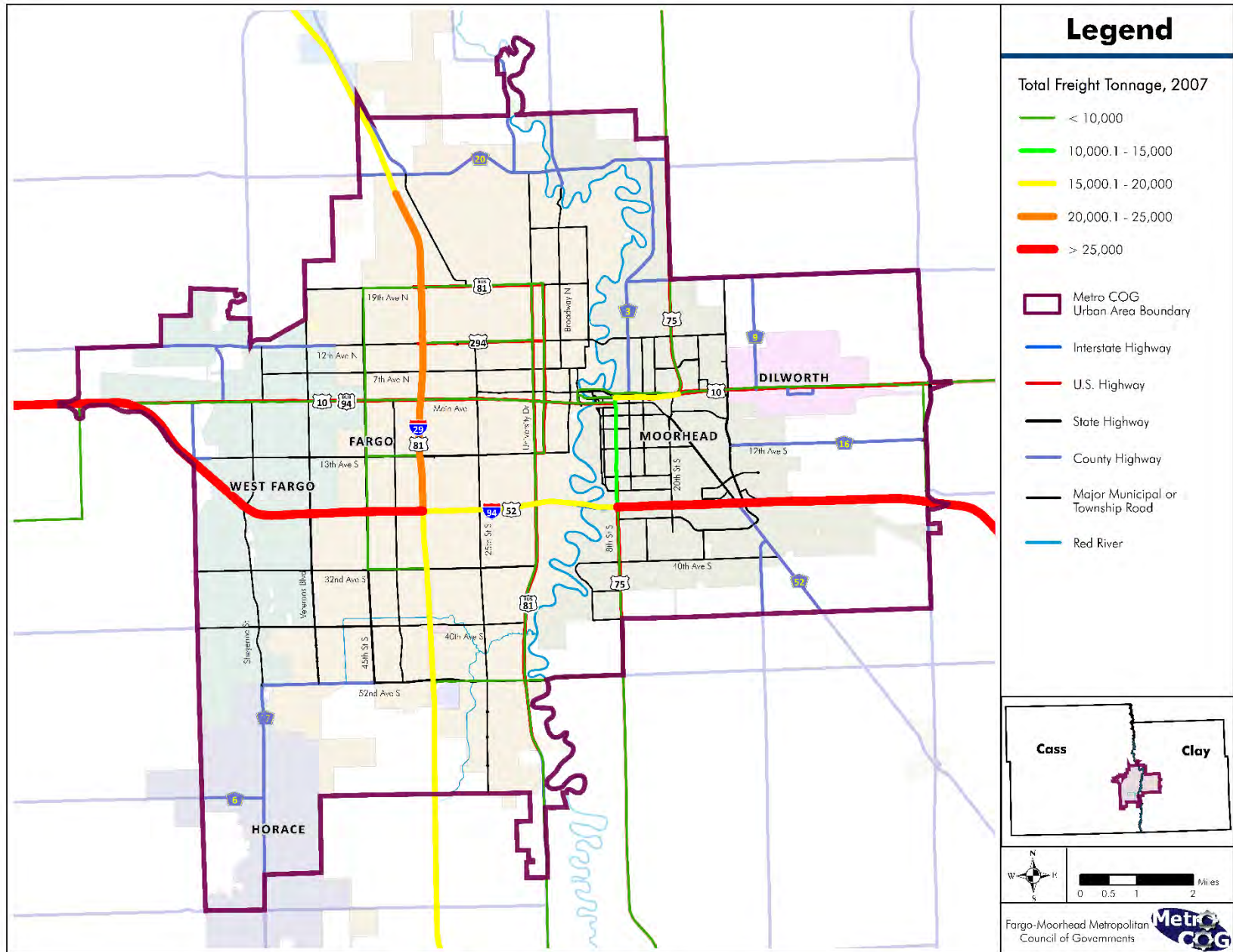
Airline	Total Landed Weight in 2015 (lbs)	Total Landed Weight in 2016 (lbs)
Alpine Air	8,408,700	8,651,100
Corporate Air	391,000	2,329,000
CSA	-	25,500
Encore	2,176,800	1,784,600
FedEx	-	37,015,966
Mountain Air	-	1,373,890
Northern Air	114,000	-
Pacair	37,500	1,599,000
Perimeter	1,548,200	-
Total	12,676,200	52,779,056

Source: Fargo Municipal Airport Authority, 2016 and 2017

Hector International Airport saw over a 300 percent spike in the weight of air cargo landed from 2015 to 2016. In April 2016, the Fargo Municipal Airport Authority signed a five-year deal with FedEx on a new air shipping facility. The deal included the modification of an existing building for sorting and a new hanger for aircraft maintenance and support. A previous facility had operated out of Grand Forks International Airport.

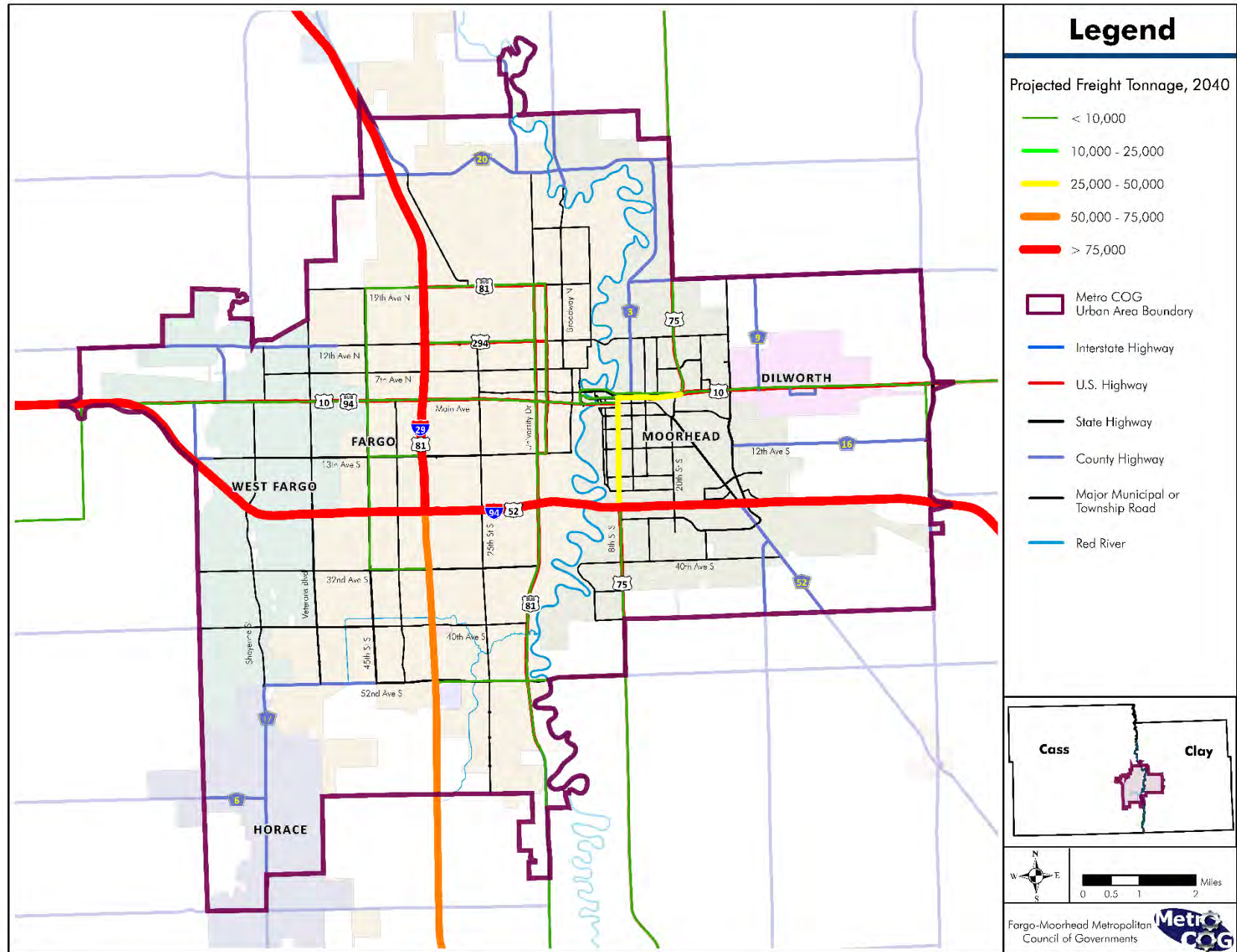
The new facility, which operates seven days a week, accommodates up to 20 FedEx Express flights daily and services 100 truck routes weekly.

Figure 18. 2007 Freight Tonnage in the Fargo-Moorhead UZA



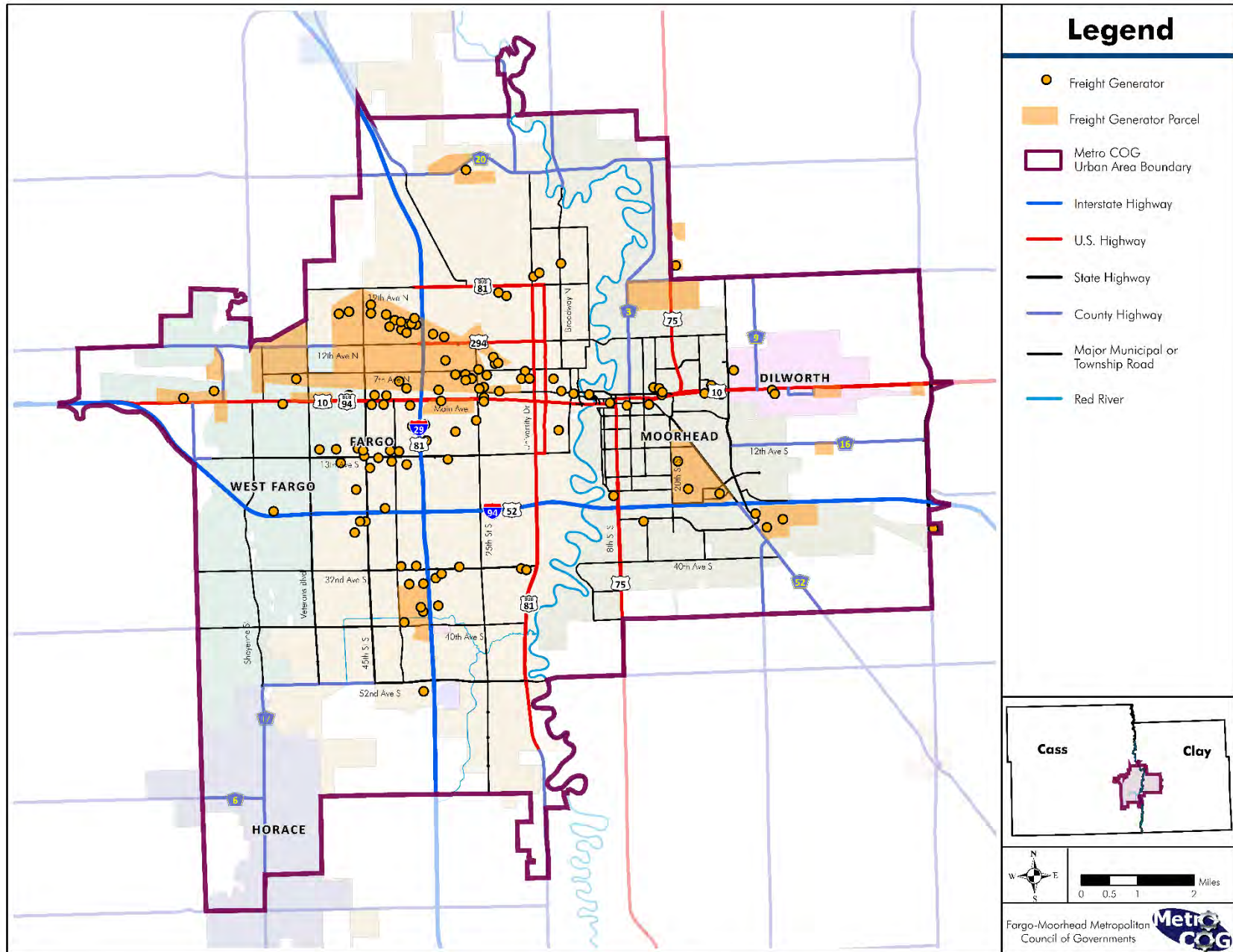
Source: FHWA Freight Analysis Framework, Version 3.4; Metro COG, 2016

Figure 19. 2040 Projected Freight Tonnage in the Fargo-Moorhead UZA



Source: FHWA Freight Analysis Framework, Version 3.4; Metro COG, 2016

Figure 20. Local Freight Generators, 2010



Source: Metro COG, 2016

BICYCLE & PEDESTRIAN NETWORK

The Fargo-Moorhead regional bicycle and pedestrian network continues to grow steadily as the community further realizes the importance of providing transportation options for all modes. Many steps have been taken in recent years to improve conditions for both cyclists and pedestrians. Jurisdictions continue to make improvements to existing bicycle and pedestrian infrastructure and continue to expand miles of facilities. Safety and education is also an important focus for Metro COG and area jurisdictions.

BICYCLE AND PEDESTRIAN NETWORK CHANGES

Jurisdictions continue to make improvements to existing bicycle and pedestrian infrastructure and continue to expand miles of facilities. Jurisdictions also continue to make sidewalks, paths and crosswalks ADA compliant and every year more signalized crosswalks are fitted with pedestrian countdown pedestrian signal heads. Table 30 shows a listing of all the reported bicycle/pedestrian network changes which occurred in 2016. In addition, a map of the current bicycle and pedestrian network is located on Figure 21.

BICYCLE AND PEDESTRIAN SAFETY

Using data received from MnDOT and NDDOT, Metro COG annually tracks crashes involving bicycles and pedestrians. In 2015 there were a total of 37 crashes involving bicycles or pedestrians, 31 of which occurred in Fargo. No fatal events occurred in 2015, and overall crash counts were down significantly from previous years. Figure 22 contains a map depicting all 2015 crash locations in the urban area.

BICYCLE SAFETY EDUCATION

Bicycle education continues to be a top priority in the area. Metro COG's Bicycle and Pedestrian Plan, completed in February 2017, identified bicycle and motorist education as the Plan's top priority. Educating the public about the appropriate operation of bicycles and motor vehicles in relation to each other is a key component in reducing the number of bicycle-related crashes.

In 2012, the Valley Bicycle Summit was created as an avenue to provide bicycle education to the public. The Summit initially consisted of one stand-alone event at Fargo South High School. Since 2013, events have been held during Streets Alive.

Streets Alive occurs twice a summer and consists of the closing certain downtown streets to vehicle traffic and opening them up for activities and other modes of transportation. The Valley Bicycle Summit provides educational materials to the public and provides an opportunity for the public to provide input or take a quiz to help educate them on rules of the road and safety.

In 2013, Metro COG created a website which provides the public with a host of educational information. The educational information includes rules of the road, youth education information, frequently asked questions, and more. In addition to educational information, the website also provides maps, closure information, events, news, and more. The Bike FM website can be visited at www.bikefm.org. Metro COG continues to make updates and provides current information to the website as needed.

Table 30. 2016 Bicycle and Pedestrian Projects and Improvements

Jurisdiction	Location	Project Description	TIP Project No. / Local
Cass County	East side of CR 28 from Main Ave to 13 th Ave W; North side of 13 th Ave W from CR 28 to Drain 21	New shared use path	ND Parks & Trails, TIP No. 115030
Fargo	North side of 40 th Ave S from 18 th St to Drain 27	Widened sidewalk to shared use path	TAP, TIP No. 415011
Fargo	North side of 13 th Ave S from 38 th St to 45 th St	New shared use path	TIP No. 413035
Fargo	East side of 2 nd St from Main Ave to 7 th Ave N	New shared use path	Local
Fargo	East side of 51 st St from 28 th Ave S to 30 th Ave S	New shared use path	Local
Fargo	North side of 12 th Ave N from 45 th St to 57 th St/9 th St E	New shared use path	TIP No. 315010
Fargo	North side of 64 th Ave S from University Dr. to 25 th St	New shared use path	Local
Moorhead	20 th Ave S from 4 th St to 8 th St frontage road	New shared lane markings	Local
Moorhead	East of RR tracks from 30 th Ave S to Southside Regional Park	New shared use path	Local
Moorhead	8 th St frontage Rd from 20 th Ave S to 24 th Ave S	New shared lane markings	Local
Moorhead	8 th St from 16 th Ave S to 20 th Ave S	Widened sidewalk to shared use path	Local
Moorhead	8 th St from 24 th Ave S to 35 th Ave S	Replaced shared use path and installed tunnel under I-94 on ramp & off ramp	TIP No. 816010
Moorhead	24 th Ave S from 42 nd St to 45 th St	New shared use path	Local
Moorhead	20 th St from I-94 to 30 th Ave S	Replaced shared use path	Local
Moorhead	Stonemill Trail	New shared use path	Local

Source: Cities of Fargo, Moorhead, Cass County

2016 FARGO-MOORHEAD BICYCLE AND PEDESTRIAN PLAN

Every five years, Metro COG creates a new Bicycle and Pedestrian Plan to keep current on local bicycle and pedestrian needs, concerns, and opportunities. In 2016, the latest plan was created which provided a series of recommendations to help achieve the goals identified. Public involvement was also a key contributor to this plan's success with a total of 342 surveys completed as part of the public input process.

BICYCLE & PEDESTRIAN COUNTS

In 2013, Metro COG began a new and extensive bicycle and pedestrian count program. Fourteen locations around the UZA are manually counted every year for four hours (3:00 pm – 7:00 pm) on weekdays in September. Table 31 compares the counts collected from 2014 to 2016. It is important to note that many of these counts were collected over one day only. External factors such as weather may create significant variances between counts.

In addition to the manual counts, bicycle and pedestrian traffic is also collected using infrared trail counters. These counters, permanently installed at six locations around the UZA, collect bicycle/pedestrian traffic 24 hours a day, seven days a week. The counters have been operating since summer 2014. Table 32 is an overview of the counts recorded from 2014 to 2016. Infrared trail counters do not distinguish between bicyclists and pedestrians.

Table 31. Manual Bicycle and Pedestrian Counts

2014 – 2016 Manual Bicycle & Pedestrian Counts per Hour						
	Bikes			Pedestrians		
	2014	2015	2016	2014	2015	2016
7 th St NE at 4 th Ave NE, Dilworth	3	2	3	4	7	4
9 th Ave S under I-29, Fargo	8	5	7	3	2	3
12 th Ave N bridge near 29 th St, Fargo	4	10	9	5	3	5
13 th Ave S under I-29, Fargo	10	7	6	7	8	8
45 th St at 40 th Ave S, Fargo	6	5	3	9	7	8
40 th Ave S at 45 th St, Fargo	3	1	3	6	4	9
Broadway at 2 nd Ave N, Fargo	20	14	14	354	335	288
Broadway at Main Ave RR trx, Fargo	18	12	10	82	52	80
12 th Ave N at University Dr., Fargo*	11	15	10	40	33	31
University Dr. at 12 th Ave N, Fargo*	16	17	20	28	21	28
NDSU gate at 12 th & Univ, Fargo*	13	12	11	46	36	42
12 th Ave N / 15 th Ave N Bridge, F/M	12	11	11	6	13	14
9 th St at 17 th Ave S, West Fargo	4	5	6	23	12	19
17 th Ave S at 9 th St, West Fargo	12	8	10	26	25	26

* Counts were taken between 1:00 pm – 6:00 pm.

Table 32. Automated Bicycle/Pedestrian Counts, Monthly Total

Location	Sept 2014	Dec 2014	Mar 2015	June 2015	Sept 2015	Dec 2015	Mar 2016	June 2016	Sept 2016	Dec 2016
West sidewalk of Broadway at 2 nd Ave N, Fargo	1,153	702	960	-	1,145	897	1,081	1,014	1,083	761
Trail near Rendezvous Park, West Fargo	67	8	38	101	74	1	46	71	64	4
Gooseberry/Lindenwood Park Bridge, Fargo/Moorhead	424	34	142	-	-	74	284	610	364	54
Milwaukee Trail mat 35 th Ave S, Fargo	318	60	166	390	271	53	189	365	248	38
Oak Grove/Memorial Park Bridge, Fargo/Moorhead	123	23	-	158	143	25	-	203	138	22
Red River Trail at 9 th Ave S, Fargo	292	39	182	364	-	25	73	-	-	-

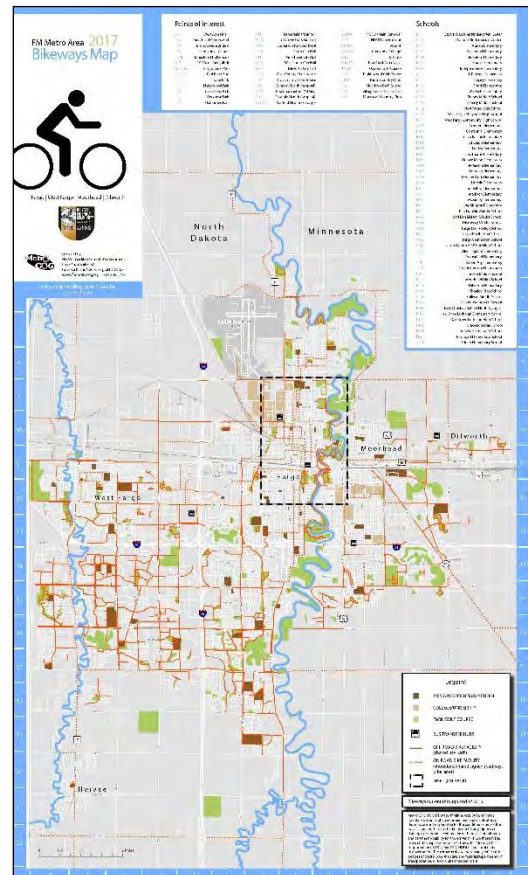
BRONZE BICYCLE FRIENDLY COMMUNITY

In 2013, Metro COG began the application for Bicycle Friendly Communities for the Fargo-Moorhead area. This included the cities of West Fargo, Fargo, Moorhead, and Dilworth. The application was reviewed by the League of American Bicyclists and in November 2014 the MSA was designated as a Bronze Bicycle Friendly Community. The designation is valid until 2018. In 2015, Metro COG worked with local jurisdictions in scoping and purchasing bicycle 30 Bicycle Friendly Community road signs. Twenty-six signs were installed around the UZA with the remainder held by Metro COG for future use.



2017 FM BIKEWAYS MAPS

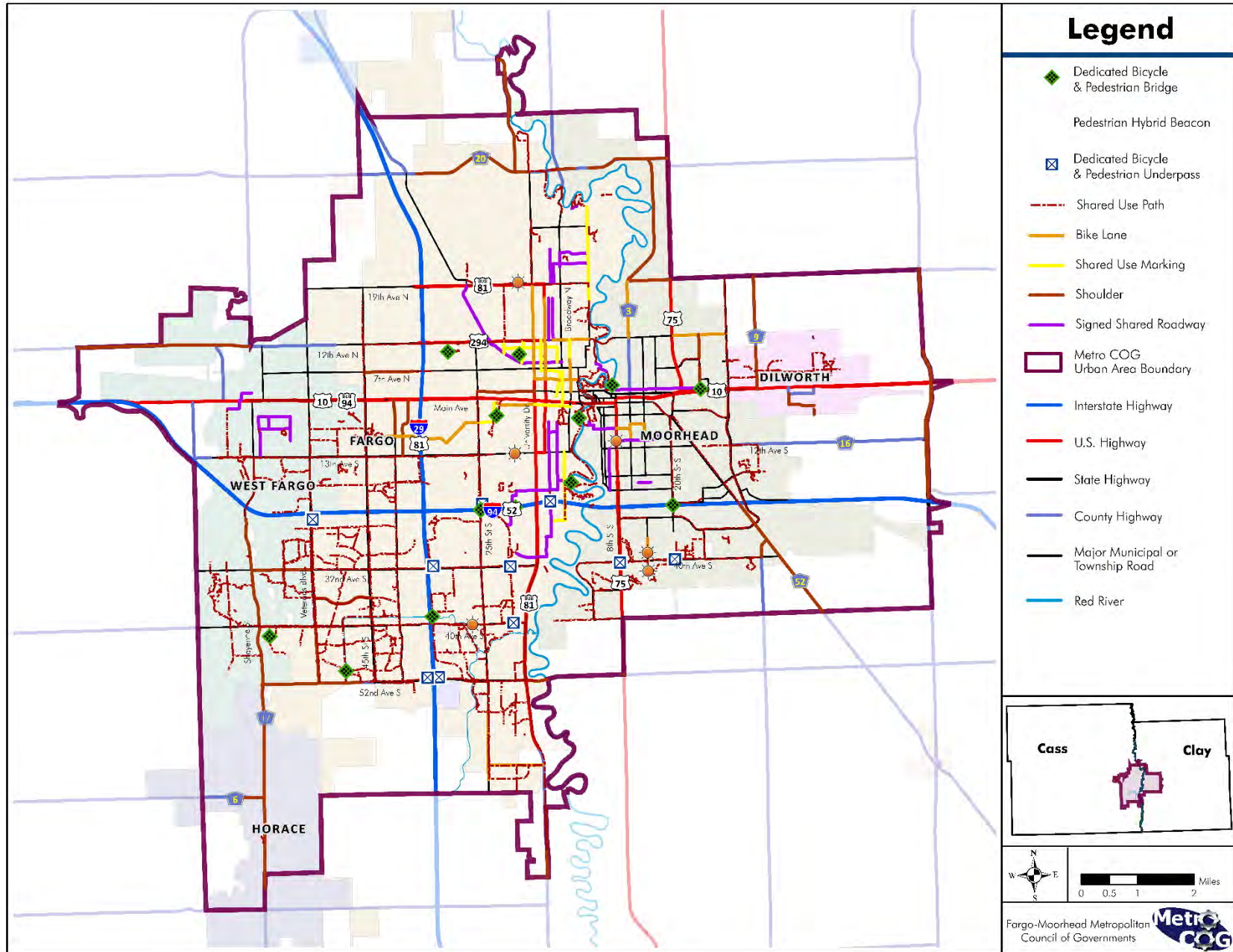
Since 2012, Metro COG has been consistently updating and printing current versions of a Fargo-Moorhead Bikeways Map. The latest map was updated and printed in 2016. A total of 12,500 maps were printed and distributed throughout the community.



BICYCLE / PEDESTRIAN-RELATED STUDIES AND PLANS

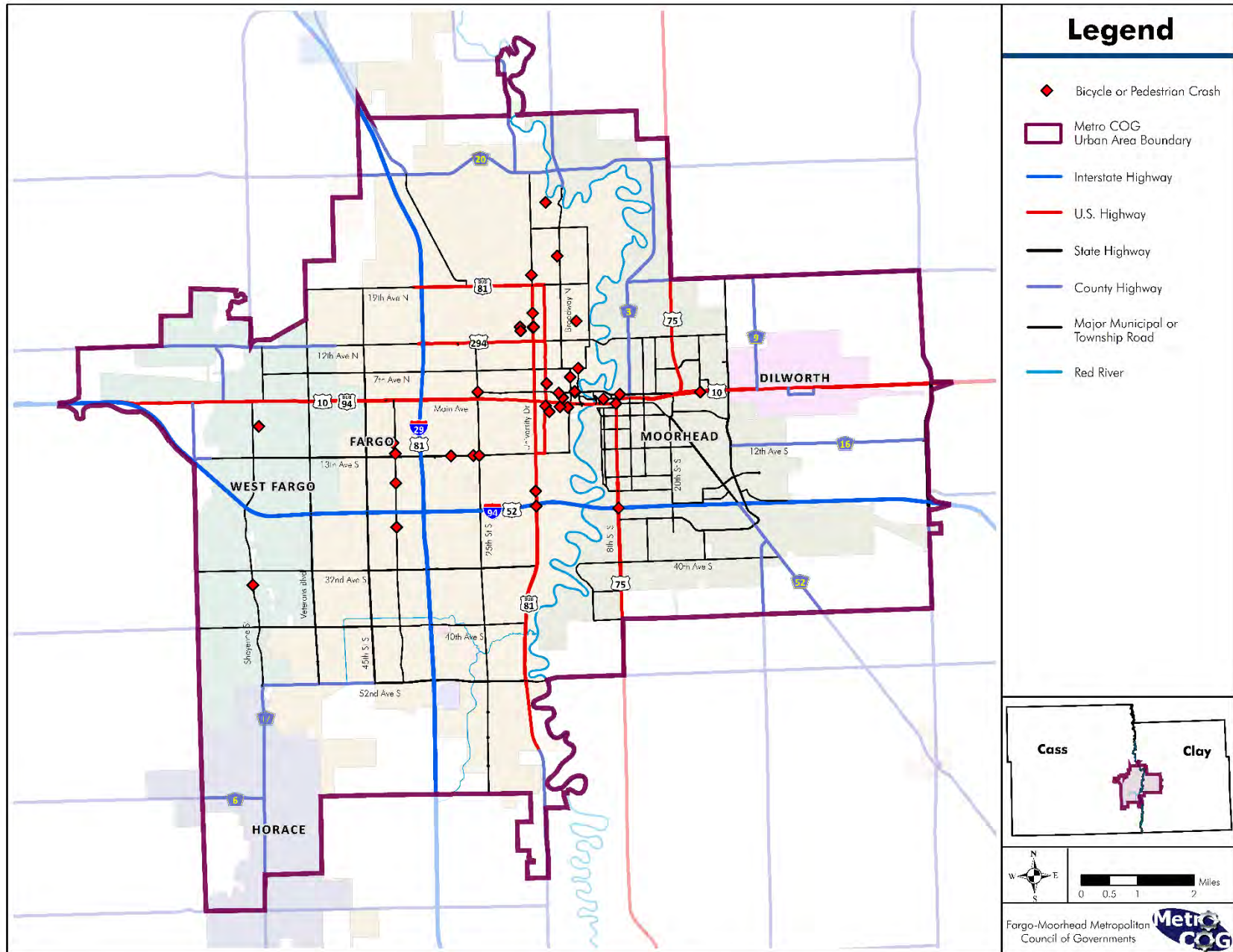
In 2014, the Clay County Heartland Trail Task Force was formed to help study and plan the Heartland Trail through Clay County. The Heartland Trail is currently a 49-mile paved shared use path running from Park Rapids, MN to Cass Lake, MN. In 2006 the Minnesota legislature approved the extension of the Heartland Trail from Park Rapids to Moorhead. Metro COG continues to facilitate the meetings of the Clay County Heartland Trail Task Force and the Heartland Trail – Buffalo River State Park to Hawley Subcommittee.

Figure 21. Fargo-Moorhead Bicycle and Pedestrian Network, 2015



Source: Metro COG, 2016

Figure 22. 2015 Bicycle and Pedestrian Accidents



Sources: MnDOT Crash Data, 2016; NDDOT Crash Data, 2016; Metro COG, 2016

TRANSIT SYSTEM

The Fargo-Moorhead Metropolitan Area offers numerous public transportation opportunities for its residents and visitors. There are five primary transit providers receiving public funding; together these providers offer fixed route transit services, rural commuter services, senior dial-a-ride services, and ADA demand response services. The transit providers servicing the Metro Area include:

- Metro Area Transit (MATBUS);
- MAT Paratransit;
- Valley Senior Services (VSS);
- Handi-Wheels; and
- Transit Alternatives

This chapter provides a detailed overview of each transit service and the applicable service area.

Services

FIXED ROUTE SERVICE

Fixed routes account for the bulk of public transit ridership in the Metropolitan Area. Routes operated by MATBUS are contained entirely within the jurisdictional limits of Fargo, West Fargo, Moorhead, and Dilworth, thereby entirely within the UZA. A contributing factor to this service area delineation is the applicability and use of 49 U.S.C. 5307 Urbanized Area Formula Program, which provides substantial financial support for the operation of fixed route transit in Fargo-Moorhead. Figure 23 shows fixed routes, transfer points, and shelter locations as of December 31, 2015. MATBUS maintains approximately 100 shelters and facilities, and the majority of the structures are located in high demand areas such as commercial areas, colleges, public housing, health facilities and human service facilities. Heated shelters and facilities are provided at the West Acres Transit Hub, NDSU Memorial Union Transit Hub, the FargoDome, MSUM on 14th Street, and at Concordia College on 5th Street.

PARATRANSIT SERVICE

MAT paratransit provides non-emergency, lift-equipped transportation services for individuals whom are functionally unable to ride the MAT fixed route system. The service is door-to-door for eligible riders; however, it is a

‘shared ride service’ which means other passenger stops are accommodated as necessary in route to a destination. Prior to existence of the Americans with Disabilities Act of 1990 (ADA), paratransit was typically provided by either non-profit human service agencies or public transit agencies per requirements set forth in Section 504 of the Rehabilitation Act of 1973. This Act prohibited the exclusion of the disabled from any program or activity receiving federal financial assistance. The Code of Federal Regulations (Title 49, 37.131(a)) sets forth requirements for making buses accessible and other regulations relating to paratransit services within public transit service areas. In regards to the service boundary, a transit provider must provide “complementary paratransit service to origins and destinations within corridors with a width of three-fourths of a mile on each side of each fixed route, including three-fourths of a mile radius at the ends of each fixed route.”¹¹ However, MATBUS provides paratransit service to everyone within the city limits of Fargo, Moorhead, West Fargo, and Dilworth.

UPDATE TO THE MATBUS TRANSIT DEVELOPMENT PLAN

The Transit Development Plan (TDP) is the long-range planning document for transit operations in the greater Fargo-Moorhead region. It encompasses fixed-route, demand/response (paratransit), and senior-ride operations, whether they are run through a municipality or other non-profit agency.

The TDP is updated every five years to reflect current conditions and readjust future goals. The TDP was recently updated and approved in December 2016, along with an update to the Coordinated Human Service Transportation Plan (HSTP).

A major component of this plan includes system modifications that could occur in the next five years. These projects consist of both modifications to existing routes and implementation of new service.

The 2016 TDP differs from TDPs in the past in that it casts a farther net into the future, incorporating very large service requests such as night and Sunday service that would be very expensive. Transit service in the region is nearing a crossroads. Moorhead and Fargo have operated separate municipal transit services that essentially fly under one

¹¹ Per the Code of Federal Regulation, Title 49, 37.131 (a).

banner, MATBUS. With the increasing need for more and more transit service in the region, MATBUS is strongly considering moving towards a transit authority, a special-purpose government agency with the ability to impose excise, income, property, and/or sales taxes, as well as other powers. However, under North Dakota Century Code, any authority with taxing capability must be sanctioned by the legislature.

With an ever-expanding service area due to the rapid growth of the metro area, MATBUS must find additional resources to extend service to new growth areas. Facilities providing essential services such as Sanford Hospital have relocated their facilities to areas outside of the traditional urban core. This has created new issues for MATBUS and city officials on how best to use resources to service facilities that are no longer located on transit routes but cater to transit-dependent populations.

SENIOR RIDE AND RURAL TRANSIT SERVICES

Metro Senior Ride is operated by Valley Senior Services (VSS) in Fargo and West Fargo and under contract with the City of Moorhead for service to Moorhead and Dilworth. Metro Senior Ride provides door-to-door transportation services for senior citizens age 60 and over. To be eligible for this service, individuals must be ambulatory and able to enter and exit the vehicle under their own power. The Senior Ride service area includes the cities of Fargo, Moorhead, West Fargo, and Dilworth.

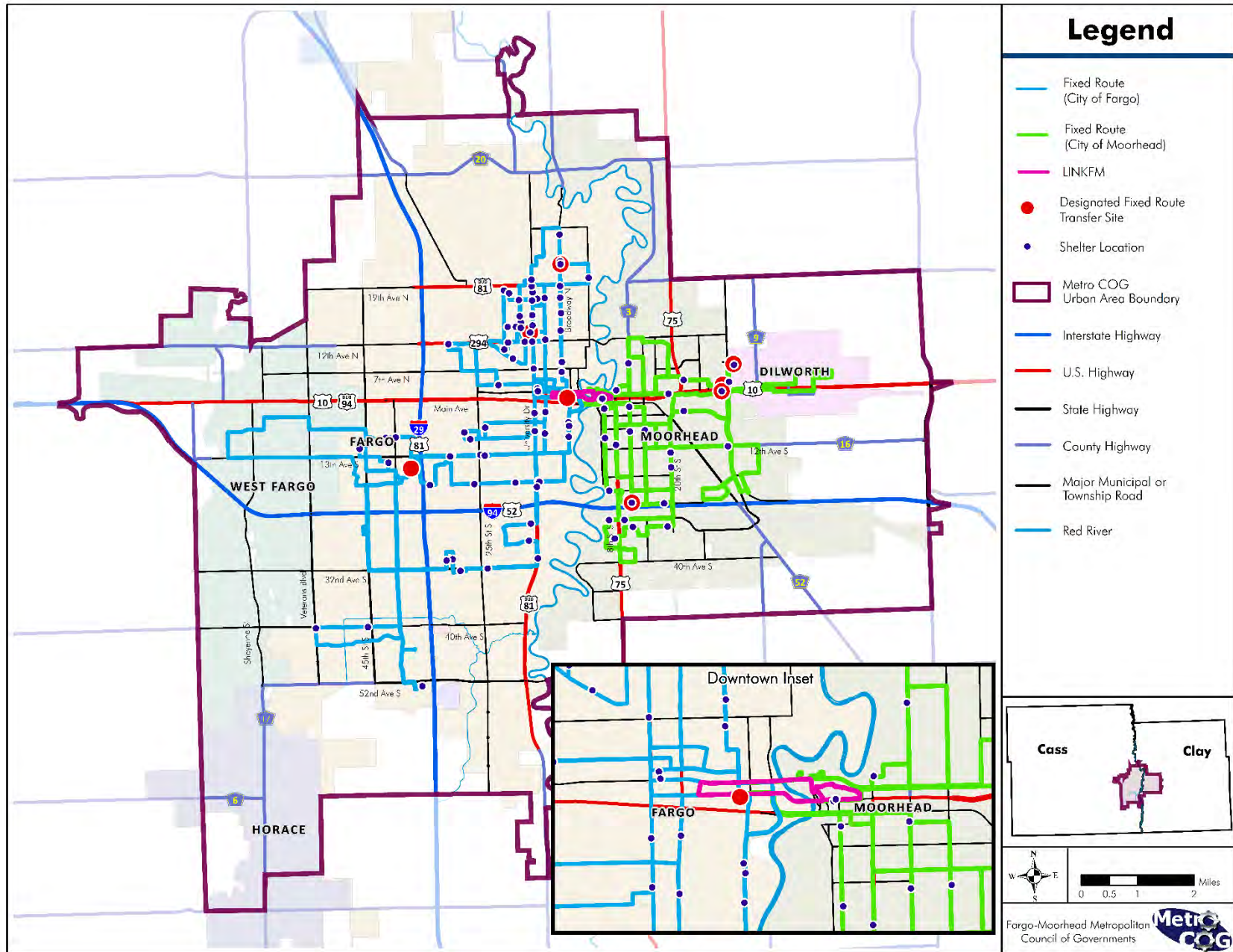
Within rural areas of the MSA, Cass County Rural Transit and Transit Alternatives in Clay County provide a blend of fixed route and demand response services to individuals. Services offered by Transit Alternatives include a commuter routes from Detroit Lakes and Fergus Falls to Fargo-Moorhead via the GTC, weekly shopping routes to public housing facilities in Moorhead, and Sunday flexible route service to Moorhead. Cass County Rural Transit provides door-to-door transportation services within rural Cass County as well as a few weekly routes to selected peripheral communities (e.g. Casselton, Mapleton) to accommodate senior residents.

SPECIALIZED TRANSPORTATION SERVICES

In recent years, MATBUS and Metro COG have cooperatively undertaken extensive transportation planning and mobility management efforts to ensure the transportation needs of metropolitan citizens are

reasonably met. In addition to fixed route, paratransit, senior ride, and rural transit, the Metropolitan Area has approximately 30 private/public transportation providers whom serve a diverse set of specialized transportation and mobility needs, mainly for elderly, individuals with disabilities and medical trips. The Fargo-Moorhead Metropolitan Area serves as a regional medical center and a significant population center for human and social services. Thus, there is a growing population that needs access to these services. On a biannual cycle, Metro COG and MATBUS survey these providers to gather data and establish an understanding of operational features and services. Based on this information, MATBUS publishes the 'FM Ride Source' which catalogues available transportation services in the Metropolitan Area. This document, formerly known as the 'Directory of Special Transportation Services', has been published since 1978. A copy of the 2017 print directory can be found on the City of Fargo's website at www.fmridesource.com. Individuals may also contact Metro COG or MATBUS for a copy of this directory.

Figure 23. MATBUS Fixed Routes, Transfer Sites, and Shelter Locations



Sources: MATBUS, 2016; Metro COG, 2016

2016 System Operations, Performance and Trends

In 2016, the transit system provided a total of 2,053,675 rides, including all fixed routes, paratransit services, rural commuter services, senior ride services, and ADA demand response services within the region. MATBUS fixed-route ridership decreased by approximately six percent in 2016 over 2015 totals, likely due to a combination of low gas prices, on-demand taxi services, roadway construction, the Great Rides Bike Share program, and bus drivers recording free rides and transfers. Paratransit ridership increased slightly in 2016, though has declined by approximately three percent overall over the past five years. Table 33 summarizes total ridership data and the five-year trends for the primary transit providers in the MSA.

Table 33. Transit Ridership Summary, 2012 - 2016

Transit System	Service	2012	2013	2014	2015	2016
	Fargo Fixed ¹²	1,608,628	1,682,267	1,741,524	1,600,610	1,486,993
	MHD Fixed	436,304	452,624	482,177	459,288	445,019
	Total MAT Fixed	2,044,932	2,134,891	2,223,701	2,059,898	1,932,012
	MAT Paratransit	54,217	53,403	53,893	51,513	52,394
Transit Alternatives	All Services	6,797	8,016	6,027	6,258	8,109
	Fargo/WF	35,098	38,666	43,478	42,831	40,800
	MHD / Dilworth	7,492	8,042	8,301	10,127	10,765
	Cass County Rural Transit	1,872	1,963	1,792	2,207	1,309
Handi-Wheels	All Services	15,398	10,845	9,739	9,803	8,286
Total	All Services	2,165,806	2,252,774	2,285,895	2,182,637	2,053,675

Sources: MATBUS, Valley Senior Services, Handi-Wheels, Productive Alternatives, Inc.

FIXED ROUTE OPERATING CHARACTERISTICS

Table 34 depicts the total ridership and revenue hours, by route, for the fixed route system within Fargo and Moorhead for 2016. Route 15, which travels between the downtown GTC and the West Acres Mall and 13th Avenue commercial corridor, continues to be the heavily utilized route, totaling over 335,000 rides in 2016. Routes 32 and 33, both of which carry sizeable numbers of NDSU students, are also routes which account for a high proportion of the total transit ridership in the area. As depicted in Figure 24, college students comprise the bulk of the users of the fixed-route system and account for nearly half of the total ridership in 2016.

LinkFM is a free circulator route connecting the downtowns of Fargo and Moorhead. The route features a continuous loop starting and ending at the Moorhead Center Mall. LinkFM arrives every 15 to 20 minutes at each stop along its route. Unlike other MATBUS routes, LinkFM will only stop at designated bus stop sites as needed to pick up or drop off passengers.

A graph comparing the fixed route ridership trends of the last two years is depicted in Figure 25. Fixed-route ridership was down approximately seven percent in Fargo and three percent in Moorhead from 2015 totals. As previously mentioned, 2016 ridership totals likely reflective of a dramatic decline in the cost of gasoline as well as the establishment of the Great Rides Bike Share program in Fargo. Gasoline prices fell over 34 percent from 2014 to 2016, a dramatic figure which has a significant effect on transit ridership. This is reflected in the college and youth, ridership totals, which declined by 12 and 11 percent over the past year, respectively. College ridership was likely significantly impacted by the Bike Share program, with college students accounting for over 90 percent of all bike rides.

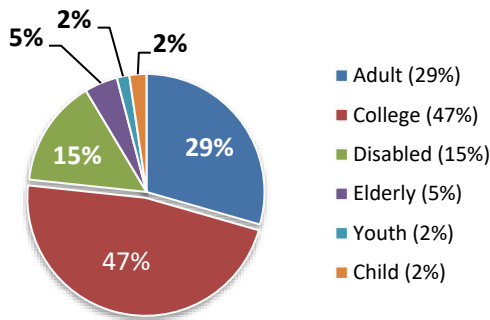
¹² Includes NDSU Circular Routes, U-Pass Ridership, LinkFM, and ESPN/Homecoming totals

Table 34. 2016-2017 Ridership, Revenue Hours, and Rides per Revenue Hour

Moorhead	Total Ridership 2015	Total Ridership 2016	Revenue Hours 2015	Revenue Hours 2016	Rides per Rev. Hour 2015	Rides per Rev. Hour 2016
Route 1	76,401	74,771	3,481	3,472	21.95	21.06
Route 2	123,362	108,113	4,290	4,142	28.76	25.83
Route 3	48,675	47,525	3,497	3,267	13.92	16.44
Route 4	110,965	117,824	7,687	7,315	14.44	16.67
Route 5	52,495	50,547	3,492	3,849	15.03	13.52
Route 6	12,267	10,410	1,817	1,817	6.75	5.70
Route 7	10,229	12,752	1,382	1,382	7.40	8.99
Route 8	16,815	15,378	1,382	1,377	12.17	10.60
Route 9	8,079	7,699	1,970	1,970	4.10	3.89
Moorhead Total	459,288	445,019	28,995	28,592	15.84	15.33
Fargo						
Route 11	82,527	75,607	4,401	4,582	18.75	16.59
Route 13	171,600	132,610	8,852	8,918	19.39	14.92
Route 13U	64,928	51,694	2,712	2,375	23.95	26.37
Route 14	174,363	162,674	13,481	13,576	12.93	12.06
Route 15	339,443	335,588	16,045	16,416	21.16	19.38
Route 16	74,759	71,638	6,085	6,122	12.29	11.74
Route 17	41,267	37,030	2,277	2,291	18.12	16.21
Route 18	60,066	56,090	4,401	4,128	13.65	16.42
Route 23	24,565	23,925	4,846	4,798	5.07	5.02
Route 31	52,937	41,060	2,025	2,025	26.14	16.27
Route 32E	178,929	119,058		1,782		54.22
Route 32W	15,931	38,518		972		32.47
Route 33	226,883	207,066	4,746	5,127	47.81	33.93
Route 34	73,459	96,302	2,322	2,320	31.64	41.91
Route 35	7,643	4,892	405	342	18.87	11.63
Fargo Total	1,589,297	1,453,752	74,864	75,774	21.24	27.56
LinkFM	10,427	32,321	2,065	3,443	5.05	9.60
ESPN/Homecoming	886	920	-	-	-	-
TOTAL	2,059,898	1,932,012	105,924	107,809	19.44	17.59

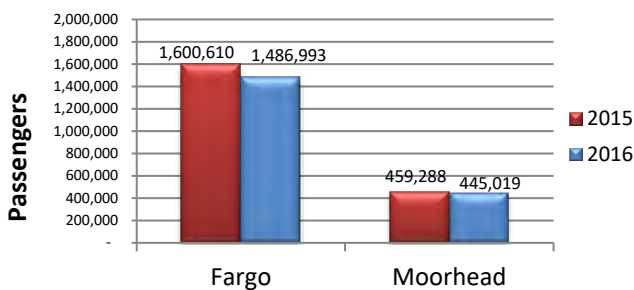
Source: MATBUS, 2016-2017

Figure 24. 2016 MATBUS Rides, by Type



Source: MATBUS, 2017

Figure 25. Fixed Route Ridership, 2015 - 2016



Source: MATBUS, 2017

PARATRANSIT RIDERSHIP CHARACTERISTICS

Table 35 displays paratransit ridership since 2012, with splits between each applicable jurisdiction. Pursuant to current agreements, the City of Fargo and City of Moorhead share paratransit service costs based on a ridership pro-rata, with the exception that both cities are responsible for replacing their respective portion of the metropolitan paratransit fleet. The City of Dilworth is charged for use of the paratransit system and pays a pro rate share of the local share match based on ridership for both Paratransit and Senior Ride service to Dilworth Residents. The City of West Fargo is charged a ‘per ride’ cost, which is collected by the City of Fargo.

Table 35. Paratransit Ridership, 2012-2016

Year	Fargo	West Fargo	Moorhead	Dilworth	Total
2012	36,612	7,001	9,576	1,028	54,217
2013	37,562	5,070	9,059	1,712	53,403
2014	39,160	4,695	8,647	1,391	53,893
2015	36,999	4,970	8,373	1,120	51,462
2016	36,706	4,992	9,878	818	52,394
Ridership Change – 2015 to 2016	-0.8%	0.4%	18%	-27%	2%

Sources: MATBUS, 2017

PARATRANSIT OPERATING CHARACTERISTICS

Table 36 provides an overview of the MATBUS paratransit operational characteristics for 2016. Ridership increased by approximately two percent while annual service decreased by 2.5 percent in 2016.

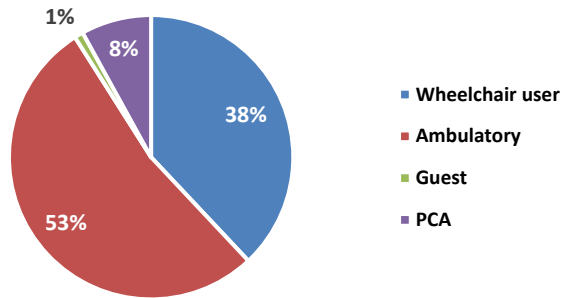
Figure 26 provides an overview of the customers which utilized the paratransit system in 2016. Overall, 38 percent of all riders were wheelchair users, while 53 percent were ambulatory. The remaining nine percent were either personal care assistants or guests. The ridership splits for 2016 closely mirror those of previous years.

Table 36. Paratransit Operational Characteristics, 2015 - 2016

Category	2015	2016
Annual Service Miles	336,408	327,952
Total Ridership	51,462	52,394
Total Operating Days	356	359
Daily Service Miles	945	914
Rides per Day	145	146
Passengers per Hour	2.15	2.25
Miles per Passenger	6.53	6.26

Source: MATBUS, 2017

Figure 26: MAT Paratransit Rides by Customer Type, 2016



Source: MATBUS, 2017

SENIOR RIDE AND RURAL TRANSIT RIDERSHIP

CHARACTERISTICS

Table 37 outlines the annual senior ride and rural transit ridership totals in the Fargo-Moorhead Metropolitan Area for 2012-2016. Of note, the total ridership on senior and rural transit systems decreased slightly in 2016, due to drops in ridership for Cass County Rural Transit and services in Fargo and West Fargo.

Table 37. Senior Ride & Rural Transit Ridership, 2012-2016

System	Route	2012	2013	2014	2015	2016
Transit Alternatives (Formerly Clay County Rural Transit)	All Services	6,797	8,016	6,027	6,258	8,109
	Fargo/WF	35,098	38,666	43,478	42,831	40,800
	Moorhead Dilworth	7,492	8,042	8,301	10,143	10,765
	Cass County Rural Transit	1,872	1,963	1,792	2,207	1,309
Total	All Systems	51,259	56,687	59,598	61,439	60,983

Sources: MATBUS, Metro COG, 2017

U-PASS RIDERSHIP

According to MATBUS data for 2016, student ridership accounts for 826,093 or roughly 47 percent, of all rides on the fixed route system. Table 38 identifies student ridership for the past five academic years. The U-Pass program was instituted in 2001 as a demonstration program and due to immediate success at NDSU the program was expanded to include all four of the larger Metropolitan Area’s colleges

and universities including Concordia College, MSUM, M|State, NDSU and NDSU. Each college contracts separately with MATBUS and provides an annual subsidy allowing students to use any MAT fixed route for no additional fees, with discounts usable throughout the entire academic year. Data provided within Table 38 does not include ridership on NDSU circulators (Routes 31, 32, 33, 34 and 35).

Table 38. U-Pass Ridership, Academic Years Spanning 2011-2016

Academic Year ¹³	NDSU	Concordia	MSUM	M State	NDSU	Total
2010-2011	254,881	13,602	97,768	36,452	-	402,703
2011-2012	234,925	13,932	101,590	46,746	-	397,193
2012-2013	261,202	12,517	100,250	46,646	-	420,615
2013-2014	281,759	11,060	112,444	43,719	-	448,982
2014-2015	255,243	12,656	115,512	35,109	-	418,520
2015-2016	215,845	13,665	93,609	29,943	1,192	354,254

Source: MATBUS, 2017

2016 Projects, Purchases, and Improvements

Pursuant to initiatives set forth within the FAST Act, Metro COG annually tracks the efforts of the local transit operators respective to projects, capital purchases, and system improvements/investments. Table 39 summarizes and documents TIP implementation, as well as any locally funded projects of significance that are not necessarily discernible by reviewing the federally mandated Transportation Improvement Program or Long Range Transportation Plan.

¹³ The academic year spans August 1st to July 31st

Table 39. 2016 Transit Projects, Purchases, and Improvements

Jurisdiction/Agency	Type	Project Description
MATBUS	Administration	Integrated SharePoint software into operations, including tracking of complaints, incidents, accidents, missed trips, mechanical failures, master lists (stops, announcements, routes, shelters, vehicles)
Moorhead	Equipment	Received (4) 35-foot diesel fixed route vehicles - 2 for Moorhead and 2 for Fargo
MATBUS	Equipment	Purchased Quantum self-securement for wheelchairs for 4 new buses
Fargo	Equipment	Fargo updated MobileView Security Camera System on 12 buses for wireless download
Fargo	Equipment	Fargo received 6 replacement paratransit buses
Fargo	Equipment	Fargo installed outdoor ruggedized depot monitors in the new NDSU Transit Hub to display real-time bus tracking and information
MATBUS	Equipment	Installed additional cameras at Ground Transportation Center to enhance safety and security
MATBUS	Equipment	Installed intercom/camera/door buzzer system at Metro Transit Garage's main administrative entrance to enhance security
MATBUS	Marketing	Created MATBUS App to download from the Apple Store or Google Play
MATBUS	Marketing	Red Hawks Game Day Sponsorship
MATBUS	Marketing	Implementation of Google Transit trip planning
MATBUS	Marketing	Presented at the Second Annual Transportation Symposium at Fargo Commission Chambers
MATBUS	Marketing	Received APTA Adwheel Award - 1st Place for LinkFM Street Fair Partnership
MATBUS	Operations	Recertified Special Users for MAT Paratransit and discount fixed-route fare
Fargo	Personnel	Approved for new Assistant Director position in Fargo
MATBUS	Route Change	NDSU Routes began using new NDSU Transit Hub located just off of 13th Ave N and University Drive by the STEM building
MATBUS	Route Change	Continued LinkFM Downtown circulator route after a successful pilot program
MATBUS	Shelters	
MATBUS	Study	Completed 2016-2020 Transit Development Plan

Source: MATBUS, 2017

Transit Fleet Inventory

FLEET INVENTORY – FIXED ROUTE

The City of Fargo and City of Moorhead each procure, operate, and maintain fixed route transit vehicles independently. The 2016 fixed route fleet is comprised of 45 buses with 27 in operation during peak requirements. A complete 2015 fixed route fleet inventory is provided in Table 40.

Table 40 has been color-coded to provide readers with a quick and easy way to decipher which vehicles are approaching their useful life cycle. The useful life cycle, which is defined by the Federal Transit Administration as a minimum of 500,000 vehicle miles or 12 years of service for fixed-route vehicles, is used to determine which vehicles need to be replaced and gives an approximate timeframe in which replacement will be necessary.

Table 40 uses the following colors to indicate where vehicles are at in their useful life cycle:

- Green: greater than 50 percent of minimum useful life remaining (less than 250,000 miles);
- Yellow: between 25 and 49 percent of the minimum useful life remaining (between 250,001 and 375,000 miles);
- Orange: less than 25 percent of useful life cycle remaining (greater than 375,000 miles);
- Red: vehicle is still in service, but past its useful life cycle (greater than 500,000 miles and/or over 12 years old).

FLEET INVENTORY – PARATRANSIT

MATBUS paratransit operates a joint fleet of vehicles with capital contributions to the fleet under the responsibilities of each city (Fargo & Moorhead). The City of Fargo contributes the West Fargo portion of capital to the fleet and the City of Moorhead contributes the Dilworth portion of capital to the fleet. The existing MAT Paratransit agreement, established in 1996, created a baseline of Fargo contributing eight vehicles to the fleet and Moorhead contributing three vehicles to the fleet for a combined fleet of 11 vehicles. The agreement also specifies that the city experiencing growth in ridership is responsible for any additional vehicles. Since the agreement was initially established, both cities have added vehicles to their inventory to better serve demand. As of December 2016,

MATBUS paratransit operates 17 vehicles, with 12 under City of Fargo ownership and five under City of Moorhead ownership. A complete 2015 paratransit fleet inventory is provided in Table 41.

Similar to the fixed-route inventory, Table 41 has been color coded to indicate where vehicles are at in their useful life cycle, using the following thresholds:

- Green: greater than 50 percent of minimum useful life remaining;
- Yellow: between 25 and 49 percent of the minimum useful life remaining;
- Orange: less than 25 percent of useful life cycle remaining;
- Red: vehicle is still in service, but past its useful life cycle.

FLEET INVENTORY – SENIOR RIDE

Table 42 contains a fleet inventory of senior ride services operating within the MSA. This inventory only includes vehicles operated by Valley Senior Services and Cass County Rural Transit.

Table 40. Fixed Route Fleet Inventory, December 2016

Vehicle ID	Year	Make/Model	Mileage	Owner
1124	1997	New Flyer	605,144	Fargo
1126	2002	New Flyer	514,003	Fargo
1127	2002	New Flyer	549,738	Fargo
1128	2002	Gillig	505,835	Fargo
1139	2004	Gillig	471,672	Fargo
1140*	2004	Gillig	522,610	Fargo
1141	2004	Gillig	480,769	Fargo
1142	2004	Gillig	496,055	Fargo
1173	2007	Gillig	332,706	Fargo
1174	2007	Gillig	278,710	Fargo
1175	2007	New Flyer	295,934	Fargo
1176	2007	New Flyer	304,468	Fargo
1184	2009	New Flyer	217,924	Fargo
1185	2009	New Flyer	198,637	Fargo
1186	2009	New Flyer	27,965	Fargo
1187	2009	New Flyer	198,925	Fargo
1188	2009	New Flyer	205,179	Fargo
1195	2010	New Flyer	239,694	Fargo
1196	2010	New Flyer	218,779	Fargo
1197	2010	New Flyer	209,418	Fargo
1198	2010	New Flyer	219,596	Fargo
1199	2010	New Flyer	226,490	Fargo
1200	2011	New Flyer	206,081	Fargo
1201	2011	New Flyer	194,866	Fargo
1220	2013	New Flyer	112,793	Fargo
1221	2013	New Flyer	112,878	Fargo
1222	2013	New Flyer	88,801	Fargo
1223	2013	New Flyer	89,313	Fargo
4151	2015	New Flyer	36,402	Fargo
4152	2015	New Flyer	37,089	Fargo
4171	2017	New Flyer	-	Fargo
4172	2017	New Flyer	-	Fargo
370	2003	Orion VII - 35'	367,750	Moorhead
590	2005	Orion VII - 30'	414,468	Moorhead
591	2005	Orion VII - 30'	421,810	Moorhead
592	2005	Orion VII - 30'	423,920	Moorhead
593	2005	Orion VII - 30'	456,070	Moorhead
1020	2010	New Flyer - 35'	253,597	Moorhead
2151	2015	New Flyer - 35'	49,679	Moorhead
2161	2015	New Flyer - 35'	44,482	Moorhead
2162	2015	New Flyer - 35'	42,697	Moorhead
2163	2015	New Flyer - 35'	42,483	Moorhead
2164	2015	New Flyer - 35'	39,788	Moorhead
2171	2016	New Flyer - 35'	-	Moorhead
2172	2016	New Flyer - 35'	-	Moorhead

Source: MATBUS, 2016

Table 41. Paratransit Vehicle Inventory, December 2016

Vehicle ID	Year	Make/Model	Mileage	Owner	Notes
1180	2008	Ford Supreme	218,904	Fargo	
1224	2012	Ford Goshen GCII	110,022	Fargo	
1228	2015	Ford Goshen GCII	47,599	Fargo	
1229	2015	Ford Goshen GCII	48,694	Fargo	
1230	2015	Ford Goshen GCII	48,824	Fargo	
1236	2015	Ford Goshen GCII	42,634	Fargo	
1237	2015	Ford Goshen GCII	40,142	Fargo	
1238	2015	Ford Goshen GCII	33,325	Fargo	
8161	2016	Elkhart Coach ECII	901	Fargo	
8162	2016	Elkhart Coach ECII	875	Fargo	
8163	2016	Elkhart Coach ECII	906	Fargo	
1919	2008	Ford E450	51,169	Fargo	Owned by Fargo Housing Authority
1177	2008	Ford Supreme	196,965	Moorhead	Engine repaired, extending useful life
1218	2012	Ford Goshen GCII	142,933	Moorhead	
1225	2014	Ford Goshen GCII	75,385	Moorhead	
1231	2015	Ford Goshen GCII	51,758	Moorhead	
1232	2015	Ford Goshen GCII	47,304	Moorhead	

Source: MATBUS, 2016

Table 42. Valley Senior Services Vehicle Inventory

Vehicle ID	Year	Make/Model	Owner
1167	1999	Ford Windstar	City of Moorhead
1209	2013	Dodge/Gr. Caravan	City of Moorhead
1210	2011	Ford E450/Goshen	City of Fargo
1219	2003	Dodge/Gr. Caravan	City of Fargo
1226	2014	Dodge/Gr. Caravan	City of Moorhead
1240	2001	Dodge/Gr. Caravan	City of Fargo
5151	2015	Dodge/Gr. Caravan	City of Moorhead
5161	2016	Dodge/Gr. Caravan	City of Fargo
5162	2016	Dodge/Gr. Caravan	City of Fargo
5163	2016	Dodge/Gr. Caravan	City of Fargo
6151	2016	Dodge/Gr. Caravan	City of Fargo
6152	2016	Dodge/Gr. Caravan	City of Fargo
6153	2016	Dodge/Gr. Caravan	City of Fargo
6171	2017	Dodge/Gr. Caravan	City of Fargo
6172	2017	Dodge/Gr. Caravan	City of Fargo
6173	2017	Dodge/Gr. Caravan	City of Fargo
1194	2009	Ford E450/Goshen	Cass County
1227	2014	Dodge Braun	Cass County

Source: Valley Senior Services, 2016; MATBUS, 2016

Glossary

The glossary of terminology is outlined in alphabetical order and reflects definitions as adopted, utilized and/or commonly applied in Metro COG's transportation planning program.

Advanced Traffic Analysis Center (ATAC):

ATAC is one of the main programs under the umbrella of the Upper Great Plains Transportation Institute (UGPTI) at North Dakota State University. ATAC focuses on enhancing transportation systems in small-to-medium size urban areas and rural areas through state-of-the-art analysis tools and technologies. ATAC worked closely with Metro COG to develop the 2005 base travel demand model (forecast years 2015 and 2035) and has assisted Metro COG with various projects.

American Community Survey (ACS):

The American Community Survey (ACS) is a project established by the US Census Bureau that replaces the "long form" in the decennial census. This process is an ongoing statistical survey which is sent to 250,000 addresses per month and will provide access to more current data throughout each decade.

Arterial Roadways (Principal & Minor): Principal and minor arterials carry longer distance traffic between important activity and population centers. These roadways are typically high traffic volume corridors and have more restrictive access standards to allow higher design speeds. Examples in the Fargo-Moorhead Metropolitan Area include: Interstate 94 (principal), Interstate 29 (principal), 45th Street South (principal), 32nd Avenue South (minor) and 12th Avenue South in Moorhead (minor).

Average Annual Daily Traffic:

In accordance with AASHTO (2001) average daily traffic (ADT) volume is the most basic measure of the traffic demand for a roadway. ADT is defined as the total volume during a given time period (in whole days) divided by the number of days in that period (i.e. annual).

Environmental Justice Database

(Low Income / Minority Populations):

To identify significant concentrations of populations and in an effort to comply with Executive Order 12898 Metro COG utilized data from the ACS (2009-2013), decennial 2010 Census, and data from the U.S. Department of Health and Human Services (HHS). Minority population concentrations were determined from block level Census geography data. Blocks where 25 percent or more of the total population was minority (race other than "single-race white") were selected and mapped. Parcels designated as non-residential were removed. These areas represent areas where a significant group of minorities reside; however, it is important to note that if a parcel is selected it simply means it falls within a Census block whose minority population is at least 25 percent of the total. Low income population concentrations were determined from block group level Census geography data. Block groups where 25 percent or more of the total population were low income were selected and mapped. Parcels designated as non-residential were removed. These areas represent areas where a significant group of low income individuals reside; however, it is important to note that if a parcel is selected it simply means it falls within a Census block group whose low income population is at least 25 percent of the total.

Fixed Route:

Transit vehicles travel an established route and passengers are picked up and dropped off at designated locations along the route alignment. Typically, fixed routes include printed timetables, designated bus stops, and utilize larger vehicles to transport passengers.

Functional Classification:

Functional classification is the process by which roadways are grouped into classes according to the character of service they are intended to provide. For urbanized areas four (4) functional classifications exist: principal arterial, minor arterial, collector and local. Federal transportation funding is only available for functionally classified roads with a collector designation or above.

Geocode(ing):

A process facilitated through Geographic Information Systems (GIS) whereby geographic coordinates tabular data featuring street addresses are matched to attributes in an appropriate shapefile. The result of this match is an accurate spatial representation of the address noted in the original tabular data.

Jurisdictions:

The member units of government which are located within the boundary of Metro COG's planning area (see MPA). Member jurisdictions include: North Dakota Department of Transportation (NDDOT), Minnesota Department of Transportation (MnDOT), Cass County, Clay County, City of West Fargo, City of Moorhead, City of Fargo, and the City of Dilworth.

MAP-21:

MAP-21 stands for Moving Ahead for Progress in the 21st Century. This act was signed into law by President Obama on July 6, 2012. Map-21 funds surface transportation projects and with funding intended to be distributed using a performance-based method.

McKibben Demographic Forecast:

In 2012, Metro COG worked with its member local units of government and McKibben Demographic Research to create the Demographic Forecast for the Fargo-Moorhead Metropolitan Statistical Area (MSA). The report established demographic projections through the year 2040 for the MSA and is a critical element of the socio-economic data that is necessary in order to construct the regional travel demand model.

Metropolitan Planning Area (MPA):

Defined by 23 CFR 450.104 as the geographic area determined by agreement between the Metropolitan Planning Organization (MPO) for the Metropolitan Area and the Governor of the State, within which the metropolitan transportation planning process must be carried out. The MPA boundary, at minimum, shall include the UZA and all contiguous geographic areas likely to become urbanized within a twenty (20) year forecast period outlined within the adopted Metropolitan Area Transportation Plan.

Metropolitan Planning Organization (MPO):

An MPO is defined under Federal Transportation Legislation 23 USC 134(b) and 49 USC 5303(c) as the designated local decision making body that is responsible for carrying out the metropolitan transportation planning process. An MPO is designated for an urban area with a population of more than 50,000 as established by the most recent decennial census.

Metropolitan Statistical Area (MSA):

According to the US Census Bureau, metropolitan and micropolitan statistical areas are geographic entities defined by the US Office of Management and Budget (OMB) for use by Federal agencies in collecting, tabulating, and publishing federal statistics. An MSA contains a core urban area of 50,000 or more population (i.e. Fargo-Moorhead) and includes one or more counties (Cass ND and Clay MN) containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core. The Census-defined MSA for the region is the counties of Cass and Clay.

Paratransit:

A form of passenger transportation which is primarily intended for mobility-impaired, mentally impaired, or senior citizens (elderly). Vehicles are generally equipped with wheelchair lifts or ramps. Service is often complimentary to other public transit services and is mandated within a 3/4 mile radius of fixed route bus service.

Public Participation Program (PPP):

In accordance with SAFETEA-LU and Map 21, Metro COG's adopted PPP sets forth formalized procedures for effective community participation in the development, updating or amendment processes related to the LRTP (or any of its sub-elements) or the TIP. Metro COG's existing PPP was adopted in January of 2013.

Transit Development Plan (TDP):

The TDP functions as a sub-element of the Long Range Transportation Plan and is intended to identify strategies and recommendations to improve transit service delivery within the Metropolitan Area. The TDP is developed under a five (5) year planning horizon and pursuant to federal law (23 CFR 450.322) the plan shall consider both short-range and long-range strategies/actions that lead to the development of an integrated multimodal transportation system that efficiently moves people and addresses current/future transportation demand.

Transportation Improvement Program (TIP):

Pursuant to 23 CFR 450.104, the TIP is a prioritized listing/program of transportation projects covering a period of four (4) years that is developed and formally adopted by an MPO as part of the metropolitan transportation planning process, consistent with the adopted LRTP, and required for projects to be eligible for funding under title 23 USC and title 49 USC Chapter 53.

Transportation Analysis Zone (TAZ):

A traffic analysis zone is a unit of geography that is most commonly used in conventional transportation planning (forecast) models. The geography is delineated by state and/or local transportation officials for tabulating traffic related data, especially trip related data. Traffic Analysis Zones typically consist of one or more census blocks, block groups or tracts although geographies are generally not exactly parallel with Census derived boundaries.

Unified Planning Work Program (UPWP):

Pursuant to 23 CFR 450.308, the UPWP formally identifies the planning priorities for the Fargo-Moorhead Metropolitan Area for a two year timeframe. The UPWP is developed by the MPO in cooperation with NDDOT, MnDOT, MATBUS, and Fargo-Moorhead member jurisdictions. The document is constructed to implement certain activities from previously adopted plans, programs and policies relative to the Metropolitan Planning Program; which includes activities related to the maintenance and implementation of the 2009 Long Range Transportation Plan (LRTP).

Urbanized Area (UZA):

Urbanized Area is a term used by both the U.S. Census Bureau and Federal Transportation Legislation. From a transportation perspective, the UZA is a statistical geographic area with a population of 50,000 or more and an overall population density of at least 1,000 people per square mile. The urban area can be adjusted by state and local officials under federal law, resulting in the Federal Aid Urban Area (FAUA). The UZA together with Urban Clusters (2,500 to 49,999 people) produces the 'Urban Area'.

Vehicle Miles Traveled (VMT):

A transportation demand measurement which refers to the total number of miles traveled by all vehicles during a defined time period, typically calculated in daily VMT or annual VMT. VMT is calculated by multiplying the roadway segment length (miles) by the AADT.