GREAT FALLS AREA

Long Range Transportation Plan - 2018 Update

Adopted by:

Great Falls MPO

GREAT FALLS METROPOLITAN PLANNING ORGANIZATION
Great Falls, Montana
(Pending)

Prepared by:

RPA

ROBERT PECCIA & ASSOCIATES
www.rpa-hln.com

July 5, 2018





GREAT FALLS AREA

Long Range Transportation Plan - 2018 Update

Table of Contents

List of Figures

List of Tables

Appendix

Acknowledgments

The successful completion of this project was made possible through cooperation and assistance of many individuals. The following people provided guidance and support throughout the course of the LRTP:

Transportation Advisory Committee

Brian Clifton - Director, Cascade County Public Works Department

Alex Dachs - Senior Planner, Cascade County Public Works Department

Dave Dobbs - City Engineer, Great Falls Engineering Division

Jim Ekberg - Deputy Director, Cascade County Public Works Department

John Faulkner - Director, Great Falls International Airport Authority

Andrew Finch - Senior Transportation Planner, Great Falls Planning and Community Development Department

Jim Helgeson - Manager, Great Falls Transit District

Ken Jorgensen - Street Supervisor, Great Falls Public Works Department

Courtney Lyerly - Senior Civil Engineer, Great Falls Engineering Division

Jerry McKinley - Supervisor, Great Falls Traffic Division

Bill McLaughlin - Deputy Base Civil Engineer, Malmstrom Air Force Base

Christie McOmber - District Project Engineer, Great Falls District - MDT

Craig Raymond - Director, Great Falls Planning and Community Development Department

Jim Rearden - Director, Great Falls Public Works Department

Rick Schutz - Superintendent, Cascade County Road and Bridge Division

Carol Strizich - Supervisor, Statewide and Urban Planning - MDT

Bruce Treis - Environmental Health Specialist, City-County Health Department

Jerilee Weibel - Right-of-Way Supervisor, Great Falls District - MDT

David Gabbert - Manger, Helena Airport District Office - Federal Aviation Administration

Sheila Ludlow - Project Manger, MDT Statewide and Urban Planning Section

Policy Coordinating Committee

Carl Donovan - Chairman, Great Falls Transit District

Pete Fontana - Chairman, Great Falls Planning Advisory Board

Bob Kelly - Mayor, City of Great Falls Commission

Kevin McLaury - Division Administrator, Federal Highway Administration

Elliott Merja - Chairman, Cascade County Planning Board

Jane Weber - Commissioner, Board of Cascade County Commissioners

Doug Wilmot - District Adminstrator, Montana Department of Transportation

Great Falls City Commission

Bob Kelly - Mayor

Bill Bronson - Commissioner

Mary Sheehy Moe - Commissioner

Owen Robinson - Commissioner

Tracy Houck - Commissioner

Cascade County Commission

Joe Briggs - District One Commissioner

James Larson - District Two Commissioner

Jane Weber - District Three Commissioner

Consultant Team

The Traffic and Transportation Group of the consulting firm Robert Peccia and Associates was the prime consultant for the LRTP. The following team members were contributors to the plan:

Scott Randall, PE, PTOE - Project Manager

Dan Norderud, AICP - Senior Planner

Shane Forsythe, PE - Traffic Engineer

Kerry Pedersen, EI - Transportation Planner

Acronyms

AADT	Annual Average Daily Traffic
ACS	American Community Service
ADA	Americans with Disabilities Act
AFB	Air Force Base
BEA	Bureau of Economic Analysis
BNSF	BNSF Railway
BPAC	Bicycle and Pedestrian Advisory Committee
CAA	Clean Air Act
CAGR	Compound Average Growth Rate
CDP	Census Designated Places
CEIC	Census & Economic Information Center
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CMAQ	Congestion Mitigation and Air Quality
CO	Carbon Monoxide
CSS	Context Sensitive Solutions
DEQ	Department of Environmental Quality
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAST Act	Fixing America's Surface Transportation Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Authority
FWP	Fish Wildlife and Parks
GFGF	Get Fit Great Falls
GFTD	Great Falls Transit District
GIS	Geographic Information Systems
HUD	Department of Housing and Urban Development
I-15	Interstate 15
ICAP	Internal Cost Allocation Program
ITS	Intelligent Transportation Systems
LMP	Limited Maintenance Plan
LOS	Level of Service
LRTP	Long Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century
MDT	Montana Department of Transportation
MPO	Metropolitan Planning Organization
MRTMA	Missoula Ravalli Transportation Management Association
NAAQS	National Ambient Air Quality Standards
NHTS	National Household Travel Survey
NO2	Nitrogen Dioxide
PCC	Policy Coordinating Committee
PDM	Pre-Disaster Management
PDO	Property Damage Only
REMI	Regional Economic Models, Inc.
RET	River's Edge Trail
RTI	Recreational Trails Inc.
SIP	Statewide Improvement Plan
TAC	Technical Advisory Committee
TCM	Transportation Control Measures
TDM	Travel Demand Management
TDP	Transit Development Plan
TIP	Transportation Improvement Plan
TWLTL	Two Way Left Turn Lane
USC	United States Code
USDOT	United States Department of Transportation
v/c	Vehicle to Capacity Ratio
YOE	Year of Expenditure

GREAT FALLS AREA

Long Range Transportation Plan - 2018 Update

CHAPTER 1: INTRODUCTION

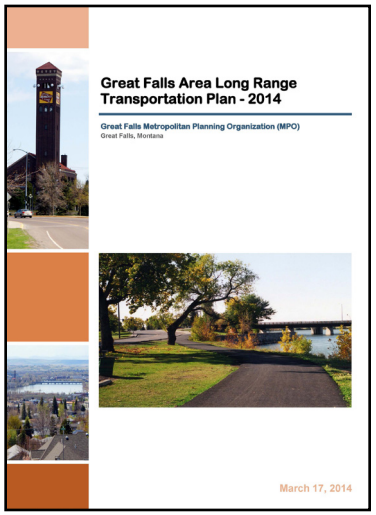
1.1. Purpose

The *Great Falls Area Long Range Transportation Plan (LRTP)* serves as a guide for development of and investment in the community's transportation system. The LRTP was developed through a collaborative approach with City, County, and State staff, elected officials, and local residents. The Plan provides the blueprint for a transportation system that will serve the community's citizens well into the future.

This LRTP is intended to offer guidance for the decision-makers in the Great Falls Area by responding to existing transportation system concerns through a menu of large and small improvements to the transportation network. The recommendations made in this document cover all modes of transportation, including travel by private vehicle, foot, bicycle and transit. Recommended projects are intended to relieve existing problems and prepare the Great Falls Area transportation system to meet future needs. As a truly "multi-modal" transportation plan, this LRTP includes not only a traditional examination of traffic operations and the community's road network, but also an assessment of non-motorized transportation, transit, trip reduction strategies, traffic calming and travel demand management techniques.

1.2. Background

The City of Great Falls, Cascade County and the Montana Department of Transportation (MDT) partnered to develop this community-wide transportation plan. A robust updated LRTP[1] was prepared four years ago, providing a guide for transportation infrastructure investments based on system needs and associated decision making principles. To satisfy Federal transportation planning requirements the 2014 Plan has been reviewed and updated as appropriate in this 2018 update.



The previous LRTP was completed in 2014.

In the past, transportation planning in the United States has predominately focused on moving cars, with priority over other transportation modes such as transit, bicycle and pedestrian facilities. Accordingly, this has necessitated more and larger roadways at extensive costs. This LRTP and the 2014 Plan provide a comprehensive vision for non-motorized transportation within the Great Falls Area. Although the roadway needs are well defined and will be the standard by which community transportation infrastructure is measured, the decision makers and community at large recognize the need for alternatives. These alternatives include more and better bicycle and pedestrian facilities, a focus on transit service, and a desire to explore alternative transportation modes. Growth in the Great Falls Area, although moderate compared to some other Montana communities, is well documented and explained in later chapters. Impacts to the transportation system resulting from this growth are a measurable and identifiable quantity, and the community is well positioned to accommodate this growth through measures identified in this plan.

1.3. Federal Requirements for Transportation Plans

According to provisions contained in the *Fixing America's Surface Transportation (FAST) Act*[2], the MPO of urban areas with a central city of 50,000 or more population is responsible for promoting "…the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight, foster economic growth and development". The Great Falls MPO consists of two local governments (City of Great Falls and Cascade County) and one state agency (MDT). The MPO incorporates transportation planning as one of its many planning functions.

The LRTP complies with and follows all applicable regulations of the FAST Act and Title 23 of the Code of Federal Regulations (CFR). The plan is a long-term planning document with a planning horizon out to the year 2038.

1.4. Study Area

As a part of the 2014 LRTP, and as an outcome of the 2010 Federal Census, an evaluation of the previous LRTP's study area boundary was undertaken. Changes to the study area were made to ensure the boundary is synonymous with the MPO boundary – with the latter terminology being specific to the Federal Highway Administration (FHWA) for regulatory purposes. No changes to the boundary have been made for the 2018 update of the Plan.

For Great Falls, the study area boundary includes the entire city limits of Great Falls, as well as a substantial amount of unincorporated lands surrounding the city. The study area boundary also includes approximately 85% of the population in Cascade County.

The study boundary is shown on **Figure 1** and was used for all aspects of the LRTP planning process. This study boundary includes all of the major employers in the area, and includes all of the land that may be used for employment centers in the next twenty years. It also includes densely developed residential land uses in the area, and those areas likely to increase the housing supply in the future and subsequently add traffic onto the transportation network.

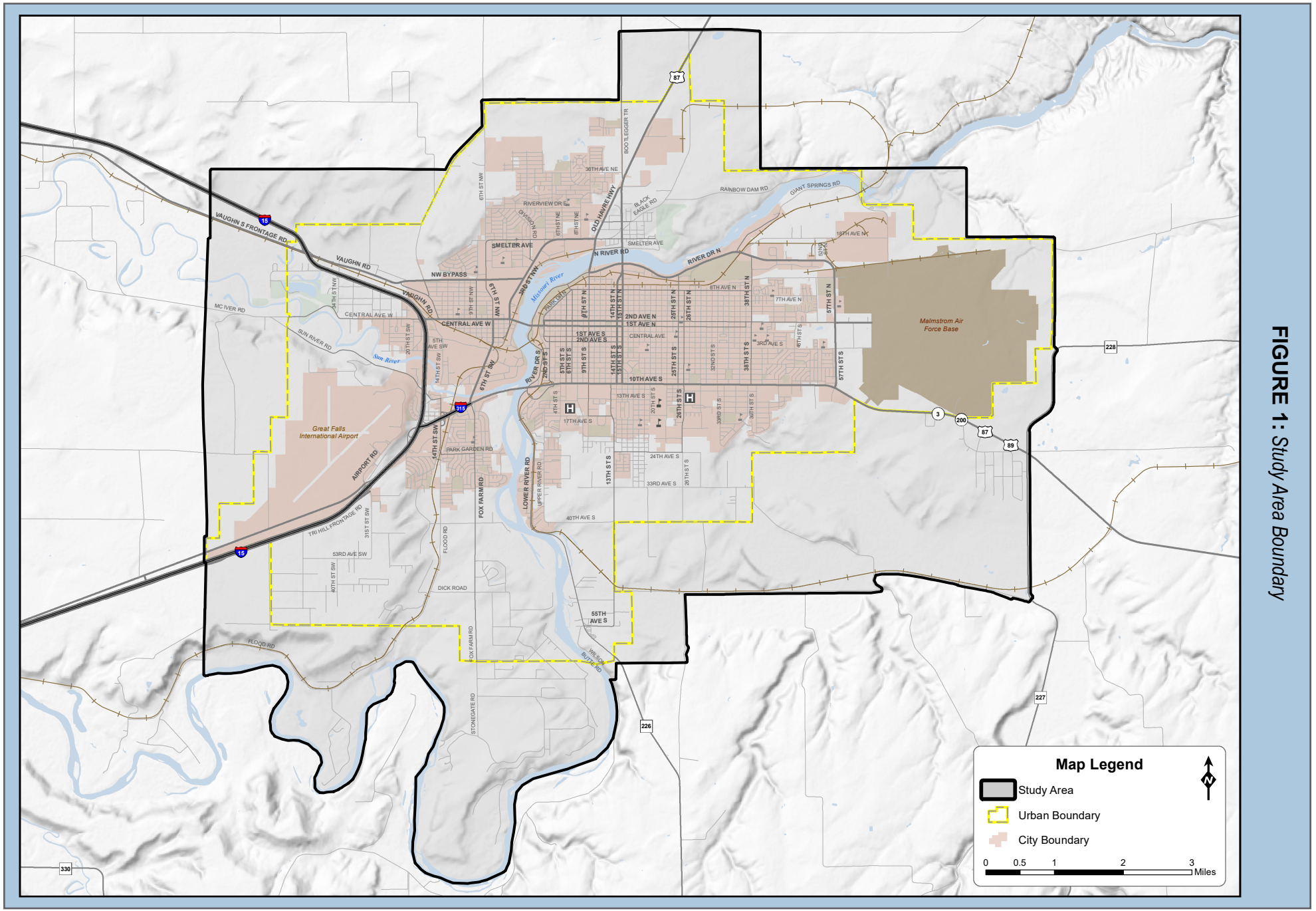


FIGURE 1: *Study Area Boundary*

1.5. Goals and Objectives

Development of goals and objectives for the LRTP is a critical first step in the transportation planning process. In addition to capturing all related information from previous community planning efforts, the goals and objectives lay out the general course of action for the LRTP development and represent the community's vision for the future transportation system.

The goals and objectives developed for the LRTP were identified to reflect the condition of planning within the general community, and more specifically, reflect the needs and desires relative to transportation. Goals represent the overarching statements of the LRTP intent and the direct elements of the community's vision, while objectives are more focused statements of specific actions, measures or procedures that reflect how a particular goal can be attained.

The goals and objectives developed for the LRTP are connected concepts – that is, they represent the desired end result of the community's transportation system once projects identified are implemented. Goals and objectives also provide direction on how to get to that end result. Collectively, the goals and objectives inform the planning process and set the course of action for the transportation system for years to come. The goals and objectives for the LRTP also directly reflect the goals and strategies for the state transportation network identified in TranPlanMT and national highway and transit performance goals adopted by USDOT.

Numerous local planning documents were reviewed to determine what, if any, transportation related goals and objectives have already been developed within the community. Based on a review of relevant planning efforts within the community, five primary principles were identified for the LRTP.

VISIONARY PRINCIPLES

1. The community desires a connected, smarter transportation system through land use and transportation planning. This type of system allows citizens to choose what mode of travel they desire, and makes travel more convenient while promoting an active lifestyle by choice for its citizens.
2. The community is a hub for local, regional and national industry. It is particularly growing as a freight hub serving various types of industries. The community embraces the opportunity to attract regional industry and support ongoing economic vitality.
3. Efficient travel and increased mobility is desirable to minimize transportation and associated costs.
4. Transportation influences quality of life. The community desires a transportation system that is compatible with the environment and context of the Great Falls area, with special consideration given to sustainability and conserving natural and cultural resources.
5. The community desires a safe and secure transportation system, and strives for a reduction in crashes, injuries and fatalities.

Goal 1: Maintain the existing transportation system.

The Great Falls Area transportation system is aging, and available funding is not sufficient for the necessary maintenance. Upkeep of roadways is reactive rather than proactive. There is often competition between funding for new projects as compared to maintenance and operations of the existing system. New or wider roadways are generally not being built, rather the short- and mid-term focus should turn to optimizing the existing transportation system to the greatest extent possible.

Objectives:

1.1 Maintain existing roadway systems to optimize their usefulness and minimize life-cycle costs.

1.2 Monitor the performance of key facilities and work with local and regional partners to identify critical deficiencies in the roadway network.

1.3 Use transportation project selection criteria to identify and prioritize maintenance activities and project development

1.4 Relieve pressures on the existing transportation system through minor infrastructure improvements, maintenance and system preservation activities rather than expanding the current system.

1.5 Encourage reuse and/or redevelopment around existing transportation facilities.

Goal 2: Improve the efficiency, performance and connectivity of a balanced transportation system.

A transportation system that performs well allows users to choose multiple transportation modes and to move through those modes in a safe and efficient manner. An efficient system allows people to move from place to place in as direct a route as possible, allowing them to reduce the amount of time spent in travel, the distance that must be traveled, and the amount of time spent in congested traffic. Connectivity allows citizens to make route decisions and mode choices based on traffic and road conditions, or desired destinations.

Objectives:

2.1 Ensure the current street network of collectors, minor arterials, principal arterials and the interstate is adequate to safely and efficiently handle projected traffic.

2.2 Promote the development of an effective roadway network through improvements in intersection and roadway capacity.

2.3 Improve opportunities for active transportation (non-motorized) as part of daily travel mode choice within the community by increasing pedestrian, bicycle and transit connections.

2.4 Ensure that mobility-challenged populations, such as low income, persons with disabilities, or senior citizens, have travel options in the Great Falls area.

2.5 Minimize cut-through traffic in residential neighborhoods.

2.6 Identify and reduce (or eliminate) freight movement impacts on area roadways and identify improvements to eliminate deficiencies with the objective of improving freight movement.

Goal 3: Promote consistency between land use and transportation plans to enhance mobility and accessibility.

Minimizing vehicle miles of travel and promoting alternative travel modes are fundamental objectives of a compact, livable urban environment. As the Great Falls Area population ages and the number of persons per household decreases, options in housing and transportation will be needed to meet the demands of the population. Transportation improvements should be integrated with local land use planning to ensure the proper mix of roads, trails, transit, paths and other bicycle and pedestrian features co-exist.

Objectives:

3.1 Integrate land use planning and transportation planning to manage and develop the transportation system.

3.2 Use transportation project programming to encourage desired development patterns within the community and ensure new development is adequately served.

3.3 Develop and implement consistent access management and corridor preservation standards, ordinances and plans appropriate to the roadway network and land use throughout the area.

3.4 Ensure an environmentally responsible and sound transportation system that minimizes adverse environmental impacts within the community.

Goal 4: Provide a safe and secure transportation system.

Most community planning efforts recognize the desire for a safe transportation system. Community safety and security can be improved by transportation efforts in a number of ways. Reducing crashes, improving the ability of emergency responders to quickly and reliably respond to emergencies, and providing evacuation routes in the event of a natural disaster will all assist to improving safety and security. Educational programs that help travelers understand the particular safety concerns associated with various travel modes can also help all users travel with increased confidence and security.

Objectives:

4.1 Reduce the rates of fatalities and crashes occurring on all transportation facilities.

4.2 Identify barriers to effective and prompt emergency response.

4.3 Implement safety initiatives and educational programs for all modes of transportation.

4.4 Coordinate with freight operators and agencies on projects that can enhance the security of the freight transportation system in the region.

Goal 5: Support economic vitality of the community.

All economic activity relies on a functioning, diverse transportation network. Vehicle, freight, air, transit, rail and non-motorized infrastructure all have a purpose to serve when linking economic vitality to the costs of doing business. Transportation in terms of economic vitality is only one component of a successful business environment. High quality schools, diversity in housing types, low debt, availability of infrastructure, and access to a highly educated and highly skilled workforce all contribute to the economic success of a community.

Objectives:

5.1 Optimize the transportation system to meet the needs of the Great Falls Area, including the Great Falls International Airport, Malmstrom Air Force Base, Downtown Great Falls, employment centers, and industrial and commercial areas.

5.2 Provide attractive and convenient transportation facilities that attract and retain business, young professionals, families and older adults.

5.3 Facilitate the movement of goods and freight to commercial and industrial centers.

Goal 6: Protect and enhance environmental sustainability, provide opportunities for active lifestyles, and conserve natural and cultural resources.

Both the FAST Act planning factors and the livability principles from HUD/EPA/USDOT point to quality of life concerns in the development of LRTP's. Not only are impacts to the environment taken more seriously, but increasingly Great Falls Area citizens are demanding a more holistic approach to transportation. The preservation of natural, historic and cultural resources, as well as promoting a healthy, active lifestyle, are priorities of this LRTP and current Federal transportation planning guidance.

Objectives:

6.1 Promote transportation projects, plans and/or programs that encourage reducing fuel consumption, reducing vehicle miles of travel, and thereby minimizing air pollution.

6.2 Coordinate transportation planning activities with appropriate federal, state, and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation.

6.3 Engage stakeholders and the public in the decision-making stage of the transportation planning process.

6.4 Coordinate transportation planning activities with local and regional land use planning activities, including the City and County Growth Policy Updates.

Goal 7: Maximize the cost effectiveness of transportation.

Transportation facilities which provide mode choice options to the public, reduce the time spent traveling, reduce fuel consumption, and make the best use of limited public funds for infrastructure improvements are desirable. Not only are costs related to the cost of building facilities, but there are also associated costs related to time spent in vehicles.

Objectives:

7.1 Identify available funding mechanisms potentially including federal and state gas tax revenue, impact fees, transportation bond issues, local option gas taxes, and other revenue funding sources used in similar cities.

7.2 Encourage cooperation between public, private and non-profit organizations in the development, funding, and management of transportation projects.

7.3 Promote cost-effective recommendations that balance transportation system needs with available funding and expected expenditures.

The transportation plan aims to identify strategies to maintain and improve the existing transportation system and strategies that help the Great Falls area effectively plan for the future.

1.6. Outreach and Public Involvement

Education and public outreach are essential parts of fulfilling the responsibility to successfully inform the public about the transportation planning process. The Great Falls MPO conducts an ongoing public and stakeholder engagement process for all transportation planning activities in accordance with the Great Falls Planning Public Participation Plan. The Public Participation Plan, last updated in December 2011, is subject to periodic FHWA and Federal Transit Authority (FTA) review and concurrence for consistency with Federal planning regulations. Such concurrence was most recently provided through TIP approval on September 1, 2017 by the Technical Advisory Committee (TAC) and Policy Coordinating Committee (PCC) and September 12, 2017 by MDT.

The development of the LRTP involved early communication with interested parties to help identify needs, constraints, and opportunities to determine reasonable improvements given available resources and local support. This LRTP update built upon the extensive outreach and public involvement effort from the 2014 LRTP. The outreach strategies utilized for the update were as follows:

Public Informational Meetings

Two formal public informational meetings were held for the LRTP update. The first meeting was an introductory meeting to provide a summary of the 2014 LRTP and to discuss and identify the issues that should be addressed in the updated plan. This meeting was held on February 7, 2018 at the Great Falls Civic Center in the Gibson Room.

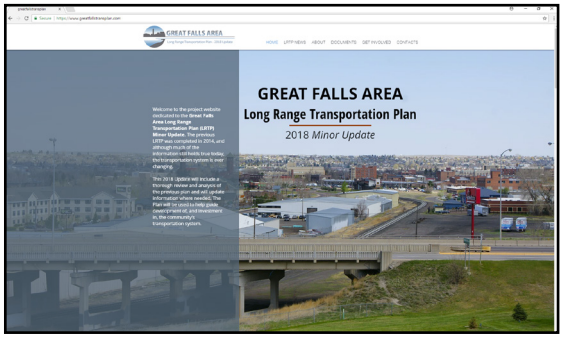
A second public meeting was held on May 10, 2018 at the Great Falls Civic Center in the Gibson Room. This purpose of this meeting was to introduce the Draft LRTP report and to field public comments.

Public Comments

Public comments were solicited throughout the planning process. Comments were received via email, through the project website, and at public meetings. **Appendix A** contains the comments received over the course of the planning process.

Website

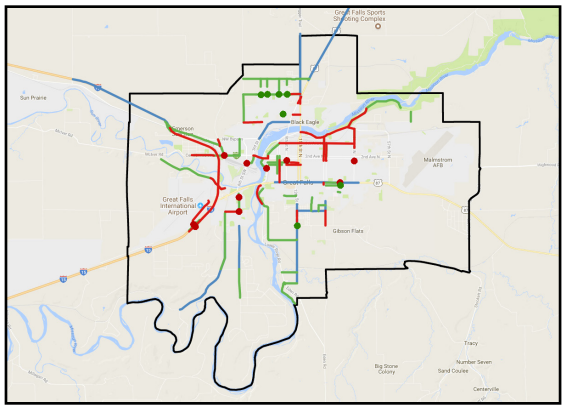
A website was developed for the LRTP updates (www.greatfallstransplan.com) as a landing page for information developed during the planning process. Draft technical memoranda, links to additional resources, frequently asked questions, and contact information was included on the website.



A website was created for the LRTP, (www.greatfallstransplan.com)

Online Map

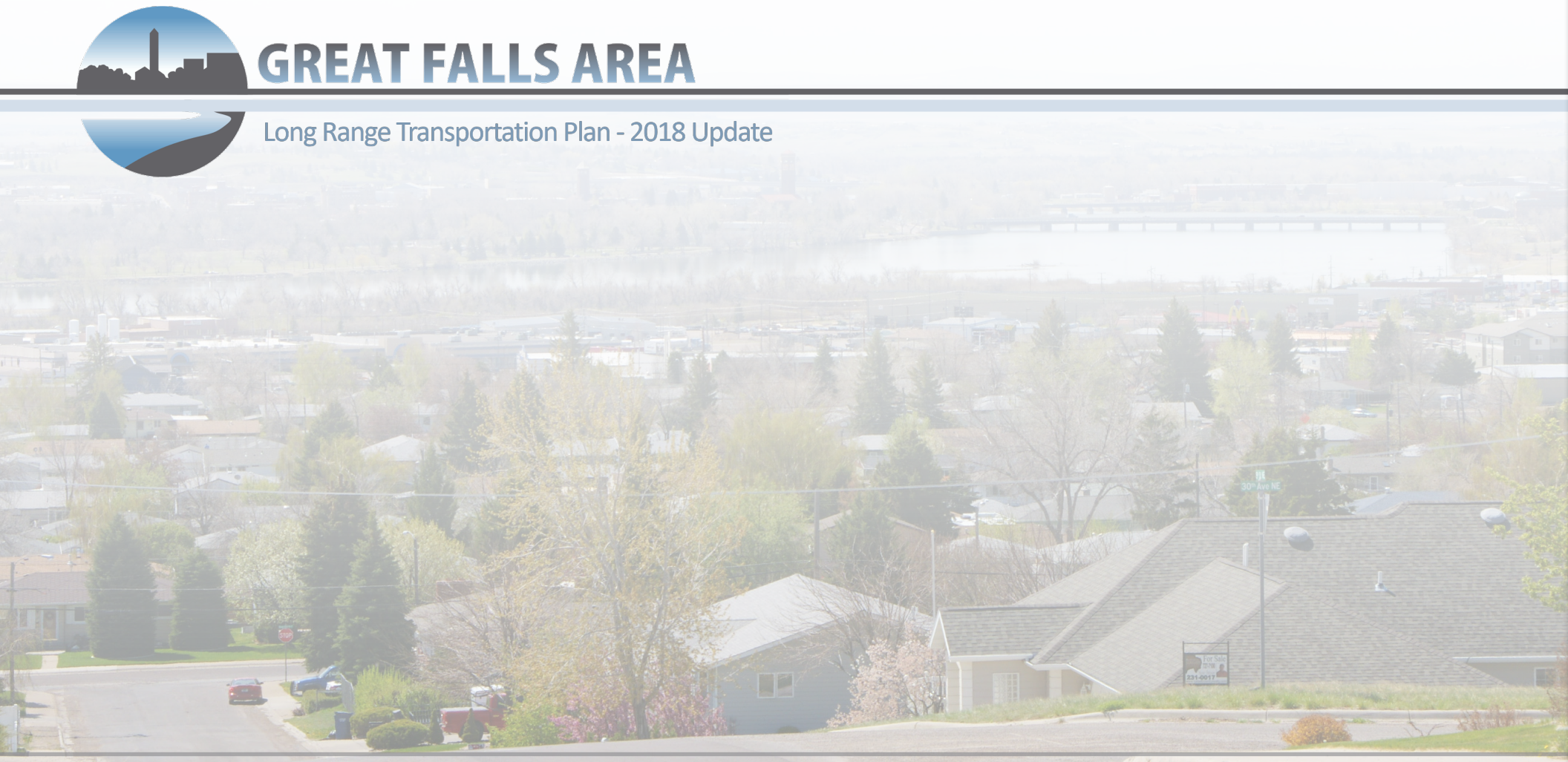
An interactive mapping platform, called a “wikimap”, was developed for the LRTP. The platform allowed the public to provide feedback on the recommendations developed in the 2014 LRTP via an online map. Users were asked to provide comments related to the specific recommendations.



An online commenting platform was used to solicit feedback on the 2014 LRTP recommendations.

News Releases

Newspaper articles and press releases were used during the planning process to help keep the public informed. These news releases generally were issued prior to public meetings (and the public hearing), to generate interest in the process, and to encourage participation by the public.



CHAPTER 2: STATE OF THE COMMUNITY

2.1. Overview

To clearly understand the needs of a community, it is important to evaluate the state of the existing land use, transportation network, social, and economic conditions of the community. To achieve this task for the Great Falls Area, information was collected on many aspects of the transportation system, socioeconomic conditions, and land use. Available and collected data were used to establish existing conditions for the community. The existing conditions were used to determine issues and concerns related to the transportation system.

2.2. Socioeconomics

Local and regional population and economic characteristics have important influences on travel in the Great Falls Area. The study area includes all of the land within the City of Great Falls, Malmstrom Air Force Base (AFB), the unincorporated community of Black Eagle, Great Falls International Airport, and adjacent lands in Cascade County where suburban development has occurred or may occur in the future.

2.2.1. Population and Demographic Trends

According to the decennial censuses, the overall population of Cascade County has fluctuated slightly but has generally remained near 81,000 residents over the 1970-2010 period. The City of Great Falls is home to roughly 70 percent of the county's residents and recorded its highest population (60,091) at the time of the 1970 Census. After two decades of decline, the City's population began to increase after 1990 and had approximately 58,500 residents in 2010.

Census designated places (CDPs) are delineated by the Census Bureau to provide data for settled concentrations of population that are identifiable by name but are not legally incorporated. Malmstrom AFB and Black Eagle are two CDPs found in the Great Falls LRTP study area. The population of Malmstrom AFB has decreased sharply every decade since 1970. By 2010, Malmstrom AFB had 5,000 fewer residents than at the time of the 1970 Census. The population of the Black Eagle CDP was approximately 900 at the time of the last two census counts.

The population losses seen in Cascade County and the City of Great Falls during the 1970s and 1980s, coupled with the slow growth seen over the last 20 years, has resulted in long term growth rates of near zero. Positive rates of annual population growth have been recorded for both the County (0.23 percent) and City (0.30 percent) in the last 20 years. However, these annual growth rates are well below those seen for the state and nation.

Current population estimates show that populations in the County and City are continuing to increase at rates greater than the long term growth rates seen during the last two decades, but less than the short term rates seen in the last decade. Overall, the City of Great Falls has grown by 1.15 percent since 2010 which translates to an annual increase of about 0.19 percent. The rate of growth continues to lag behind that seen for the state and nation. **Table 1** presents the historic and current (estimated as of July 1, 2016) population for Cascade County, the City of Great Falls, the State of Montana, and the United States.

Table 1: Population Changes Since 1970

Area	1970 Census	1980 Census	1990 Census	2000 Census	2010 Census	2016 Estimate	Compound Average % Change (1970-2016)
Cascade County	81,804	80,696	77,691	80,357	81,327	81,755	-0.001%
City of Great Falls	60,091	56,725	55,097	56,690	58,505	59,178	-0.03%
State of Montana	694,409	786,690	799,065	902,195	989,415	1,042,520	0.89%
United States	203,392,031	226,545,805	248,709,873	281,421,906	308,745,538	323,127,513	1.01%

Source: US Bureau of the Census, Current Estimates Data, available at http://www.census.gov/popest/data/index.html

2.2.1.1. Age Distribution

A comparison of resident age was made between Cascade County and the City of Great Falls. Table 2 depicts the changes in age distribution for residents between 1980 and 2010. In these 30 years, the share of County residents in the "less than 18 years old" category has decreased by nearly 21 percent, while the number of residents in "65 years and over" category increased by nearly 59 percent. During the same time period, the number of City residents in the "less than 18 years old" category decreased by about 16 percent, while the number of residents in "65 years and over" category increased by nearly 49 percent. The median ages of both County and City residents showed notable increases between 1980 and 2010. The median ages of County and City residents were 38.9 years and 39.0 years, respectively, at the time of the 2010 Census. These statistics point to the aging of the population, and corresponds to similar trends within Montana and the United States.

To examine more specifically how age groups have changed in Cascade County, age group data from the 2000 Census and 2010 Census were reviewed for the County and the City of Great Falls. This review showed the following changes:

- Notable (12-23 percent) declines in the population between 5 to 17 years;
- Declines of nearly 30 percent in the 35- to 44-year old population;
- The share of the population between 55 and 64 years increased by 30-50 percent; and
- The population over the age of 65 (including the share of residents over age 85) grew substantially.

Table 2: Age Distribution (1980 to 2010)

Year	Cascade County				City of Great Falls			
	<18 Years	18-64 Years	65+ Years	Median Age	<18 Years	18-64 Years	65+ Years	Median Age
1980	23,544	49,164	7,988	28.6	15,713	34,489	6,523	30.6
1990	21,520	46,304	9,867	32.7	14,325	32,507	8,265	34.4
2000	20,912	48,197	11,248	36.7	14,138	33,654	8,898	37.8
2010	18,630	50,007	12,690	38.9	13,161	35,648	9,696	39.0
Change	**-4,914**	**843**	**4,702**	**10.3**	**-2,552**	**1,159**	**3,173**	**8.4**
(1980-2010)	***-20.9%***	***1.7%***	***58.9%***	***36.0%***	***-16.2%***	***3.4%***	***48.6%***	***27.5%***

Source: US Bureau of the Census, Census of the Population

2.2.1.2. Personal Travel and Commuting Characteristics

According to the ACS profile for the 2012-2016 period, approximately 92 percent of residents in occupied housing units within the City of Great Falls and Cascade County had access to at least one vehicle. In comparison, residents of nearly 95 percent of all occupied housing units in Montana and 91 percent of all occupied housing units in the nation had access to one or more vehicles. **Table 3** presents commuting characteristics for workers in Cascade County, the City of Great Falls, and the Malmstrom AFB and Black Eagle CDPs. Similar statistics for the State of Montana and the United States are provided for comparison.

The table shows that approximately 92 percent of the commuting workers in Cascade County and City of Great Falls rely on personal vehicles or carpools for transportation to work destinations. The share of workers who drove alone to work is higher than seen for the state and nation. The share of workers who walked to work or used other means to commute is also below that seen for Montana and the US. The data also indicates that public transportation options are limited for Montana residents at all geographies as compared to elsewhere in the United States. Workers in Cascade County and the City also have notably shorter commute times than elsewhere in the state or nation.

Table 3: Mode of Transportation to Work (2012-2016)

Subject	City of Great Falls	Cascade County	Malmstrom AFB CDP	Black Eagle CDP	State of Montana	United States
Number of Workers 16 Years and Older	**28,186**	**38,785**	**2,239**	**450**	**483,881**	**145,861,216**
% Who Commuted to Work	*97.30%*	*96.90%*	*96.70%*	*100.00%*	*93.70%*	*95.40%*
% Who Worked at Home	*2.70%*	*3.10%*	*3.30%*	*0.00%*	*6.30%*	*4.60%*
Transportation Mode						
Drove alone, car, truck, van	*82.00%*	*80.40%*	*76.70%*	*76.20%*	*75.10%*	*76.40%*
Carpooled	*10.30%*	*11.10%*	*14.70%*	*10.20%*	*10.20%*	*9.30%*
Public Transportation (excluding taxicabs)	*0.80%*	*0.80%*	*0.00%*	*6.90%*	*0.80%*	*5.10%*
Walked to Work	*3.10%*	*3.50%*	*4.70%*	*0.00%*	*5.1%*	*2.80%*
Other means of commuting	*1.10%*	*1.10%*	*0.60%*	*6.70%*	*2.40%*	*1.80%*
Mean Travel Time to Work	**13.8 min**	**15.6 min**	**14.0 min**	**13.0 min**	**17.9 min**	**26.1 min**

Source: US Bureau of the Census, American Community Survey (ACS) Profile Report 2012-2016 Estimates, available at http://mcdc1.missouri.edu/acsprofiles/acsprofilemenu.html

2.2.2. Housing Units

The Census Bureau identifies a "housing unit" as a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

Table 4 lists the number of housing units that existed within the various geographies of Cascade County during recent decennial censuses. Overall, the number of housing units in Cascade County increased by nearly 16 percent during the 1980-2010 period, with significant increases in the number of housing units recorded during each of the last two decades in the County. This trend is similar for the City of Great Falls which showed an 11.6 percent increase in housing units between 1980 and 2010.

The data in **Table 4** also shows that the population per housing unit decreased for all geographies between 1980 and 2010. The population per housing unit in Cascade County and the City of Great Falls was identical at 2.18 persons per housing unit at the time of the 2010 Census. The population per housing unit for the State of Montana was 2.04 according to the 2010 Census.

Table 4: Number of Housing Units (1980-2010)

Area	1980	1990	2000	2010
Cascade County				
Population	80,696	77,691	80,357	81,327
Housing Units	32,199	33,063	35,225	37,276
Net Change	--	864	2,162	2,051
Population per Housing Unit	2.51	2.35	2.28	2.18
City of Great Falls				
Population	56,725	55,097	56,690	58,505
Housing Units	24,056	24,152	25,243	26,854
Net Change	--	96	1,091	1,611
Population per Housing Unit	2.36	2.28	2.25	2.18
Malmstrom AFB CDP				
Population	6,675	5,938	4,544	3,472
Housing Units	1,566	1,496	1,405	1,171
Net Change	--	-70	-91	-234
Population per Housing Unit	4.26	3.97	3.23	2.96
Black Eagle CDP				
Population	[a]	[a]	914	904
Housing Units	[a]	[a]	458	474
Net Change	--	--	--	16
Population per Housing Unit	--	--	1.99	1.91

Source: US Bureau of the Census, Census of the Population

[a] No data available

2.2.3. Employment and Income Trends

Cascade County is Montana's fifth most populous county, while Great Falls, the county seat, is the state's third largest city. Great Falls accounts for about 72 percent of Cascade County's total population. The city is home to Malmstrom AFB which is a driving force in the regional economy. Great Falls is also home to the C. M. Russell Museum, the Lewis & Clark Interpretive Center, Great Falls College Montana State University, The University of Providence, and the Montana Air National Guard.

The most recent available data shows that total full and part-time employment in the county was 50,348 in 2015, 98 percent of which were non-farm related employment. Total full and part-time employment in Cascade County grew at an annual rate of approximately 0.70 percent.

Data shows that between 1970 and 2015, the most notable net increases in employment occurred in the services industry, where the total number of jobs more than tripled. Other industry sectors showing sizable increases in employment since 1970 include: construction (net gain of 1,117 jobs); finance, insurance and real estate (net gain of 1,407 jobs); and state and local government (net gain of 935 jobs). Notable declines in employment were seen in the manufacturing, transportation and public utilities sector, federal and civilian government, and military. Combined, the declines in these sectors resulted in more than 5,000 fewer jobs in 2015 than in 1970.

Large civilian employers in the City and County include:

- Benefis Hospital (3,107 employees)
- Great Falls Public Schools (2,048 employees)
- City of Great Falls (575 employees)
- Great Falls Clinic (541 employees)
- Cascade County (500 employees)

Malmstrom AFB accounts for the majority of the military employees in Cascade County, although the Montana Air National Guard also provides significant numbers of military employment. Total full and part-time military employment in 1970 accounted for 15.5 percent of jobs in the County. Military employment in the county has steadily declined since 1970. There were 2,319 fewer military jobs in 2015 than in 1970. Total full and part-time military employment represented about 7 percent of jobs in the County in 2015. Most recently, military job losses resulted after a 2007 decision by the United States Air Force to deactivate the 564th Missile Squadron from its existing mission at Malmstrom.

2.2.4. Land Use and Development

Land use plays a critical role in shaping transportation networks. Land use decisions affect the transportation system and can increase viable options for people to access work and recreation sites, goods, services, and other resources in the community. In turn, the existing and future transportation system will be impacted by the location, type, and design of land use developments through changes in travel demands, travel mode choices, and travel patterns. For this reason, it is important to review community development patterns over time and understand where conditions may be favorable for new residential and non-residential growth.

2.2.4.1. Historic Development Patterns and Current Land Uses

The City of Great Falls was built largely upon a grid system of streets with a defined Central Business District surrounded by residential development. Commercial and industrial uses were typically concentrated in the Central Business District or along railroad lines or major roads and streets. The community has evolved over the years as population growth and new development has been realized. Commercial development is no longer focused in the downtown area and many retail functions have shifted to outlying shopping centers and commercial areas, like those along Tenth Avenue South and Third Street Northwest. Today, downtown Great Falls is the governmental and financial center of the community and houses many professional offices and specialty retail stores.

Extensive residential uses are still seen in the areas around the central City. However, some residential development pattern has extended to the unincorporated areas surrounding the City and is characterized by low-density residential development on lots of one to ten acres. Multiple family residential development is widely scattered throughout the community. Most new housing development in the Great Falls area has occurred to the southwest, southeast, and north of the city.

The City's current Growth Policy, *Imagine Great Falls 2025*[3], indicates "increased reliance on trucking has allowed manufacturers and other types of industries to locate wherever land is available with good access, adequate utilities, and proper zoning." It is no longer necessary for industrial land uses to be located near railroad lines. As a result, few substantial concentrations of new industrial development occur within the city proper. However, concentrations do occur in the North Park industrial subdivision and near the Great Falls International Airport as well as the Great Bear industrial subdivision on the northern edge of the City. **Figure 2** illustrates current land uses in the City of Great Falls.

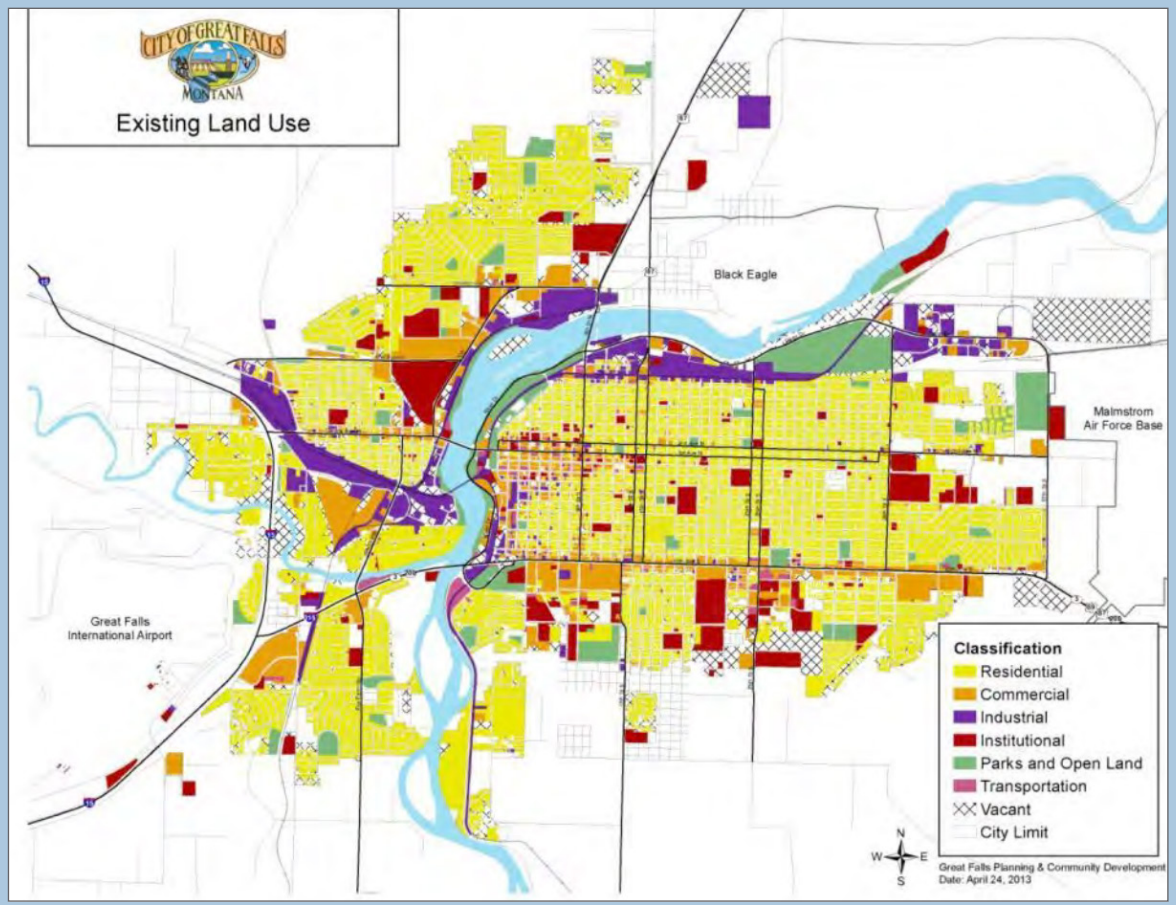


FIGURE 2: *Existing Land Use*

Source: Imagine Great Falls 2025, Growth Policy Update, 2013

2.2.4.2. Recent and Historic Development Trends

A map showing how the land area of the City of Great Falls has expanded between 1962 and 2012 is presented in **Figure 3**. The incorporated area of the City has increased by more about 9.3 square miles over the past 50 years and now encompasses more than 22.5 square miles of land. As **Figure 3** shows, the city has grown around most of its periphery. Notable areas where expansion has occurred include along the southern of expansion exist along the southern perimeter of the city and to the southwest in the vicinity of Great Falls International Airport. Infill development has occurred to the east between the city and Malmstrom AFB and north of the Missouri River along US Highway 87 and Black Eagle.

Numerous special area plans have been produced in Great Falls in recent years which help identify development goals and objectives and contain detailed evaluations of localized areas within the community. These plans are listed below:

- Downtown Access, Circulation, and Streetscape Plan[4] (April 2013)
- Malmstrom AFB Joint Land Use Study[5] (March 2012)
- Downtown Master Plan[6] (October 2011)
- Medical District Master Plan[7] (January 2007)
- Missouri River Urban[8] Corridor Master Plan (2004)

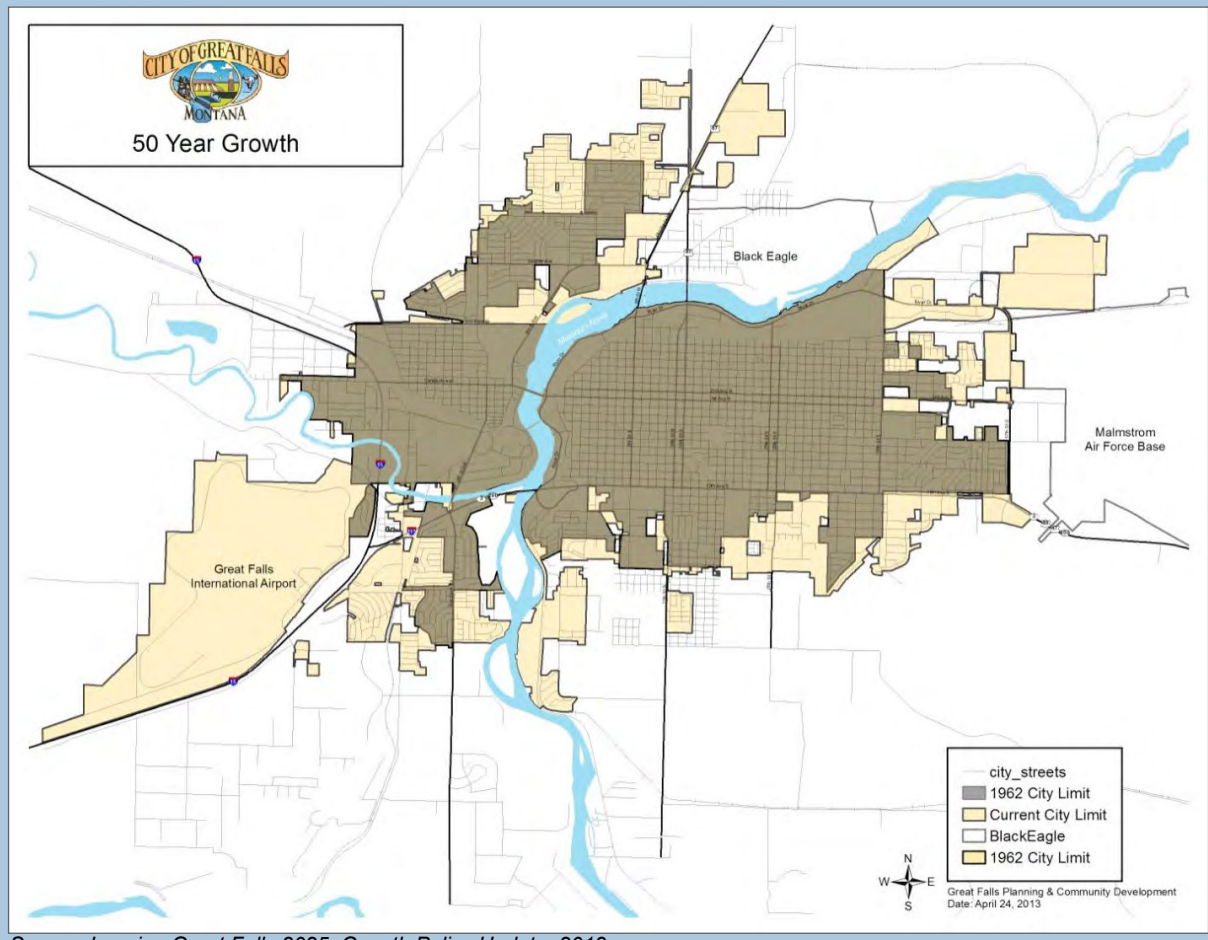


FIGURE 3: *City Expansion Since 1962*

Source: Imagine Great Falls 2025, Growth Policy Update, 2013

2.2.4.3. Future Growth Areas

Potential growth areas within the community were identified as part of the *Imagine Great Falls 2025* growth policy update. These growth areas are shown on **Figure 4**. The principal areas for new residential growth are envisioned along the southern edge of the city in the southwestern portion of the community. Residential growth is also anticipated along the northern perimeter of the city west of US Highway 87. Non-commercial development and industrial growth are envisioned around the airport, east of US Highway 87 and north of Black Eagle, and in the northeastern portion of the urban area near Malmstrom AFB. These potential growth areas were considered when allocating future residential and non-residential growth to the year 2038 within the study area.

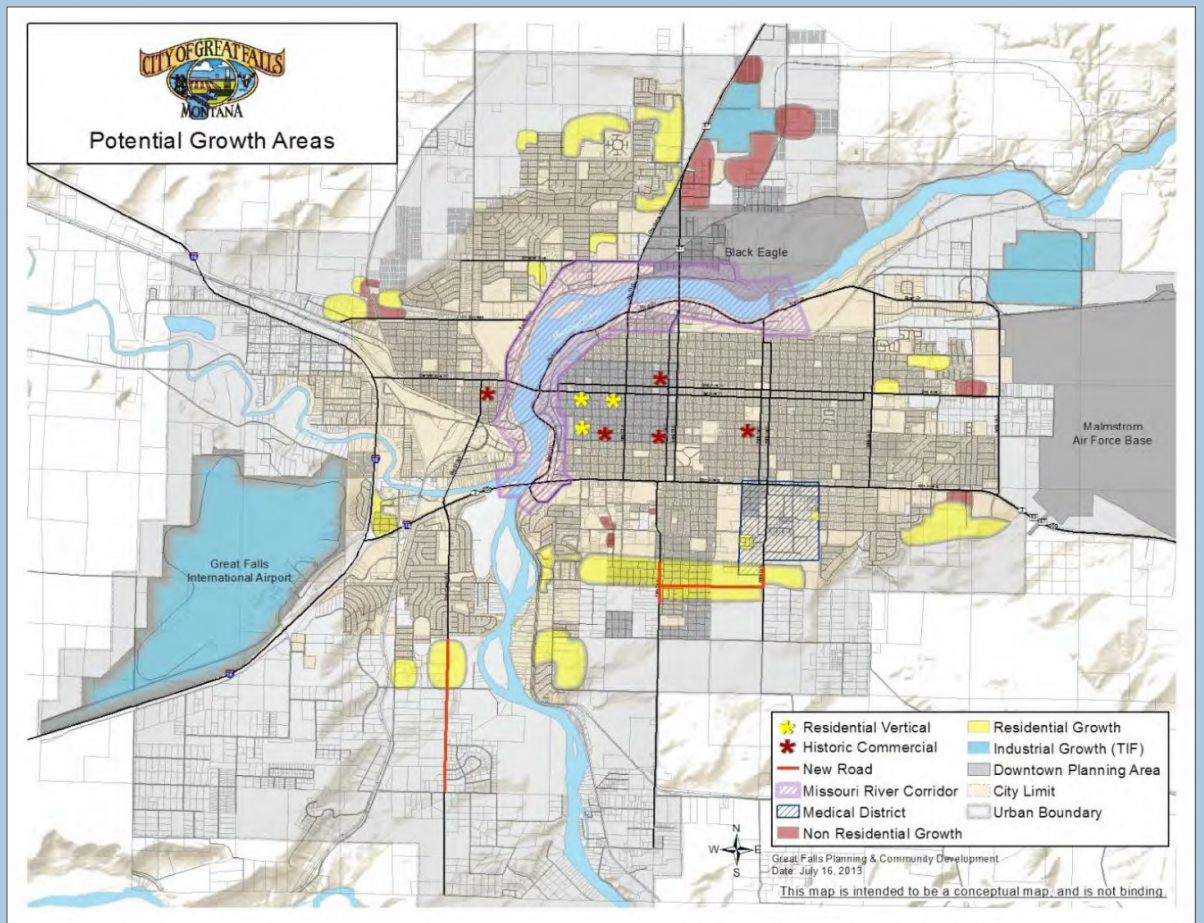


FIGURE 4: *Potential Growth Areas*

Source: Imagine Great Falls 2025, Growth Policy Update, 2013

2.3. Transportation Network

A transportation network is made up of many individual road segments which are connected in ways which permit vehicular movement. However, this network is not limited to personal vehicles, it is also meant to accommodate public transportation, bicycles, pedestrians, freight, rail, and other modes of transportation. Gaining a thorough understanding of each component of the transportation network will help ensure that all modes of transportation are able to navigate the transportation network safely and efficiently.

2.3.1. Major Street Network

A community's transportation system is made up of a hierarchy of roadways, with each roadway being classified according to certain parameters. Some of these parameters are geometric configuration, traffic volumes, spacing in the community transportation grid, speeds, and land use. Functional classification defines the nature of traveling within a network in a logical and efficient manner by defining the part that any particular road or street should play in serving the flow of trips through the entire network.

For the LRTP, emphasis was placed on roadways that are functionally classified as collectors, minor arterials, and principal arterials within the study area. **Figure 5** presents the existing major street network. Note that the functional classifications shown on these figures represent classifications determined by the Great Falls MPO and are not the "Federally Approved" Functional Classification system for the Great Falls area.

Included in the current study area are roadways with functional classifications of interstate system, principal arterials, minor arterials, collector routes, and local streets.

FUNCTIONAL CLASSIFICATIONS

- **Interstate:** The main purpose of an interstate highway is to provide for both regional and interstate transportation of people and goods. Primary users include all types, ranging from local residents and commuters, to travelers and freight operators. Interstate highways characteristically have fully controlled access (provided by a limited number of interchanges), high design speeds, and place a high priority on driver comfort and safety. The interstate system has been designed as a high-speed facility with all road intersections being grade separated.
- **Principal Arterial System:** The purpose of a principal arterial is to serve the major centers of activity, the highest traffic volume corridors, and the longest trip distances in an area. This classification of roadway carries a high proportion of the total traffic. Most of the vehicles entering and leaving the area will utilize principal arterials. Significant intra-area travel, such as between central business districts, outlying residential areas, and major suburban centers, is typically served by principal arterials.
- **Minor Arterial Street System:** The minor arterial street system interconnects with and supplements the principal arterial system. Minor arterials accommodate trips of moderate length at a somewhat lower level of travel mobility, as compared to principal arterials. They distribute travel to smaller geographic areas in addition to providing some access to adjacent lands.
- **Collector Street System:** The collector street network provides links from residential, commercial, and industrial areas to the arterial street network. This type of roadway differs from those of the arterial system in that collector roadways may traverse residential neighborhoods. The collector system distributes trips from the arterials to the user's ultimate destinations while also collecting traffic from local streets in the residential neighborhoods and channeling the traffic to the arterial system.
- **Local Street System:** The local street network comprises all facilities not included in the higher functional classes. The primary purpose of local streets is to permit direct access to abutting lands and connections to higher systems. Most local streets also provide residential and commercial access. Usually, service to through-traffic movements is intentionally discouraged either through low speeds or other traffic calming measures.

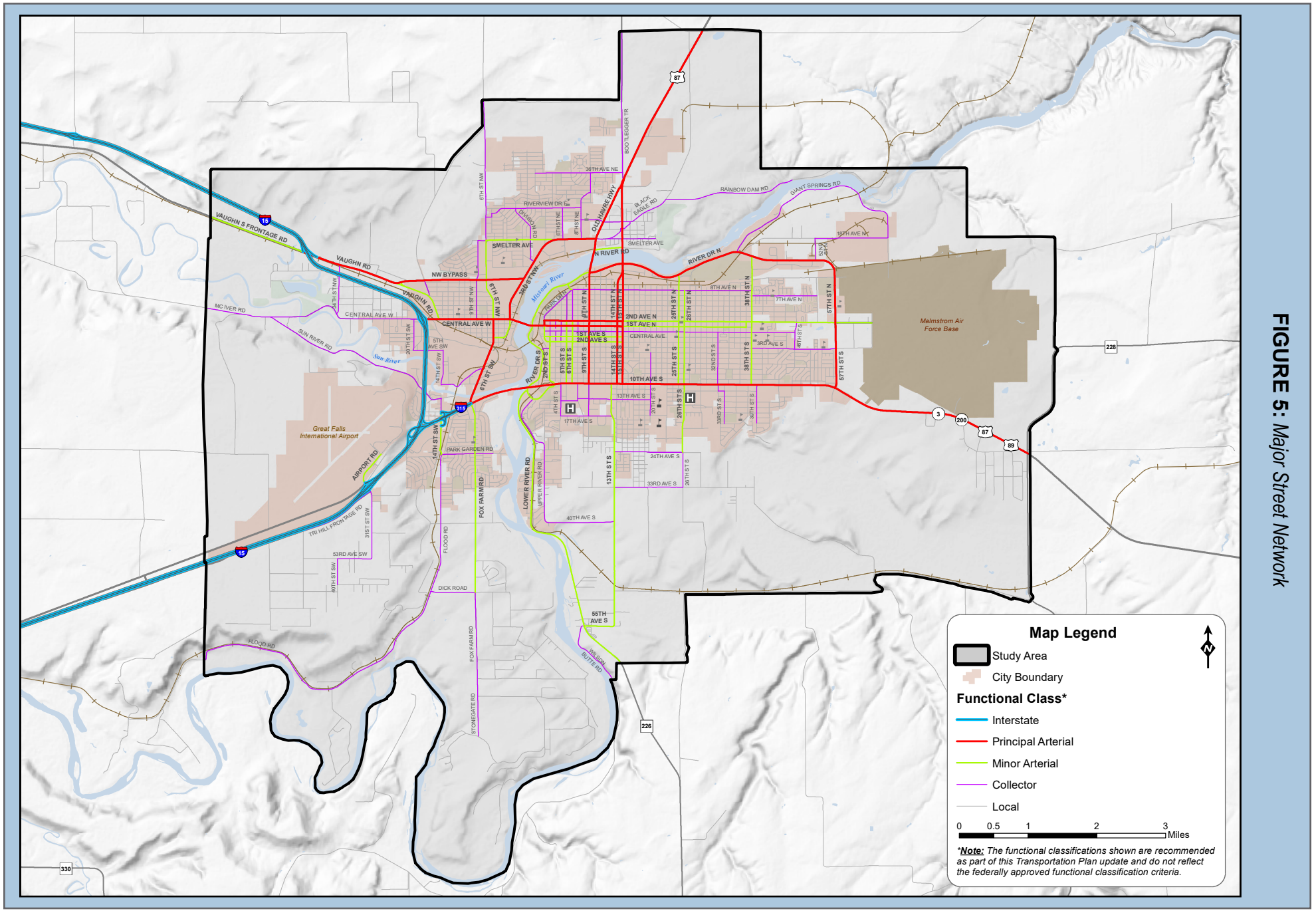


FIGURE 5: *Major Street Network*

2.3.2. Non-Motorized Network

An extensive effort was put forth for the 2014 LRTP to assess the existing non-motorized network conditions and determine the community's non-motorized needs. This assessment was performed by Alta Planning + Design and resulted in a thorough evaluation of existing facilities, policies, programs, and system deficiencies. A technical memo detailing the evaluation is included in **Appendix E** and is summarized here. The content of the memo has been reviewed and updated as appropriate to ensure an accurate representation of the current conditions.

2.3.2.1. Bicycle and Pedestrian Facilities

The Great Falls Area is fortunate to boast an approximately 60-mile off-street bicycling and walking system along the banks of the Missouri River. In general, Great Falls' older core neighborhoods and grid street system with small blocks lend themselves to walking and non-motorized transportation. Pedestrians use sidewalks, trails, alleys, and bridges in and around the City, however, there is a relative lack of designated on-street bicycle infrastructure. The city's first bike lane was installed in Summer 2013. Some additions to the existing bike and pedestrian facilities have taken place since the development of the 2014 LRTP. As such, there are many opportunities for improvement to the non-motorized transportation network, especially improvements to the bicycle network. The following list describes the existing bicycle and pedestrian facilities in the study area. A map of the existing bicycle and pedestrian facilities is presented in **Figure 6**.

Shared Lane Markings

Shared lane markings, or sharrows, are stenciled markings installed as an on-street facility where bicycles share the travel lanes with cars. Typically, these facilities occur on local roadways or on roadways with low traffic volumes and speeds. These facilities are used to connect other bikeways – usually bike lanes - or designate preferred routes through high-demand corridors. In implementation, roadways with shared lane markings are accompanied by a Bike Route designation and appropriate signage. Examples of routes with shared lane markings in the Great Falls Area are those along 4th Avenue North and 8th Avenue North.

Bicyclist riding on the 4th Ave N Shared Roadway

Bike Lanes

Bike lanes are a type of designated bikeway that uses signage and striping to delineate the right-of-way assigned to bicyclists and motorists. Bike lanes encourage predictable movement by both bicyclists and motorists. The Great Falls Area currently has 2.6 miles of bike lanes. The 57th Street N/2nd Avenue N bike lanes were installed in June and July 2013 between the 2nd Ave N gate of Malmstrom Air Force Base on the east, west to the intersection of 57th St N and 2nd Ave N, and then north and northwest to 38th St N and the River's Edge Trail extension.

57th St N/2nd Ave N Bike Lanes

Natural Surface Trails

The River's Edge Trail (RET) is the most notable natural surface trail in the Great Falls Area. In general, natural surface trails serve as both transportation and recreational facilities. The RET is nearly 60 miles long and over 35 miles of the trail are made up of natural surface trail. These parts of the trail are primarily used for singletrack mountain bike riding and walking/hiking, with most of the natural surface trail portion outside of the study area.

Shared Use Paths

Shared use paths are off-street paved trails that are designated for the use of bicyclists, pedestrians, and other non-motorized users such as skateboarders and rollerbladers. Approximately 25 miles of the RET is paved paths and trails. There are also other sections of shared use paths that are not part of the RET system.

Sidewalks

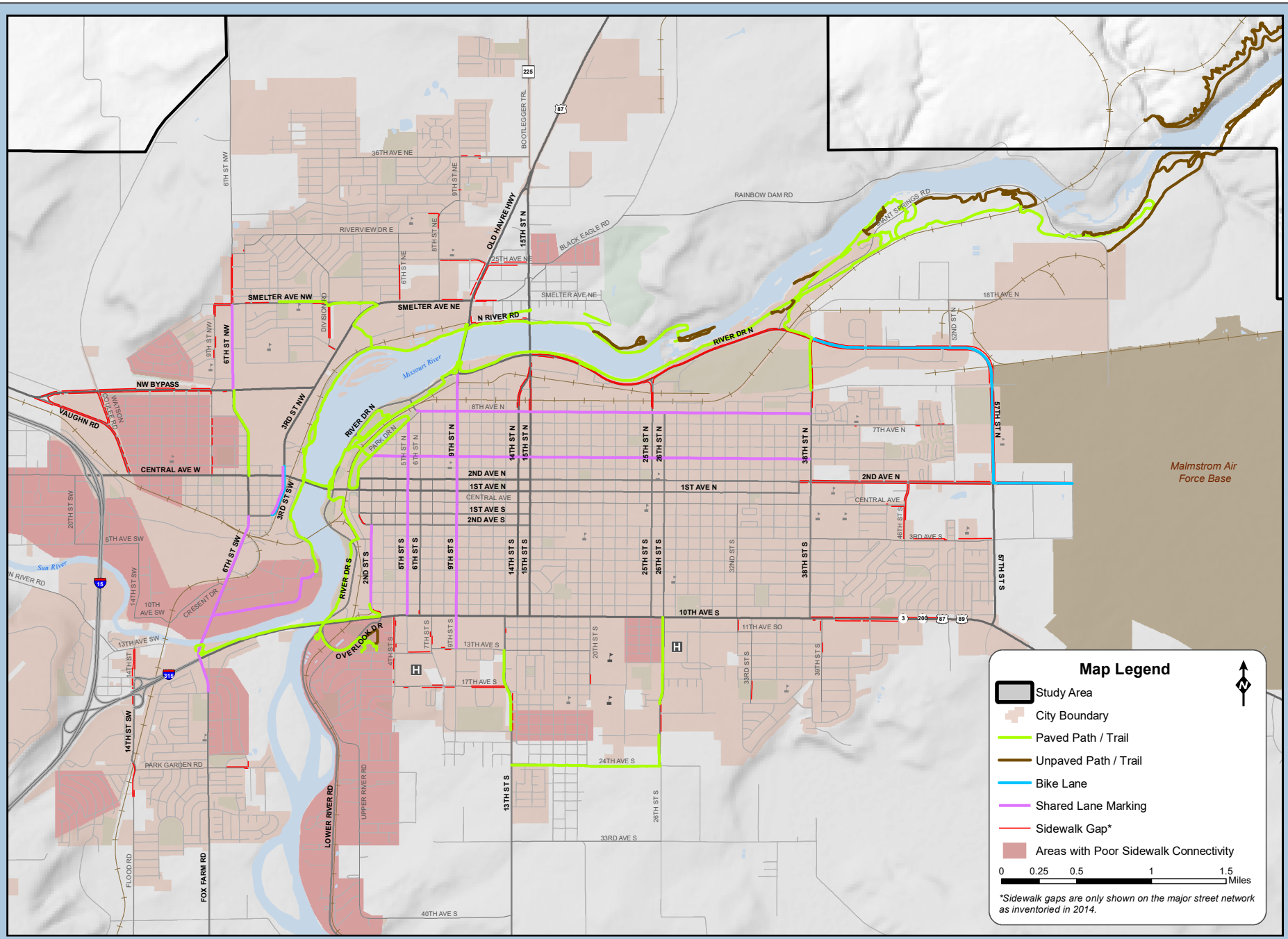
Most of the established areas of Great Falls have a very cohesive and continuous sidewalk network. On the outskirts and in new or fringe developments, however, such connectivity is lacking. Much of the latter areas were subdivided and built before being incorporated into the City (if at all), and most of the sidewalk gaps occur here. Developers and builders in unincorporated areas were not required to build sidewalks and they weren't included in the design of these neighborhoods. At the time of the 2014 LRTP, there were 37.62 miles of sidewalk gaps out of the 196 miles of potential sidewalk mileage within the City limits.

River's Edge Trail NW of Downtown Great Falls

Paved Portion of River's Edge Trail

There are some locations in Great Falls where sidewalks end

FIGURE 6: *Non-Motorized Network*



2.3.2.2. Non-Motorized Programs

River's Edge Trail

According to the River's Edge Trail website, the almost 60-mile trail system is the result of nearly 30 years of cooperative partnership efforts by the City of Great Falls, Cascade County, Montana Department of Fish, Wildlife & Parks (FWP), Montana Department of Transportation, electric utility PPL Montana, a volunteer trail advocacy group Recreational Trails, Inc., and a supportive community. As a result of this work, the RET has grown into a treasured community asset. Since 1989, the trail has grown to nearly 60 miles. The RET system is composed of 25 miles of paved paths and trails, and 35+ miles of unpaved or natural trails (primarily used for singletrack mountain bike riding and walking/hiking)9.

The history of the River's Edge Trail began with a conceptual plan for a riverside recreational trail in Great Falls (as developed by the City-County Planning Board staff in 1989). Dubbed the "Riverfront Recreational Corridor", the trail was to extend 7 miles from the Broadwater Bay area downstream to Rainbow Falls. The trail, re-named the River's Edge Trail following a Name-the-Trail contest in the Great Falls Tribune, captured the interest and support of the community. A volunteer group that advocated local bike trails, also in 1989, as part of the Vision 2000 community planning process, began working with the City to develop the first segments of the trail. That group was formalized as a non-profit 501 c3 corporation named Recreational Trails, Inc. (RTI).

Over the last 26 years RTI has continued to work with the City, County, FWP, PPL Montana and many other partners, agencies, groups and individuals to extend and improve the 60-mile trail. In 2015, the City of Great Falls assumed full management of the trail, hired a trails coordinator in 2016, and RTI transitioned into the River's Edge Trail Foundation10. Much of the trail has been constructed on abandoned railroad and road rights-of-way and structures. Miles of new trail connecting these segments have been constructed, as have many new tunnels, underpasses, bridges and trailheads. Volunteers have undertaken an on-going intensive cleanup of riverfront lands that had been littered with debris over the past decades, and have spent thousands of hours on weed control, tree planting, maintenance, and enhancement projects11.

Get Fit Great Falls

Get Fit Great Falls (GFGF) is a group that desires to have a healthier and more active community that is also more economically vibrant and physically active. Get Fit Great Falls is made up of representatives from 20 community organizations and agencies and although it is not officially a non-profit organization, it has been successful in its initial initiatives to encourage more walking and bicycling to Great Falls Voyagers baseball games, overall walkability of the City, and improving the relationship between pedestrians and other roadway users. Focusing on wheelchair accessibility and safety concerns for disabled users, GFGF has sought to work with the City to close sidewalk gaps and improve ADA access.

The River's Edge Trail in Great Falls follows the Missouri River.

Americans with Disabilities Act (ADA) Accommodations

An ADA ramp is an inclined ramp that allows access for those in wheelchairs, with other disabilities (including the elderly), and those pushing carts or strollers to transition gradually and safely between the sidewalk and the street, similar to the way a driveway curb cut allows a car to access a driveway and the roadway.

The City of Great Falls has made a significant effort in constructing and improving ADA curb ramps in recent years. In 2017, the City adopted the *Public Right of Way ADA Transition Plan*[12] which identifies barriers to accessible transportation on City properties and in the public rights of way and outlines methods to remove these barriers. To date, the City of Great Falls has:

- 5,626 corners total
- 1,074 ADA compliant ramps
- 1,843 non-compliant ramps
- 2,709 corners without ramps
- 90 traffic signals
- 37 signals without pedestrian push buttons
- 600+ miles of sidewalk

The Plan concluded that 63 percent of curb ramps in the City are non-compliant with ADA regulations. Twenty-eight ADA program methods have been established to help ensure compliance. The methods are broken down into three categories: (1) Administration, (2) Communications, and (3) Right-of-way related methods which are further broken down into ADA Inventory, Project Identification, Design and Construction, and Operation and Maintenance. Each year an Annual Action Plan will be completed which will include an implementation plan and schedule depending on that years available funding mechanisms. The LRTP adopts by reference the *ADA Transition Plan.*

The Great Falls Transit District ADA advisory committee is currently without effective guidance or leadership, but its role has traditionally been to advise the Board of Trustees or Directors on issues regarding wheelchair access and accommodating and providing services for those with disabilities who use the transit system. In the past, their priority was a curb cut, or ADA ramp, program. Once that began to pick up speed and more ADA ramps were installed on sidewalks, interested members of that committee dwindled and stopped coming to meetings.

ADA ramps create an easier transition between sidewalks and the streets.

2.3.3. Transit Network

The history of the existing public transit system in Great Falls goes back to 1978 when, by voter referendum, the establishment of a Transit District was approved. The purpose of the Transit District is to provide an alternative form of transportation to city and county residents in the Great Falls area. Funding for the district is provided through a combination of fare collections, property tax revenue, and Federal funds. The latter is administered by MDT and goes towards operating and capital costs. Passenger service started in February of 1982.

Since the creation of the Great Falls Transit District (GFTD), a variety of studies and plans have been created to assist the District with operations, and specific measures to improve financial sustainability and customer needs were identified. A comprehensive *Transit Development Plan (TDP)*[13] was completed by LSC Consultants on October 9, 2010. Much of the existing and proposed information presented herein relies heavily on the TDP.

2.3.3.1. Transit Facilities

The GFTD operates seven regular fixed routes. The fixed routes operate from roughly 6:30 AM to 6:30 PM on weekdays and from 9:30 AM to 5:30 PM on Saturday. Six of the seven routes, with the exception of Route 7-Southwest, operate on 30-minute headways during the morning and afternoon peaks (6:30 AM to 9:30 AM and 2:30 PM to 6:30 PM). This allows for extensive coverage during both school hour and commuter business hour travel times. Saturday service is hourly on every line. There is no transit service provided on Sundays.

The seven lines radiate from a timed-transfer point downtown at 1st Avenue South and 4th Street (referred to as the Downtown Transfer Station). Lines one through four make a timed connection at 10th Avenue South and 57th Street South. Lines five and six also make a timed connection at Division Road and 23rd Avenue NE.

A short description of the seven transit routes, along with their primary service market and basic ridership characteristics, is contained below. The seven routes are also shown graphically on **Figure 7**.

Route 1 (Southeast): This route serves various medical facilities, shopping destinations, lower and higher educational facilities, and residential areas. This route snakes its way through the area on minor streets, rather than running straight along an east – west roadway route.

Route 2 (Central): This route serves Central Avenue from the Central Business District (CBD) to 44th Street, then turns south and east along 3rd Avenue South to the East End Timed Transfer Hub. Route 2 serves numerous public and private schools, some commercial areas, and extensive residential areas.

Route 3 (Northcentral): This route primarily runs along 8th Avenue North. Route 3 runs adjacent to residential areas, a few small commercial centers, and services the Malmstrom Air Force Base.

Route 4: (Southcentral): Route 4 has its highest boarding counts between the CBD and 20th Street South. Daily activity is strongest in the early morning and mid-afternoon. These times correspond with school arrivals and releases.

Route 5 (Northwest): Route 5 has high boardings around CM Russell High School, and in the older west side neighborhood around 3rd Avenue Northwest and 14th Street Northwest. Except for these two areas, each end of the route and Central Avenue West are the only areas of any significant activity.

Route 6 (Northeast): Ridership on Route 6 occurs primarily at a few locations: the transit center, North Middle School, Skyline School, and WalMart. There are also a number of boardings around the node of commercial land uses at the intersection of 10th Avenue North and 14th Street North, which includes the Women's Transition Center.

Route 7 (Southwest): This line provides service to the Marketplace Shopping Center on 14th Street Southwest, via Fox Farm and Park Garden Roads.

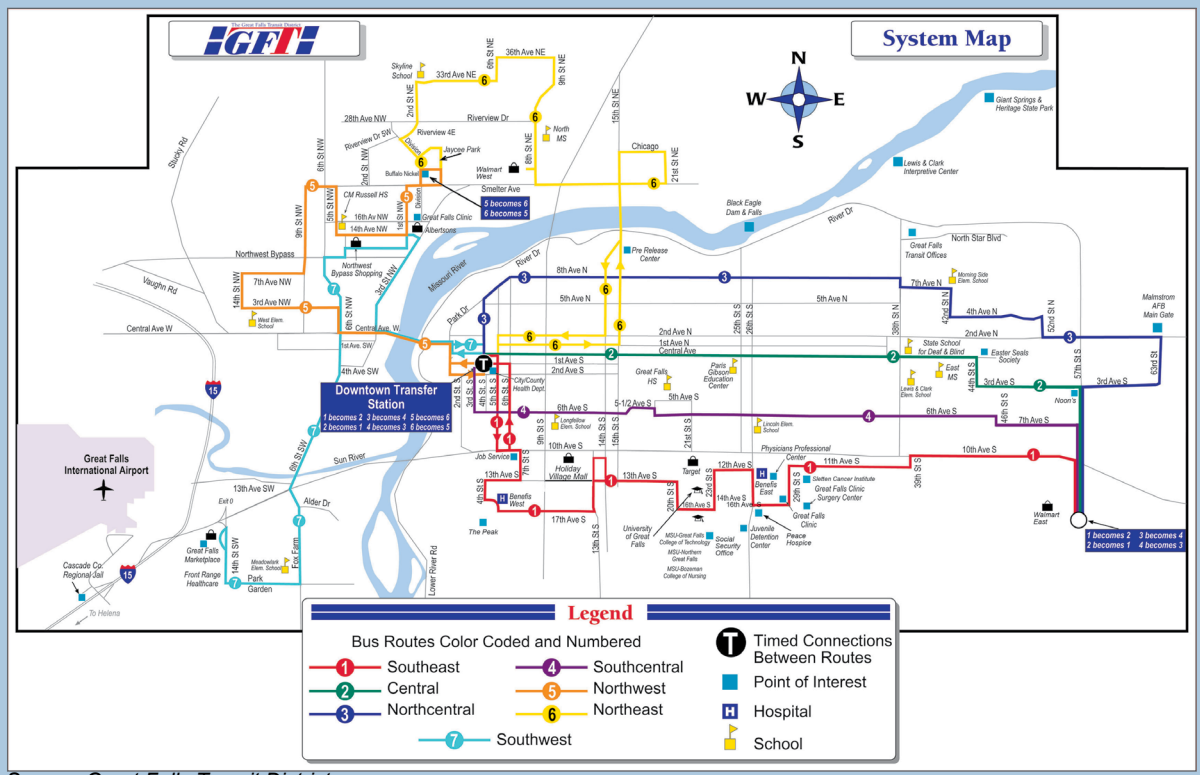


FIGURE 7: *Transit System Route Map*

Source: Great Falls Transit District.

2.3.3.2. Paratransit Operations

There are a number of paratransit operators that provide an alternative transit mode of travel to system users in the community. First and foremost is the paratransit known as the “Access Transportation Service”, which is the ADA paratransit service provided by Great Falls Transit. The service is restricted to eligible registrants based on a functional assessment administered by the Great Falls Transit staff. The service is provided under contract by Diamond Cab and Diamond Wheelchair Services.

In addition to the service provided by the Diamond Cab Company, there are several retirement developments that provide service to residents of the various retirement facilities. Some of the facilities that are served by Aging Services are the Lodge, Cambridge Court, Cambridge Place, and Rainbow Retirement Center.

Passenger service for the Great Falls Transit District started in February 1982.

2.3.3.3. Connectivity to Transit

Trips by transit often begin and end on foot or bicycle or both. When connectivity to transit is poor, ridership and ease of use of the system is also negatively affected. By improving sidewalks at and near bus stops, constructing bus shelters for waiting patrons, and planning routes near popular bicycling and walking routes, citizen connectivity to transit can improve.

The GFTD bus route network is mostly a flag-down system, but there are plans and programs now in place to include fixed stops and the amenities that go along with them. A completely fixed stop system has been discussed internally at GFTD, but a plan for implementation has not been created yet. The advantages of a fixed stop system, especially for bicyclists and pedestrians, would be, among others, improved predictability of route time tables and scheduling, both for the user and the Transit District.

Bicycling

Nearly all GFTD buses now have bike racks mounted on the front of the bus that allow users to use buses to connect longer legs of a trip, in case of an emergency or breakdown, or to avoid inclement weather or difficult topography. GFTD has not, however, tracked or counted their use to determine demand on certain routes, or where bicyclists board and alight most.

Walking

The GFTD is currently focused heavily on addressing connectivity to newly implemented fixed stops via sidewalks and applicable improvements. According to the City and GFTD, there are transit users with limited mobility who use paratransit and other transit services because there are not sidewalks where they want to go or that access traditional bus stops and not necessarily because they require a paratransit ride.

2.3.4. Goods Movement Network

Goods movement affects all modes of transportation and a broad mix of land uses in the Great Falls Area. Goods move through the region alongside drivers, pedestrians, cyclists, and passengers traveling by bus, rail, and air. The goods movement network connects and passes through commercial districts, residential neighborhoods, and parks. Demand for goods movement is increasing as the region's economy and population grows. Integrating goods movement into the transportation system and local land uses is critical to protecting safety and quality of life.

Heavy industry has an important role in the Great Falls Area. These industries are expecting continued growth in the Great Falls Area to support developments in oil and gas extraction and refining, and agriculture. Notable products on the goods movement system include oil and gas extraction materials and equipment, grains and other perishables, aerospace equipment and parts, and wind energy equipment and supplies. Examples of employers in these industries include the Calumet Montana Refining, Pacific Steel and Recycling, ADF Group (Steel Fabrication), Pasta Montana, Malteurop and General Mills.

The military also maintains a strong presence in the Great Falls Area. Malmstrom AFB's direct and indirect economic impact totaled over $330 million, and expenditures for construction, services, materials, equipment, and supplies totaled about $69 million in 2012[14]. The AFB relies on an efficient and secure goods movement network to transport these goods to and from the base. In particular, the AFB relies on roadway connections to Great Falls International Airport, which is a key component of the military transportation network as well as being the location of the Montana Air National Guard Facilities.

Freight and rail are integral part of the goods movement network in the Great Falls area.

2.3.4.1. Goods Movement by Transportation Mode

Montana exports over 61 million tons of goods, with a total value of over $6.6 billion dollars and about 11 million tons of goods terminate in Montana, valued at about 12.1 billion dollars[15]. This is because Montana is part of a trade corridor linking midwestern and northwestern port markets. Consequently, there is a large amount of through-bound goods movement. Trucking serves a greater share of locally serving trips – those originating and terminating in Montana – due to the ability of trucks to serve diffuse markets. While the Great Falls Area is affected by through trips on the highway and rail networks, locally serving trips have the greatest impact on the regional economy and quality of life.

The Port of Sweetgrass is located along Interstate 15 (I-15) approximately 120 miles north of Great Falls, and is Montana's largest international port of entry. It is the only port in western Montana that is open twenty-four hours a day. It is located near three of western Canada's largest cities: Calgary, Lethbridge, and Edmonton. Together, these cities have a population of approximately 1.25 million. Approximately 980,000 people travel through the Sweetgrass Port of Entry each year[16]. After passing through the Port of Sweetgrass, trucks largely travel on I-15 through Great Falls and continue to destinations to the south, southeast, and west.

Great Falls is located along the Canamex Trade Corridor, which was designated as a High Priority Corridor by Congress in the 1995 National Highway Systems Designation Act. I-15 is the designated corridor through Great Falls and northern Montana. South of Great Falls to Mexico the corridor includes a combination of roadways. The corridor's main objective is to facilitate trade between these nations and strengthen its position in the global economy[17].

Great Falls International Airport sees a significant share of Montana air cargo, which extends into southern Alberta, Canada. Large distances and rough terrain between cities and towns often make air travel the most efficient mode of transportation. FedEx Express uses the airport as their statewide hub, linking smaller flights to communities within the state, and linking to hubs in other states. FedEx also contracts with the United States Postal Service to carry first class mail.

2.3.4.2. Origins and Destinations

Much of the locally serving goods movement is destined for industrial or commercial districts. Heavy industrial areas (I-2 District) are located within the northeastern quadrant of the city, along Highway 87, heading northeast from Great Falls, or along River Drive North on the east side of Great Falls. There are some light industrial districts (I-1 District) just north of a high-density residential district (R-3 District) adjacent to 8th Avenue North, and also on the west side of Great Falls between the Missouri River and I-15 where the BNSF rail yard is located. Great Falls International Airport is an important location in the area's freight network, as goods move to and from the region via this location.

Goods move to and from commercial districts of the city as well. The Central Business Core (C-4 District) is located north of 10th Avenue South, just east of the Missouri River. Goods moving to the Central Business Core arrive by various arterials connecting to the Core, including: 2nd Street South, River Drive North and South, 5th/6th Streets South one-way couplet; 1st/2nd Avenues North one-way couplet; 9th Street North and South; and Central Avenue West/1st Avenue North.

2.3.4.3. Routes and Facilities

The Great Falls Area's goods movement network benefits from truck, rail, and air transportation modes that facilitate goods movement throughout the region. **Figure 8** presents the goods movement routes and facilities in the Great Falls Area.

Trucks

Figure 7 illustrates the routes generally used by trucks in the Great Falls Area. Official truck routes to be used by through trucks are identified in the City of Great Falls city code[18]. Typical truck routes are those that are outside the municipal boundary and connect to the official truck routes, forming complete goods movement routes.

Trucks generally travel on I-15 to access markets outside the region. Locally-serving trucks access the city via the NW Bypass or Central Avenue West. From the southwest, trucks access the city on Country Club Boulevard and 10th Avenue South, with access to commercial areas. Trucks access the city via Highway 87 in the northeast, with connections to Smelter Avenue and River Drive. From the southeast, trucks enter along 10th Avenue South.

Rail

Great Falls is well-integrated into the nation's freight rail system, with numerous facilities and services. Rail facilities carry freight on lines northeast of the city and along the east side of the Missouri River, crossing the river south of downtown. The rail lines connect to the BNSF rail yard just west of the river. Rail lines extend south and northwest from the rail yard. Great Falls is located on the 100-mile BNSF main line that links Shelby and Great Falls, known as "The Great Falls Subdivision".

Rail spurs connect the rail network to several industrial facilities in the Great Falls Area, providing direct access to major goods movement facilities. **Figure 7** illustrates the rail lines serving the Great Falls Area. A circuitous railroad spur deviates from the area near the AgriTech Industrial Park, crosses the Missouri River just west of Rainbow Dam, and circles north and west to the Malting Plant. This spur line is located outside the City of Great Falls but supports significant goods movement activity in and through the area.

Air

The Great Falls International Airport has substantial infrastructure for the air cargo industry.

The Great Falls International Airport offers substantial infrastructure for the air cargo industry. The airport's primary runway is 10,502 feet long; the secondary runway is 6,030 feet long. The airport operates a control tower and four terminal gates. The airport occupies just over 2,100 acres and has a 531,000-square foot cargo apron area, and 72,000 square feet of cargo warehouse space. FedEx uses the warehouse space as a sorting and distribution hub for Montana. The airport operates a foreign trade zone that offers tax-free purchases to international customers. The U.S. Customs Border Patrol operates an office on the airport, which facilitates international travel.

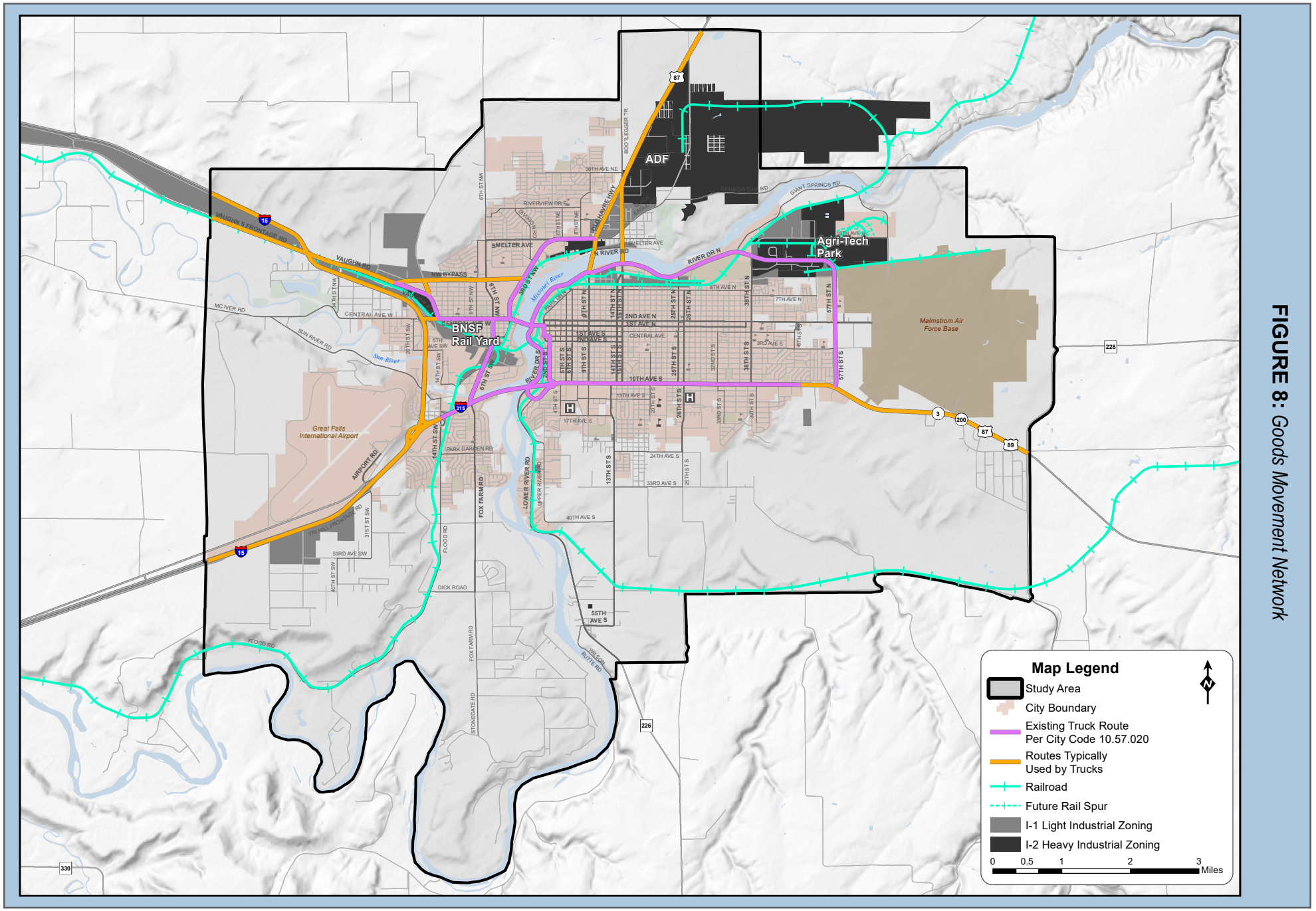


FIGURE 8: *Goods Movement Network*

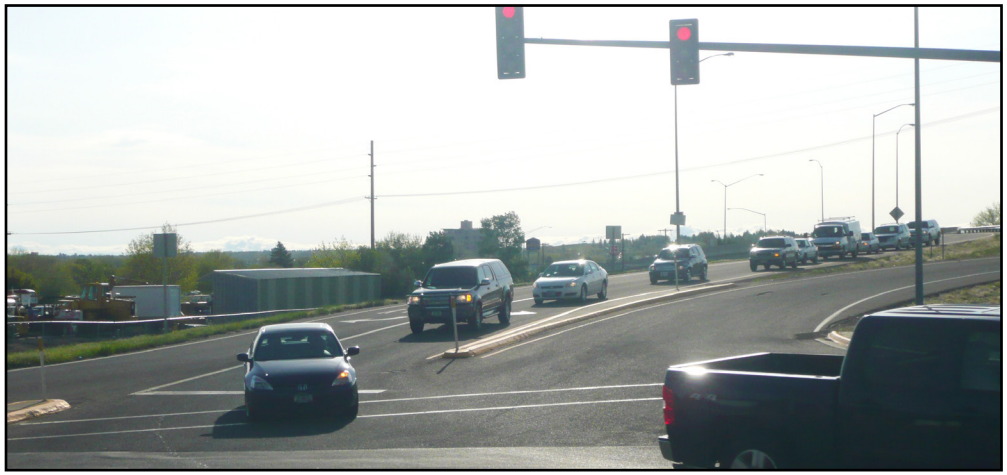
2.4. Transportation Conditions

Current information about the transportation system was analyzed to establish the existing traffic conditions and to determine potential problem areas. Existing data was provided in the 2014 LRTP and was updated as appropriate using data provided by MDT, the City of Great Falls, and Cascade County. No new data was collected for the 2018 update of this Plan as the available existing data was determined to accurately represent the current transportation conditions. The combination of data from the 2014 LRTP and the newly supplied data was used to determine the existing operational characteristics of the transportation system.

2.4.1. Roadway Volumes and Capacity

The capacity of the roadways is of critical importance when looking at the growth of the community. As traffic volumes increase, vehicle flow deteriorates. When traffic volumes approach and exceed the available capacity, users experience congestion and vehicle delay. As such, it is important to investigate the size and configuration of the existing roadways and to determine if these roads need to be expanded to accommodate the existing or projected traffic demands. The capacity of a roadway is based on various features including the number of lanes, intersection function, access and intersection spacing, vehicle fleet mix, roadway geometrics, and vehicle speeds. Individual roadway capacity varies greatly and should be calculated on an individual basis. However, for planning and comparison purposes, theoretical roadway capacities were developed based on the existing roadway configuration. **Table 5** presents the capacities, given in vehicles per day, that have been used for this work. The values given in the table are not intended to be used to set any thresholds for roadway performance, but rather provide general information to be used for comparison purposes.

A roadway's capacity, and volume-to-capacity (v/c) ratio, can be used as a comparison tool when looking at the transportation system. The v/c ratio of a roadway is defined as the traffic volume on the roadway divided by the capacity of the roadway. **Figure 9** presents the resultant v/c ratios for the existing major street network. The v/c ratios help identify potential capacity deficiencies on the transportation system.



Poor intersection function at the intersection of I-315 Eastbound Off Ramp and 14th St SW can cause vehicle delays on the connecting roadways.

Table 5: Theoretical Roadway Capacity

Road Configuration	Capacity (vpd) [a]
2 Lane	12,000
2 Lane - Divided / TWLTL	18,000
3 Lane	18,000
3 Lane - Divided / TWLTL	24,000
4 Lane	24,000
4 Lane - Divided / TWLTL	32,000
6 Lane - Divided / TWLTL	48,000
Interstate	68,000

[a] Values represent planning level daily capacities developed for this Transportation Plan and are intended for comparison purposes only. Actual physical roadway capacity can vary greatly depending on road design features and access control.

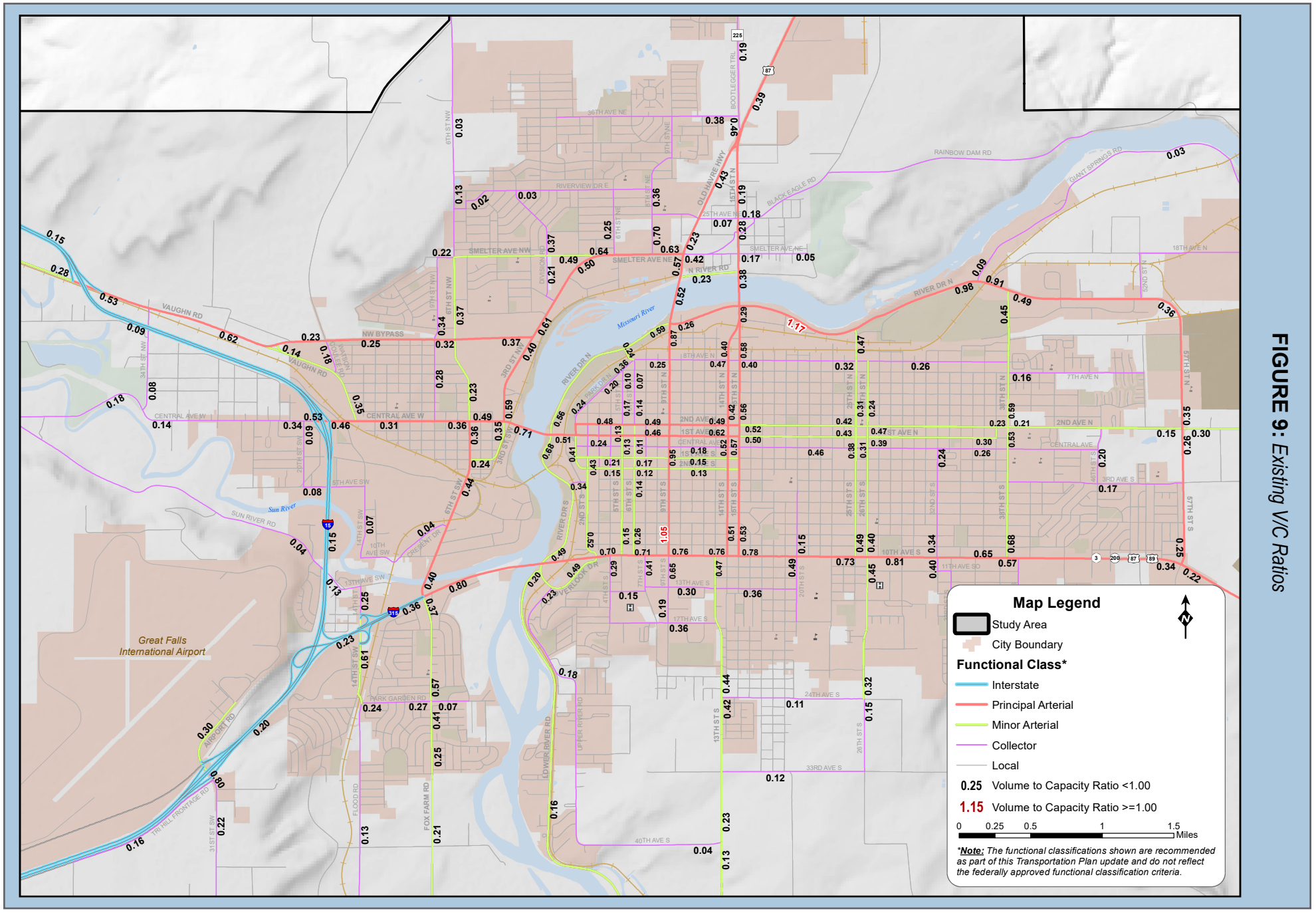


FIGURE 9: *Existing V/C Ratios*

2.4.2. Intersection Operations

Urban road systems are ultimately controlled by the efficiency of major intersections. High amounts of vehicle delay at major intersections directly reduces the number of vehicles that can be accommodated along the road during peak hours. Intersection performance is evaluated in terms of vehicle delay. The amount of vehicle delay experienced at an intersection correlates to a measure called level of service (LOS). LOS is used as a means for identifying intersections that are experiencing operational difficulties, as well as a means to compare multiple intersections. The LOS scale represents the full range of operating conditions. The scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using the intersection. The scale ranges from "A" which indicates little, if any, vehicle delay, to "F" which indicates significant vehicle delay and traffic congestion.

LOS are a microscopic approach to evaluating traffic operations. Intersection LOS defines intersection performance in terms of vehicle delay and does not factor in alternative travel modes nor does it take into consideration the health of the overall transportation system. Intersection LOS is often based on a single hour, or peak hours, for which the system is most congested. A more macroscopic approach to improving the transportation system, not just reducing peak hour delay at single intersections, should be taken.

Data from various sources were compiled to display LOS for intersections in the study area. Intersections having poor operations or safety concerns were identified by the City as needing analysis and were therefore included herein. Data from recent corridor planning studies conducted by MDT (I-15 and River Drive Corridor Studies) were used to provide a more current LOS analysis than that provided in the 2014 LRTP. Additionally, there are count locations where more current (year 2016 or 2017) data is available, in these locations a new LOS analysis was performed using the updated turning movement counts. For many of the intersections counted for the 2014 LRTP there is no new data available, in which case the LOS calculations from the 2014 LRTP remained the same for the current LRTP.

In total, 50 intersections have been included in the LOS analysis. Of those intersections, 33 locations use the LOS data from the 2014 LRTP. An additional 14 locations were from the *River Drive Corridor Study*[19] or the *I-15 Gore Hill to Emerson Junction Corridor Study*[20]. There are only three locations where new data is available. Each intersection was analyzed for the peak hours, defined as 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. **Figure 10** shows existing peak hour LOS at the various intersections included in the analysis.

The Gore Hill Interchange experiences delay particularly during the PM peak hour.

The intersection of Bootlegger Trail and US-87 operates at a failing LOS during the PM peak hour.

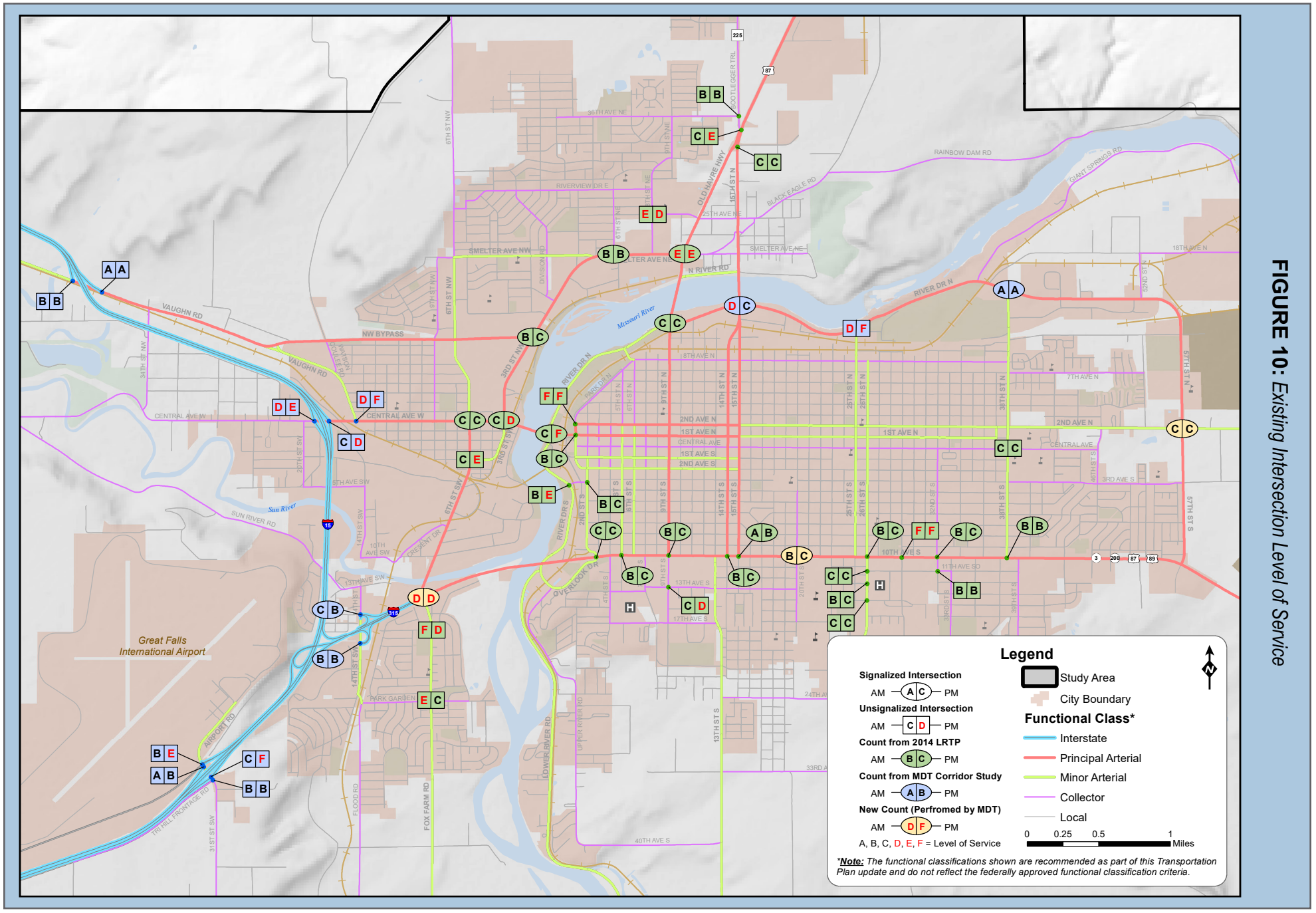


FIGURE 10: *Existing Intersection Level of Service*

2.4.3. Active Transportation Data

Providing an accurate picture of pedestrian and bicycle activity within any community is difficult. Data are typically not available or not comprehensive enough to form a complete picture of active transportation behavior. Data for vehicles is, by comparison, more readily available. The vehicle or type of transportation that people choose for their trips, either commuting to and from work, doing errands, or other trips, is available via the American Community Survey (ACS) and the National Household Travel Survey (NHTS).

2.4.3.1. Commuting (ACS)

Bicycling

The 2011-2016 five-year ACS averages show that approximately 0.5 percent of commuters choose to travel to and from work by bicycle in Great Falls. When compared to the rest of the US, this figure is lower than the average, (0.6 percent) and is less than Montana's average mode share for bicycling to work (1.4 percent). Great Falls has fewer bike-to-work commuters than all other large Montana cities.

Walking

About 3.1 percent of commuters in Great Falls walk to and from work. This is higher than the national (2.8 percent) and lower than the state (5.1 percent) averages, but the same as the 2000 Census when 3.1 percent of commuters walked. Great Falls has fewer walk-to-work commuters than Billings, Missoula, Bozeman, and Helena but outperforms Butte and Kalispell.

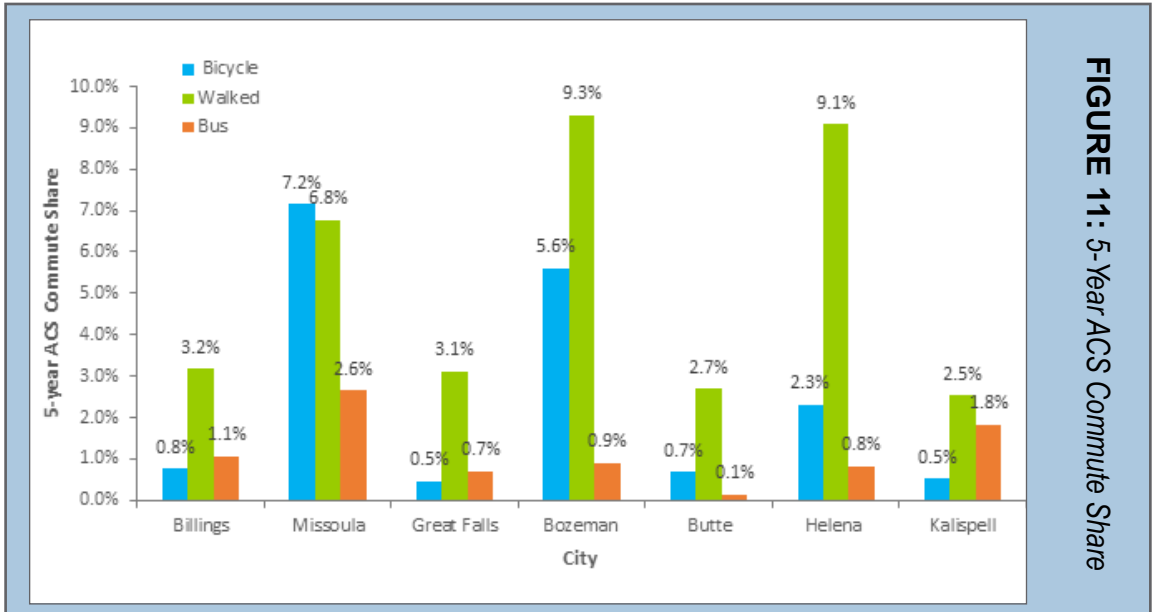


FIGURE 11: *5-Year ACS Commute Share*

2.4.3.2. All Trips (NHTS)

Bicycling

Bicycle mode share for all trips in Great Falls is estimated at 1.4 percent, which is higher than the national average (1.0 percent) but lower than the statewide average for Montana (2.5 percent). Great Falls' total bicycle mode share is higher than Billings and Butte, but lower than the other four cities.

Walking

An estimated 5.5 percent of all trips in Great Falls are walking trips, which is much higher than the ACS data outlining walking to and from work (2.7 percent), but it still remains lower than all six Montana cities in the graph and also lower than the national (6.1 percent) and Montana (10.6 percent) averages.

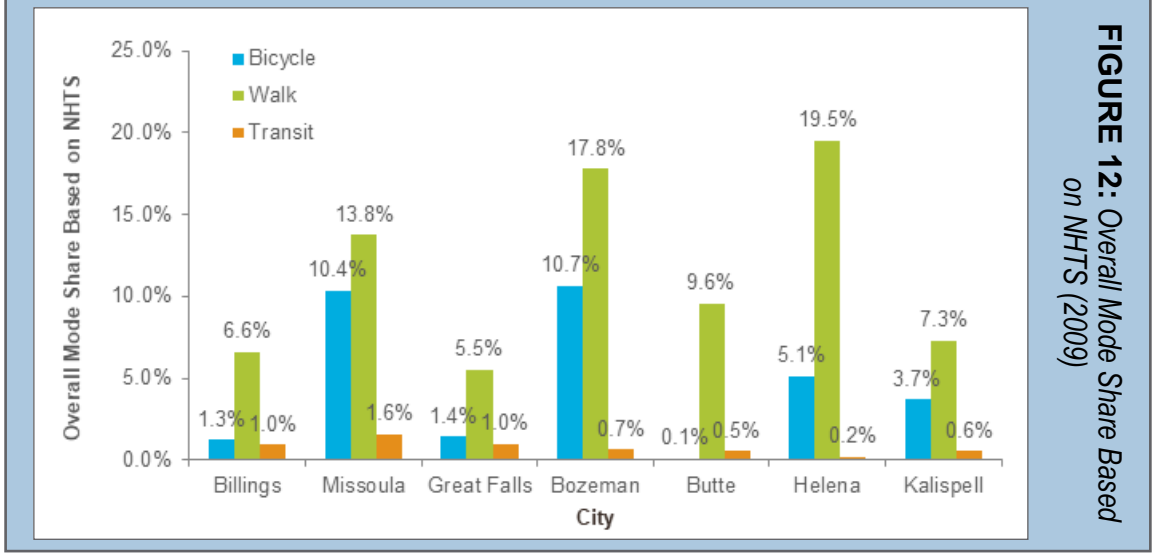


FIGURE 12: *Overall Mode Share Based on NHTS (2009)*

2.5. Safety

The MDT Traffic and Safety Bureau provided crash data for the five-year period from January 1st, 2012 to December 31st, 2016. The crash reports are a summation of information from the scene of the crash provided by the responding officer. As such, some of the information contained in the crash reports may be subjective. According to the MDT crash database, there were 8,558 crashes reported within the study area during the analysis time period.

The spatial distribution of all crashes was plotted based on the reported crash locations. The number of crashes per area were then tallied and are displayed in **Figure 14**. Locations with higher traffic volumes appear to have a higher number of crashes.

2.5.1. Crash Severity

Reported crashes are categorized by crash severity and the most severe injury defines the severity of the crash. For example, if a crash results in a fatality and an injury, the crash would be considered fatal. During the five-year analysis period, there were 1,860 injury crashes (22 percent) which resulted in 2,589 injuries. Of the injury crashes, 82 (1.0 percent) resulted in incapacitating injuries. In addition, there were 17 fatal crashes (0.2 percent) resulting in 19 fatalities. **Figure 13** shows the crash severity for all crashes in the Great Falls Area for the five-year analysis period. **Figure 15** shows the location of the crashes which resulted in incapacitating injuries and/or fatalities. An incapacitating injury is defined as an injury, other than a fatality, which prevents the injured person from walking, driving or normally continuing activities they were capable of performing before the injury.

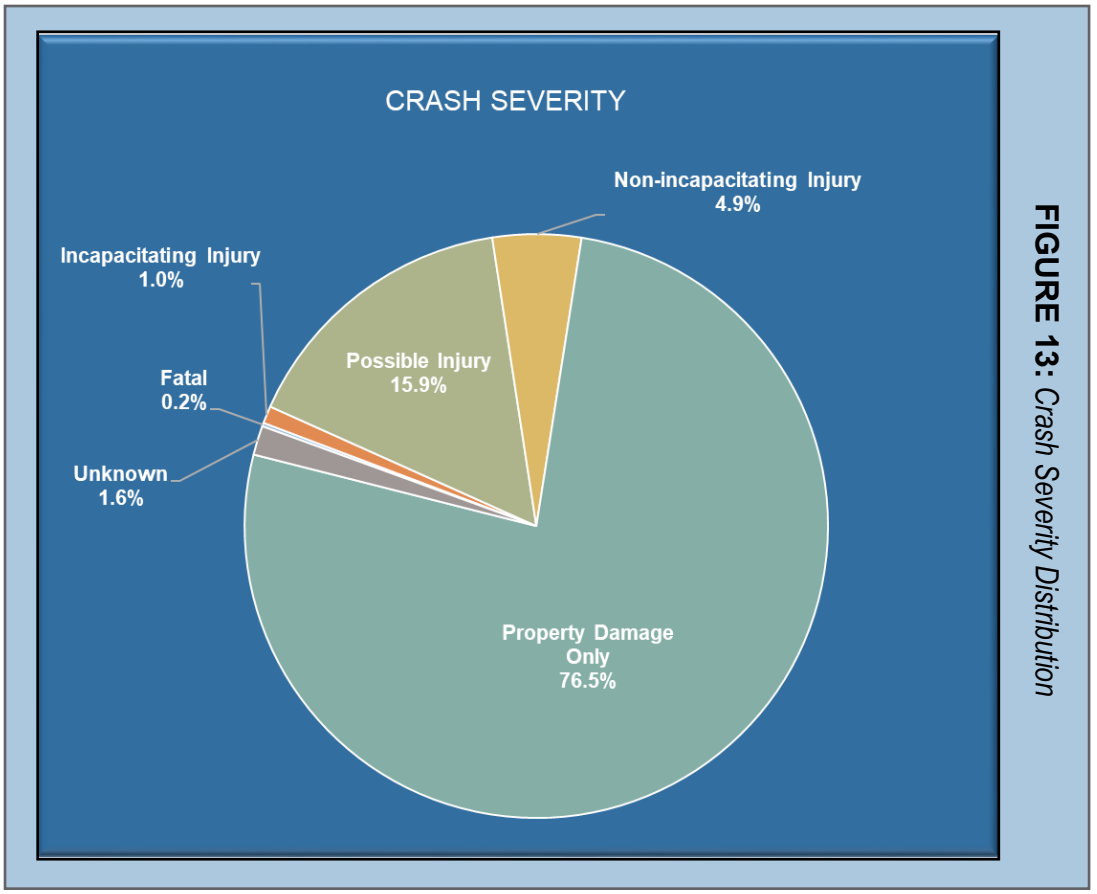


FIGURE 13: *Crash Severity Distribution*

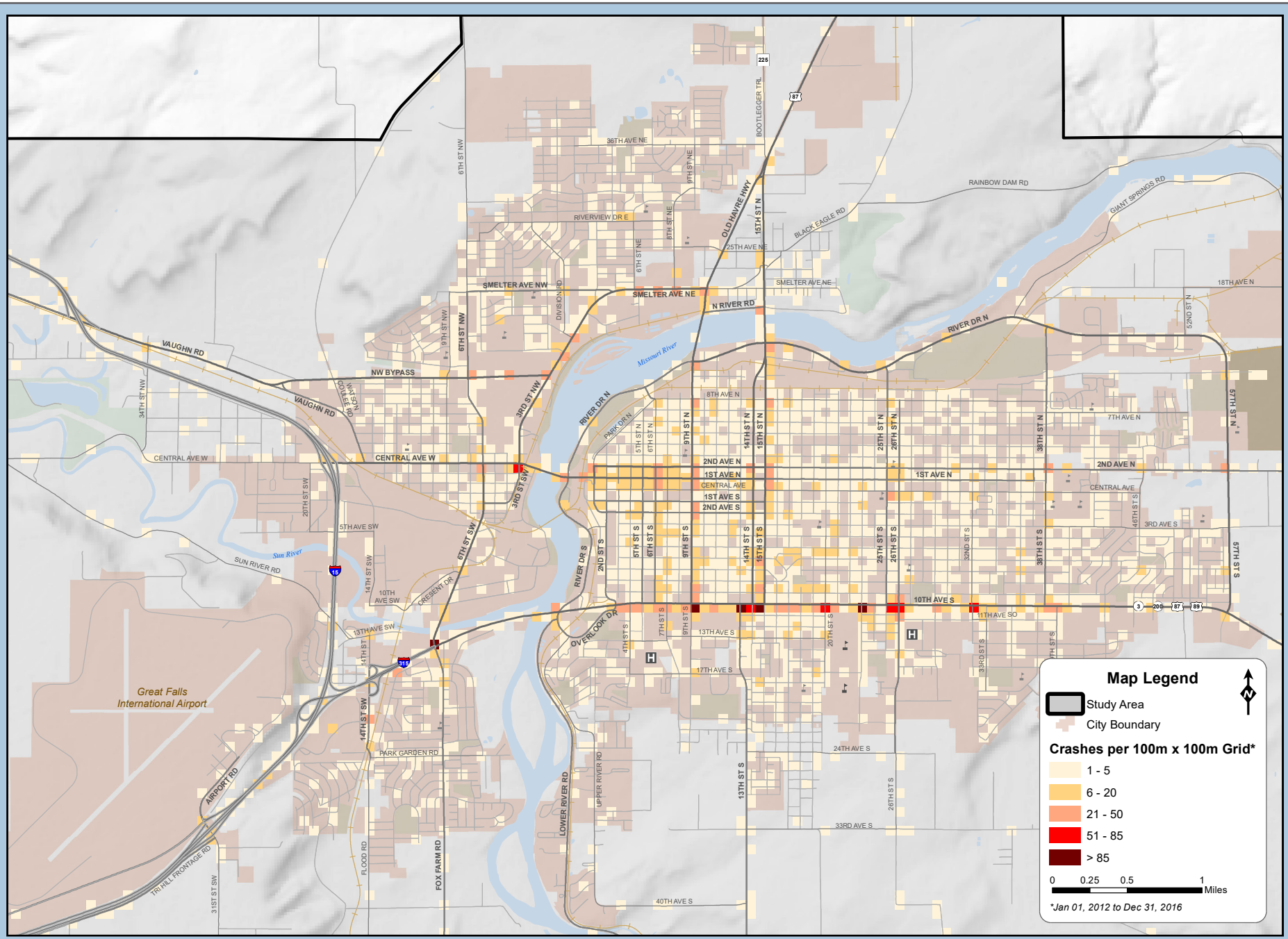


FIGURE 14: *Crash Density*

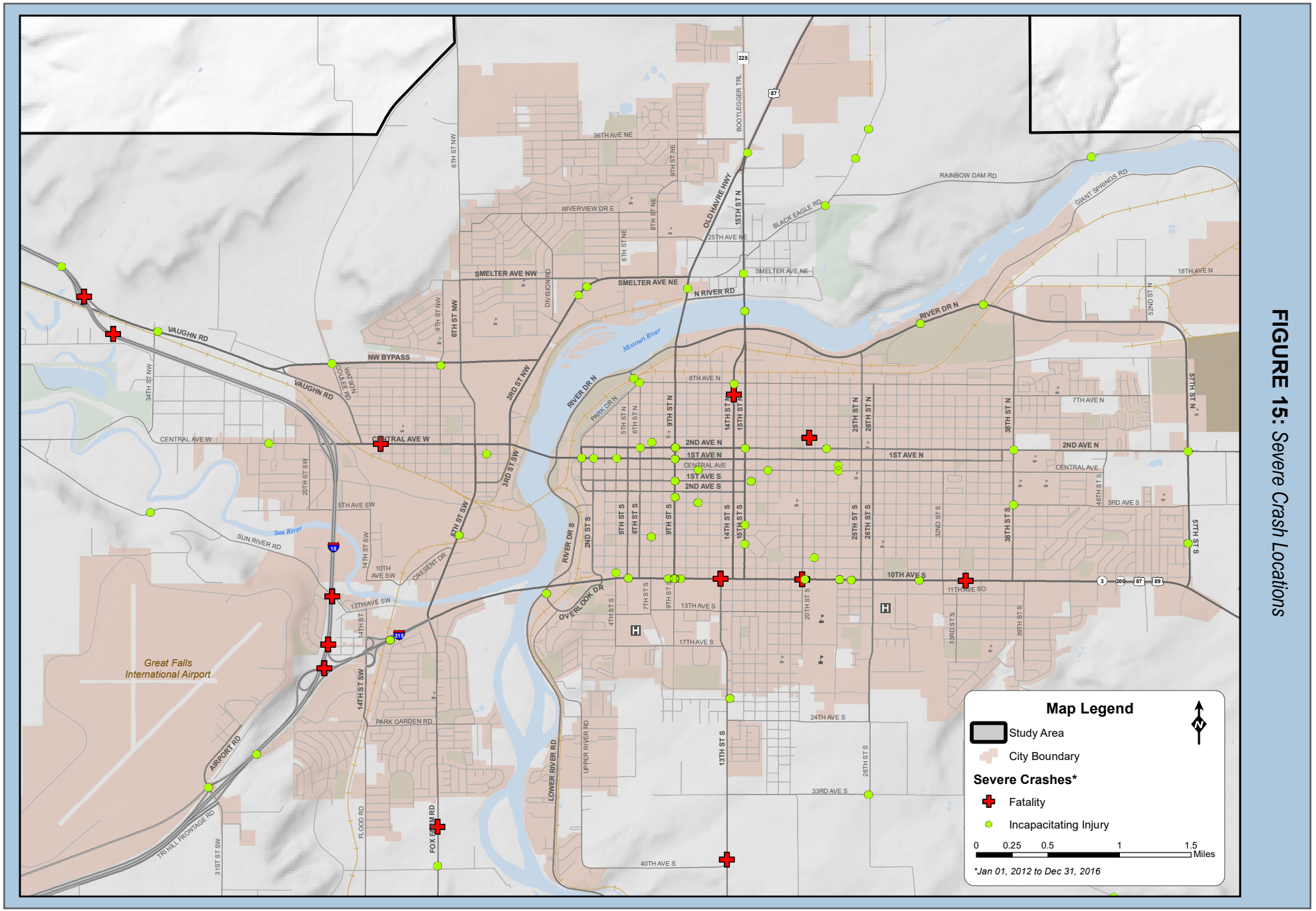


FIGURE 15: *Severe Crash Locations*

2.5.2. Intersection Safety

The 50 intersections that were studied for LOS were also evaluated for crash statistics. The crash information was analyzed to identify those intersections with crash characteristics that may warrant further study. The crash rate represents the number of crashes against the daily traffic volumes of the intersection. The rate is expressed as the number of crashes per million entering vehicles. The following equation is used to calculate crash rate:

$$\frac{Total\ Number\ of\ Crashes\ \times 1{,}000{,}000\ vehicles}{Vehicles\ per\ day \times Number\ of\ Years\ \times 365\ days/year} = Crash\ Rate$$

The severity index is calculated by applying multipliers to crashes based on severity. For the severity index, crashes were broken into three categories of severity: property damage only (PDO), non-incapacitating injury, and fatality or incapacitating injury crashes. Each of these three types is given a different multiplier: one (1) for PDO, three (3) for injury, and eight (8) for fatality or incapacitating injury crashes. The following equation is used to calculate severity index:

$$\frac{(\#PDO \times 1) + (\#Injury \times 3) + (\#Fatal\ or\ Incap \times 8)}{Total\ Number\ of\ Crashes} = Severity\ Index$$

The severity rate was determined by multiplying the crash rate by the severity index. **Table 6** lists the intersections with crash severity rates greater than 1.00.

Table 6: Intersection Crash Severity

Intersection	Crash Rate	Severity Index	Severity Rate
10th Avenue S / 9th Street S	1.80	1.66	2.98
10th Avenue S / 15th Street S	1.41	1.42	2.00
10th Avenue S / Fox Farm Road	1.36	1.45	1.98
Park Drive N / 2nd Avenue N	1.42	1.29	1.82
10th Avenue S / 25th Street S	1.09	1.63	1.77
River Drive N / 9th Street N	1.03	1.63	1.68
10th Avenue S / 32nd Street S	1.06	1.54	1.63
River Drive N / 1st Avenue N	1.17	1.32	1.54
Central Avenue W / 3rd Street NW	0.92	1.64	1.51
10th Avenue S / 20th Street S	0.82	1.83	1.51
15th Avenue S / 26th Street S	0.93	1.62	1.50
I-15 SB Off Ramp / Airport Drive	0.63	2.38	1.50
I-15 SB / Vaughn Road	1.04	1.40	1.46
2nd Avenue N / 57th Street N	0.80	1.81	1.45
NW Bypass / 3rd Street NW	0.79	1.74	1.37
Old Havre Highway / 15th Street N	0.64	2.09	1.33
10th Avenue S / 14th Street S	0.89	1.40	1.25
11th Avenue S / 26th Street S	0.95	1.30	1.24
Central Avenue NW / 6th Street NW	0.80	1.50	1.20
10th Avenue S / 5th Street S	0.76	1.57	1.20
River Drive N / 15th Street N	0.77	1.51	1.17
38th Street / Central Avenue	0.67	1.62	1.07
Smelter Avenue / 10th Street NE	0.81	1.25	1.01
10th Avenue S / 38th Street S	0.53	1.88	1.00

2.6. Transportation Security

The Great Falls Area is exposed to many hazards, all of which have the potential to disrupt the community and cause damage. Hazards include a range of human and environmental incidents or events with varying probabilities of occurring and severity of effects. Hazards may threaten the security of the regional transportation system. The transportation system is also a valuable asset in mitigating and responding to emergencies.

2.6.1. Plans and Policies

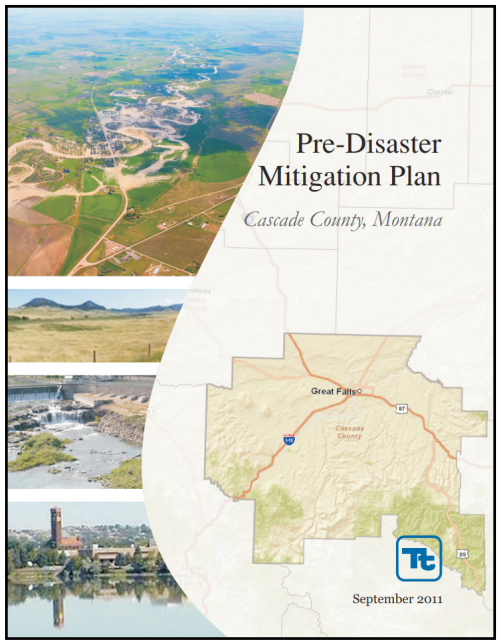
Montana's political subdivisions have the primary responsibility for emergency operations and manage all available resources to save lives and minimize property damage. Local plans and policies are critical to informing this responsibility. Security and emergency plans guide government and private organizations to ensure efforts are coordinated and comprehensive. A range of different types of plans address different levels of the transportation system in the Great Falls Area. Some plans, such as the FAST Act identify available security resources and mandate actions required by state and local government agencies. Others, such as the *Cascade County Pre-Disaster Mitigation (PDM) Plan*[21] outline planning and response procedures for local organizations.

The Cascade County PDM Plan is the security plan for the Great Falls Area. The plan applies to and incorporates security activities from all jurisdictions in Cascade County, including Great Falls, Belt, Cascade, and Neihart. The PDM Plan integrates with plans from federal and state levels of government. It identifies agencies and staff that have authority to manage security activities, and outlines procedures for implementing the activities. The PDM Plan is designed to address the following six hazard mitigation objectives:

1. Prevention;
2. Property Protection;
3. Public Education and Awareness;
4. Natural Resource Protection;
5. Structural Projects; and
6. Emergency Services.

The PDM identifies 15 potential hazards facing Cascade County and the municipalities. The County identified the hazards based historic events, available Geographic Information Systems (GIS) data, public input, expert opinions, and past disaster declarations. **Table 7** presents the hazards, including their probability of occurrence, other related hazards, and a description of the primary risk factors. Two hazards stem directly from the transportation system, including hazardous material incidents and transportation accidents. The transportation system is also critical to facilitating response efforts of nearly every identified hazard.

The LRTP considers these hazards in planning for transportation projects and programs, to ensure that local agencies have the capability to maintain transportation security and respond to potential events. The Cascade County Local Emergency Planning Committee periodically reviews the PDM Plan, and holds annual hearings to consider updates.



The PDM Plan outlines planning and response procedures for local organizations in the event of an emergency.

Table 7: Potential Hazards

Hazard	Occurrence Probability	Magnitude and/ or Severity	Warning Time	Duration
Communicable Disease/Pandemic	Highly Likely	Catastrophic	12-24 hours	> 1 week
Wildfires	Highly Likely	Critical	< 6 hours	< 1 week
Structure Fire	Highly Likely	Critical	< 6 hours	< 6 hours
Severe Summer Weather (Thunderstorms, Wind, Hail, Tornadoes, Microbursts)	Highly Likely	Limited	< 6 hours	< 6 hours
Hazardous Material Incidents	Likely	Critical	< 6 hours	< 24 hours
Transportation Accidents (air, land, rail)	Likely	Critical	< 6 hours	< 6 hours
Severe Winter Weather	Highly Likely	Limited	> 24 hours	< 1 week
Flooding/Flash Flooding/Levee Failure	Likely	Limited	> 24 hours	> 1 week
Drought	Likely	Limited	> 24 hours	> 1 week
Volcanic Ash	Possible	Catastrophic	12-24 hours	> 1 week
Dam Failure	Possible	Catastrophic	> 24 hours	< 1 week
Landslides/Mudslides	Possible	Limited	< 6 hours	< 6 hours
Terrorism/Violence	Possible	Limited	< 6 hours	< 6 hours
Earthquake	Possible	Negligible	< 6 hours	< 24 hours

Source: Cascade County Pre-Disaster Management Plan, Cascade County, 2011.

2.6.2. Transportation Security Roles

The Great Falls Areas' transportation infrastructure is owned and operated by different public agencies and private organizations. These agencies and organizations coordinate with representatives of federal, state and local governments, neighboring owners/operators, and the surrounding community. Interstate 15, for example, is overseen by MDT, and passes through the City of Great Falls, affecting local traffic, quality of life, and is a key access route for personal travel, freight and emergency services. Likewise, Great Falls International Airport operates commercial flights and carries air freight and is therefore subject to federal security regulations.

The PDM Plan identifies responsibilities for agencies and officials at Cascade County, and departments or officials in the cities of Great Falls, Belt, Cascade, and Neihart. It identifies local support organizations relevant to transportation security in the event of an emergency. For example, the Public Works departments have specific roles related to regional transportation security. Key transportation responsibilities identified in the PDM Plan include:

- Public Works
  - Identify locations where culverts are needed and install/ resize as needed.
  - Consider enhanced snow removal services to support public safety and infrastructure protection.
  - Work with railroads to increase number of crossing gates.
  - Work with utility companies to bury power lines where interruption of service is frequent.

2.6.3. Coordination

Cascade County and local jurisdictions periodically review emergency and security planning to share local knowledge, update hazard assessments and enhance interagency coordination. In the Great Falls Area, Cascade County and the local jurisdictions jointly plan for and closely coordinate on regional security issues. The Cascade County Emergency Manager works closely with the City of Great Falls Emergency Management Planner. Federal Emergency Management Agency (FEMA) funds support emergency planning activities in the Great Falls Area.

Malmstrom AFB regularly transports goods using local roads and the Great Falls International Airport. Therefore, regional transportation security is critical to its mission. Malmstrom AFB and the Montana Air National Guard representatives coordinate security planning and response with local governments. Malmstrom AFB assists local governments with security planning and response as needed.

Coordination activities between regional agencies have resulted in, and are guided by, formal agreements to support security-related planning. **Table 8** presents these agreements, organized by the agreement type, the jurisdictions involved, and a brief description of the agreement.

Table 8: Security-Related Agreements

Agreement Type	Jurisdictions Involved	Description
Formal Agreement	City of Great Falls, Malmstrom AFB	Standing mutual aid agreement to help one another in the event of fire or incidents involving hazardous materials.
Formal Agreement	City of Great Falls Fire Department leads the team; Malmstrom AFB contributes labor and capabilities	Great Falls Regional HazMat Team – Codified in state law; team provides help in form of phone consultation and outreach, dispatch of partial or entire team, public outreach events including HazMat training classes or exercises.
Informal Agreement	City of Great Falls Police Department and Malmstrom AFB	Extreme weather events – In the event of flooding, high winds, severe winter events, or other natural disasters, these two entities agree to assist the other as needed.

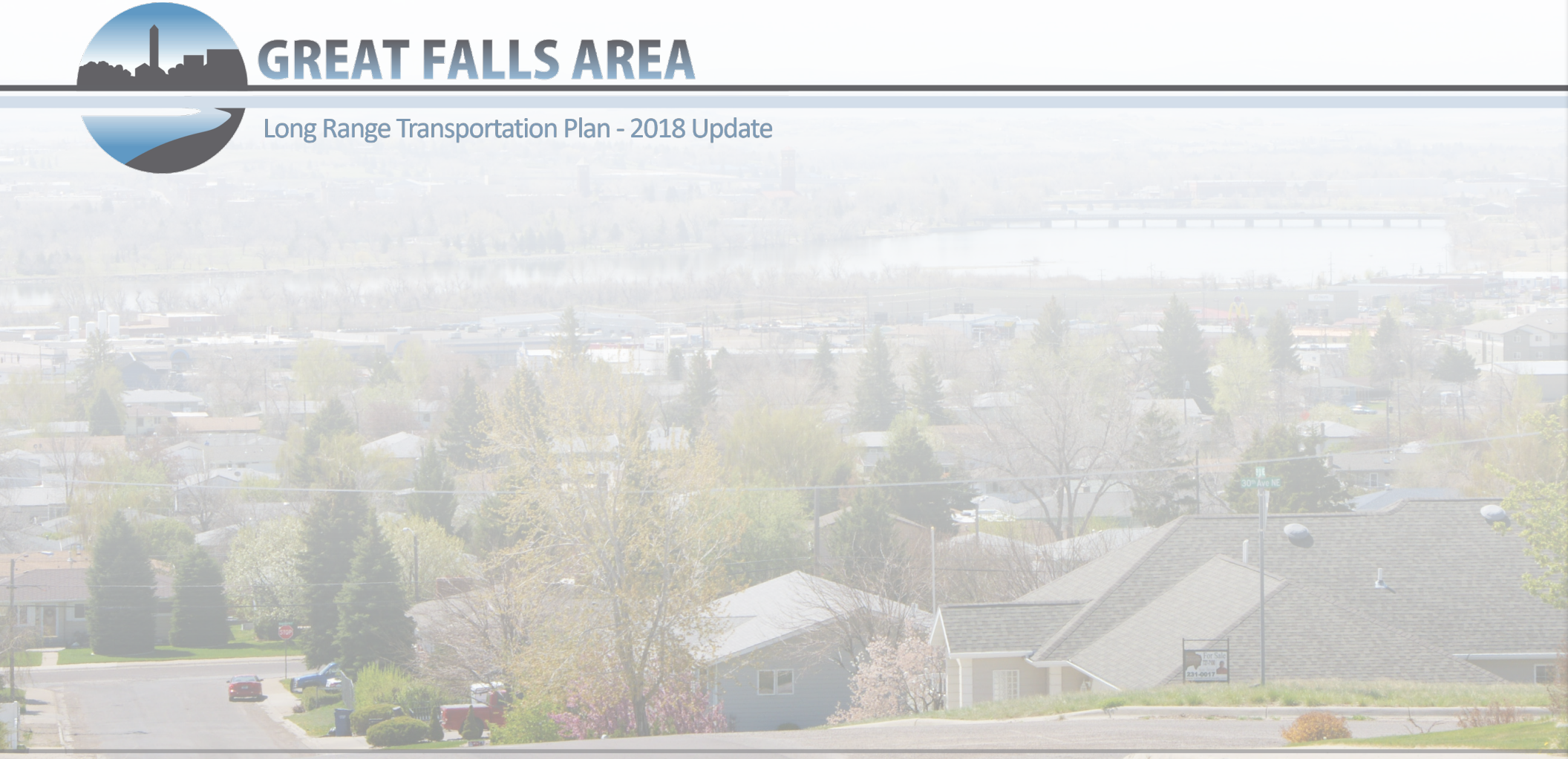
Source: Malmstrom AFB, 2013.

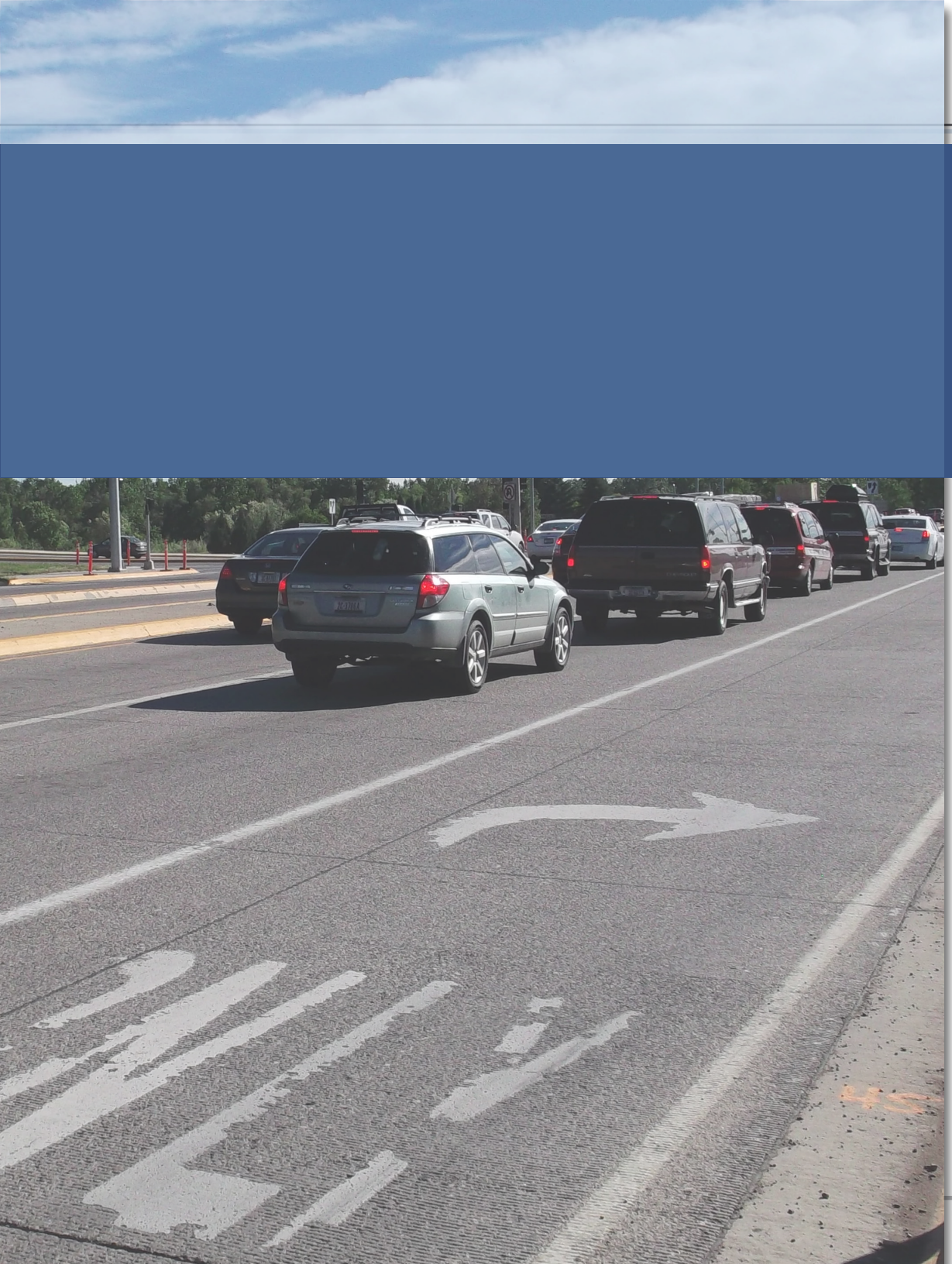
2.6.4. Barriers

The Great Falls Area has an extensive transportation network. This network is strengthened by various infrastructure components that support the basic operation of the transportation system. For the purposes of the LRTP update process, stakeholders and the public were asked during various outreach activities to provide input as to what they perceived were the critical infrastructure and key resources essential to emergency preparedness and overall quality of life of the area's citizens and to its economic vitality. The key components identified during the LRTP outreach process include the following assets:

- Interstate Systems (I-15, I-315)
- U.S. Highways (e.g. U.S. 87, U.S. 89)
- Bridges (10th Ave S, Central Ave W, 10th St N, 15th St N)
- Principal Arterial Roadways (10th Ave S, 3rd St NW, NW Bypass, 14th / 15th St Couplet, 9th St, 57th St, River Dr N)
- Malmstrom Air Force Base
- Great Falls International Airport
- Freight Activity Centers
- Rail Networks
- Pipeline Network
- Great Falls Transit System

Of the assets presented, perhaps most striking is the presence of four bridges crossing the Missouri River. These bridges may act as pinch-points during times of emergency response. Depending on the type and location of an event, routing from one bridge to another may delay emergency response and provide excessive delay. Low lying roadways within or adjacent to the Missouri River and Sun River floodplains may also present various concerns.





CHAPTER 3: GROWTH, TRAVEL FORECASTS, AND NEEDS

3.1. Overview

This chapter discusses the background and assumptions used to project growth in the Great Falls Area to the year 2038. By using population, employment, and other socio-economic trends as aids, the future transportation needs were projected. A travel demand model of the transportation system for Cascade County was built by MDT. Information about future growth was used to allocate residential and employment development to project future conditions. Changes to the transportation system that are committed to occur in the next five years were incorporated into the model to forecast future transportation conditions. An analysis of the projected transportation conditions was performed to estimate how traffic patterns and characteristics may change from existing conditions.

Projecting to the year 2038 is necessary to comply with guidance set forth by FHWA and MDT in the development of community long range transportation plans that suggests long range planning for a minimum 20-year planning horizon. It is acknowledged that the City of Great Falls may not plan or allocate transportation funds on the same time horizon and generally focuses on a 5-year horizon per the Great Falls *Transportation Improvement Plan (TIP)*[22] process to plan projects.

3.2. Future Growth and Development

Projections are estimates of various characteristics at future dates. They illustrate reasonable estimates of future conditions based on assumptions about current or expected trends. Population and employment projections, in the form of housing units and total jobs, are used to help predict future travel patterns and assess the performance of the transportation system.

3.2.1. Population and Housing Projections

County level population projections are available from Montana Department of Commerce Census & Economic Information Center (CEIC)[24]. The CEIC projects a future population of 96,327 for Cascade County in the year 2038. Similar projections are not available from the CEIC for the City or CDP areas.

The share of the population living within the LRTP study area, as compared to the County, was estimated using Census population data. This analysis established the study area population to be 68,967 in 2010. The population of the LRTP study area accounts for approximately 85 percent county's total population. The percent distribution of the county's population within the Great Falls study area was then carried forward for future projections, being held constant through the year 2038.

More so than population totals, the number of housing units is a key component in the travel demand model. Housing units distribute people throughout the network to given locations. They represent the population and act as a hub for traffic within the network. Having an accurate value for number of people per housing unit helps distribute the traffic more accurately.

According to the 2010 Census, Cascade County had a population of 81,327 people distributed among 37,276 housing units, resulting in an overall occupancy rate of about 2.18 people per housing unit. Within the study area, the 2010 Census showed a population of 68,967 people among 30,933 houses, resulting in an occupancy rate of 2.23. The occupancy rates for housing units in the County and in the study area were held constant for population and housing projections through 2038.

Since housing units are an important factor in travel demand modeling, the 2015 travel demand model uses housing units as inputs. It is possible to calculate the total population for 2015 by applying the occupancy rates determined by the 2010 census. This results in 83,079 people among 38,079 houses in the County, with 70,686 of those people residing in the 31,704 houses within the study area. Furthermore, applying the occupancy rates to the 2038 projected population (96,327 people) results in 44,151 houses in the County. Within the study area a population of 81,958 is forecasted with a total of 36,760 houses.

Table 9 shows population and housing unit projections for Cascade County and the study area. For the purposes of this plan, 5,827 new housing units were allocated within the study area, with an additional 1,048 housing units distributed in other areas of the county outside of the study area.

Table 9: Population Projections

Area	2010 (Census)	2015 (Calibrated Model)	2038 (Projection)	Net Change (2015-2038)
Cascade County Total				
Population	81,327	83,079	96,327	13,248
Housing Units	37,276	38,079	44,151	6,072
Population per Housing Unit				*2.18*
Great Falls Study Area				
Population	68,967	70,686	81,958	11,272
Housing Units	30,933	31,704	36,760	5,056
Population per Housing Unit				*2.23*
Outside Study Area				
Population	12,360	12,393	14,369	1,976
Housing Units	6,343	6,375	7,391	1,016
Population per Housing Unit				*2.18*

3.2.2. Employment Projections

Employment numbers are used in the travel demand model to help distribute vehicle traffic as accurately as possible within the street and road network. Places with high levels of employment will tend to generate high levels of vehicle traffic. The traffic generated is based in part on the employment type: either retail or non-retail jobs.

Employment estimates from the US Bureau of Economic Analysis (BEA) for Cascade County for the years 1970 to 2015 were discussed in **Section 2.2.3.** It was observed that the number of non-farm jobs within the County compounded annually at a rate of 0.70 percent since 1970. Using this growth rate, the number of jobs in the County were projected out to the year 2038. Similar to the housing projections, the proportion of jobs within the study area as compared to the County is based on the 2015 travel demand model and is held constant through 2038. GIS analysis of the model determined that approximately 93 percent of the jobs in Cascade County are located within the study area.

The 2015 travel demand model also establishes the distribution of retail and non-retail jobs within the County and the study area. Retail and non-retail jobs accounted for approximately 18 and 82 percent of the total employment, respectively, in 2015. These percentages were held constant for future projections and were used to estimate the number jobs for the year 2038. Based on the historic growth rate for employment, and the breakdown of retail versus non-retail jobs, the total employment in Cascade County is projected to be 57,734 by 2038, which consists of 10,649 retail jobs and 47,085 non-retail jobs.

In order to accurately portray the traffic in the Great Falls area, the travel demand model uses a slightly different count of total jobs. The reason for this difference is due to the method in which trip rates are used in the model to distribute traffic throughout the road network. The travel demand model establishes the 2015 total employment for Cascade County at 40,402—including 7,452 retail jobs and 32,950 non-retail jobs. Again, 93 percent of the County's jobs are located within the study area which makes a total of 37,574 jobs in the study area, including 7,139 retail jobs and 30,435 non-retail jobs.

A total of 6,515 jobs (1,230 retail and 5,286 non-retail) were allocated within the study area. An additional 497 jobs were distributed in other areas of the county to account for the employment increases anticipated to occur in Cascade County by 2038. **Table 10** presents the employment projections used in the model for Cascade County and the Great Falls LRTP study area to the year 2038.

Table 10: Employment Projections

Area	2015 Estimate (US BEA)[a]	2015 Model	2038 Projection[b]	2038 Model[c]	Difference (2015-2038)
Cascade County					
Total Jobs	50,348	40,402	57,734	47,414	7,012
Retail Jobs	-	*7,272*	*10,649*	*8,745*	*1,293*
Non-Retail Jobs	-	*33,130*	*47,085*	*38,669*	*5,719*
Great Falls Study Area					
Total Jobs	-	37,574	53,642	44,054	6,515
Retail Jobs	-	*7,139*	*10,126*	*8,316*	*1,230*
Non-Retail Jobs	-	*30,435*	*43,517*	*35,739*	*5,286*
Outside Study Area					
Total Jobs	-	2,828	4,091	3,360	497
Retail Jobs	-	*133*	*523*	*430*	*64*
Non-Retail Jobs	-	*2,695*	*3,568*	*2,930*	*433*

[a] *County employment statistics from US Department of Commerce Bureau of Economic Analysis – Table CA25 and Table CA25N.*

[b] *Projections calculated using 0.70% Compound Average Growth Rate (CAGR).*

[c] *2038 Model projections calculated by reducing 2038 projections by 80%.*

3.2.3. Allocation of Future Growth

Modeling of future travel patterns out to the year 2038 planning horizon using MDT's travel demand model required identification of future socio-economic characteristics within each census block. County population and employment projections were translated into predictions of increases in housing and employment within Cascade County and the LRTP study area. To accomplish this task, the allocations made in the 2014 LRTP were used as a starting point. These allocations were based on a review of existing land use and zoning maps for the City of Great Falls and surrounding county area, City and County growth policies, and other community planning documents. These planning documents helped identify where residential, commercial and industrial development has occurred in the Great Falls area and provided information about where future residential and commercial growth is expected in the community. The allocation of future housing units and employment attempted to reflect known patterns of growth and potential new growth areas within the study area.

A land use forecasting workshop was held with representatives of the City and County as part of the 2014 LRTP. The purpose of the workshop was to discuss and reach consensus on the distribution of future housing and employment growth within the Great Falls area. This enabled local government staff to consider and revise the growth assignments as needed based on their knowledge of recent land use trends, land availability and development limitations, land use regulations, planned public improvements, and known development proposals.

Since the efforts for the 2014 LRTP were thorough and little change has occurred in the past four years, the allocations were still considered valid for the 2018 LRTP. However, projections are slightly different between the two LRTPs due to different base years and different planning horizons. To adjust for these differences, the allocations from the 2014 LRTP were modified to account for any recently completed developments and for any newly planned developments. **Figure 16** shows where growth is expected through the year 2038.

A new Walmart recently opened on 10th Avenue S spurring development in the southeastern area of Great Falls.

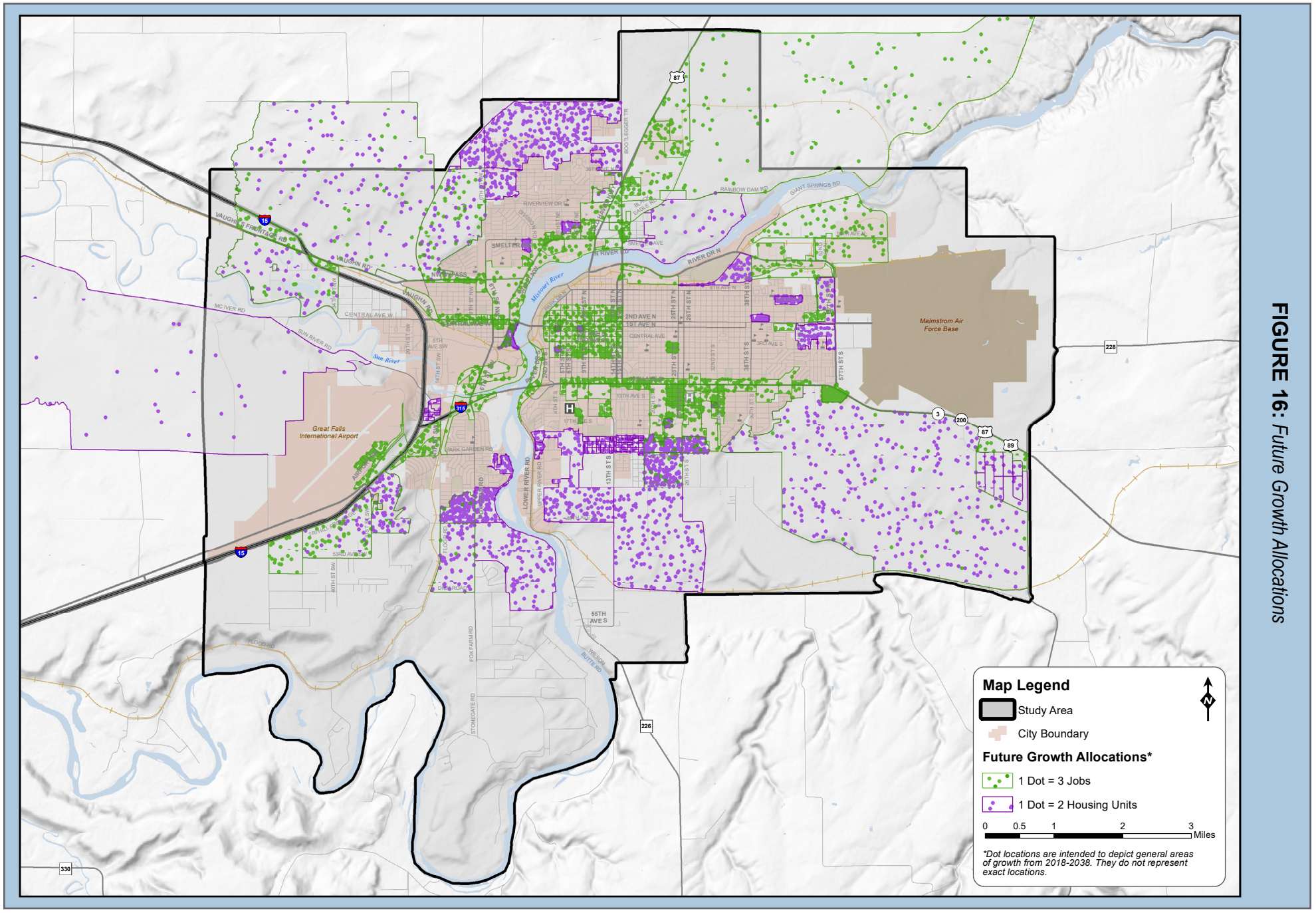


FIGURE 16: *Future Growth Allocations*

3.3. Projected Transportation Conditions

An analysis of the projected transportation system was performed to estimate how motor vehicle traffic patterns and characteristics may change from the existing conditions. The inputs for this analysis include the existing conditions and potential growth in housing and jobs out to the year 2038. The travel demand model was used to evaluate the projected 2038 year conditions by applying additional housing and jobs to the existing travel demand model. Census blocks and census tracts were used to distribute the population and employment growth that was projected to occur between 2015 and 2038. In addition, known roadway infrastructure projects expected to be constructed within the next five years were included as part of the projected conditions model.

One assumption that was built into the model is that traffic characteristics will remain similar to those that are seen today. Many factors can influence this assumption, such a fuel prices, technological advances, and other unknown circumstances. The model also assumes that the socioeconomic projections will be realized by the year 2038. Although projections are based upon local knowledge and past growth trends, they may not be completely accurate. Ultimately, the model for the projected conditions was used as a planning tool to help evaluate how traffic patterns might be affected by anticipated future development.

3.3.1. Projected Roadway Volumes and Capacity

Projected traffic volumes were estimated using the travel demand model. A comparison of the existing and projected conditions models was made to determine the percent change in traffic volume. To visualize where growth is projected to occur in Great Falls, and to aid in the planning process, a map of the projected traffic volume growth on the major street network was prepared. **Figure 17** shows where high traffic growth is expected to occur given the future land use assumptions made. The volumes shown are the difference between the volumes in the 2015 and 2038 travel demand models. In other words, the volumes shown represent additional traffic that could be added to the network should development occur in the manner projected. This visualization helps identify which roads may need additional investment to accommodate future growth. While some roads currently have little traffic volume and do not currently have capacity issues, future growth may greatly increase traffic volumes and could cause capacity issues if road improvements are not made.

The percent changes were then applied to known existing annual average daily traffic (AADT) count sites to estimate future daily traffic volumes. **Figure 18** shows the projected v/c ratios along the major street network, respectively. Note that the values shown in the figures assume that no changes to the transportation system will be made other than those currently committed to.

3.3.2. Projected Intersection Operations

Projections for intersection traffic volumes were made for the 50 intersections analyzed previously. These projections were based on percent growth rates calculated from the travel demand model for the year 2038. A growth rate determined for the intersection as a whole was applied to each individual turning movement to represent projected conditions. The intersection LOS was calculated using the existing street layouts, lane-use configurations, and traffic control devices. The results of the analysis are shown in **Figure 19**.

There are a few roadways in Great Falls that experience high volumes of traffic which causes vehicle delay, especially during the peak hours.

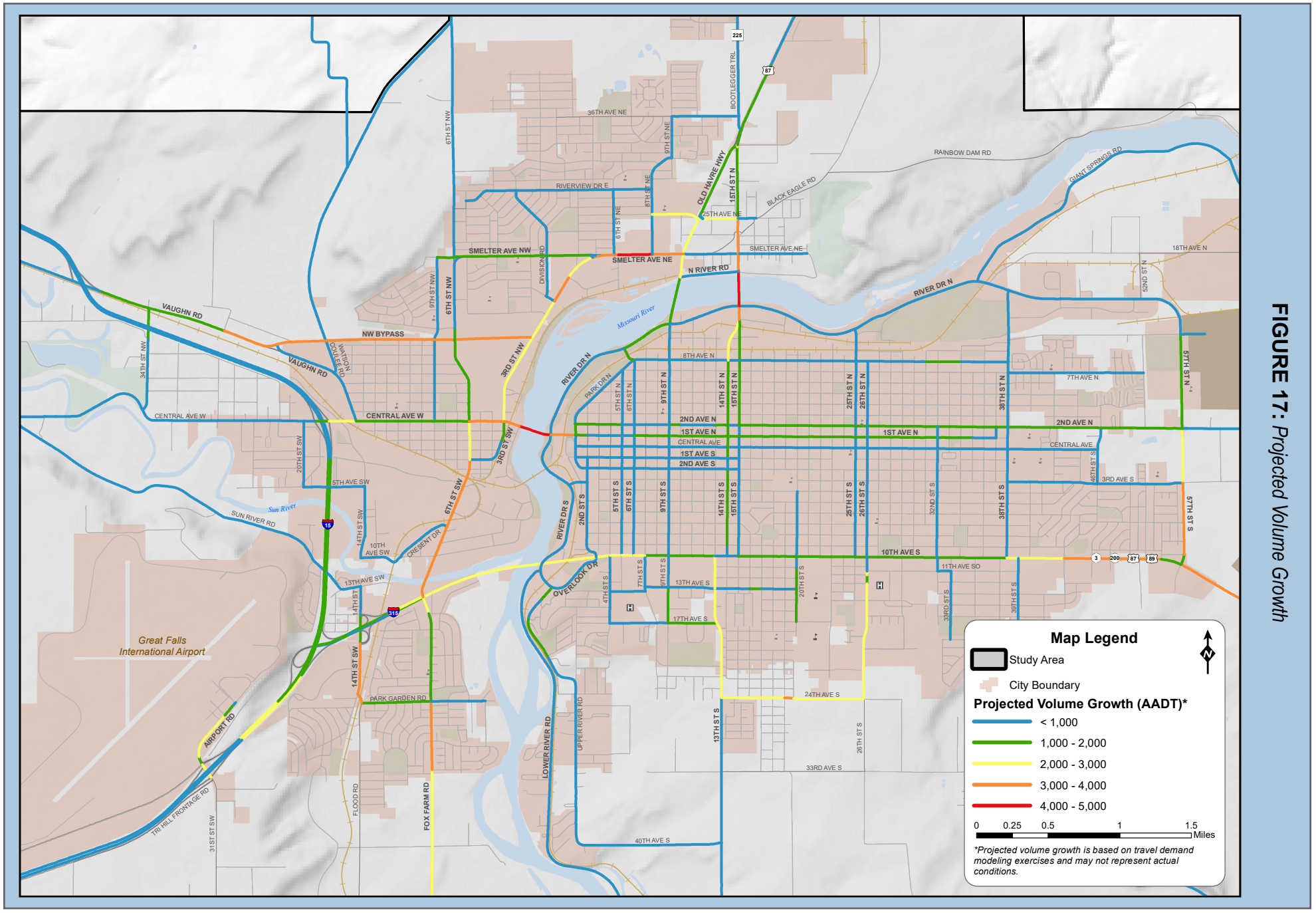
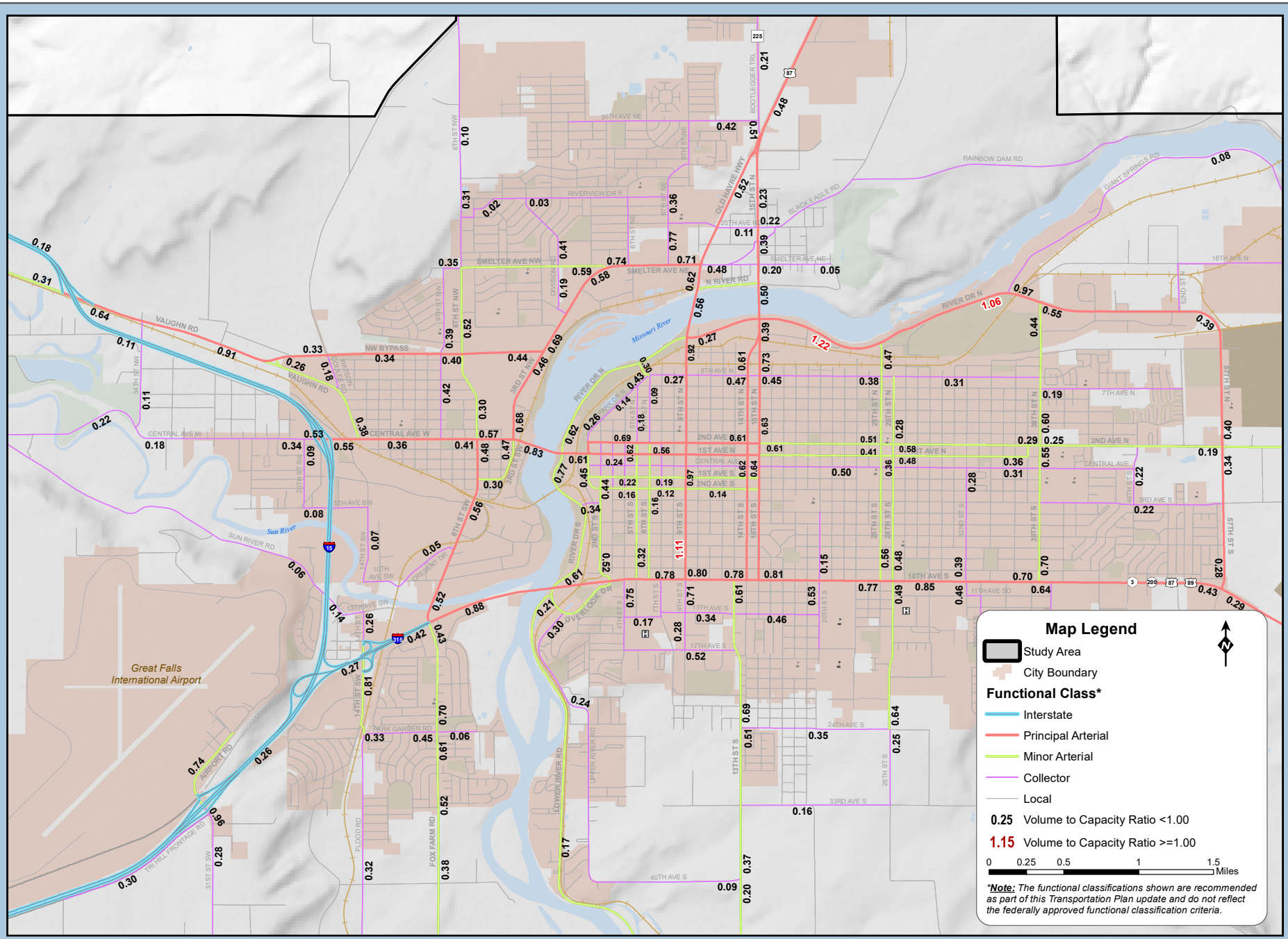


FIGURE 17: *Projected Volume Growth*

FIGURE 18: *Future V/C Ratios*



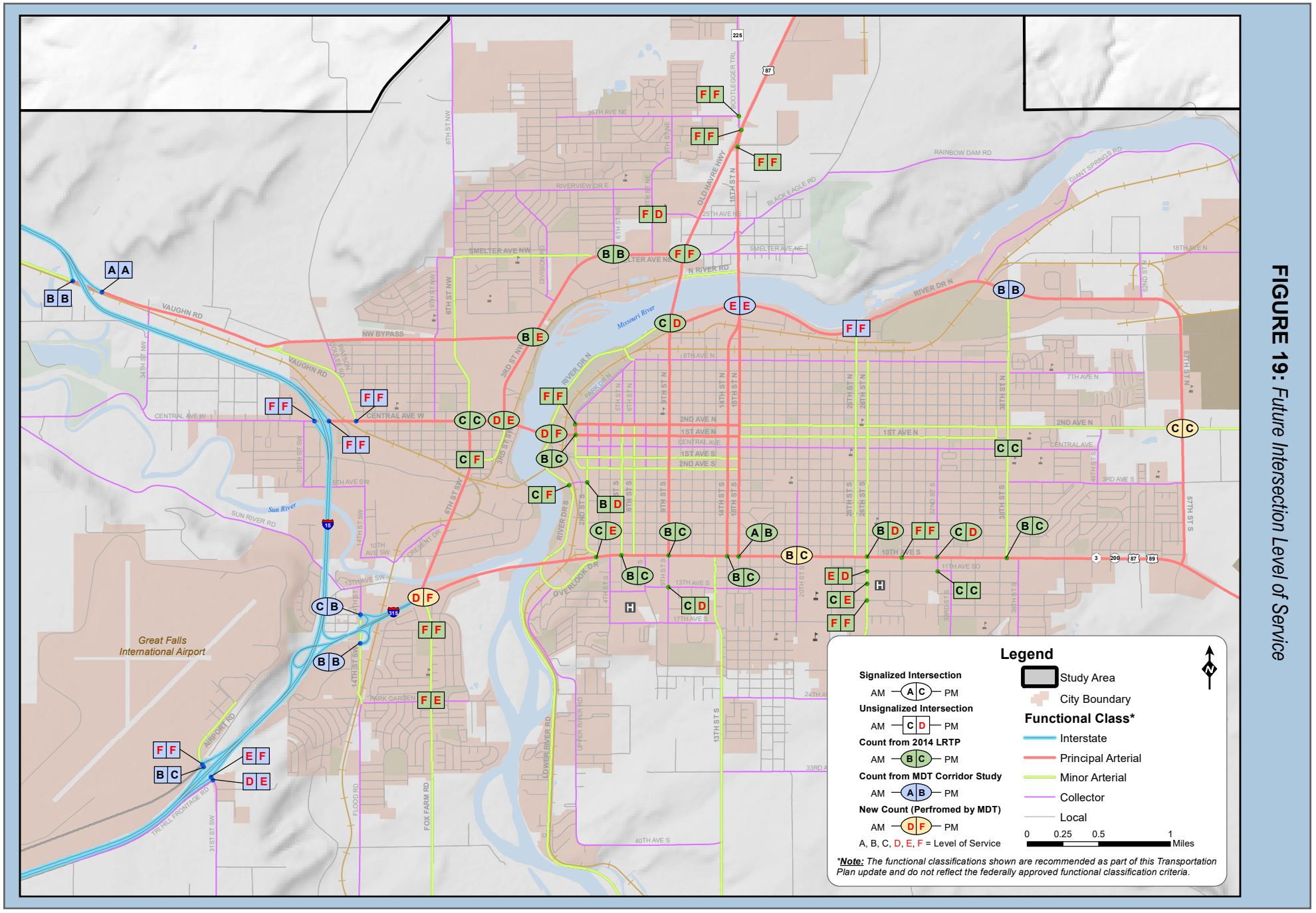
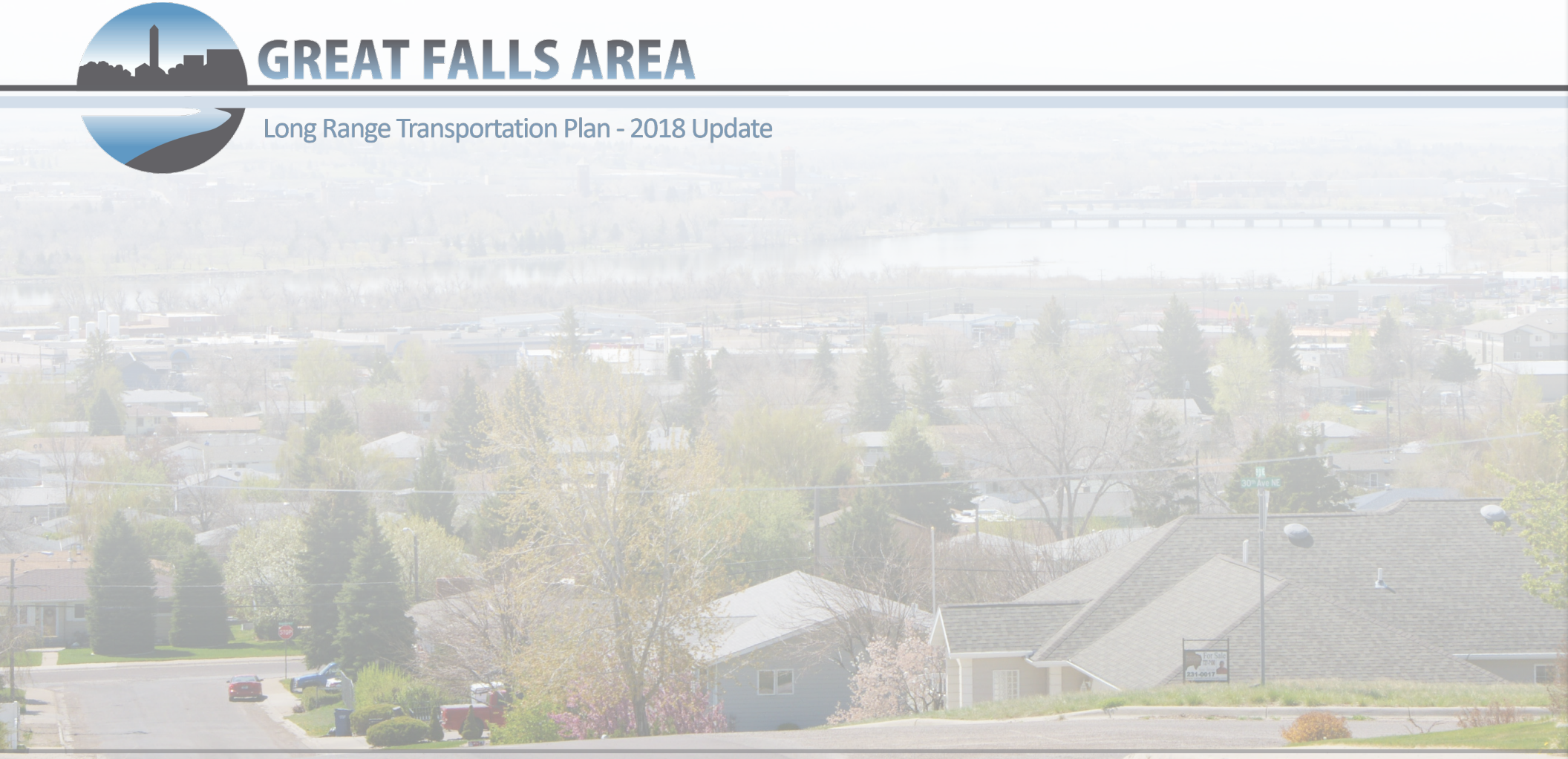


FIGURE 19: *Future Intersection Level of Service*



CHAPTER 4: IMPROVING THE SYSTEM

4.1. OVERVIEW

This chapter presents a variety of recommended improvements for the Great Falls area transportation system aimed at addressing current and anticipated future needs. Recommendations contained in the 2014 LRTP were reviewed and updated to reflect their current status and the changing needs and desires of the Great Falls community. A combination of public outreach, project solicitation from partnering agencies, travel demand modeling, traffic engineering analysis, and policy choices to support the identified goals and objectives were utilized to guide the identification of recommendations. In most cases, the recommended projects are needed to bring roadways up to current standards, address existing operational concerns, or meet anticipated traffic demands for the year 2038.

4.2. Background

As a Metropolitan Planning Organization (MPO), Great Falls is required to develop an LRTP that has a prioritized, fiscally constrained menu of projects. Projects are categorized into categories based on status and availability of funding. Recommendations categorized as "committed" are those with dedicated funding as identified in either the Transportation Improvement Program (TIP), through local funds, transit funds, private funds, or other sources and are planned to be completed in a five-year time frame (2018-2022). "Annual programs" are programs that receive an annual allocation of funding, but do not have specific projects assigned to them. These programs are anticipated to occur yearly through the 20-year planning horizon (2018-2038). Projects categorized as "recommended", are recommended to be completed within the planning horizon (year 2038), but may need further analysis or identification of funding before being fully committed to. "Illustrative" projects are currently unfunded recommendations that are supported by a sponsoring agency, but are not prioritized for implementation over the planning horizon.

Also included are non-motorized recommendations which address needs for accommodating pedestrians and bicyclists in the Great Falls Area, and to provide for mode choice for transportation users. Although estimated costs are given for the non-motorized recommendations, neither a funding source or a year of expenditure are assigned to the projects. It is expected that the non-motorized projects be completed in conjunction with other facility recommendations or as funding becomes available. The facility recommendations are shown spatially in **Figure 20** and the non-motorized recommendations are shown in **Figure 21**.

PROJECT TYPES

Committed: Committed projects are those with dedicated funding via the TIP, private sources (new development), transit formula funds, local funds, and/or projects with dedicated funding via a completed environmental document. These projects are generally expected to be completed within a five-year time frame (2018-2022).

Annual Program: Programs that receive an annual allocation of funding but do not have specific projects assigned to them, these programs will occur yearly through the 20-year planning horizon.

Recommended for Funding: Projects recommended to be completed through the planning horizon (year 2038), but that may need further analysis before being committed to implementation via inclusion in the TIP.

Illustrative (Unfunded): Projects or project concepts supported by a sponsoring agency, but not prioritized for implementation or federal funding between 2018 and 2038.

4.3. Committed Projects

The definition of a committed project is one that has been approved by the PCC. It also has committed funding available. Projects known to be completed within the next five years (2018 to 2022) are included in this section. Note that known pavement preservation activities are included in this list, even though they are typically addressed through a general "Pavement Preservation" category in the TIP, and are typically not described as specific projects. Future projects will likely be included similarly – either as specific projects or as part of the overall "Pavement Preservation Category", as well as covered under "Operation and Maintenance" categories and funding types. **Table 11** presents the committed projects for the years 2018-2022.

Table 11: Committed Projects

ID	Name	Description	Funding Source	YOE*	Estimated Cost**
C1	**Fox Farm Road - East Fiesta to Dick Road (UPN 8193)**	Reconstruct to rural arterial roadway standards	STPU	2018	$3,546,459
C2	**Bridge Preservation - Great Falls 2014 (UPN 8085)**	Overlay bridge decks over the railroad on I-315 between Fox Farm and 10th Ave S	NHPB	2018	$1,042,745
C3	**14th St SW Signals - GF (UPN 9572)**	Retime signals at three locations (16th Ave SW, 14th St SW & Ramp, and Market Place Dr)	MACI - Discretionary	2018	$32,000
C4	**NW Bypass Signals - Great Falls (UPN 9573)**	Retime signals at two locations (6th St NW and 9th St NW)	MACI - Discretionary	2018	$25,600
C5	**Transit Operating Expense**	General transit operating expenses	FTA 5311	2018	$39,000
C6	**Transit Capital purchase**	Acquire vehicles and related equipment	MACI - Guaranteed	2018	$884,000
C7	**Great Falls - North (UPN 7625)**	Reconstruct and widen US-87 with passing and turn lanes	NH	2020	$4,400,000
C8	**Great Falls South - Urban (UPN 9511)**	Pavement preservation- overlay (Lower River Rd, 55th Ave S and 13th St S)	UPP	2018	$77,850
				2019	$1,569,979
C9	**3rd St NW - Great Falls (UPN 9053)**	New signal upgrades with flashing yellow left turns and ADA ramps (3rd St NW / Smelter Ave)	MACI - Discretionary	2018	$100,000
				2019	$709,400
C10	**SF 169 Cascade Cnty SFTY Imprv (UPN 9426)**	Countywide safety improvements to address road departure crashes at two locations Lower River Rd/13th St S	HSIP	2019	$84,000
C11	**Park Dr/4th Ave N Ped Xing- GTF Bike/Ped (UPN 9148)**	Bicycle and pedestrian crossing	TA	2018	$25,000
				2019	$240,301
C12	**2nd Ave N Signals - GF (UPN 9530)**	Signal upgrades at four locations, (3rd St, 4th St, 5th St, and 6th St)	MACI - Discretionary	2019	$23,000
C13	**SF139 - 6th St / NW Bypass Sfty (UPN 8623)**	Offset of left turn lanes and upgrade signals and ADA ramps	MACI - Discretionary	2020	$277,700
			HSIP		$212,000
C14	**SF169 I-15 HT Cable Rail (UPN 9376)**	High tension median barrier rail b/w Vaughn and Central Ave W	HSIP	2020	$1,790,310
C15	**Ulm- Great Falls (UPN 9589)**	Pavement preservation on Ulm Frontage Road from Ulm to Gore Hill Interchange	IM	2018	$44,800
				2020	$1,655,522
C16	**Fox Farm Road - West (I-315) (UPN 9590)**	Pavement Preservation on I-315 from Fox Farm to I-15	IM	2018	$76,650
				2020	$1,379,684
C17	**Stuckey Road (UPN 9532)**	Pave gravel road from NW Bypass northward about 2,250 feet	MACI - Guaranteed	2021	$605,000
				TOTAL COMMITTED PROJECTS:	**$18,841,000**

**Most projects are split into multiple phases of development (design, right-of-way, utilities, and construction). Phases occur over multiple years. The Year of Expenditure (YOE) reflects the year that funds are spent.*

***These costs reflect the portion of the project which the Great Falls Area MPO is responsible for, as per the Great Falls 2018-2022 TIP.*

4.4. Annual Programs

Annual allocations for various programs are identified in the Great Falls 2018-2022 TIP. These programs are included to account for typical annual expenditures that are typically less costly and more routine than stand-alone projects. An estimate of annual costs was also made for years beyond those identified in the TIP (2023-2038). Funding for these programs is not guaranteed and is determined on a case-by-case basis. Specific projects have yet to be identified for these programs.

Table 12: Annual Programs

ID	Name	Description	Funding Source	YOE	Estimated Cost
P1	**Durable Pavement Markings Program**	Install markings on Urban routes per City, County, and MDT	STPU	2018-2022	$250,000
				2023-2038	$750,000
P2	**Urban System Maintenance Program (Local)**	Perform chip seals, overlays and related maintenance activities on Urban Routes	STPU	2018-2022	$928,090
				2023-2038	$2,625,000
P3	**Operations & Maintenance- Local**	Operate and maintain federal-aid systems	O&M- state	2018-2022	$8,260,000
				2023-2038	$22,500,000
			O&M- Local	2018-2022	$2,635,000
				2023-2038	$7,500,000
P4	**Traffic Mitigation**	Complete projects that help mitigate traffic congestion	MACI-Discretionary	2018-2022	$1,250,000
				2023-2038	$3,750,000
P5	**ADA Compliance**	Complete projects that help make the transportation system compliant with the Americans with Disabilities Act	MACI-Discretionary	2018-2022	$1,250,000
				2023-2038	$3,750,000
P6	**Transportation Alternatives Projects**	Complete non-motorized transportation projects or other eligible Transportation Alternatives projects	TA	2018-2022	$1,000,000
				2023-2038	$3,000,000
P7	**Transit Operating Expense**	General transit operating expenses	FTA Sect 5307	2018-2022	$14,325,000
				2023-2038	$42,975,000
P8	**Transit Capital purchase**	Acquire vehicles and related equipment	TransADE	2018-2022	$198,000
				2023-2038	$594,000
P9	**MDT-nominated HSIP Safety Projects**	Safety improvement projects	HSIP	2018-2022	$1,000,000
				2023-2038	$2,250,000
P10	**MDT-nominated Pavement Preservation Projects**	Mill, overlay, seal & cover, chip seal, striping	NHPP	2018-2022	$7,785,355
				2023-2038	$22,500,000
P11	**City Pavement Preservation Activities**	Mill, overlay, seal & cover, chip seal, striping	UPP	2018-2022	$2,500,000
				2023-2038	$7,500,000
				ANNUAL PROGRAM TOTAL:	**$161,078,445**

**While these programs have historically received annual funding, it is not guaranteed that funding will be allotted on an annual basis.*

4.5. Recommended Projects

A number of projects that could be completed within the 20-year planning horizon but were not included in the five-year TIP were identified as recommended projects. Project cost estimates for the recommended projects are planning-level estimates. They are in anticipated year-of-expenditure dollars (using a yearly inflation factor of 3%) and include all project phases. Any project considered for advancement should undergo a current cost estimate, which would include an examination of site conditions and subsequent development of more detailed project scope. The identified projects are anticipated to be funded beyond 2022 and within the planning horizon (2038). **Table 13** presents the recommended projects for the years 2022-2038.

Table 13: Recommended Projects

ID	Name	Description	Funding Source	YOE	Estimated Cost
R1	River Drive N – 15th St N to 25th St N	Reconstruct to three-lane arterial and improvements to 25th St N intersection	NHPP	Beyond 2022	$7,500,000
			HSIP		$3,000,000
			MACI		$3,000,000
			STPU		$1,000,000
R2	Fox Farm Intersection Improvements	Install dual eastbound left-turn lanes	MACI	Beyond 2022	$100,000
R3	Signal Modifications/Upgrades/Roundabout Control	Upgrade all signal heads in the City	MACI	Beyond 2022	$270,000
R4	Central Avenue W – 3rd St NW to 1st Ave N	Restriping and intersection modifications	NHPP	Beyond 2022	$867,000
R5	26th Street S – 24th Ave S to 33rd Ave S	Flatten fill slopes on 26th St S and install 4-way stop control at intersection of 26th St S and 33rd Ave S	COUNTY	Beyond 2022	$478,000
R6	Central Avenue / 9th Street Intersection	Modify intersection	MACI	Beyond 2022	$17,000
R7	25th Street S – 10th Ave S to 11th Ave S	Modify to one-way in southbound direction	STPU	Beyond 2022	$23,000
R8	25th Avenue NE – Old Havre Hwy to 15th St N	Several improvements to improve safety and operations	STPU	Beyond 2022	$338,000
R9	36th Avenue NE – 9th St NE to Bootlegger Trail	Reconstruct to urban collector standard	CITY	Beyond 2022	$4,615,000
R10	Emerson Junction Feasibility Study	Secure local project sponsor to fund an operational analysis/feasibility study of the interchange	CITY	Beyond 2022	$250,000
R11	Gore Hill Interchange with Southbound Auxiliary Lane	Install additional traffic control at interchange and construct southbound auxiliary lane	NHPP	Beyond 2022	$4,750,000
			HSIP		$2,250,000
			MACI		$2,400,000
			NHPB		$1,500,000
R12	Fox Farm Road – Alder Dr to Park Garden Rd	Restripe to four-lane facility	STPU	Beyond 2022	$810,000
R13	Giant Springs Road – Hatchery to Rainbow Dam	Overlay with new asphalt and widen	UPP	Beyond 2022	$3,377,000
R14	9th Street NW – NW Bypass to Central Ave W	Reconstruct to collector	STPU	Beyond 2022	$5,177,000
				TOTAL RECOMMENDED PROJECTS:	$41,722,000

4.6. Illustrative (Unfunded) Projects

System deficiencies and needs are often not fundable in the foreseeable future. However, funding opportunities may arise over time, often from unexpected sources. To be prepared to take advantage of such opportunities, the following list of projects is provided, with no identified funding source or schedule for construction/implementation. While the project costs have been estimated, most are presented in a 2038 year-of-expenditure, using a 3% yearly inflation rate. Such projects are included for illustration purposes only, and are not considered to be applicable components of the fiscal constraint requirements of the LRTP. However, it is likely that some of them will become funded at some point during the 20-year planning horizon even though no current source is known. **Table 14** presents the illustrative projects which are recommended as funding becomes available.

Table 14: Illustrative Projects

ID	Name	Description	Potential Funding Source	YOE	Estimated Cost
I1	**40th Avenue S – Upper River Rd to 13th St**	Overlay with new asphalt	LOCAL	Beyond 2038	$2,926,000
I2	**Franklin Avenue – Lower River Rd to 13th St**	Overlay with new asphalt	LOCAL	Beyond 2038	$1,688,000
I3	**Wilson Butte Road – Eden Rd to LRTP boundary**	Overlay with new asphalt	LOCAL	Beyond 2038	$2,251,000
I4	**Upper River Road – 19th Ave S to 40th Ave S**	Overlay with new asphalt	LOCAL	Beyond 2038	$4,615,000
I5	**33rd Avenue S / 13th Street S Intersection**	Modify intersection	MACI/STPU	Beyond 2038	$163,000
I6	**36th Avenue NE Traffic Calming**	Traffic calming on route	LOCAL	Beyond 2038	$113,000
I7	**25th Avenue NE / 8th Street NE Intersection**	Four-way stop control	LOCAL	Beyond 2038	$28,000
I8	**11th Ave S Traffic Calming**	Traffic calming on route	LOCAL	Beyond 2038	$84,000
I9	**11th Avenue S / 32nd Street S Intersection**	Monitor intersection for 4-way stop control	LOCAL	Beyond 2038	$11,000
I10	**Speed Studies**	Periodic speed studies	LOCAL	Beyond 2038	$39,000
I11	**Signal Warrant Analysis**	Periodically check for signal warrants	LOCAL	Beyond 2038	$214,000
I12	**38th Street N – 10th Ave N to River Dr N**	Reconstruct to collector	STPU	Beyond 2038	$3,827,000
I13	**Flood Road – Park Garden Rd to Dick Rd**	Reconstruct to collector	LOCAL	Beyond 2038	$22,510,000
I14	**6th Street NW – Smelter Ave to 36th Ave NE**	Reconstruct to collector	LOCAL	Beyond 2038	$9,679,000
I15	**Watson Coulee Road – NW Bypass to Vaughn Rd**	Reconstruct to collector	STPU	Beyond 2038	$3,039,000
I16	**River Drive – 3rd Ave S to 1st Ave N**	Reconstruct to minor arterial and other improvements	STPU	Beyond 2038	$12,831,000
I17	**Park Drive – 8th Ave N to 2nd Ave N**	Reconstruct to collector	STPU	Beyond 2038	$6,753,000
I18	**Central Avenue W – 20th St NW to 29th St NW**	Reconstruct to collector	STPU	Beyond 2038	$7,879,000
I19	**21st Avenue S**	Construct to two-lane collector	LOCAL	Beyond 2038	$2,251,000
I20	**67th Street N – Giant Springs Rd to 18th Ave N**	Reconstruct to match Giant Springs Rd	LOCAL	Beyond 2038	$8,892,000

ID	Name	Description	Potential Funding Source	YOE	Estimated Cost
I21	**Sun River Road – Urban Boundary to 14th St SW**	Overlay with new asphalt	UPP	Beyond 2038	$5,740,000
I22	**Upper River Road – Overlook Dr to 19th Ave S**	Reconstruct to collector	LOCAL	Beyond 2038	$6,753,000
I23	**17th Avenue S – 7th St S to 13th St S**	Reconstruct to collector	STPU/LOCAL	Beyond 2038	$4,840,000
I24	**36th Avenue NE – 1st St NE to 6th St NW**	Extend roadway (collector standard)	LOCAL	Beyond 2038	$4,502,000
I25	**15th Avenue S – 30th St S to 32nd St S**	Extend roadway (collector standard)	LOCAL	Beyond 2038	$1,351,000
I26	**43rd Avenue NE – Bootlegger Trail to 6th St NW**	Construct new roadway to minor arterial	LOCAL	Beyond 2038	$19,134,000
I27	**43rd Avenue NE – Bootlegger Trail and US 87**	Construct new roadway to minor arterial	LOCAL	Beyond 2038	$2,983,000
I28	**North / South Connectors**	Extend north-south routes to complete gridded network	LOCAL	Beyond 2038	$9,904,000
I29	**25th Street N – River Dr to 2nd Ave N**	Reconstruct to minor arterial and other improvements	STPU	Beyond 2038	$12,155,000
I30	**10th Avenue S – 26th St S to 32nd St S**	Widen to 6-lane principal arterial	NHPP	Beyond 2038	$12,943,000
I31	**Downtown Traffic Flow Conversion**	Reduce by one vehicle lane to accommodate bicycle facilities (1st Ave S, 2nd Ave S, 5th St N, 5th St S, 6th St N, 6th St S)	NHPP/STPU	Beyond 2038	$225,000
I32	**20th Street S – 17th Ave S to 24th Ave S**	Extend roadway (collector standard)	LOCAL	Beyond 2038	$4,389,000
I33	**23rd St S – 21st Ave S to 24th Ave S**	Extend roadway (collector standard)	LOCAL	Beyond 2038	$1,835,000
I34	**Wilson Butte Road / 55th Avenue S / Eden Road / Lower River Road**	Reconstruct intersection to roundabout	STPU/HSIP	Beyond 2038	$371,000
I35	**26th Street N – 8th Ave N to 2nd Ave N**	Reconstruct to minor arterial and other improvements	STPU	Beyond 2038	$7,203,000
I36	**Vaughn Road – Interstate 15 to Central Ave W**	Reconstruct to principal arterial	NHPP/STPU	Beyond 2038	$16,995,000
I37	**River Drive N – 25th St N to 38th St N**	Reconstruct to three-lane arterial	NHPP	Beyond 2038	$11,800,000
I38	**US 87 – Old Havre Hwy / 33rd Ave NE to Bootlegger Trail**	Reconstruct/reconfigure	NHPP/HSIP/STPU	Beyond 2038	$5,628,000
				TOTAL ILLUSTRATIVE PROJECTS:	**$218,544,000**

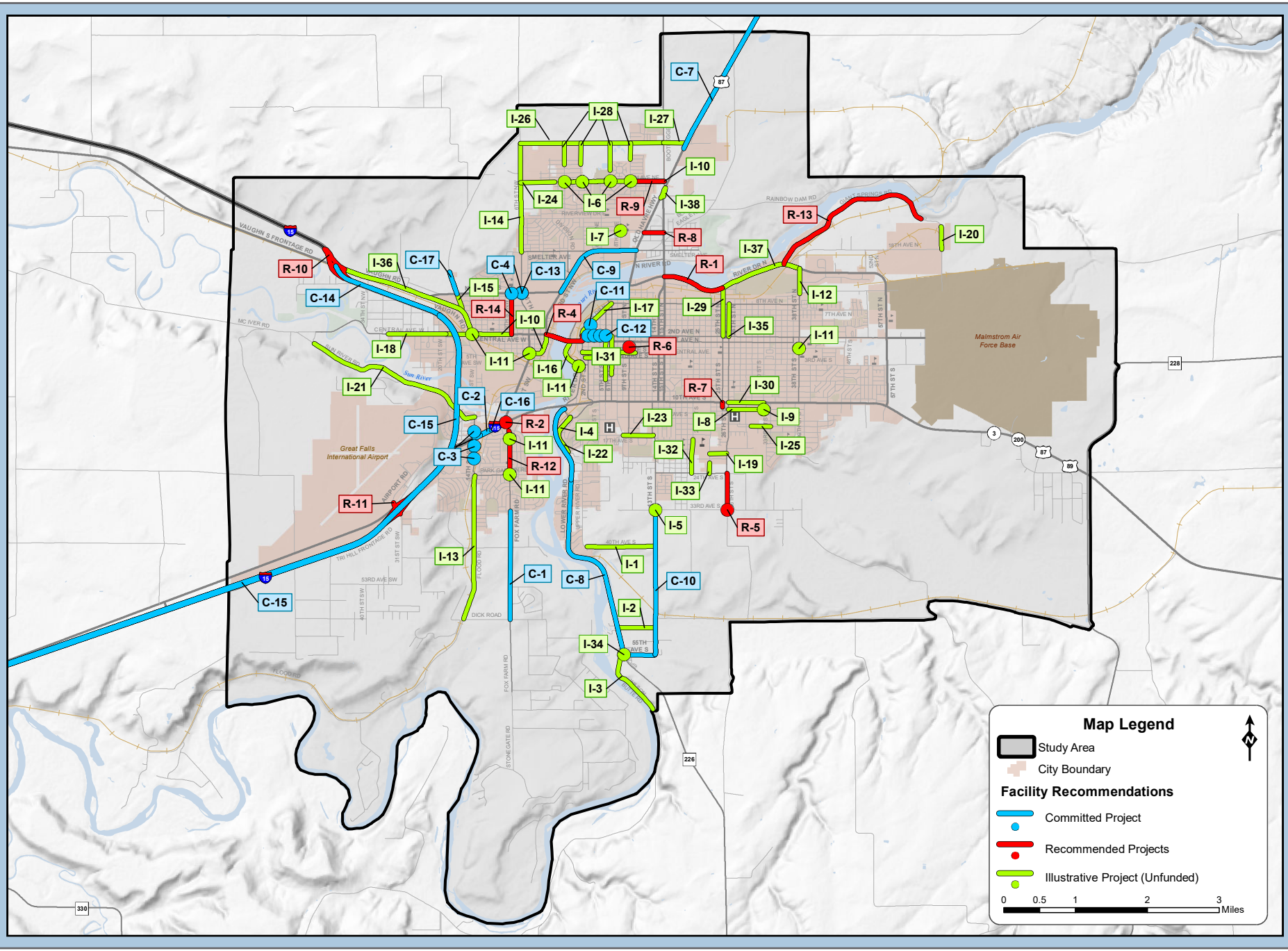


FIGURE 20: *Facility Recommendations*

4.7. Pedestrian Improvements

This section outlines potential active transportation facilities relative to sidewalks, street crossings, and natural surface trails. The recommendations are intended to encourage active living by residents and visitors and accommodate a variety of ability levels with particular emphasis on establishing a well-connected pedestrian network that is comfortable and accessible to a wider range of the population.

4.7.1. Overview

All residents within the Great Falls area are pedestrians at some point in their day – whether walking the dog, walking to the store or work, or from a vehicle to a final destination. This section includes pedestrian needs, system deficiencies, needs of those with disabilities or limited mobility, observation and recommendation development methodology, and proposed recommendations for pedestrian facility improvements that were developed from the public involvement process and from field observations.

Even though the River's Edge Trail provides a high-quality backbone to the Great Falls non-motorized transportation system, it lacks frequent neighborhood connections and its location does not make the trail a viable option for most utilitarian walking trips. The trail is typically the destination for the majority of its users. This, in addition to sidewalk network gaps and the need to improve safe interaction between motorized and non-motorized users (such as the need to increase the yielding rates of motorists to pedestrians in crosswalks) pose additional challenges to increasing the rates of walking.

4.7.2. Pedestrian Needs

People walk for various reasons and needs vary, often depending on trip purpose. All pedestrians share some common needs including safety, connectivity, and accessibility (especially for persons with disabilities). Senior citizens and mobility-impaired pedestrians may lack motorized transportation options and may consequently depend on transit and pedestrian-focused aspects of the transportation network.

To adequately plan for pedestrians with disabilities, each disability (mobility, visual, hearing, and cognitive impairments) and its corresponding limitations should be considered. It is important to also be aware of how planning for people with one disability may affect users with other impairments. Each proposed facility must be designed in accordance with the ADA design standards.

Similar to designing walking facilities for users with disabilities, similar consideration should be given to young and elderly users. Children are less mentally and physically developed than adults, and often have limited peripheral vision and less ability to judge speed and distance, locating sounds and comprehending street signs, they lack familiarity with traffic, and may act impulsively or unpredictably. Older adults often exhibit degrading sensory or physical capabilities. This can lead to loss of vision and hearing, the ability to react quickly, and the strength to walk otherwise normal distances between places.

The Montana School for the Deaf and Blind is located in Great Falls on 38th Street North and 2nd Avenue North.

4.7.3. Recommended Improvement Methodology

Pedestrian network improvements have been selected to close gaps in the network, make connections to and from major destinations, and improve overall comfort and sense of security for pedestrians.

Improvements to the pedestrian network will occur over time along the major street network in the Great Falls Area as part of roadway improvement projects, signal upgrade projects and as standalone pedestrian focused projects. In residential areas improvements could occur as part of a coordinated sidewalk program or as standalone publicly funded projects using sources like the Transportation Alternatives Program.

One of the biggest challenges in the Great Falls area is sidewalk connectivity and accessibility. There are many locations within the planning area that have sidewalks that are in a state of disrepair, are not ADA accessible, lack connectivity, or are non-existent all together. Many Montana communities, including Great Falls, have programs for repairing aging sidewalk infrastructure; however, fewer communities have programs for funding or financing the installation of new sidewalk. It is recommended that a solid funding source of at least $50,000 annually be provided to match property owners' costs in a 50/50 cost share split. This program is a model that splits the cost of sidewalk replacement and/or construction between the property owner and the local agency. Funding sources for this program are discussed in greater depth in **Appendix F**.

4.8. Bicycle Improvements

This section outlines potential active transportation facilities relative to shared lane markings, bike lanes, shared use paths, and other spot improvements. The recommendations are intended to encourage active living by residents and visitors and accommodate a variety of ability levels with particular emphasis on establishing a well-connected bicycling network that is comfortable and accessible to a wider range of the population.

Improving the on- and off-street bicycling network will provide cohesive connections between destinations and will contribute to the viability of the bicycle as a transportation mode choice. Although the existing roadway network does not preclude bicycle use, connectivity needs to be accounted for when considering bicycle features.

The on-street network of bicycle facilities is largely undeveloped; there is significant potential to create rapid expansion with much apparent 'low-hanging fruit". As it is for pedestrians, the River's Edge Trail is a high-quality backbone to the Great Falls bicycling network, but the trail's relatively few neighborhood connections and location does not make it as attractive for most utilitarian bicycling trips and the trail is typically a destination for the majority of its users.

Bicycle facilities vary from bicycle routes designated by signage or shared lane markings to separated, off-street facilities along exclusive rights-of-way. Opportunities to develop bicycle facilities and a cohesive network also vary and may range from deliberate and coordinated development on the part of the city to taking advantage of independent street construction, reconstruction and resurfacing projects. Street re-surfacing in particular, is a low-cost way to provide bicycle infrastructure. When streets are resurfaced, new pavement markings are required. During this process, bicycle facilities can often be added depending on existing roadway width and feasibility.

4.8.1. Policy and Program Recommendations

While improving walking and bicycling infrastructure is a vital component to increasing active transportation use, supportive programs and policies are a cost-effective complement and their impact should not be underestimated. Working directly with the public to encourage walking and bicycling can increase use of those modes, improve road safety, and strengthen the role of bicycling as a tourism generator in the Great Falls area. This section briefly describes current efforts and future recommendations related to these programs and policies. A complete discussion of these recommended policies and programs can be found in **Appendix F**.

The overarching goals of the recommendations are to increase the visibility and legitimacy of bicycling and bicyclists in the Great Falls area; support and enhance the infrastructure recommendations in this Plan; and increase the number, safety, and comfort of people walking in the Great Falls area. The policy and program recommendations include:

Bicycle and Pedestrian Advisory Committee (BPAC)
A Bicycle and Pedestrian Advisory Committee (BPAC) is made of citizen volunteers to advise the community leaders on bicycling and pedestrian issues and to make recommendations for Transportation Alternatives and other grant applications. The BPAC establishes the area's commitment to making bicycling and walking safer and more desirable, and has the potential to assist the City in securing funding for bicycle and pedestrian projects. Having an established BPAC is also desirable for receiving Bicycle or Walk Friendly Communities designation.

Alternate Modes Coordinator
The City of Great Falls does not have a designated Alternate Modes Coordinator, though the Planning Department has served some functions. In order for the goals of this plan to be realized, the Alternate Modes Coordinator should be the primary staff person overseeing implementation. It is recommended that the City of Great Falls provide dedicated funding for this important position.

Bicycle Parking
Adequate bicycle parking is an important component of the bicycle network and represents end-of-trip accommodation for those who choose to travel by bicycle. The recommendations for bicycle parking are separated into several categories, including recommended ordinance and code language, parking design, short- and long-term parking, how bicycle parking may differ depending on land uses and neighborhoods of Great Falls, and how more bicycle parking can be implemented when it doesn't fall into previously outlined categories.

Review Bicycle Regulations
Appropriate regulation of bicycle use is important to encouraging non-vehicular travel. The Official Code of the City of Great Falls (OCCGF) imposes restrictions upon the use of bicycles through the following regulation: (Excerpt from OCCGF 12.3211.020 Sidewalk—restricted use.) *"Unless otherwise allowed by designated City approved signage, or conditions render bicycle travel on a street unsafe, bicycles may only be ridden on those portions of the sidewalk that are a portion of the River's Edge Trail System, as depicted on the most currently published River's Edge Trail Map available at the City Computer Mapping and Addressing Department. Children under the age of thirteen (13) are exempted from the provisions of this Section."* Because the Great Falls area has, and is currently constructing, back-of-curb facilities meant to accommodate both pedestrians and bicyclists, it is important that such facilities continue to serve their intended functions. To that end, it is recommended that the City Public Works and Planning & Community Development Departments review the code language and consider either signage or Code revisions to ensure the bike system continues to function as intended.

Education and Encouragement Program Recommendations
There are many programs that are designed to raise awareness of walking and bicycling; connecting users to existing and proposed resources; educating these users; and encouraging residents and visitors in the Great Falls area to walk and ride a bicycle more often. Many of the recommended programs can be administered or implemented by volunteer groups or non-profit organizations. The recommended programs include creating a bicycling map, increasing recreation and bicycle tourism, creating a media campaign, and focusing on youth bicycle safety education.

Other Bicycling and Walking Recommendations
It is recommended that Great Falls implement a data collection program and create a benchmarking report. Addressing the lack of existing bicycle and pedestrian count data and beginning data collection will help provide objective, data-driven support for the expansion of a bicycle and pedestrian network. A benchmarking report will be able to help guide the City of Great Falls as it moves towards improving conditions for non-motorized users by tracking and visualizing past investments and future investments at regular intervals. The document will be created in its first edition to establish baselines in non-motorized user counts, miles of facilities developed over time, crashes and other metrics that can be updated by the city on a regular basis.

It is recommended that Great Falls implement a bicycle and pedestrian safety campaign similar to that developed for Tacoma, WA.

4.9. Non-Motorized Facilities

The recommended Great Falls area non-motorized network represents a comprehensive set of existing and proposed pedestrian and bicycle transportation and recreation facilities. In the case of roadway retrofit projects where a street may be reconfigured to provide the physical space for bicycle or buffered bicycle lanes additional study, neighborhood outreach, business outreach and other activities may be needed prior to implementation. A description of each type of non-motorized network improvements is listed and below and all improvements are depicted graphically in **Figure 21**.

Sidewalks

Completing the sidewalk network gaps on the major street network will allow more predictable trips for pedestrians and will improve the overall connectivity of the Great Falls area. Multiple sidewalk projects were identified with a total cost of $841,200.

While the recommended sidewalks will help to fill the gaps in the system, focus should be placed upon other gaps that may not be listed below, as opportunities arise for improvements to be made. Priority projects should work to eliminate sidewalk gaps between major roadways and adjoining neighborhoods; gaps on major roadways; gaps near schools, parks, or other destinations with higher pedestrian levels; and, missing ADA ramps and other barriers to accessibility along important routes and paths of travel. Finally, projects should work to connect isolated residential subdivisions or subdivisions on the urban fringe, as opportunities arise.

Shared Lane Markings

Shared lane markings, or sharrows, are stenciled markings installed as an on-street facility where bicycles share the travel lanes with automobiles. Typically, these facilities occur on local roadways or on roadways with low traffic volumes and speeds. Streets with low motor vehicle volumes and speeds that are prioritized for bicycle travel are known as 'Bicycle Boulevards'. Treatments could include reconfiguring or providing stop signs to favor bicyclists, pavement markings, wayfinding signage, and intersection treatments. Multiple shared lane marking projects were identified with a total cost of $483,100.

Bike Lanes

A bike lane provides a striped and stenciled lane for one-way travel on a street or highway. Many of the identified projects will be completed by the City of Great Falls, Cascade County, or MDT through retrofit or as part of maintenance activities (striping and signage only). Some maintenance activities such as re-striping after the winter season may not be appropriate to retrofit new striping as the old striping is still visible and will need to be removed at an additional cost or it could cause confusion for roadway users with the old lane configuration still visible.

Similar to a bike lane in that a striped and stenciled lane is provided for one-way bicycle travel on a street or highway, buffered bicycle lanes provide additional width to 'buffer' the bike lane, on the side of the adjacent travel lane and/or parking lane. They provide a more comfortable experience for bicyclists, but they also are an effective tool to discourage motorists from driving or parking in the bike lane that would otherwise be excessively wide. This excessive width can sometimes be present when a roadway reconfiguration project converts an underutilized travel lane or parking lane to a bike lane. Multiple bike lane projects were identified with a total cost of $429,500.

Figure 21 only shows recommended projects as bike lanes. However, when constructed, the project can be either bike lanes or buffered bikes lanes. The type of project that is ultimately chosen is at the discretion of city staff.

Shared Use Paths

A shared use path provides pedestrian and bicycle travel on a paved right-of-way completely separated from any street or highway. The River's Edge Trail is an example of a shared use path. Shared use paths in the Great Falls area are designed at a minimum to be ten feet wide. Multiple shared use paths were identified with a total cost of $7,113,000.

Sign Replacement and Upgrades

On an as needed basis, conduct an inventory of bike facility signs within the LRTP planning area. Reinstall missing signs and upgrade existing signs, as necessary, to meet current best practices standards and the *Manual on Uniform Traffic Control Devices* guidelines.

Spot Improvements

Improvements that are recommended at specific locations rather than along a corridor are known as spot improvements. These could include signalization, crossing improvements, 4-way stop control, streetscape, trail connections or other small connections fall under this category. Crosswalks and intersection improvements are another type of spot improvement, or a recommendation to improve the non-motorized transportation system by simultaneously improving the roadway network for all users. Crosswalks allow pedestrians and other non-motorized users to cross streets in predictable and designated places.

Bicycle and pedestrian facilities may be also able to be accommodated once a roadway's shoulders are widened or improved. This type of improvement is typically found in non-urban settings. Areas where shoulder widening can be accommodated are include in **Table 15** along with the locations of other recommended bike and pedestrian spot improvements. Multiple spot improvement projects were identified with a total cost of $3,467,400.

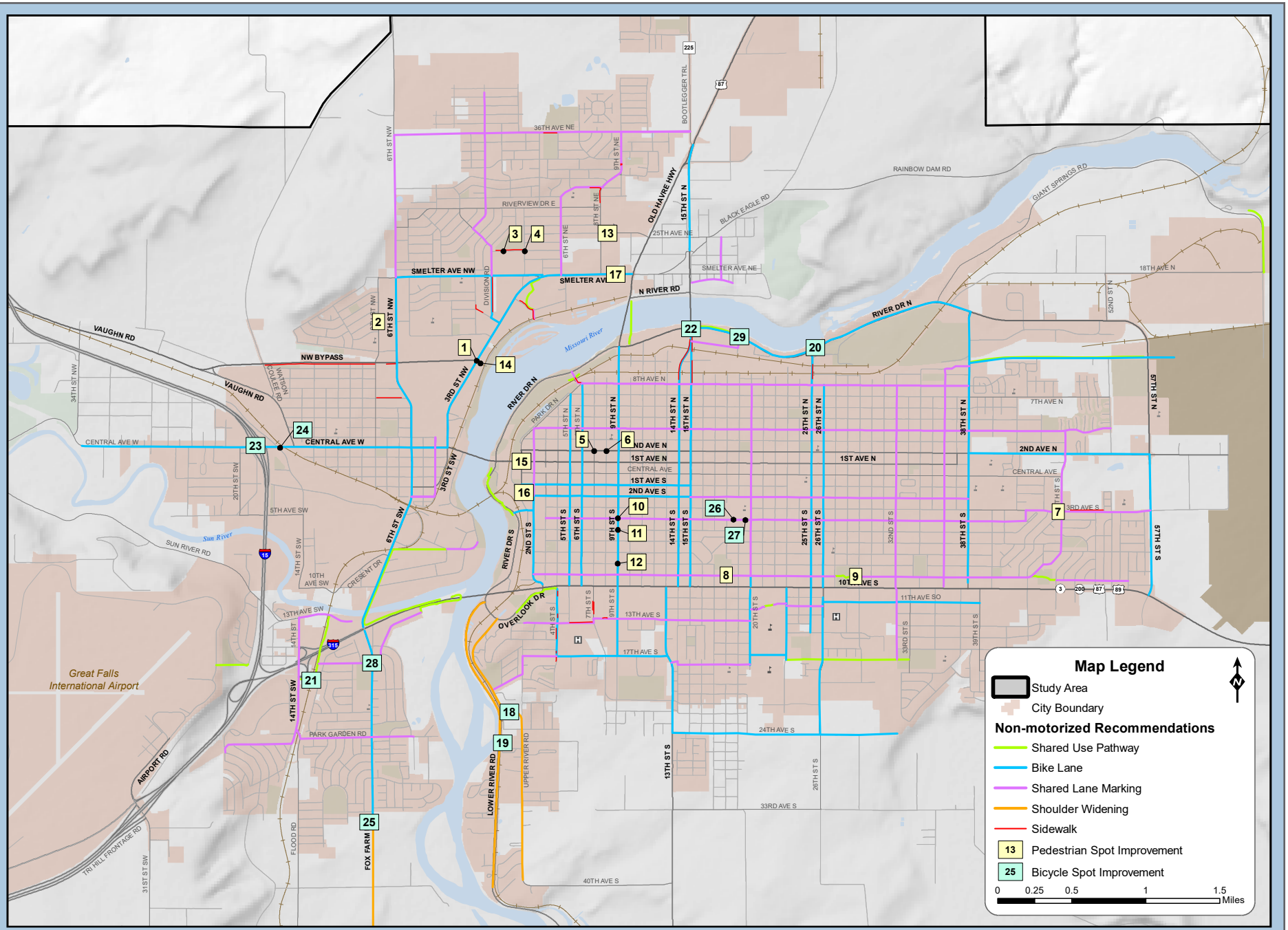
Table 15: Recommended Spot Improvements

ID	Improvement	Type	Notes	Estimated Cost
Pedestrian Spot Improvements				
SPOT-1	**NW Bypass & 3rd St NW**	Crosswalks	"T" intersection (i.e. three-legs). Crosswalks are faded on the west and north leg of intersection and non-existing on the south leg. Because of high traffic volumes, ladder crossings (high-visibility) are recommended in order to maintain appearance of crosswalks and designated pedestrian space. Consider adding 'pork chop' islands on both directions on the NW Bypass legs to reduce pedestrian crossing distance.	$11,900
SPOT-2	**4th Ave N & Park Dr**	Crosswalks and Signals	As recommended in the Downtown Plan.	$112,000
SPOT-3	**Ave B NW & 9th St NW**	Crosswalks	Near school.	$2,800
SPOT-4	**23rd Ave NE & 4th St NE**	Crosswalks	Add crosswalks on all sides of intersection.	$2,800
SPOT-5	**2nd Ave N & 7th St N**	Crosswalks	Crosswalks, traffic calming, and increased speed limit enforcement will benefit high pedestrian traffic (especially during school year) that is produced by Whittier and the Community Rec Center.	$1,300
SPOT-6	**2nd Ave N & 8th St N**	Crosswalks	Crosswalks, traffic calming, and increased speed limit enforcement will benefit high pedestrian traffic (especially during school year) that is produced by Whittier and the Community Rec Center.	$1,300
SPOT-7	**3rd Ave S & 46th St S**	Crosswalks and Sidewalks	Provide crosswalks on northern and eastern legs of intersection; provide sidewalk along 46th Street South to curb line.	$6,100
SPOT-8	**10th Ave S & 18th St S**	New Ped Signal or Hybrid Beacon	There are no pedestrian crossings between 15th and 20th Streets (5 pedestrian crashes have been reported in this section).	$103,400
SPOT-9	**10th Ave S & 29th St S**	New Ped Signal or Hybrid Beacon	There are no pedestrian crossings between 26th and 32nd Streets (5 pedestrian crashes have been reported in this section).	$103,000

ID	Improvement	Type	Notes	Estimated Cost
SPOT-10	**4th Ave S & 9th St S**	Crosswalks	Near recorded pedestrian crashes on 9th St; mark crossings with yield signs and lines.	$4,100
SPOT-11	**5th Ave S & 9th St S**	Crosswalks	Near recorded pedestrian crashes on 9th St; mark crossings with yield signs and lines.	$4,100
SPOT-12	**8th Ave S & 9th St S**	Crosswalks	Near recorded pedestrian crashes on 9th St; mark crossings with yield signs and lines.	$4,100
SPOT-13	**25th Ave NE & 8th St NE**	4-Way Stop	Convert two-way (east-west) stop to a full, four-way stop. Near school, lower speeds.	$800
SPOT-14	**3rd St NW & River's Edge Trail**	Trail Connection	Connect NW Bypass & 3rd St NW to West Bank Park and the River's Edge Trail	$55,800
SPOT-15	**1st Ave N & Park Dr**	Intersection Improvement	Accessing Gibson Park difficult from downtown. Improve crossing by prioritizing pedestrian traffic on porkchops, and by improving signal timing (leading pedestrian interval).	$6,100
SPOT-16	**2nd Ave S / Park Drive** *2nd Ave S to 1st Ave S*	Streetscape	Sidewalk is lacking in this area, though there is plenty of paved surface. Cars are parking where pedestrians would be walking. Suggest creating a new streetscape with pullouts for parking and a defined sidewalk that has curb separation.	$11,500
SPOT-17	**Smelter Ave NE** *8th St NE to 10th St NE*	Streetscape	Sidewalk needs to be defined - ideally some access management could occur along here as well.	$25,300
Bicycle Spot Improvements				
SPOT-18	**Upper River Rd** *40th Ave S to Overlook Dr*	Shoulder Widening	If road is ever rebuilt, provide at least four feet of rideable shoulder. If rumble strips are considered, widen shoulder design to allow for four feet of rideable width. This is a modification of the Bike-17 recommendation from the 2009 LRTP Update.	$1,713,600
SPOT-19	**Lower River Rd** *40th Ave S to Overlook Drive*	Shoulder Widening	If road is ever rebuilt, provide at least four feet of rideable shoulder. If rumble strips are considered, widen shoulder design to allow for four feet of rideable width. This is a modification of the Bike-20 recommendation from the 2009 LRTP Update.	$859,700
SPOT-20	**25th St N & River Dr**	Trail Connection	Investigate viable neighborhood connections between 25th St N and River's Edge Trail. Incorporate bicycle and pedestrian needs with River Dr improvements in this location.	Unknown
SPOT-21	**14th St SW & 20th Ave SW**	Railroad Tunnel	Connects River's Edge Trail to the Marketplace.	$394,000
SPOT-22	**15th St N & River Dr**	Intersection Improvement	Facilitate connections from 15th Street North to new trail connection.	$12,900
SPOT-23	**Central Ave W & I-15**	Travel Lane Reduction	Remove travel lane on north side for bike lane/shoulder.	$20,000
SPOT-24	**Central Ave W & RR Crossing**	Remove Raised Median	Remove raised median and provide bike lane.	$50,000

ID	Improvement	Type	Notes	Estimated Cost
SPOT-25	**Fox Farm Rd & 33rd Ave S**	General Roadway Improvement	Improve south of development, in addition to providing bike lanes where most people live. The undeveloped section of this road is where most open house and survey suggestions were identified (of those within this neighborhood) and it is also where a fatal crash occurred.	Unknown
SPOT-26	**4th Ave S & 19th St S**	Improve Existing Full Roadway Closure	Make this an obvious part of a bicycle route rather than just bollards sticking out of the concrete. Ensure adequate bicycle passage clearance and include pavement markings and wayfinding signage.	$2,900
SPOT-27	**4th Ave S & 18th St S**	Improve Existing Full Roadway Closure	Make this an obvious part of a bicycle route rather than just bollards sticking out of the concrete. Ensure adequate bicycle passage clearance and include pavement markings and wayfinding signage.	$2,900
SPOT-28	**Fox Farm Rd & 18th Ave S**	Intersection Signalization Improvement	Possible RRFB.	$25,500
SPOT-29	**19th St N Intersection**	Intersection Improvement	Evaluate and install enhanced non-motorized crossing treatments to River's Edge Trail.	$40,000

FIGURE 21: *Non-Motorized Recommendations*



4.10. Transit Improvements

Public transportation services in the Great Falls area take the form of fixed-route passenger bus service operating on a scheduled service, and "demand-responsive" bus/van service providing door-to-door service for the elderly and those unable to use the fixed-route service. Public transit has been characterized in the Great Falls Area as a service for transit dependents. With one hour gaps between buses, loop routes that add time and inconvenience to bus travel, and lack of support facilities such as connecting sidewalks, bus pads, and stop amenities, service is minimal.

The LRTP envisions an integrated multimodal transportation system that meets sustainable growth expectations, supports economic vitality, and improves quality of life. To achieve this vision, transit must play a much greater role in providing travel choice within the Great Falls Area. This includes increased service frequency, longer service hours, and expanded coverage.

4.10.1. Planned Committed Improvements

Due to extensive funding limitations, there are few "committed" projects on the horizon concerning transit. Transit District personnel have reiterated that due to limited funds, they are essentially in a survival mode. Although their recent TDP identified a number of short-term and long-term improvements, none have been implemented due to funding constraints.

Transit service requires a bus fleet and spares. If transit service is to be expanded over time to increase frequency and add coverage area, this fleet needs to expand. In order to be competitive, the buses need to be replaced when approximately 12 years old. With an aged fleet, there are several drawbacks that impact customer satisfaction. Vehicle reliability is not as good as a more modern fleet, leading to an increased number of road failures and service disruptions. Customers are not given the advantage of new technology, such as improvements in seating, accessibility, and comfort when older equipment is kept in service beyond its useful life. Another drawback associated with a larger fleet is the requirement for servicing these buses and the need for an improved/expanded fleet facility.

As of the 2014 LRTP, there are 21 fixed-route vehicles and 9 paratransit vehicles in the existing transit fleet. Although the TDP identified a handful of recommendations, inadequate funding for vehicles and additional drivers dictate that these items be placed on hold. These improvements are described in greater detail in the following section.

Fleet replacement on a designated four-year cycle is the most pressing transit need to continue successful operations. As the older vehicles are cycled out of the fleet, and a consistent replacement cycle is realized, GFT will turn attention to other recommendations in the TDP such as installation of bus stops, shelters and route service changes.

The TDP prepared as a part of past planning efforts also identified several service design needs and fixed stop considerations that were recommended for implementation. The Great Falls Transit District plans to eventually implement the recommendations below upon realization of improved funding mechanisms. A brief description of the recommendations is provided here, the recommendations are discussed in greater depth in **Appendix F.**

- **Short Term (1-3 Years):** A "preferred service plan" could be implemented. The plan would include splitting Route 1 into two segments, east and west, which would provide greater access and shorter travel times. To implement the preferred service plan, an additional vehicle will be required and higher operational costs with an estimated amount of $250,000 may be realized.
- **Long Term (4-5 Years):** A more long-term goal for Great Falls Transit is to provide evening service for passengers. The option that was examined in the TDP report extends fixed-route service 30 minutes (until 7:00 PM) and provides demand-responsive service thereafter until 10:00 PM. To provide evening service, four vehicles will need to be allocated to the time extension, with an overall estimated operational cost of $164,000.
- **Service Schedules:** The overall service concept of the system remains the same. Headways are generally at one hour during off-peak periods (with the exception of Route 7 that will be 30 minutes all day) and 30 minutes during peak periods. New

schedules are identified for Route 5, Route 7, Route 1, and Route 8. Routes that are maintaining their current alignment also have a minor schedule change by changing the 15-minute break in the middle of the day to occur at the downtown transfer center. Minor changes may be required to ensure that students are able to use transit for travel to and from school.

- **Fixed Stops:** Great Falls Transit currently uses a flag stop system for their fixed-route service. The creation of fixed stops will still allow users to board at convenient locations, if they are placed properly. In addition to including fixed bus stops, shelters should be placed at the locations with the highest amount of activity. The potential costs to realize fixed stops and shelters at high activity locations range from a potential year one cost of approximately $50,000 (assumes adding five shelters in year one) to $20,000 for years two through five (assumes two new shelters per year).

- **Development Review:** As Great Falls continues to grow at the fringe, newly developed areas should be evaluated for transit need. Great Falls Transit should have a presence in the development review process for the city. This will allow future projects to be considered by Great Falls Transit and for their transit need to be determined.

The Great Falls Transit District plans to modify the bus schedule so mid-day breaks occur at the Downtown Transfer Center to give riders easy access to Downtown amenities while they wait.

CHAPTER 5: POLICY AND PLANNING FRAMEWORK

5.1. Overview

This chapter of the LRTP addresses several topics that link the transportation system to broader quality of life considerations within the community. Federal regulations for MPOs require long range transportation plans "include both long-range and short-range program strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods." While this is a key consideration, it must be recognized that the design, modal mix, and location of transportation infrastructure and facilities can directly affect urban form, functions, and community character.

Current directions in transportation planning place importance on developing transportation systems that help reduce unnecessary travel delays and manage travel demands in ways that create balanced multimodal networks that offer multiple transportation choices. Transportation systems also need to provide facilities and services to help achieve reliable and timely access to jobs, community services, affordable housing, and schools while helping create safe streets and improving economic competitiveness, and enhancing unique community characteristics.

5.2. Corridor Preservation

Corridor preservation is the application of measures to prevent or minimize development within the right-of-way of a planned transportation facility or improvement within a defined corridor. That includes corridors, both existing and future, in which a wide array of transportation improvements may be constructed including roadways, bikeways, multi-use trails, high occupancy vehicle lanes, or fixed route transportation infrastructure.

The objective of corridor preservation is to enable local governments to better plan for future growth. Corridor preservation helps to assure that a transportation system will effectively and efficiently serve existing and future development within a community, region or state, and prevent costly and difficult acquisitions after the fact. Preserving right-of-way for planned transportation facilities promotes orderly and predictable development. As communities expand, land must be set aside for the transportation infrastructure needed to support development and to maintain a desired level of transportation service. The decisions made about the location and design of the transportation network will have a lasting impact on growth patterns, community design, and modal alternatives.

Corridor preservation policies, programs and practices provide numerous benefits to communities, taxpayers and the public at large. These include, but are not limited to, the following:

- **Reducing transportation costs by preservation of future corridors in an undeveloped state.** Right-of-way costs often represent the single largest expenditure for a transportation improvement, particularly in growing urbanized areas where transportation improvement needs are the greatest. By acquiring or setting aside right-of-way well in advance of construction, the high cost to remove or relocate private homes or businesses is eliminated or reduced.

- **Enhancing economic development by minimizing traffic congestion and improving traffic flow, saving time and money.** Low cost, efficient transportation helps businesses contain final costs to customers and makes them more competitive in the marketplace. Freight costs, for instance, accounts for ten percent of the value of agricultural products, the highest for any industry.

- **Increasing information sharing so landowners, developers, engineers, utility providers, and planners understand the future needs for developing corridors.** An effective corridor preservation program ensures that all involved parties understand the future needs within a corridor and that state, local and private plans are coordinated. Clarifying public intentions about the location, timing, and desired level of access control for roadway improvements reduces the risk associated with the timing and phasing of development projects for the private sector. Advanced notice of such intentions also enables developers to plan projects and site-related improvements in a manner that is more compatible with the planned transportation functions of the corridor.

- **Preserving arterial capacity and right-of-way in growing corridors.** Corridor preservation includes the use of access management techniques to preserve the existing capacity of corridors. When it is necessary, arterial capacity can be added before it becomes cost prohibited by preserving right-of-way along growing transportation corridors.

- **Minimizing disruption of private utilities and public works.** Corridor preservation planning allows utilities and public works providers to know future plans for their transportation corridor and make their decisions accordingly.

- **Promoting urban and rural development compatible with local plans and regulations.** The state and local agencies must work closely together to coordinate their efforts. Effective corridor preservation will result in development along a transportation corridor that is consistent with local policies.

- **Reducing adverse social, economic, and environmental impacts on people and communities.** The social and economic costs of relocation can be high for some communities, particularly low-income, ethnic, or elderly populations and small businesses that serve such populations. In addition, where viable transportation corridors are foreclosed by development, roadways may need to be relocated into more environmentally sensitive areas, thereby increasing adverse impacts on the environment.

A variety of techniques have been applied by communities to help preserve right-of-way for future transportation corridors, ranging from setback ordinances to mandatory dedication. Although many jurisdictions have some method of right-of-way preservation in place, no single method works for all situations. Communities that have been most successful at corridor preservation are those that have assembled a variety of tools that they can mix and match to the circumstances at hand. The following are viewed as important elements of successful corridor preservation programs:

- Develop a long-range transportation plan with broad community support;
- Set clear priorities for transportation improvement projects and complete them in a timely manner;
- Identify a funding source for advance acquisition of necessary or desired rights-of-way; and
- Provide a range of mitigation measures to address potential hardship on property owners and to preserve property rights.

National experience in corridor preservation practices has also shown it is helpful to determine desired design objectives and cross-sections for transportation improvements in the community to establish a basis for future right-of-way needs. This helps to facilitate administration of and public support for the program by identifying in advance the amount of right-of-way that will be needed and why.

The I-15 exit at 10th Ave S was part of the 2015 I-15 Corridor Planning Study which helped plan for current and future needs of the corridor.

5.3. Access Management

Access Management is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good access management promotes safe and efficient use of the transportation network. Access management techniques are increasingly fundamental to preserving the safety and efficiency of a transportation facility. Access control can extend the carrying capacity of a roadway, reducing potential conflicts.

There are six basic principles of access management that are used to achieve the desired outcome of safer and efficient roadways. These principles are:

1. Limit the number of conflict points.
2. Separate the different conflict points.
3. Separate turning volumes from through movements.
4. Locate traffic signals to facilitate traffic movement.
5. Maintain a hierarchy of roadways by function.
6. Limit direct access on higher speed roads.

Access management encompasses a set of techniques that local governments can use to control access to highways, major arterials, and other roadways. Access management includes several techniques that are designed to increase the capacity of these roads, manage congestion, and reduce crashes. These techniques include:

- **Signal Spacing:** Increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily traveled corridors.
- **Access and Driveway Spacing:** Fewer driveways spaced further apart allows for more orderly merging of traffic and presents fewer challenges to drivers.
- **Safe Turning Lanes:** Dedicated left- and right-turn, indirect left-turns and U-turns, and roundabouts keep through-traffic flowing. Roundabouts represent an opportunity to reduce an intersection with many conflict points or a severe crash history (T-bone crashes) to one that operates with fewer conflict points and less severe crashes (sideswipes) if they occur.
- **Median Treatments:** Two-way left-turn lanes and non-traversable, raised medians are examples of some of the most effective means to regulate access and reduce crashes.
- **Service and Frontage Roads:** Helps alleviate congestion on major limited access thoroughfares by providing parallel routes which can separate local traffic from through traffic.
- **Right-of-Way Management:** As it pertains to R/W reservation for future widenings, good sight distance, access location, and other access-related issues.

State, regional, and local governments across the United States use access management policies to preserve the functionality of their roadway systems. This is often done by designating an appropriate level of access control for each of a variety of facilities. Local residential roads are allowed full access, while major highways and freeways allow very little. In between are a series of road types that require standards to help ensure the free flow of traffic and minimize crashes, while still allowing access to major businesses and other land uses along a road.

It is recommended that City and County governments adopt a set of Access Management Regulations through which the need for access management principles can be evaluated on a case-by-case basis.

For roadways on the State system and under the jurisdiction of the MDT, access control guidelines are available which define minimum access point spacing, access geometrics, etc., for different roadway facilities.

For other roadways (non-State), the adoption of an access classification system based upon the functional classification of the roadway (principal arterial, minor arterial or major collector) is desirable. These local regulations should serve to govern minimum spacing of drive approaches/connections and median openings along a given roadway in an effort to fit the given roadway into the context of the adjacent land uses and the roadway purpose. The preparation and adoption of a local Access Management Ordinance should be pursued that can adequately document the local government's desire for standard approach spacing, widths, slopes and type for a given roadway classification.

5.4. Transportation Demand Management

Transportation Demand Management (TDM) measures came into being during the 1970s and 1980s in response to a desire to save energy, improve air quality, and reduce peak-period congestion. TDM strategies focused on identifying alternates to single occupant vehicle use during commuting hours. Therefore, such things as carpooling, vanpooling, transit use, walking and bicycling for work purposes are most often associated with TDM. Many of these methods were not well received by the commuting public and therefore, provided limited improvement to the peak-period congestion problem. Due to the experiences with these traditional TDM measures over the past few decades, it became clear that the whole TDM concept needed to be changed. TDM measures that have been well received by the commuting public include flextime, a compressed workweek and telecommuting. In addition to addressing commute trip issues, managing demand on the transportation system includes addressing traffic congestion associated with special events, such as the fireworks display on the 4th of July, Great Falls White Sox baseball games, and other large cultural or sporting events. A definition of TDM follows:

> *TDM programs are designed to maximize the people-moving capability of the transportation system by increasing the number of persons in a vehicle, or by influencing the time of, or need to, travel. (FHWA, 1994)*

Since 1994, TDM has been expanded to also include route choice. A parallel arterial with excess capacity near a congested arterial can be used to manage the transportation system to decrease congestion for all transportation users. In Montana, an excellent model for TDM strategies can be found by examining the Missoula Ravalli Transportation Management Association (MRTMA). MRTMA offers vanpool, carpool, and guaranteed ride home programs and works with employers to tailor specific commute programs for their staff.

The Great Falls area is projected to grow. The accompanying expansion of transportation infrastructure is expensive and usually lags behind growth. Proper management of demand now will maximize the existing infrastructure and delay the need to build more expensive additional infrastructure. TDM is an important and useful tool to extend the useful life of a Transportation System.

Many TDM options are available for use in Great Falls. Existing infrastructure is in place to use alternative modes of transportation including transit, walking and bicycling. There are several major employers in Great Falls including the medical providers, refinery, City government, County government, Montana Air National Guard and Malmstrom Air Force Base who could be approached to implement work week adjustments (flex time, alternate work hours, compressed work week) that could make a noticeable difference to congestion. Designating a couple of prime parking spots for carpooling could increase its use among employees and provide positive recognition for those who carpool.

Developing strategies to manage the demand on the system generated by specific repeatable events such as baseball games or the 4th of July fireworks display would involve a one-time use of Great Falls staff time. Adjustments to these strategies could be made after seeing how they work. Coordination with the Police Department or other departments that would help implement these plans would then be needed on an intermittent basis. Implementing these strategies in Great Falls could be done quickly and would be obvious to the traveling public. As such, it would be easy to demonstrate a successful TDM program and build approval for implementing additional TDM strategies.

Large community events, such the 4th of July parade, are opportunities to implement travel demand management strategies.

Great Falls is poised to implement a successful TDM program with the recommended strategies listed below. These strategies could be implemented in any order.

- Encourage employers to provide alternate work schedules to their employees.
- Implement a guaranteed ride home program for transit users.
- Provide bike racks in the downtown area for bicycling commuters.
- Increase bicyclist access to River's Edge Trail for commuting purposes.
- Encourage walking as a commute choice.
- Encourage biking as a commute choice.
- Look at ways to increase transit ridership.
- Review access to the Great Falls Voyagers ballpark and develop a plan to manage traffic into and out of the ballpark.
- Consider factors such as land use/zoning issues when approving non-rural projects in the outlying areas.
- Use Intelligent Transportation Systems methods, where appropriate, to alert motorists of disruptions to the transportation system can be highly beneficial to transportation users and effective tools for managing transportation demands.

Travel demand management strategies that are likely to be effective in the Great Falls Area are discussed in greater depth in **Appendix G**.

Example bike racks in Downtown Bozeman

Designated Carpool Spots, Ohlone College

It is recommended that Great Falls review access to the Voyagers ballpark and develop a plan to manage traffic into and out of the ballpark.

5.5. Transit Considerations

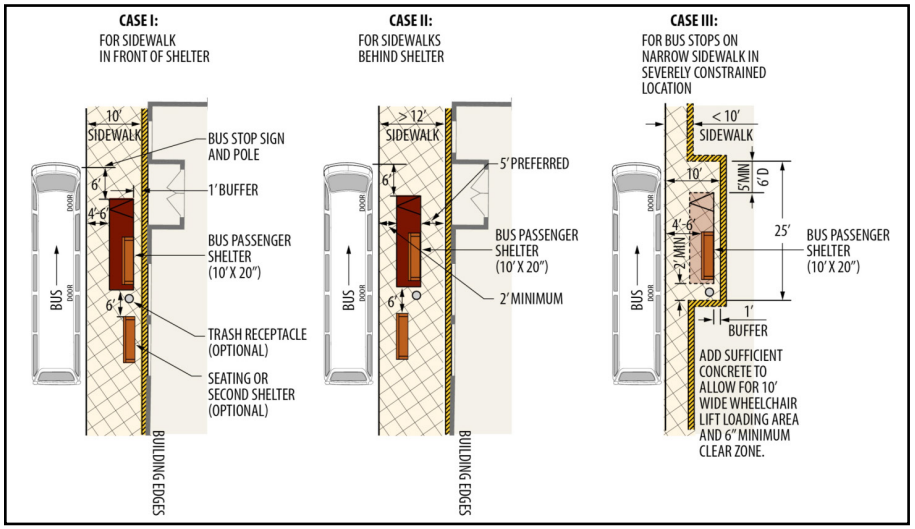
Building upon the conclusions of the TDP, this section of the transit summary and considerations presents planning level guidance on bus stop placement and other elements.

Bus stop placement is an important factor to achieving the best performing transit system possible. Below is a list of factors that should be taken into consideration when deciding on where to locate bus stops.

- Spacing along the route
- Location of passenger traffic generators
- Operational effectiveness
- Safety
- Access to the stop including pathways leading to and from the stop
- Right-of-way
- Curb clearance

It is expected that each bus stop should incorporate a number of elements. A list of the minimum elements that each bus stop should have is listed below.

- **Landing Area** – The landing area must allow for lifts or ramps to be deployed on a suitable surface to permit a wheelchair to maneuver safely on and off the bus.
- **Pedestrian Connections** – A landing area of 5-feet wide by 8-feet long must be connected to a sidewalk of at least 4-feet wide.
- **Curb Ramps** – These shall be designed to conform to state and federal ADA standards.
- **Signage** – Appropriate signage must be used to mark the location of the bus stop. Route and schedule information should also be supplied at each bus stop.
- **Safety and Security** – Bus stops should not have hazardous conditions that could be potentially unsafe to users. The area should be well lit and free of obstacles.



Guidance for bus stop placement and bus stop shelters are provided in **Appendix G**

5.6. Traffic Calming

Traffic calming is intended to reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users. It is used on local streets to discourage non-local traffic. Non-local traffic is not invested in the neighborhood, and therefore has less respect for speed limits, and the non- vehicular elements of the street environment. Certain, limited traffic calming measures are appropriate for slowing traffic on collectors or minor arterials as well.

Because traffic calming includes an educational or enforcement campaign, or an engineering study, it can result in the physical construction of traffic elements designed to reinforce the perceived need for caution by the users of the transportation system. The need for physical traffic calming devices indicates the transportation user's consistent failure to appropriately interact with the surroundings. Regardless of any traffic calming measures installed, the primary responsibility for safe use of the streets lies with the individual driver, cyclist, or pedestrian.

The success of traffic calming measures on a local street depends upon strong support by residents in the immediate area. Additionally, the traffic calming measures need to address situations that a number of residents agree should be addressed. Situations that many people agree exist and that could respond to traffic calming techniques will have more support from the neighborhood, and will better enhance the neighborhood environment. Traffic calming projects which involve installing "hard" improvements should meet several criteria before being considered for implementation, because they can be disruptive to the residents in the surrounding area, difficult to fund and maintain, and difficult to remove once installed.

Traffic calming elements can be incorporated into the initial design of subdivision, or can be retrofitted into existing subdivisions. The City of Great Falls has many streets which already contain traffic calming measures. These include street trees, on-street parking, and sidewalks separated from the street by a planting strip. Other techniques can include landscaped medians, pedestrian bulb-outs at corners, traffic circles or other intersection design techniques as well as other mid-block design techniques.

There are however, several circumstances where traffic calming becomes necessary. One of the most common circumstances is when the arterial system is congested or has turn restrictions. This set of circumstances may lead to arterial traffic detouring into an adjacent neighborhood. Local streets near a heavily used arterial can experience arterial traffic. In Great Falls, 9th Avenue South appears to experience this phenomenon due to its proximity to 10th Avenue South. To address this situation, stop signs have been installed at some locations. Installation of stop signs is one of a number of traffic calming measures, and has been used extensively by the City. Stop and yield signs are prevalent on the east/west legs of the intersections of 9th Avenue South with the various north/south streets. These serve to discourage through traffic, while still allowing local traffic and necessary circulation back to 10th Avenue South.

During street construction traffic calming issues may be raised. Detours are necessary but frustrating for residents. However, when motorists use alternate routes instead of the designated detours, concerns with congestion, speed, pollution and enforcement become real. But these issues are temporary, and temporary measures are appropriate to address them. Some examples of temporary traffic calming measures include:

- Removable median curbs to constrict, or choke, a roadway;
- Removable median curbs placed to form a traffic circle within an intersection;
- Removable median curb placed to form forced turn diverters;
- Temporary bollards to close off traffic to a roadway; and
- Temporary speed bumps.

Very few traffic calming techniques are appropriate for use on arterials, because they interfere with an arterial's ability to move people and vehicles efficiently from one place to another.

There are two forms of traffic calming, active and passive. Active measures are usually applied after a street has been constructed to correct a perceived problem with driver behavior. Passive measures are more

likely to be included during the initial design of a roadway. Generally, active measures are not appropriate for the arterial network as they interfere with the purpose of arterials to move larger volumes of vehicles. However, appropriate use of passive measures may accomplish the purpose of encouraging safer driver, cyclist, or pedestrian behavior without restricting traffic flow. Arterials should be considered in any active traffic calming plan since speeding and cut-through traffic on local streets can be an indicator that the arterial network is not functioning properly. Therefore, improvements to the arterial network may be a more effective solution than active traffic calming on smaller streets.

Traffic calming measures generally fit into one of the following major categories:

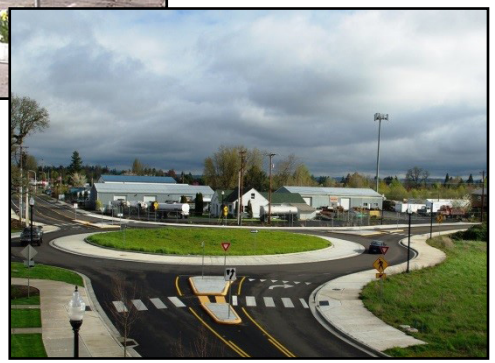
- Passive measures;
- Education and enforcement;
- Signing and pavement marking;
- Deflection (either vertical deflection or horizontal deflection); and
- Diversions or restrictions.

Traffic calming strategies that are implementable in the Great Falls Area are discussed in greater depth in **Appendix G**.

Raised Speed Bumps

Pavement Markings

Half Road Closures



Roundabouts

5.7. Context Sensitive Solutions

Context Sensitive Solutions (CSS) are an interdisciplinary approach that seeks effective, multi-modal transportation solutions by working with stakeholders to develop, build and maintain cost-effective transportation facilities which fit into and reflect the project's surroundings – its "context." With respect to transportation projects, context can be defined as "all elements related to the people and place where a project is located." This includes both visible elements such as environmental or historic resources and invisible elements such as community values, traditions, and expectations.

CSS is both process and product, characterized by a number of attributes. It involves all stakeholders, including community members, elected officials, interest groups, and affected local, state, and federal agencies. It puts project needs and both agency and community values on a level playing field and considers all trade-offs in decision making. Through early, frequent, and meaningful communication with stakeholders, and a flexible and creative approach to design, the resulting projects should improve safety and mobility for the traveling public, while seeking to preserve and enhance the scenic, economic, historic, and natural qualities of the settings through which they pass.

CSS is guided by four core principles:

1. Strive towards a shared stakeholder vision to provide a basis for decisions.
2. Demonstrate a comprehensive understanding of contexts.
3. Foster continuing communication and collaboration to achieve consensus.
4. Exercise flexibility and creativity to shape effective transportation solutions, while preserving and enhancing community and natural environments.

Context sensitive designs incorporate a multidisciplinary design team. Residents, business owners, local institutions, city officials, and designers all have a part in the design and implementation of CSS. The conventional approach to design would be to approach the stakeholders at the tail end of the design phase in order to gain approval; involving these people at the beginning of the project ensures that the needs of all the stakeholders and the public are addressed from start to finish. Addressing these needs in the early stages can save valuable time and money in the development process.

Conventional designs place importance strictly on level of service and moving traffic. CSS balances safety, mobility, community, and environmental goals. The idea is to achieve a design that creates a unity for all of the users and for the area. CSS focuses not only on moving traffic, but also on pedestrians, bicycles, and aesthetic issues. Roads are built around the needs of pedestrians and bicyclists instead of just being built to handle the highest amount of traffic at the highest speeds possible. A properly constructed road will be safe for all users, regardless of their mode of travel. A CSS allows flexibility for its users when choosing their travel type.

CSS should encourage "smart growth" within the area. This refers to a type of city center growth that discourages urban sprawl by creating an area where pedestrians, bikes, transit, and vehicles can function in harmony within the network. Mixed-use development is also used in the area to allow for a variety of activities to take place. CSS creates a sense of community and unity to the area, while increasing safety levels and aesthetic value to the area.

Another purpose of CSS is to give users flexibility in the design process of transportation elements. All projects are different and should be treated as such. It is appropriate for some areas to incorporate 12-foot-wide travel lanes, for example, while others may benefit more from smaller 10-foot-wide lanes. The FHWA's *Flexibility in Highway Design*[24] is a guide written for highway engineers and project managers that describes the flexibility available when designing roads and illustrates successful approaches used in other highway projects.

The "Qualities that Characterize Excellence in Transportation Design", elaborated at the Thinking Beyond the Pavement in 1998, illustrate the desired end products of the CSS process:

- The project satisfies the purpose and needs as agreed to by a full range of stakeholders. This agreement is forged in the earliest phase of the project and amended as warranted as the project develops.
- The project is a safe facility for both the user and the community.
- The project is in harmony with the community, and it preserves environmental, scenic, aesthetic, historic, and natural resource values of the area, i.e., exhibits context sensitive design.
- The project exceeds the expectations of both designers and stakeholders and achieves a level of excellence in people's minds.
- The project involves efficient and effective use of the resources (time, budget, community) of all involved parties.
- The project is designed and built with minimal disruption to the community.
- The project is seen as having added lasting value to the community.

The Great Falls' "Rainbofallo" on the River's Edge Trail is one of many buffalo statues around the city.

5.8. Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) technologies have been used widely used throughout the country to improve safety and efficiency for the transport of people and goods. ITS advances transportation safety and mobility and enhance productivity by integrating advanced communications technologies into transportation infrastructure and into vehicles.

ITS encompasses a broad range of wireless and traditional communications-based information and electronic technologies. Some of the most common ITS technologies deployed across the country include electronic toll collection, ramp meters, red light cameras, traffic signal coordination, transit signal priority, and traveler information systems. These applications are briefly described below:

- **Electronic Toll Collection** – Electronic toll collection systems support the collection of payment at toll plazas using automated systems that increase the operational efficiency and convenience of toll collection. Systems typically consist of vehicle-mounted transponders identified by electronic readers located in dedicated or mixed-use lanes at toll plazas.
- **Ramp Meters** - Traffic signals on freeway ramp meters alternate between red and green signals to control the flow of vehicles entering the freeway. Metering rates can be altered based on freeway traffic conditions.
- **Red Light Cameras** – Red light cameras detect a motor vehicle that passes over sensors in the pavement after a traffic signal has turned red. The sensors connect to computers in high-speed cameras, which take two photographs of the violation. Typically, the first photo is taken of the front of the vehicle when it enters the intersection, and the second photo is taken of the rear of the vehicle when the vehicle is in the intersection. Law enforcement officials review the photograph, and a citation is mailed to the registered owner of the vehicle.

- **Traffic Signal Coordination** – This technology provides the ability to synchronize multiple intersections to enhance the operation of one or more directional movements in a system. Some examples include arterial streets, downtown networks, and closely spaced intersections such as diamond interchanges.
- **Transit Signal Priority** – These systems give special treatment to transit vehicles at signalized intersections. TSP systems use sensors to detect approaching transit vehicles and alter signal timings to improve transit performance. For example, some systems extend the duration of green signals for public transportation vehicles when necessary.
- **Traveler Information Systems** – Traveler information systems are multimodal and support many categories of drivers and travelers. Traveler information applications use a variety of technologies, including dynamic message signs, Internet websites, telephone hotlines, and television and radio, to allow users to make informed decisions regarding trip departures, routes, and mode of travel.

MDT has been proactive in the use of ITS to promote improve the flow and efficiency of the existing transportation network in the state, most notably through upgrades to traffic signal systems and implementing traveler information systems. The use of ITS technology on traffic signal systems can have multiple benefits, including reducing congestion, reducing vehicle emissions and fuel use, improving safety at intersections, and delaying or eliminating the need to construct additional road capacity.

MDT has developed a statewide traffic signal system plan, which includes recommendations for ITS improvements to be implemented in signal systems across the state over the next decade, with a focus on Montana's urban centers. Within the Great Falls urban area, projects to upgrade controllers and communications capabilities to enhance traffic signal operations at 18 intersections long 10th Avenue South and 6 intersections along the 3rd Street NW – NW Bypass have been completed.

MDT has implemented the 511 system, using a simple 3-digit telephone number, that provides current information to travelers about road conditions, allowing for better choices of travel time, transportation mode, and route. Dynamic message signs are also employed at key locations on the road network to advise motorists of changing travel conditions.

MDT routinely considers the applicability of incorporating ITS features as part of its project development activities for improvements to the state highway system. As improvements to the state-maintained highway system are proposed within the Great Falls urban area, opportunities to implement effective ITS technologies will be considered.

MDT has upgraded controllers and communications capabilities to enhance traffic signal operations along 10th Ave S in Great Falls.

5.9. Livability

Livability is a national movement with local implications that are supported within the Great Falls community. Providing transportation options to improve access to housing, jobs, businesses, services and social activities are fundamental desires of most transportation system user groups. Active transportation results in a physically fit population, minimizes auto emissions, extends the life of transportation infrastructure, and delays the needs for infrastructure improvements.

Fostering livability in transportation projects and programs will result in improved quality of life; will create a more efficient and accessible transportation network; and will serve the mobility needs of communities, families, and businesses.

The concept of livability, which has evolved over the years, is often used to describe a range of initiatives aimed at improving community quality of life while supporting broader sustainability goals. Livability encompasses multi-dimensional issues relative to community design, land use, environmental protection and enhancement, mobility and accessibility, public health, and economic well-being. Incorporating livability into transportation planning, programs, and projects is not a new concept. Communities, developers, advocacy groups, businesses, and neighborhood residents have been working for generations to make places more livable through transportation initiatives, with varying degrees of support from local, regional, State, and Federal agencies. These initiatives have used a range of terms to describe an overlapping set of objectives and strategies-livability, sustainability, community impact assessment, scenario planning, land use and transportation, smart growth, walkable communities, new urbanism, healthy neighborhoods, active living, transit-oriented development, complete streets, context-sensitive solutions, and many others. The key concept behind livability in transportation: transportation planning is a process that must consider broader community goals.

Livability in transportation is about integrating the quality, location, and type of transportation facilities and services available with other more comprehensive community plans and programs to help achieve broader community goals such as access to a variety of jobs, community services, affordable housing, quality schools, and safe streets. This includes:

- Addressing road safety and capacity issues through better planning, design, and construction.
- Integrating health and community design considerations into the transportation planning process to create more livable places where residents and workers have a full range of transportation choices.
- Using TDM approaches and system management and operation strategies to maximize the efficiency of transportation investments.
- Maximizing and expanding new technologies such as ITS, green infrastructure, and quiet pavements.
- Developing fast, frequent, dependable public transportation to foster economic development and accessibility to a wide range of housing choices.
- Strategically connecting the modal pieces - bikeways, pedestrian facilities, transit services, and roadways - into a truly intermodal, interconnected system.
- Enhancing the natural environment through improved storm water mitigation, enhanced air quality, and decreased greenhouse gases.

Livability provides economic benefits to communities, businesses, and consumers. In practice, livable transportation systems accommodate a range of modes (walking, bicycling, transit, and automobiles) by creating mobility choice within more balanced multimodal transportation networks. This in turn helps support more sustainable patterns of development, whether in an urban, suburban, or rural context. Livable transportation systems can provide better access to jobs, community services, affordable housing, and schools, while helping to create safe streets, reduce energy use and emissions, reduce impacts on and enhance the natural and built environment, and support more efficient land use patterns.

The LRTP should reflect the future transportation needs of the Great Falls area and include recommended actions, programs and projects to improve, enhance and better manage and operate the public transit and highway systems, promote alternative modes, accommodate bicyclists and pedestrians, consider all non-motorized modes of transportation, provide freight mobility and mitigate environmental impacts. In general, recommendations in the LRTP should also adhere to the livability principles established by the US DOT, HUD and EPA which are aimed at improving access to affordable housing, providing more transportation options, and lower transportation costs. By keeping these considerations in mind, transportation improvement programs and projects will not only accommodate existing travel, make the current transportation system more efficient, meet growing travel requirements and improve mobility, but also be a catalyst for enhancing the overall livability of the Great Falls community.

Livability is about linking the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safe streets. This includes addressing safety and capacity issues on all roads through better planning and design, making judicious decisions about improvement projects, and expanding the use of new technologies.

The LRTP continues local efforts to make the transportation network operate as efficiently and effectively as possible and promote a balanced transportation system with alternatives to the private vehicle. The analyses conducted for the update of the LRTP show that some components of the system operate poorly and congestion occurs daily and reaches severe conditions at some locations. However, it is important to preserve and maintain essential infrastructure and services, while making the system operate as efficiently as possible. It is also equally critical to enhance the mobility of people and goods by increasing mode choice, access and convenience, and strategically expanding transportation capacity. Although the highway system dominates movement, non-highway components are equally important and provide alternatives for other system users.

The LRTP also attempts to reinforce future local land use development objectives and economic revitalization goals. Transportation and land use planning have a similar goal: efficient use of a limited resource (land) that allows for the efficient movement of people and goods. Together, transportation and land use planning will lead to the creation of strong communities and better define quality of life and livability in Great Falls.

The City's recent Growth Policy Update (*Imagine Great Falls 2025*) recommends a concept referred to as "Healthy by Design." This is a holistic concept that promotes health, safety and neighborhood oriented considerations in land use review. Many of the goals of Healthy by Design are occurring naturally in Great Falls. This includes an emphasis on trails, safe and comfortable sidewalks, community gardens and small scale commercial and mixed use projects.

A new pedlet in Great Falls diverts pedestrian traffic and allows outdoor dining downtown.

5.10. Environmental Mitigation

Moving Ahead for Progress in the 21st Century (MAP-21) requires metropolitan LRTPs to discuss environmental mitigation opportunities and required certain elements and activities to be included in the development of long-range transportation plans, including:

- Consultations with resource agencies, such as those responsible for land-use management, natural resources, environmental protection, conservation and historic preservation.
- Consultations to compare transportation plans to conservation plans, maps, and inventories of natural or historic resources.
- A discussion of potential environmental mitigation activities.
- A participation plan that identifies a process for stakeholder involvement.

These provisions originated from a desire to realize benefits for overall transportation project development by considering environmental resources early on in the transportation planning process. The early consideration of environmental resources can assist in program predictability, project decision-making, project deliverability, and mitigation decisions while responding to the desire to improve both transportation infrastructure and the environment.

5.10.1. Environmental Mitigation Overview

Environmental mitigation is the process of addressing damage to the human and/or natural environment caused by transportation or other public works and infrastructure projects. The human and natural environment includes such resources as neighborhoods and communities; homes and businesses; cultural resources (archaeological or historical sites); parks and recreation areas; streams and wetlands; important farmlands; wildlife and their habitats; and air and water quality.

Environmental mitigation activities, in reference to transportation planning, refers to the strategies, policies, programs, actions, and activities that, over time, will serve to avoid, minimize, or compensate for the negative effects of a transportation project on the human and/or natural environment. Actions taken to avoid or minimize environmental damage are considered the most preferable method of mitigation.

5.10.2. Consultation and Coordination

MAP-21 reiterates the need for continued consultations with agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation in the development of LRTPs. Consistent with this requirement, Federal, State, and Tribal land management wildlife, and regulatory agencies were contacted in October 2013 for input regarding mitigation activities that may help alleviate the adverse effects of implementing transportation projects in the Great Falls area.

5.10.3. Impacts of Transportation Projects

The implementation of transportation projects may result in both positive and negative impacts on the human and natural environments and impacts may include direct, indirect, and cumulative effects. Direct effects are those impacts that are caused by the action and occur at the same time and place. Indirect impacts (also referred to as secondary impacts) are effects caused by the project, but occur at a different location or later time than the action that triggers the effect. Cumulative effects are the collective impacts on the environment that may occur when the project is considered along with other past, present, and reasonably foreseeable future actions.

The following paragraphs discuss the types of environmental impacts that may result from the implementation of transportation projects in the Great Falls area. It should be noted that these environmental impact categories are not all inclusive and each transportation project must typically undergo Federal and State environmental compliance reviews to identify project-specific impacts, evaluate the need for mitigation activities, and determine permitting requirements.

Air Quality

National ambient air quality standards (NAAQS) have been established for several major pollutants referred to as “criteria” pollutants. The six criteria pollutants are: Carbon monoxide (CO); Particulate Matter; Nitrogen dioxide (NO2); Sulfur dioxide; Ozone; and Lead. Transportation contributes to four of the six criteria pollutants: ozone, CO, particulate matter, and NO2.

Vehicle exhaust is a primary source of project-related air pollution. Increasing vehicle emissions is a potential outcome of projects that encourage additional miles of travel. Projects that are designed to reduce congestion and increase traffic flow can also encourage drivers to use such roadways more often and therefore increase CO emissions and other vehicle generated air pollutants. However, such projects often result in decreased travel times and idling times, which translates into reduced emissions. The net result is often an improvement in air quality.

Noise
Noise is most often defined as unwanted sound. Although sound can be easily measured, the perceptibility is subjective and the physical response to sound complicates the analysis of its impact on people. The environmental impact of noise is a function of the sensitivity of the land use where noise is heard. In general, land use sensitivity to noise is a function of human annoyance and community reaction rather than health and safety considerations. Noise can also interfere with nonresidential uses such as schools, libraries, churches, and hospitals.

The noise generated from new or expanded transportation facilities may have a negative impact on adjoining land uses. Traffic noise impacts must typically be investigated in areas adjacent to federally-aided highways for proposed construction of a highway on a new location or the reconstruction of an existing highway to either significantly change the horizontal or vertical alignment or increase the number of through-traffic lanes. If impacts are identified, then abatement measures must be considered and feasible and reasonable noise abatement must be incorporated into the project design.

Hazardous Materials
Transportation projects have the potential for encountering contaminated soils or groundwater, leaking underground storage tanks and piping, or other sources of hazardous materials in the planned work areas. These sites may occur throughout the community and sites are often found along major transportation corridors and established commercial/industrial areas.

Important Farmlands
Transportation projects have the potential to require new or expanded rights-of-way and it is possible that some projects outside the urban area may convert areas of important farmland to non-agricultural use.

Wildlife and Habitat
The construction of new or improved transportation facilities could result in the disturbance, displacement, and/or minor loss of habitat for wildlife species. Transportation projects can also disrupt habitat connectivity and result in habitat fragmentation. Habitat fragmentation is mainly the result of different forms of land use change. The construction and use of transport infrastructure is one of the major agents causing this change as well as creating barriers between habitat fragments.

The construction of new or improved transportation facilities could result in the disturbance and/or minor loss of wildlife habitat. Species can also be displaced (through loss of habitat, increased noise, and increased human activity). Loss of habitat connectivity or habitat fragmentation can be indirect effects of transportation projects.

Parks and Recreation Lands
Transportation projects typically affect parks and recreation lands through the direct acquisition of land for new or expanded rights-of-way, temporary occupancy that adversely affects the property, or by indirect effects such as noise, vibration, diminished access, or visual intrusions.

Cultural Resources
Cultural resources are any prehistoric or historic remains of past human activities including artifacts, sites, structures, landscapes or districts, and objects of importance to a culture or community for scientific, traditional, religious, or other reasons. Like parks and recreation lands, transportation projects have the potential to adversely affect cultural resource sites directly through the acquisition of land for new or expanded rights-of-way or indirectly by changing the site's surroundings or diminishing the qualities of the resource itself.

Environmental Justice
For transportation projects, this means that no particular minority or low-income person may be disproportionately isolated, displaced, or

otherwise subjected to adverse effects. Potential impacts are assessed in terms of property acquisitions or relocations, changes in access to employment areas, and other changes in low-income and minority communities/neighborhoods.

Community Impacts
Transportation projects have the potential to result in effects on a community and its quality of life. Topics that fall under the Community Impact heading include: access, mobility, social isolation/splitting of neighborhoods, history of the community, new development impacts, changes in the quality of life, changes in neighborhood identification, changes in property values, separation of the neighborhood from community facilities, displacements, impacts on community centers of activity whether formal or informal, noise, urban renewal, removal of urban blight, joint land use, and disruption of the natural and human environment.

To establish potential impacts, it is necessary to determine the characteristics of the affected area, such as neighborhood boundaries, locations of residences and businesses, demographic information, economic data, the social history of communities, and identify what community based land use plans say about the area. Impacts are best analyzed in conjunction with public involvement activities for the affected neighborhood or community.

Floodplains
Transportation projects occasionally require crossing or working within delineated floodplains. Floodplain involvement (encroachment) typically requires measures to: 1) Avoid significant floodplain encroachment where practicable; 2) Minimize the impact of highway actions that adversely affect the base floodplain; or 3) be compatible with FEMA's National Flood Insurance Program.

Streams, Wetlands, and Aquatic Resources
Transportation projects occasionally require crossing or working within perennial or intermittent streams, wetlands, and other aquatic resources. Unavoidable impacts to streams or wetlands may require a variety of permits or authorizations. Transportation projects involving construction activities that will disturb one or more total acres including clearing, grading, and excavating also require Montana Pollutant Discharge Elimination System "General Permit" from the Montana Department of Environmental Quality.

Appendix G lists possible mitigating measures to help avoid, minimize, or compensate for negative project-related impacts.

Transportation projects along or across the Missouri River could potentially affect water quality, riparian areas, fish and wildlife habitat, wetlands, and other environmentally sensitive areas.

5.10.4. Areas to Consider for Mitigation Activities

Areas where mitigation efforts can be focused in the Great Falls area are discussed below.

Mitigation Areas for Impacts to Streams, Wetlands and Aquatic Habitat

Transportation projects along or across the Missouri and Sun Rivers could potentially affect water quality, riparian areas, fish and wildlife habitat, wetlands, and other environmentally sensitive areas. Additionally, such projects may affect public or neighborhood access to river front areas. Consequently, lands adjoining these river corridors are ideal locations for mitigating such impacts. These lands offer opportunities to: create or enhance wetlands and riparian areas; improve water quality by filtering runoff; reduce erosion of stream banks; protect development from potential flooding; and improve access to and the quality of river-front lands. Some of the same opportunities exist in the Sand Coulee Creek, Watson Coulee, and Gibson Flats areas.

Mitigation for Impacts to Archaeological and Historical Resources

Area museums such as the History Museum, the Lewis & Clark National Historic Trail Interpretive Center, the Charles M. Russell Museum, or the First Peoples Buffalo Jump Interpretive Center are all potential repositories for excavated artifacts or historical items.

Relocation of historic structures are most appropriate if they occur near their original locations. MDT's Adopt-A-Bridge Program provides a mechanism for the preservation and reuse of historic bridges in other locations in the community. Several historic bridges in the Great Falls area have been adopted and used in furthering the development of non-motorized transportation corridors.

Mitigation for Impacts to Parklands

If new lands are purchased, they should be in proximity to the impacted parklands and/or serve a similar function as provided by the impacted parkland. Other mitigation measures should be implemented in the immediate vicinity of the affected parkland and transportation project.

Mitigation for Neighborhood Impacts

Transportation improvement projects, especially capacity expansion projects, can separate neighborhoods, inhibit pedestrian and bicycle travel, and have negative physical impacts on adjoining properties or land uses. Considerations for pedestrian and bicyclist safety at intersections and effective arterial crossings at other key locations can help reduce adverse effects to non-motorized facility users. Incorporating landscaping, streetscape amenities and traffic calming measures into transportation projects may also help alleviate negative impacts on neighborhoods.

The Chicago Milwaukee and St Paul Passenger Depot is a historic landmark in Great Falls and is subject to cultural resources mitigation.

5.11. Transportation Infrastructure Resiliency and Reliability

Transportation infrastructure is confronted with notable vulnerabilities: an aging transportation system; increasing interdependencies between physical and electronic systems controlling the infrastructure; incidents related to the nearby production or transport of potentially hazardous materials; and flooding or wildfire threats caused by extreme weather events. Considered together, these vulnerabilities pose significant challenges for critical transportation infrastructure at the local, statewide, and national levels.

For these reasons, transportation systems must be developed with the concept of resiliency in mind. The concept of "resiliency" as it relates to transportation systems means providing a system that can better withstand and recover rapidly from disruptions like natural disasters, structural failures, or human-caused incidents. A resilient transportation system possesses three main attributes—a design capable of withstanding severe disruptions, adaptiveness so that adequate responses can be made to threats or disruptions, and appropriate response and recovery operations to mitigate the consequences of the disruptions. Resiliency helps ensure transportation infrastructure is reliable, adaptable, and survivable during and after disruptions.

The Great Falls area is not immune from the potential for significant disruptions to its transportation systems. The LRTP should include recommended actions, programs and projects that reflect the concept of resiliency by:

- Strengthening existing transportation facilities by identifying existing vulnerable transportation facilities and systems;
- Prioritizing future investment in critical facilities, corridors, systems, or routes that must remain functional during a crisis or be most rapidly restored;
- Considering infrastructure designs that are sustainable and capable of being operated within changing environmental and operational conditions;
- Strategically expanding the transportation system to create redundancies and make the system more flexible and adaptive;
- Using effective stormwater management systems and techniques to help alleviate vulnerabilities to transportation infrastructure; and
- Merging transportation and land use planning to better plan for development in vulnerable areas of the community.

With these considerations in mind, transportation improvement programs and projects will not only accommodate existing and projected travel within the community, but ensure the transportation system is adaptable enough to function reliably during disruptions due to natural disasters, structural failures, or human-caused incidents.

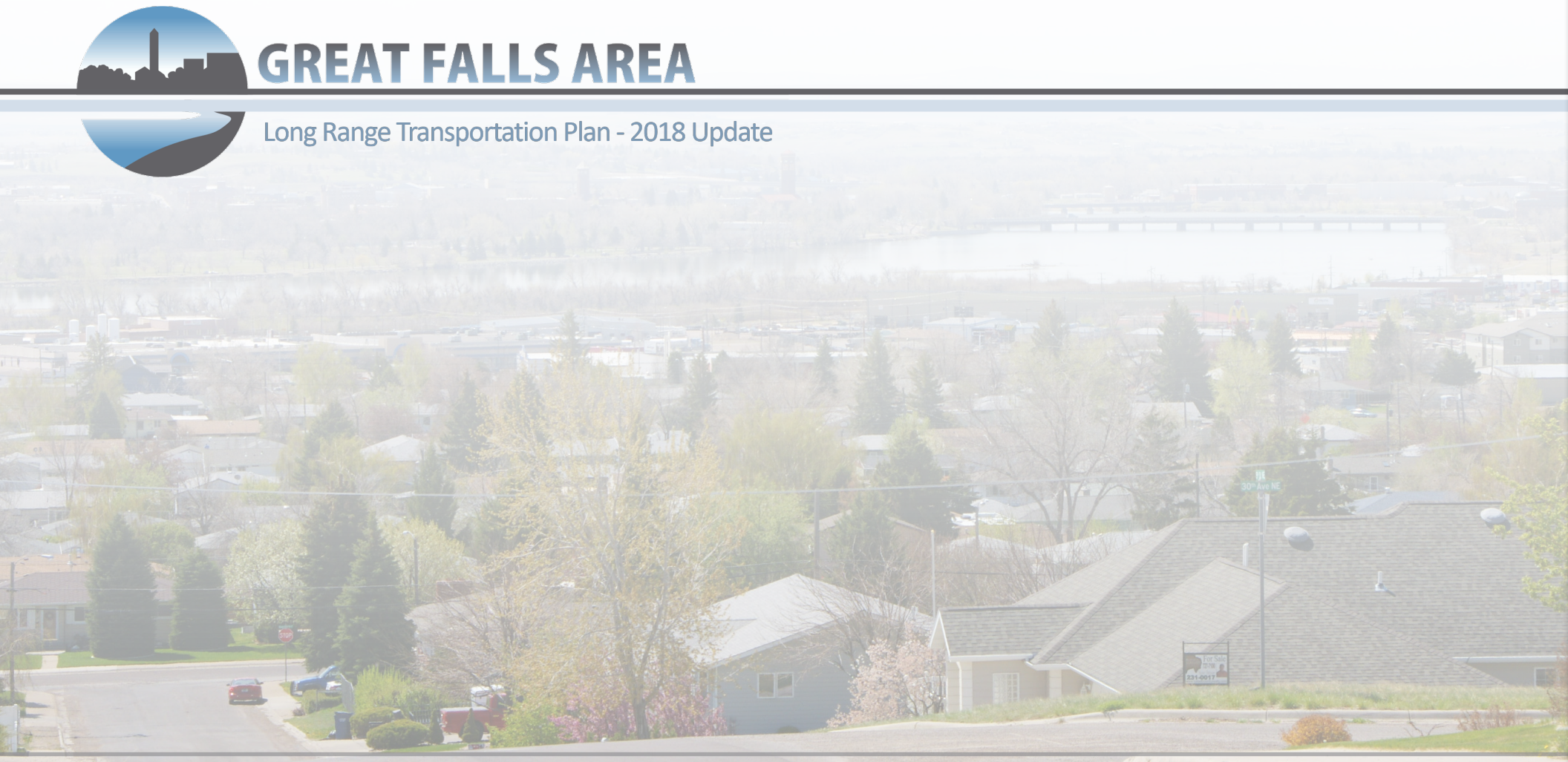
5.12. Enhancement of Travel and Tourism

Travel and tourism, which includes travel for both business purposes and for leisure, represents a significant share of Montana's economy. The interdependence of transportation and tourism and travel is apparent since those visiting and recreating in Montana arrive via various forms of transportation and rely primarily on the road system to travel to and from cultural, historical, and recreational sites within the state. This interdependence has become more critical with the expansive growth of tourism/recreation across Montana and its associated increasing economic impact in many communities, including Great Falls.

The LRTP recognizes the benefits to the Great Falls area generated through the travel and tourism industry and supports efforts to provide an integrated transportation system. The LRTP supports actions, programs and projects that:

- Contribute to economic development in the community;
- Improve the condition, safety, and efficiency of the transportation system;
- Enhance mobility within the community and intermodal connections;
- Increase wayfinding and traveler information services for area visitors; and
- Facilitate and support the interstate and interregional transportation of passengers for tourism, commercial, and recreational activities.

These measures will help create and sustain an integrated transportation network and contribute to the overall economic vitality of Great Falls.



CHAPTER 6: IMPLEMENTATION AND CONFORMITY DETERMINATION

6.1. Overview

This part of the LRTP details the long-term vision for the Great Falls Area transportation system as well as strategies for achieving the vision. In addition to establishing the visionary transportation network, this section provides federally required performance measures and targets which help ensure the transportation system is accomplishing the goals and objectives set forth in this LRTP. Implementation of the envisioned transportation system which meets all performance targets requires extensive coordination with various agencies, many years of execution, and a substantial amount of funds. This section also discusses financial strategies for funding the implementation of the visionary transportation network.

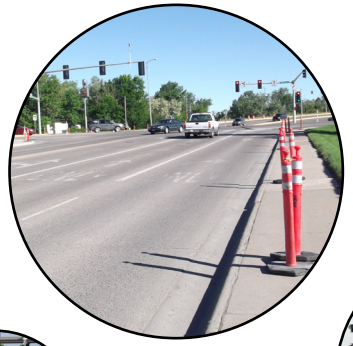
6.2. Visionary Transportation Network

The visionary transportation network for Great Falls includes motorized and non-motorized facilities and services. For motorized, the visionary major street network consists of all interstate principal arterial, non-interstate principal arterial, minor arterial, and collector routes. Local streets are not included on the visionary major street network. This network is shown in **Figure 22**. For the visionary non-motorized transportation network, facilities include sidewalks, trails, bicycle lanes, shared roadways, and shared use paths. This network is shown in **Figure 23**.

Establishing a visionary transportation network is essential to ensure coordinated land development and overall community planning is realized. It is important that planners, landowners, developers, and City officials know where the future transportation network needs to be located. An approved visionary major street and active transportation network will assist local decision makers in anticipating right-of-way needs, and developing new facilities and transportation improvements that serve and compliment new development.

The study area was examined to determine the most appropriate long-term vision for the transportation network. For the motorized network, the principal arterials were set in place generally with two-mile spacing. The minor arterials were then generally inserted on a one-mile spacing to fill in between the principals. Some collector routes were also established. It is assumed that other collector routes would be established when the development patterns in an area are defined. For the non-motorized transportation network, facility attributes were defined on the basis of continuity, connecting destinations, topography, and geometric features of adjacent lands and roadways.

All future alignments shown in **Figure 22** and **Figure 23** are conceptual in nature and may vary based on factors such as topography, wetlands, land ownership, and other unforeseen factors. The purpose of these figures is to illustrate the visionary transportation network at full build-out. It is likely that many of the corridors shown will not be developed into roads or paths for many decades to come. On the other hand, if development is proposed in a particular area, the visionary transportation network will ensure that the various facilities will be established in a fashion that produces an efficient and logical future transportation system. Presenting the visionary transportation network herein is an effort to help plan for the future development of the transportation system in the community.



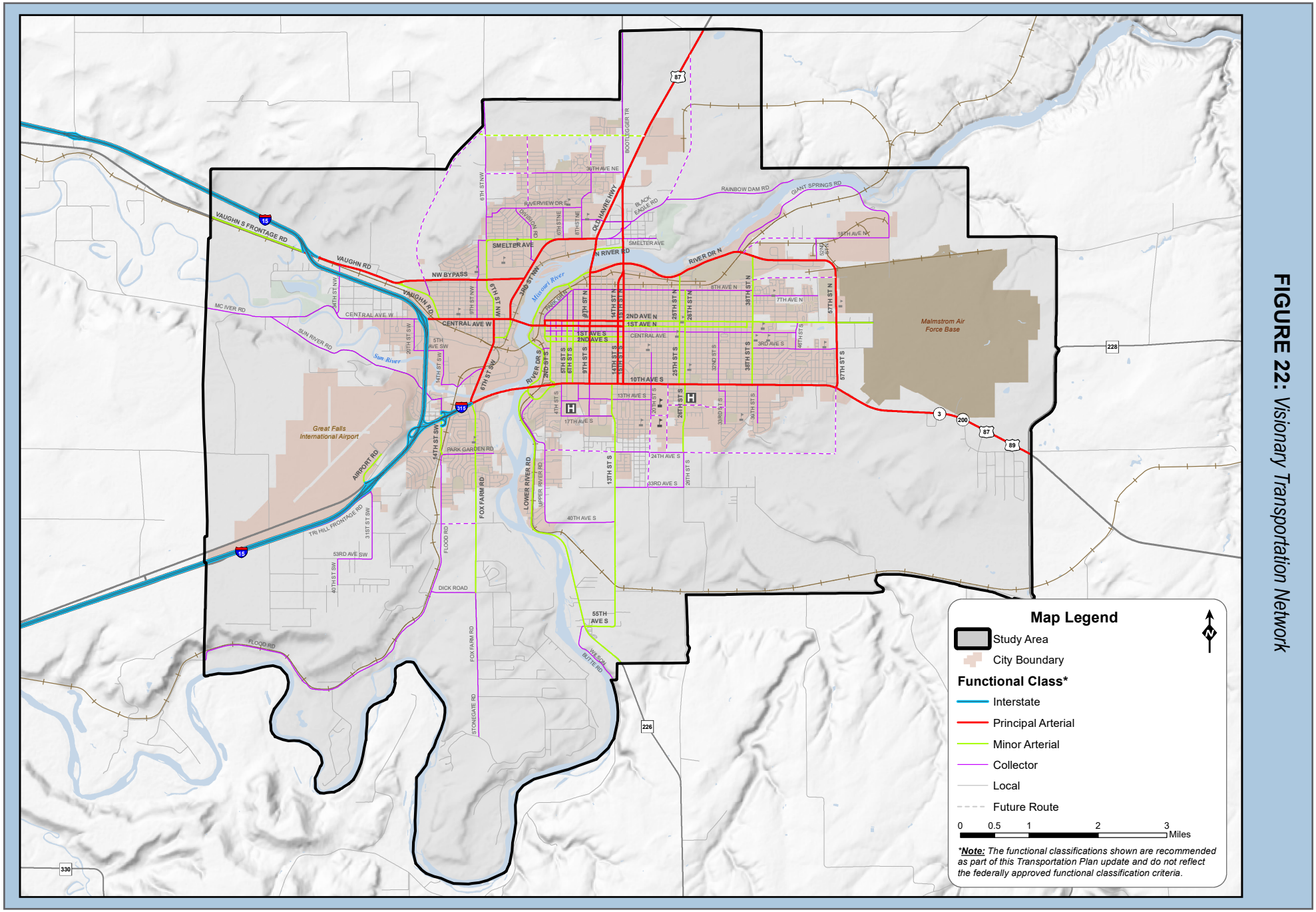
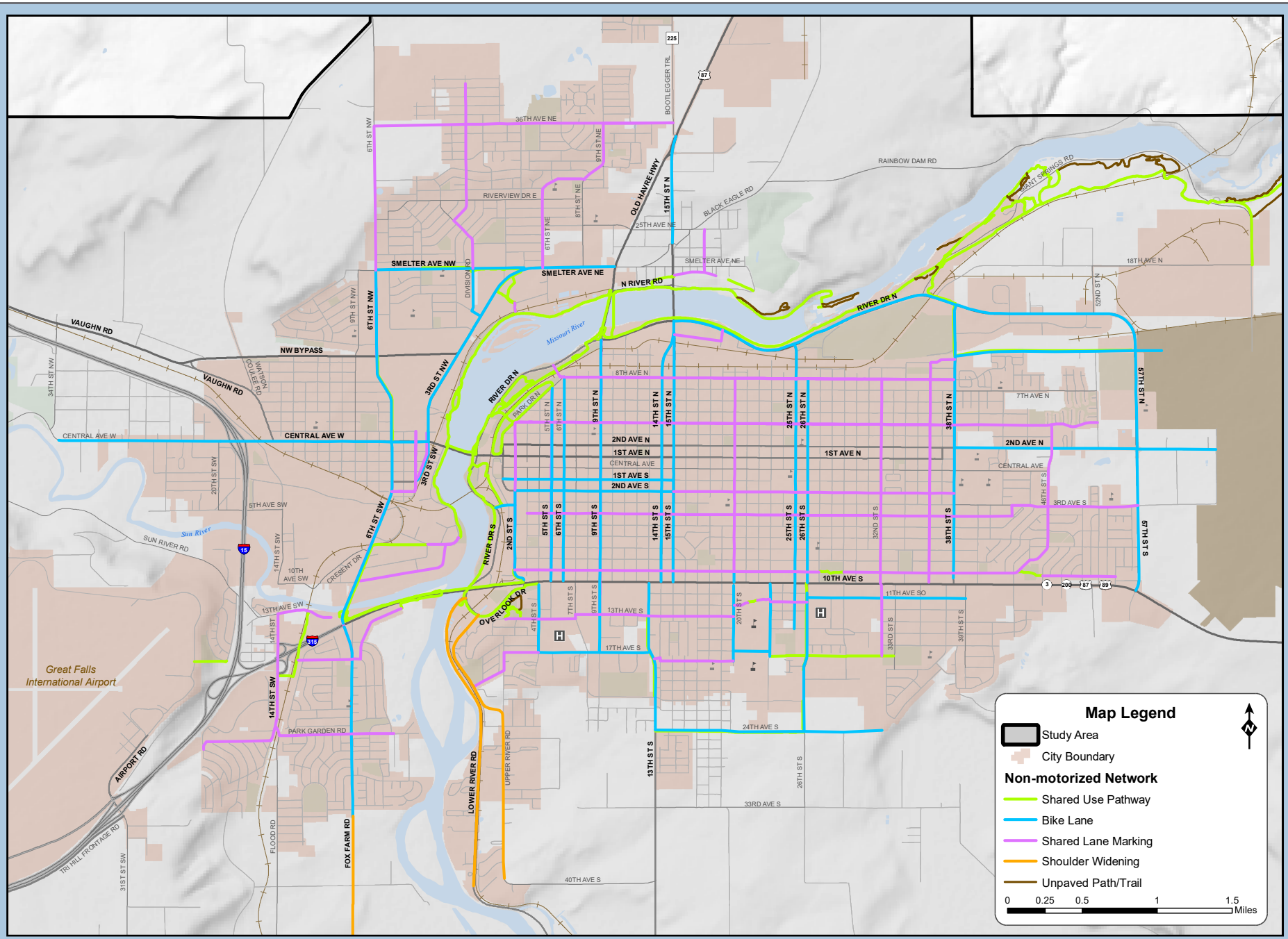


FIGURE 22: *Visionary Transportation Network*

FIGURE 23: Visionary Non-Motorized Transportation Network



6.3. Performance Measures and Targets

Performance measures are essential elements of a performance-based planning process. Performance measures are derived from adopted goals and objectives, and provide metrics that can be used to assess progress toward meeting the identified goals and objectives. How performance is defined and measured can significantly affect the types of projects and strategies that are advanced through the planning process by decision makers.

Performance measures serve a variety of important purposes within performance-based planning and programming processes including:

- Defining metrics for achievement of goals for the transportation system;
- Providing metrics to track the performance and overall effectiveness of transportation projects or strategies over time;
- Helping define performance targets; and
- Providing a consistent basis for comparing alternative investments or policies to make better decisions.

While a performance measure itself provides a metric for comparison, a performance-based planning approach requires the identification of a desired trend (direction of results) or target (specific level of performance to be achieved within a certain timeframe) for each measure to track the performance of projects and strategies and analyze their effectiveness. Performance targets may be directional (e.g., reduce, increase, maintain), aspirational (reflecting a broad objective), or specific numerical targets (e.g., annual reduction in the number of fatalities or incapacitating injuries). Targets must be realistic and achievable.

6.3.1. Policy Overview

The FAST Act includes requirements for performance management to help ensure the most efficient investment of Federal transportation funds. The FAST Act requires that State Departments of Transportation (DOTs), MPOs, and operators of public transportation to link investment priorities to the achievement of performance targets for key areas, including safety, infrastructure condition, congestion, system reliability, emissions, and freight movement.

As part of this required performance-based approach, statewide and metropolitan transportation planning processes must provide for the use of a performance-based approach to decision-making in support of the national goal areas found in 23 United States Code (U.S.C.) 150(b) and the general purposes described in 49 U.S.C. 5301:

- **Safety** - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure Condition** - To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion Reduction** - To achieve a significant reduction in congestion on the NHS.
- **System Reliability** - To improve the efficiency of the surface transportation system.
- **Freight Movement and Economic Vitality** - To improve the national highway freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental Sustainability** - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced Project Delivery Delays** - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

The FAST Act establishes a strong linkage between performance measures and performance target levels. These measures and targets are connected through transportation plans and programs developed at the statewide level and locally for metropolitan areas. State DOTs and MPOs are responsible for setting performance targets for established national performance measures. In accordance with Federal law, the USDOT is responsible for identifying performance measures related to national highway and transit performance goals that States and MPOs consider when establishing performance targets. With these national goals as a baseline, State DOTs and MPOs may identify additional performance measures and targets that address state or local community visions and goals.

6.3.2. Established Performance Measures and Targets

Federal transportation planning requirements dictate that MPOs describe the performance measures and targets that will be used in their metropolitan area transportation planning processes. Consistent with this requirement, the Great Falls MPO has incorporated the performance measures identified by MDT with respect to pavement and bridge condition, safety performance, system performance and freight movement, congestion mitigation and air quality (CMAQ), and transit asset management into the LRTP.

6.3.2.1. State of Montana Established Performance Targets

The recently enacted Final Rules mandate MDT measure and report performance in the following areas: safety performance, pavement and bridge, system performance/congestion, freight movement, congestion mitigation and air quality (CMAQ), and transit asset management.

Consistent with federal rules, MDT has established all required performance targets for the national performance measures applicable in Montana.

6.3.2.2. Great Falls MPO Established Performance Targets

MPOs must set targets, consistent with the Performance Measures in 23 U.S.C.150 and target setting framework in 23 U.S.C. 490 within 180 days of the date when the State DOT/Transit Agency sets their targets. MPOs have the option to either: 1) set their own targets for each performance measure; or 2) adopt the state targets and agree to plan and program projects so that they contribute to the accomplishment of the relevant state target.

The Great Falls MPO has elected to adopt the state-established performance targets for safety performance, pavement and bridge condition, system performance and freight movement, and CMAQ on-road emissions sources presented in **Table 16**. The MPO will modify the LRTP to include other performance targets for the metropolitan area as they are subsequently established and adopted by MDT.

The Great Falls Transit District has not yet set performance targets for its transit system assets within the metropolitan area. The FAST Act requires MPO Transit Agencies to have transit asset management plans with transit performance targets in place by October 1, 2018. The Great Falls MPO will have 180 days from the time the Transit District sets their targets to adopt transit asset management performance targets.

The City of Great Falls, the State of Montana, and the Great Falls Transit District will all work cooperatively towards meeting or exceeding the adopted targets.

6.3.2.3. Reporting Progress Towards Achieving Performance Targets

The Great Falls MPO will incorporate adopted performance targets into the TIP and discuss how the targets will be advanced and linked to investment priorities. The Great Falls MPO will coordinate with MDT to obtain routinely collected data from the agency about the condition of roadway pavement and bridges, safety performance, and the overall operation of the transportation system within the Great Falls metropolitan area. The information will help the MPO identify and advance projects in the TIP which support adopted performance targets at the statewide and local level.

The MPO will develop system performance reports at required reporting intervals to help assess progress made towards meeting specified system performance targets within the metropolitan area.

Table 16: Great Falls MPO Adopted Performance Measures and Targets

	Performance Measure	Performance Target
Pavement and Bridge Condition	Percentage of pavements on the Interstate System in Good condition.	54% (4-year Target)
	Percentage of pavements on the Interstate System in Poor condition.	3% (4-year Target)
	Percentage of pavements on the NHS (excluding the Interstate System) in Good condition.	44% (2 & 4-year Targets)
	Percentage of pavements on the NHS (excluding the Interstate System) in Poor condition.	6% (2 & 4-year Targets)
	Percentage of NHS bridges classified as in Good condition.	12% (2 & 4-year Targets)
	Percentage of NHS bridges classified as in Poor condition.	9% (2 & 4-year Targets)
Safety Performance	Number of fatalities	187.4*
	Rate of fatalities per vehicle miles traveled (VMT).	1.462*
	Number of serious injuries.	892.8*
	Rate of serious injuries per VMT.	6.968*
	Number of combined non-motorized fatalities and non-motorized serious injuries.	73.2*
System Performance/ Freight Movement	Percent of reliable person-miles traveled on the Interstate.	98% (2 & 4-year Targets)
	Percent of reliable person-miles traveled on the non-Interstate NHS.	80% (2 & 4-year Targets)
	Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index).	1.30 (2 & 4-year Targets)
CMAQ On-Road Emissions Sources	CO Emissions	>0kg/day (2 & 4-year Targets)
	PM_{10} Emissions	>0kg/day (2 & 4-year Targets)
	$PM_{2.5}$ Emissions	>0kg/day (2 & 4-year Targets)

* Safety performance targets are statewide totals or rates for 2019. Targets are based on a rolling 5-year average and determined annually.

6.4. Funding Mechanisms

Transportation improvements can be implemented using Federal, State, local and private funding sources. Historically, Federal and State funding programs have been used almost exclusively to construct and upgrade the major roads in the Great Falls area. Considering the current funding limits of these traditional programs, and the extensive list of recommended road projects, it is apparent that more funding will be required from local and private sources if all of the transportation network needs are to be met.

Much of the following information in **Table 17** concerning the Federal and State funding programs was assembled with the assistance of the MDT Statewide and Urban Planning Section. The intent was to identify traditional Federal, State and local sources of funds for transportation related projects and programs in the Great Falls area.

Table 17: Potential Funding Sources

Funding Program	Subprograms	Description
FEDERAL FUNDING SOURCES		
National Highway Performance Program	• Interstate Maintenance (IM) • National Highway (NH) • NHPP Bridge (NHPB)	Provides funding for the National Highway System (NHS), including the Interstate System and NHS roads and bridges.
Surface Transportation Block Grant Program (STP)	• Secondary Highway System (STPS) • Urban Highway System (STPU) • Bridge Program (STP) • Urban Pavement Preservation Program (UPP) • Transportation Alternatives	Funds available for projects on state-designated Primary, Secondary, and Urban Highway Systems. Bridge Program funds are primarily used for bridge rehabilitation or reconstruction activities on primary, secondary, urban, or off-system routes.
National Highway Freight Program (NHFP)	N/A	This program was created by the FAST Act to invest in freight projects on the National Highway Freight Network. This program provides funding for construction, operational improvements, freight planning, and performance measures.
Highway Safety Improvement Program (HSIP)	N/A	Funds are apportioned for safety improvement projects included in the State Strategic Highway Safety Plan. Projects must correct or improve a hazardous road location or feature, or address a highway safety problem.
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	• CMAQ (formula) • Montana Air & Congestion Initiative (MACI)- Guaranteed Program • Montana Air & Congestion Initiative (MACI)- Discretionary Program	Federal funds available under this program are used to finance transportation projects and programs to help improve air quality and meet the requirements of the Clean Air Act. Montana's air pollution problems are attributed to carbon monoxide (CO) and particulate matter (PM10). At the project level, the use of CMAQ funds is not constrained to a particular system (i.e. Primary, Urban, and NHS).
Federal Lands Access Program (FLAP)	N/A	This program funds improvements to transportation facilities that provide access to, are adjacent to, or are located within Federal lands.

Funding Program	Subprograms	Description
Congressionally Directed Funds	• Nationally Significant Freight and Highway Projects	Congressionally directed funds may be received through either highway program authorization or annual appropriations processes. This is a discretionary freight-focused grant program that allows parties to apply for funding to complete projects that improve safety and improve critical freight movements.
Transit Capital and Operating Assistance Funding	• Bus and Bus Facilities (Section 5339) • Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) • Urbanized Area Formula Grants (Section 5307)	The MDT Transit Section provides federal and state funding to eligible recipients through Federal and state programs. All funded projects must be derived from a locally developed, coordinated public transit-human services transportation plan (a "coordinated plan").
STATE FUNDING SOURCES		
Rail/Loan Funds	• Montana Rail Freight Loan Program (MRFL)	Revolving loan fund administered by MDT to encourage projects for construction, reconstruction, or rehabilitation of railroads and related facilities in the State.
TransADE	N/A	The TransADE grant program offers operating assistance to eligible organizations providing transportation to the elderly and persons with disabilities.
State Funds for Transit Subsidies	N/A	Provides funds to offset expenditures of a municipality or urban transportation district for public transportation. The allocation to operators of transit systems is based on the ratio of its local support for public transportation to the total financial support for all general-purpose transportation systems in the State.
State Fuel Tax	• Bridge and Road Safety and Accountability Act (BaRSAA)	The State of Montana assesses a tax on each gallon of gasoline and clear diesel fuel sold in the state and used for transportation purposes. State law also establishes that each city and county be allocated a percentage of the total tax fund. Funds may be used for National, Primary, Secondary or Urban Highway Systems as well as local roads.
LOCAL FUNDING SOURCES		
Special Improvement District (SID) Revolving Fund	N/A	A SID fund provides financing to satisfy bond payments for SIDs in need of additional funds.
Gas Tax Apportionment	N/A	Revenues are generated through State gasoline taxes apportioned from the State of Montana.
Street Maintenance Assessment	N/A	Street maintenance includes, but is not limited to, the following: sprinkling, graveling, oiling, chip sealing, seal coating, overlaying, treating, general cleaning, sweeping, flushing, snow and ice removal, and leaf and debris removal.
Great Falls Parking Program	N/A	Monthly lease rental payments and meter collections fund this program. Revenues are used to fund parking improvements in the downtown area.

Funding Program	Subprograms	Description
Tax Increment Financing (TIF)	N/A	The funds generated from the TIF could be used to finance projects including street and parking improvements; tree planting; installation of new bike racks; trash containers and benches; and other streetscape beautification projects.
Community Development Block Grant Program (CDBG)	N/A	The funds are provided based on the area's poverty, population, overcrowded housing, growth lag, and age of housing stock factors. Construction of public facilities, including transportation improvements, are eligible activities.
CASCADE COUNTY LOCAL FUNDING SOURCES		
Road Fund	N/A	Provides for the construction, maintenance, and repair of all county roads outside the corporate limits of cities and towns in Cascade County. Monies are primarily used for maintenance with little allocated for new road construction.
Bridge Fund	N/A	Provides financing for engineering services, capital outlays, and necessary maintenance for bridges on all off system and Secondary routes within the county.
Motor Vehicle License Fee	N/A	The fees collected by counties from the licensing of motor vehicles are available for construction, maintenance, and repair of highways and streets within the transportation study area.
Urban Transportation District	N/A	Initiated by a petition. Districts are governed by an elected board, which is responsible for all operations of the district.
County Elderly Activities Tax	N/A	Counties are allowed to levy up to one mill to promote, establish, and maintain recreational, educational, and other activities of the elderly. Funds from this source could be used to match the FTA Section 5310 funds for providing transportation services to the elderly and disabled.
Special Revenue Funds	N/A	Special revenue funds may be used by the county to budget and distribute revenues legally restricted to a specific purpose. Several such funds that benefit the transportation system are discussed briefly in the following paragraphs.
Capital Improvements Fund	N/A	This fund is used to finance major capital improvements to county infrastructure. Revenues are generated by loans from other county funds, and must be repaid within ten years. Major road construction projects are eligible for this type of financing.
Rural Special Improvement District (RSID) Revolving Fund	N/A	This fund is used to administer and distribute monies for specified RSID projects. Revenue for this fund is generated primarily through a mill levy and through motor vehicle taxes and fees. A mill levy is assessed only when delinquent bond payments dictate such an action.

Funding Program	Subprograms	Description
Special Bond Funds	N/A	A fund of this type may be established by the county on an as-needed basis for a particularly expensive project. The voters must approve authorization for a special bond fund. The county is not currently using this mechanism.
Specialized Transportation Fund	N/A	This type of fund may be established to supplement the cost of transit service to disabled or low-income county residents. The county is not currently using this mechanism.
OTHER FUNDING SOURCES		
Private Funding Sources	• Cost Sharing • Transportation Corporations • Road Districts • Private Donations • Private Ownership • Privatization • Tax Increment Financing (TIF) • General Obligation Funds • Multi-Jurisdictional Service District • Local Improvement District	Private financing of roadway improvements, in the form of right-of-way donations and cash contributions, has been successful for many years. In recent years, the private sector has recognized that better access and improved facilities can be profitable due to increase in land values and commercial development possibilities.
Future Potential Funding Sources	▪ Local Sales Tax ▪ Wheel Tax ▪ Local Options Motor Fuel Tax ▪ Excise Taxes ▪ Development Impact Fees ▪ Value Capture Taxes	Various other sources of funding may be available in the future, pending legislation and other political decisions made by governing entities.

6.5. Fiscal Constraint

Current financial information was obtained from the MDT Statewide and Urban Planning Section to get a picture of the projected revenue available for funding transportation projects in the Great Falls area over the next 20 years. This information is summarized in the following sections and in **Appendix H**.

FAST Act requires that the cost of all projects in the LRTP must be estimated using inflated YOE dollars in order to provide a consistent and equivalent comparison of project costs to available revenue. Converting all costs to YOE dollars theoretically presents a more accurate picture of costs when compared to revenues, and identifies potential deficits associated with the LRTP. To provide for such a comparison, the total costs of committed projects, and the total costs of committed + recommended projects, were correlated to anticipated total revenue available through the year 2038. The portrayal of estimated costs against potential revenue throughout the life of the LRTP is a requirement of fiscal constraint. Initial project cost estimates were calculated in 2018 dollars and subsequently inflated to YOE dollars using a three percent annual inflation factor.

Due to funding requirements and jurisdictional boundaries, transportation financing is somewhat compartmentalized. Because of this, it is necessary to evaluate each project, and identify the most likely funding programs to finance each project.

For a “planning level” document such as this LRTP, it is not reasonable to assign priorities to the actual projects being recommended in the Plan. Project prioritization is a function of the transportation planning process, however, and the Transportation Advisory Committee and Policy Coordinating Committee act in that capacity through advancing projects forward into the TIP. The information from the draft 2018-2022 TIP is reflected in the LRTP.

6.5.1. Funding of Facility Recommendations

The recommended improvements are listed in the **Chapter 4**. The projects typically allow maximum flexibility by the local government in implementing the various improvements. Assigning priority for the recommended projects is complicated by the fact that the State, city, and county all maintain jurisdiction over various portions of the street network where projects are proposed. Therefore, each of these entities may have separate priorities for implementing projects under their respective jurisdictions.

Considerations for setting priorities for the recommended projects would include safety, cost of the project, availability of alternate funding, availability of right-of-way, ease of implementation, and community interest. Implementation of the projects, beginning with the projects that have the greatest need and available financing, will continue until all projects are completed.

Recommended projects within the MDT-nominated preservation and HSIP categories do not rise to regional significance and would be exempt from air quality conformity. Individual projects implemented in the TIP selection process will draw from these categories. Funding for these projects have not been allocated to specific projects so the estimates are based upon historical averages.

No aspect of addressing facility improvements will demand more creativity and flexibility than that of project financing. Local governments will be required to be aware of changes in funding sources and of new sources. Local governments should, at all times, be mindful of the following considerations regarding the financing:

- Numerous conventional methods of financing improvements are available to local government (bonds and Special Improvement Districts, for example). Such obvious methods should not be overlooked.
- Financing for special types of projects sometimes are available. Currently, funding is available for certain kinds of safety projects, and projects for bicycle facilities and walking trails.

- Local government should attempt to link private beneficiaries of SR improvements with private sources of financing. Further, in the event that private individuals come forward with funding, local government should be prepared to accept it.

6.5.2. Funding of Non-motorized Projects

There is one specific non-motorized project that is committed, the Park Dr & 4th Ave N pedestrian crossing. Because the LRTP presents a visionary network for the non-motorized transportation system, it is likely that improvements will coincide with roadway projects as they are developed. Accordingly, the network will be built over time. Non-motorized projects are not "recommended projects" in the conventional sense, however should be developed as time and funding allows. Non-motorized network recommendations in this LRTP should be consulted any time a road or intersection project is being programmed. Most, if not all, of the funding sources previously mentioned can be used to contribute to non-motorized improvements, either as part of an overall project or as a stand-alone project.

Historically, by examining the information contained in the TIP it can be seen that approximately $7 Million has been expended on non-motorized projects between 2013 and 2019 – a period of 6 years. This amounts to an annual expenditure of roughly $1.16 Million per year. This expenditure can be thought of as an annual program necessary and dedicated to non-motorized infrastructure.

6.5.3. Funding of Transit Projects

As seen in the recommendations, there are no specific committed improvement projects for the transit system, there are only annual funding allocations that contribute to the acquisition of new vehicles and related equipment over the years. Historically, Great Falls Transit has attempted to replace four older busses on a 4-year cycle. It is envisioned that this would continue over the course of the LRTP planning horizon as funds are available.

6.5.4. Funding Summary

A comparison of the estimated costs for the various transportation categories, and the potential revenue from sources most likely to be used to fund the various projects, confirms that the LRTP is fiscally constrained over the 20-year life of the Plan (see **Table 19**). The revenue available is more than the anticipated costs.

Illustrative projects do not have definite funding sources within the timeframe of the Plan. Therefore, these projects are not included in the summary for the purposes of fiscal constraint. As agencies review needs, identify new funding sources and plan projects, the long-range project list should be used as a guide for new projects.

By viewing the financial summary above and the projects recommendations, it is clear that it will be important to clearly identify the projects that are considered to have the highest priority through the already established TIP and Capital Improvement Program (CIP) processes. The mechanism for doing this is already in place through the TAC and the PCC.

This LRTP is fiscally responsible in that traditional funding programs, targeted to be utilized for the majority of the projects within the Great Falls area, are identified, available and likely to be funded at current or slightly smaller levels than in past years.

Table 18: Comparison of LRTP Estimated Costs and Available Revenue (Planning Year 2038)

Funding Source	2018-2022			2023-2038		
	Anticipated Funding*	Expenditures	Difference	Projected Funding**	Expenditures	Difference
FEDERAL						
National Highway Performance Program	**$16,384,756**	**$16,384,756**	**$0**	**$38,835,795**	**$37,117,000**	**$1,718,795**
Interstate Maintenance (IM) and National Highway (NH)	*$15,342,011*	*$15,342,011*	*$0*	*$35,625,000*	*$35,617,000*	*$8,000*
National Highway Performance Bridge (NHPB)	*$1,042,745*	*$1,042,745*	*$0*	*$3,210,795*	*$1,500,000*	*$1,710,795*
Surface Transportation Program	**$15,936,338**	**$10,137,679**	**$5,798,659**	**$42,534,105**	**$24,600,000**	**$23,732,764**
Surface Transportation Program Urban Highways (STPU)	*$10,523,208*	*$4,724,549*	*$5,798,659*	*$21,456,135*	*$10,723,000*	*$16,531,794*
Urban Pavement Preservation Program (UPP)	*$4,147,829*	*$4,147,829*	*$0*	*$18,077,970*	*$10,877,000*	*$7,200,970*
*Set-aside Program - Transportation Alternatives (TA)***	*$1,265,301*	*$1,265,301*	*$0*	*$3,000,000*	*$3,000,000*	*$0*
Highway Safety Improvement Program (HSIP)	**$3,086,310**	**$3,086,310**	**$0**	**$7,500,000**	**$7,500,000**	**$0**
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	**$17,030,538**	**$4,347,300**	**$12,683,238**	**$41,403,870**	**$13,287,000**	**$29,991,993**
Montana Air and Congestion Initiative (MACI) - Guaranteed Program	*$14,172,238*	*$1,489,000*	*$12,683,238*	*$23,095,755*	*$5,787,000*	*$29,991,993*
*Montana Air and Congestion Initiative (MACI) - Discretionary Program****	*$2,858,300*	*$2,858,300*	*$0*	*$18,308,115*	*$7,500,000*	*$0*
Federal Transit Authority (FTA) Funds	**$14,364,000**	**$14,364,000**	**$0**	**$42,975,000**	**$42,975,000**	**$0**
STATE AND LOCAL						
TransADE	**$198,000**	**$198,000**	**$0**	**$594,000**	**$594,000**	**$0**
Operations and Maintenance	**$10,895,000**	**$10,895,000**	**$0**	**$32,685,000**	**$30,000,000**	**$2,685,000**
State	*$8,260,000*	*$8,260,000*	*$0*	*$24,780,000*	*$22,500,000*	*$2,280,000*
County	*$2,635,000*	*$2,635,000*	*$0*	*$7,905,000*	*$7,500,000*	*$405,000*
State Fuel Tax****	**$5,832,205**	**$0**	**$5,832,205**	**$17,496,615**	**$5,343,000**	**$17,985,820**
City	*$4,842,940*	*$0*	*$4,842,940*	*$14,528,820*	*$4,865,000*	*$14,506,760*
County	*$989,265*	*$0*	*$989,265*	*$2,967,795*	*$478,000*	*$3,479,060*
HB473 Gas Tax Funds (BaRSSA)****	**$2,165,835**	**$0**	**$2,165,835**	**$6,497,505**	**$0**	**$8,663,340**
City	*$1,802,055*	*$0*	*$1,802,055*	*$5,406,165*	*$0*	*$7,208,220*
County	*$363,780*	*$0*	*$363,780*	*$1,091,340*	*$0*	*$1,455,120*
Total	**$85,892,982**	**$59,413,045**	**$26,479,937**	**$219,713,775**	**$161,416,000**	**$84,777,712**

** 2018-2022 Expected Funding is per the Great Falls Transportation Improvement Program FY 2018-2022.*

***2023-2038 Projected Funding is estimated based on past funding levels and is the best information available at this time. There is no guarantee that funding will be available in the future.*

****TA funds are allocated through a competitive process. Funding is not guaranteed and is dependent on availability.*

*****Great Falls does not receive an annual allocation of MACI Discretionary funding. Funding is allocated based on need and is not guaranteed.*

6.5.5. Evaluation of Projects and Programs

Actively pursuing the advance acquisition of rights-of-ways needed for future extensions of already existing roadways is essential to the community as development occurs to the outlying areas. The majority of the recommended improvements developed through this LRTP Update will be able to work within the already established right-of-way corridors. If the property necessary for a low priority improvement, however, does become available prior to the time local government has scheduled the improvement, consideration should be given to changing the project's priority and acquiring the right-of-way at today's lower costs.

Obviously, another major difficulty in completing most of the major improvement projects will be that of securing financing. Project funding from the traditional public sources will likely be unavailable for many recommended improvements. However, in analyzing each improvement, it may be determined that a private party would benefit significantly from the project. In such a case, private dollars should be used as a match to secure public funds, or to fund the entire project. Therefore, in considering the prioritization of improvements, it is essential for local government to remain flexible and take advantage of financing opportunities as they arise.

Finally, in undertaking major network improvements, local governments should be aware of opportunities for constructing projects in separate phases. Often, funding is simply not available to address an improvement in its entirety. In such cases, a great deal can be accomplished by tackling separate components of individual improvements over the long term, such division of effort should not include separating bicycle and pedestrian facilities from initial street construction.

6.6. Conformity Determination

On November 15, 1990, the Clean Air Act Amendments (CAAA) of 1990 were signed into law. The CAAA is a detailed and complex law that has had a major impact on the programs of the FHWA and the FTA. The Act requires substantial vehicle emissions reductions from the transportation sector.

The purpose of the conformity provision of the CAAA is to ensure consistency between the Federal transportation planning process and Federal air quality planning process. The regulations require that for an urban area designated as nonattainment of National Ambient Air Quality Standards (NAAQS) for transportation-related criteria pollutants, or which has a maintenance plan for such pollutants, a conformity determination must be conducted to demonstrate that its LRTP, TIP, or any revisions to either will not adversely affect air quality.

On September 9, 1980, the United States EPA designated Great Falls as non-attainment for carbon monoxide (CO). The designation followed sixteen violations of the NAAQS 8-hour CO standard at an air quality monitor on 10th Avenue South. EPA and local officials established the 10th Avenue South corridor as the nonattainment boundary in lieu of the city limits. Motor vehicle emissions, wood smoke, and industrial processes were identified as the primary contributors to the CO violations. Since then many steps have been taken to lessen pollutants in the Great Falls area, an entire history of the steps taken can be found in **Appendix J.**

The following conformity determination was made in accordance with Federal regulations. The determination is for CO and applies to the Great Falls Area LRTP - 2018 Update and the Carbon Monoxide State Implementation Plan (SIP) for the State of Montana. As of the date of this conformity determination, the Great Falls urban area is not designated as a nonattainment or maintenance area for any other air pollutant.

Interagency Consultation

This conformity determination follows the general consultation guidance contained in the State of Montana Air Quality Rules on Conformity (ARM Chapter 17.8 Subchapter 13 Conformity). These rules incorporate by reference Federal regulations contained in 40 CFR Part 93, Subpart A. This consultation generally involved a cooperative and coordinated process including MDT, the Montana Department of Environmental Quality (DEQ) and the Great Falls City-County Planning Board.

The Montana DEQ and MDT coordinate regarding air quality and transportation conformity on behalf of metropolitan planning organizations (MPO) such as the Great Falls City-County Planning Board. Coordination is conducted in accordance with applicable Federal code (40 CFR 93) and state administrative rules (ARM Title 17, Chapter 8, Subchapter 13). Coordination typically takes the form of consultation through letter correspondence between the state agencies.

Air quality planning is an integral part of the Great Falls transportation planning process. As such, air quality has received specific attention during development of the numerous plans, programs and projects of the process. Unified Planning Work Programs have included specific annual work activities dealing with addressing the initial CO problem on 10th Avenue South and the preparation of revisions to the SIP. Any additional activities required to address past CO problems on 10th Avenue South will be completed under *Work Element 100: Transportation Program Administration & Participation*[25]. Additionally, *Work Element 302: Transportation Plans, Analyses, Assessments & Consistency Determinations* presents procedures to assure consistency/conformity between air quality and transportation planning plans and programs, as well as other environmental issues such as noise, water quality, air, and aesthetics.

Public Involvement

The Great Falls MPO conducts an ongoing public and stakeholder engagement process for all transportation planning activities, including development and approval of the transportation plan, TIP, and conformity determination. This process is conducted in accordance with the *Great Falls Planning Public Participation Plan*, which was last updated in December 2011. The *Public Participation Plan* is subject to periodic FHWA and FTA review and concurrence for consistency with Federal planning regulations. Such concurrence was most recently provided through TIP approval on September 1, 2017 by the TAC and PCC and September 12, 2017 by MDT. The *Great Falls Area LRTP – 2018 Update* provides a discussion on the outreach process conducted during plan development.

Latest Planning Assumptions and Emissions Model

The October 6, 1995 EPA policy memorandum for limited maintenance plans in non-classifiable CO nonattainment areas included a discussion of the applicability of the conformity rule requirements in these areas. The following section addresses the applicable requirements. According to this policy, a limited maintenance plan attainment area is not required to project emissions over the maintenance period because the air quality design value for the area is low enough that the stationary source permitting program, existing SIP controls, and Federal control measures provide adequate assurance of maintenance of the CO standard over the initial 10-year maintenance period.

In the October 6, 1995 policy memorandum, the EPA states: “The maintenance demonstration requirement is considered to be satisfied for nonclassifiable areas if the monitoring data show that the area is meeting the air quality criteria for limited maintenance areas (7.65 ppm or 85% of the CO NAAQS).” According to EPA’s July 8, 2002 Direct Final Rule, the CO design value for the Great Falls area was 4.5 ppm, which was below the limited maintenance requirement of 7.65 ppm. More recent data show lower levels of CO. The 2011 Carbon Monoxide Limited Maintenance Plan (LMP) Submittal states: “The current CO monitoring site in Great Falls, Overlook Park (#30-013-0001), has operated in the city park at the corner of 10th Avenue South and 2nd Street since mid-2001. Based on the data from 2008 and 2009, the latest design value is 1.6 ppm, which is well below the 8-hour NAAQS of 9 ppm and the CO LMP eligibility threshold of 7.65 ppm.”

EPA considers the maintenance demonstration requirement to be satisfied for areas that qualify for and use the LMP option. Based on its evaluation of the 2011 LMP Submittal and its subsequent approval in May 1, 2015, EPA concluded that because CO design values in the Great Falls area are consistently well below the LMP threshold, the State has adequately demonstrated the Great Falls area will maintain the NAAQS for CO into the future. By approving the alternative CO monitoring strategy for the Great Falls CO maintenance area, EPA recognizes the strategy is adequate to verify continued attainment of the NAAQS for CO in Great Falls.

Given this information, the Great Falls area adequately demonstrates maintenance.

Regional Emissions Analysis

As previously noted, the alternative CO monitoring method includes an annual review of traffic volumes using data from MDT permanent traffic counters in Great Falls by the Montana DEQ to demonstrate ongoing compliance with the NAAQS for CO. Thresholds are defined based on the percent increase in consecutive, rolling 3-year AADT volumes and correlated to presumed changes in ambient CO concentrations.

40 CFR 93.109(e) indicates an area is not required to satisfy the regional emissions analysis for Sections 93.118 or 93.119 for a given pollutant and NAAQS, if the area has an adequate or approved LMP for such pollutant and NAAQS. The LMP must demonstrate that it would be unreasonable to expect that such an area would experience enough motor vehicle emissions growth for a NAAQS violation to occur. Consistent with the EPA's October 6, 1995 policy memorandum for LMPs and 40 CFR 93.109(e), the EPA's May 1, 2015 approval of the revised Great Falls Maintenance Plan affirms that no regional emissions analyses for future transportation CO conformity determinations are required for the CO LMP period.

For these reasons, no regional emissions analysis under Sections 93.118 or 93.119 of the conformity rule is required for plan conformity.

Timely Implementation of SIP Transportation Control Measures

Transportation Control Measures (TCM) are actions that are sometime included in a SIP to help reduce on-road mobile source emissions. TCMs are designed to reduce emissions from motor vehicles by reducing vehicle use, changing traffic flow, or changing congestion conditions. The currently-approved SIP for the Great Falls CO LMP area does not include any TCMs. Therefore, the TCM timely implementation requirement is not applicable to this conformity determination.

Fiscal Constraint

Metropolitan transportation plans are required to meet Federal fiscal constraint requirements as detailed in 23 CFR 450.324(f)(11). For nonattainment and maintenance areas such as Great Falls, this fiscal constraint requirement must be met before a conformity determination is approved. The *Great Falls Area LRTP – 2018 Update* documents that planned expenditures are consistent with existing and proposed funding sources that can reasonably be expected to be available for transportation uses. As such, the transportation plan meets the fiscal constraint requirement.

Project Level Conformity

Finally, transportation projects in Great Falls LMP area are still required to be evaluated under the applicable criteria for carbon monoxide (CO) hot-spot analyses to satisfy the "project level" conformity determination provisions of 40 CFR 93.116 and 40 CFR 93.123; such analyses must also be based on the latest planning assumptions and models available (40 CFR 93.110 and 40 CFR 93.111, respectively). The EPA provides guidance regarding such CO hot-spot evaluations at: https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses#coguidance.

Conclusion

It is the conclusion of this determination that in addition to the satisfaction of the aforementioned conditions and requirements, the *Great Falls Area Long Range Transportation Plan – 2018 Update* is found to be in conformance with the applicable provisions of section 176(c) of the Clean Air Act, 40 CFR 93 Subpart A, and the revised Great Falls CO Maintenance Plan element of the SIP for the State of Montana.

REFERENCES

[1] Great Falls Area Long Range Transportation Plan, Great Falls Metropolitan Planning Organization, March 17, 2014, https://www.mdt.mt.gov/publications/docs/brochures/great-falls-transportation-plan.pdf

[2] Fixing America's Surface Transportation (FAST) Act, December 4, 2015, https://www.fhwa.dot.gov/fastact/

[3] Imagine Great Falls 2025, City of Great Falls Planning & Community Development Department, Growth Policy Update, 2013, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/29271/growth_policy_update_-_august_6_2013.pdf

[4] Downtown Access, Circulation, and Streetscape Plan, City of Great Falls, April 2013, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/27411/great_falls_downtown_access_circulation_streetscape_plan_final_low_resolution.pdf

[5] Malmstrom AFB Joint Land Use Study, Cascade County Planning Department, March 2012, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/23051/malmstrom_jlus_final_2012_03_27_sm.pdf

[6] Downtown Master Plan, City of Great Falls Planning & Community Development Department, October 2011, https://greatfallsmt.net/sites/default/files/archives/records/minutes/yr2011/DTMP.pdf

[7] Medical District Master Plan, Great Falls, January 2007, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/27411/meddistmplan011907.pdf

[8] Missouri River Urban Corridor Master Plan, Great Falls, 2004, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/27411/mrucp1.pdf

[9] Jenn Rowell. Changes to the trail: City will play larger role. Great Falls Tribune, 6 Feb. 2016, www.greatfallstribune.com/story/news/local/2016/02/04/rivers-edge-trail-great-falls-gem/79858560

[10] "Formalizing River's Edge Trail Foundation's partnership with the City of Great Falls." The River's Edge Trail. Web. 5 Jan. 2017. http://thetrail.org/formalizing-rivers-edge-trail-foundations-partnership-city-great-falls

[11] "History of the Trail." The River's Edge Trail. Web. 5 Aug. 2013. http://thetrail.org/history.html

[12] "Public Right of Way ADA Transition Plan 2017." City of Great Falls. June 6, 2017, https://greatfallsmt.net/sites/default/files/fileattachments/public_works/page/154111/ada_transition_plan_-_public_right-of-way-8-21-17-optimized.pdf, Adopted by Resolution No. 10204 on September 5, 2017.

[13] Transit Development Plan, Great Falls Transit District, October 29, 2010.

[14] Imagine Great Falls 2025, City of Great Falls Planning & Community Development Department, Growth Policy Update, 2013, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/29271/growth_policy_update_-_august_6_2013.pdf

[15] Montana State Rail Plan, MDT, 2010, https://www.mdt.mt.gov/publications/docs/brochures/railways/railplan.pdf

[16] U.S. Customs and Border Protection, Sweetgrass Station, https://www.cbp.gov/border-security/along-us-borders/border-patrol-sectors/havre-sector-montana/sweetgrass-station. Accessed January 2018.

[17] Canamex Corridor Coalition, CANAMEX Corridor -The Canamex Trade Route. http://www.cbp.gov/xp/ cgov/border_security/border_patrol/border_patrol_sectors/havre_sector_mt/stations/sweetgrass.xml. Accessed October 2013.

[18] City Code 10.57.020, City of Great Falls.

[19] River Drive Corridor Study, Montana Department of Transportation, September 19, 2016, http://www.mdt.mt.gov/pubinvolve/riverdrive/docs/River-Drive-Final-Report.pdf

[20] I-15 Gore Hill to Emerson Junction Corridor Planning Study, Montana Department of Transportation, July 21, 2015, http://www.mdt.mt.gov/pubinvolve/i15/docs/I-15_Final.pdf

[21] Pre-Disaster Management Plan, Cascade County, September 2011, http://www.cascadecountymt.gov/doc/predisastermitigationplan.pdf

[22] Draft Transportation Improvement Plan FY 2018-2022, City of Great Falls, March 2018.

[23] Census and Economic Information Center, Montana Population Projections, Regional Economics Models, Inc., http://ceic.mt.gov/Population/PopProjections_StateTotalsPage.aspx

[24] Flexibility in Highway Design, Federal Highway Administration, https://www.fhwa.dot.gov/environment/publications/flexibility/flexibility.pdf

[25] Great Falls Unified Planning Work Program Federal Fiscal Year 2018, https://greatfallsmt.net/sites/default/files/fileattachments/planning_and_community_development/page/41061/upwp_ffy_2018_final.pdf, accessed January 2018.

ROBERT PECCIA & ASSOCIATES

Planning and Design for Future Generations

HELENA, MT - CORPORATE OFFICE
3147 Saddle Drive
Helena, MT 59601
(P) 406.447.5000

BOZEMAN, MT
3810 Valley Commons, Suite 4
Bozeman, MT 59718
(P) 406.284.2665

KALISPELL, MT
102 Cooperative Way, Suite 300
Kalispell, MT 59903
(P) 406.752.5025

FORT COLLINS, CO
400 Remington Street, Suite B
Fort Collins, Co 80524
(P) 970.484.3206

www.rpa-hln.com