2018 Billings Urban Area Long Range Transportation Plan

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

September 27, 2018

prepared by

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DOWL

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BILLINGS, MONTANA

Prepared for:

City of Billings

Prepared by:

Kittelson & Associates, Inc. and DOWL

September 2018 -Draft

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

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2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 1
Introduction

INTRODUCTION

The Billings Urban Area Long Range Transportation Plan (LRTP) is a framework to guide the development and implementation of multimodal transportation system projects for the Billings Urban Area. The LRTP is updated every four years. This LRTP assesses today's (2017) land use and transportation conditions and projects into the future (year 2040) to identify and strategize transportation improvements for the region.

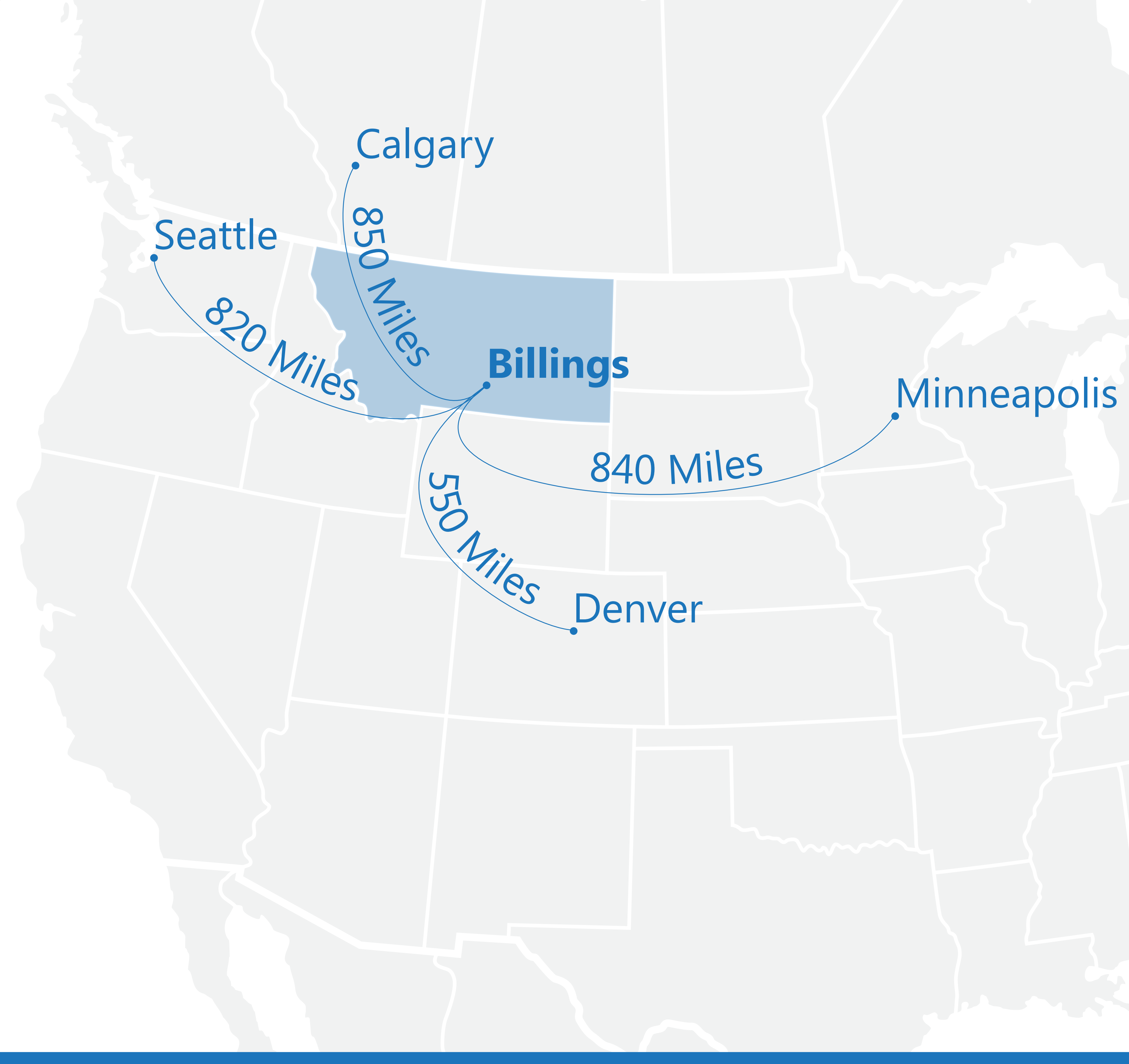
The Billings Urban Area lies at the western edge of the northern High Plains. It serves as a central hub for a large region comprised of Montana, northern Wyoming, and the western Dakota's. Due to its location, Billings has developed as an important economic, cultural, educational, and transportation urban center for the entire region. Billings is located in Yellowstone County between Minneapolis and Seattle (east to west), and Calgary and Denver (north to south) and is one of the largest cities between these major cities, including the largest in Montana. Exhibit 1.1 illustrates the location and regional importance of Billings.

Transportation is a vital element to the residents and businesses of Billings and connects commerce from the Billings Urban Area to other parts of Montana and metropolitan areas via road, rail (freight), and air. The region's transportation infrastructure is robust and includes streets, highways, Interstate, rail, transit, sidewalks, bicycle facilities, trails, and an airport. Given the importance of the transportation infrastructure, this document plans for transportation facilities and services to ensure mobility and accessibility throughout the Billings Urban Area. The Yellowstone County Board of Planning is the designated Metropolitan Planning Organization (MPO) and oversees transportation planning for the Billings Urban Area. The area encompasses the City of Billings, as well as the planning area extending approximately 4.5 miles outside the City limits. Figure 1-1 illustrates the study area.

What topics are covered in this LRTP?

- Goals, objectives, performance measures, and target
- Public and interagency involvement
- Forecasts of population, households, and employment anticipated in 2040
- Inventory of needs and opportunities for transportation elements: streets and highways, public transit and transportation (bus, paratransit, and air), freight (truck and rail), pedestrians, bicyclists, trails, safety, security
- Funding sources and projected revenue
- Project recommendations and implementation strategies

Exhibit 1.1 Location and Regional Importance of the Billings Urban Area



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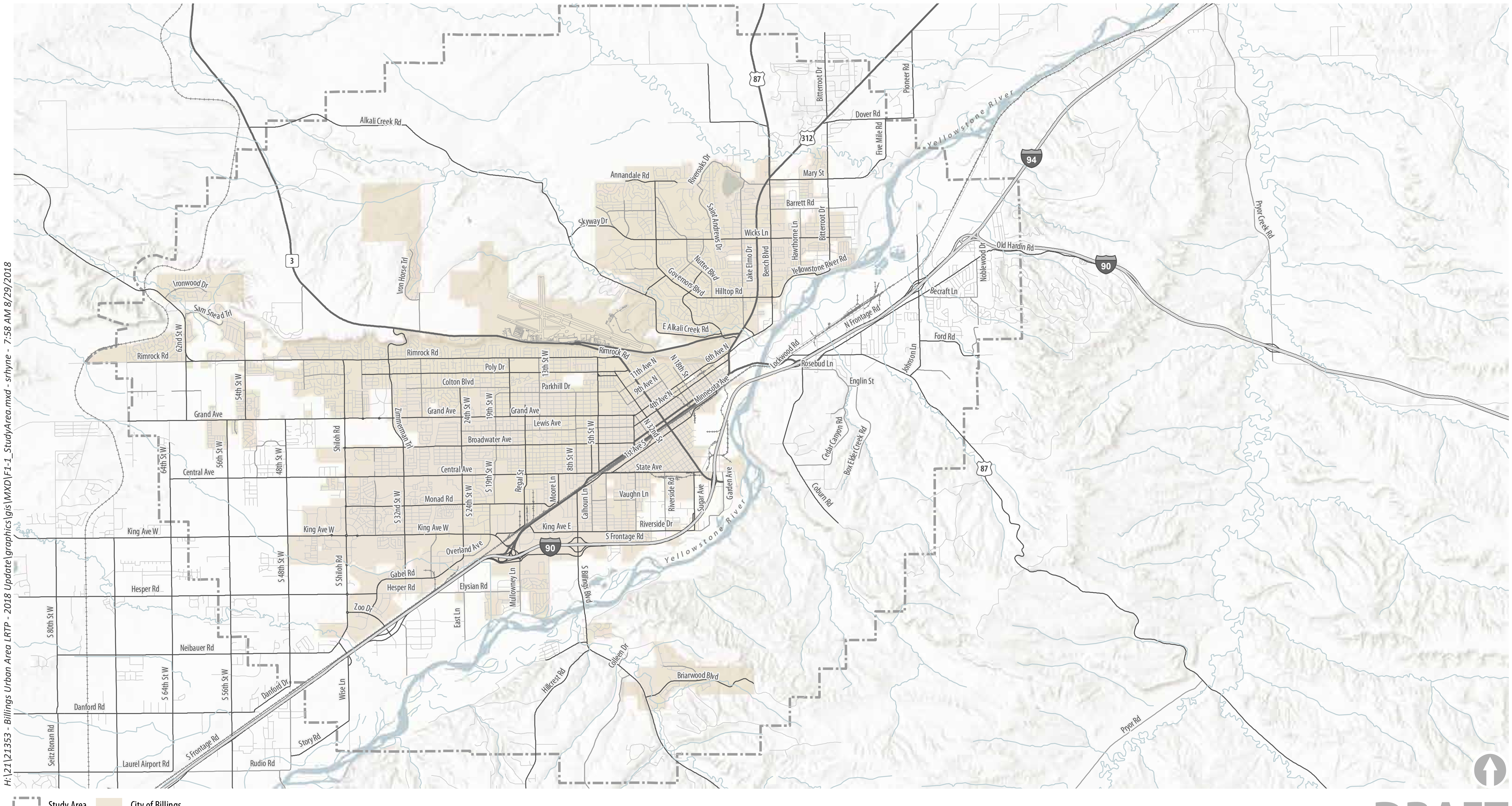

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Figure 1-1

Study Area

Development of this plan was guided by a Steering Committee (SC), which consisted of representatives from the following agencies:

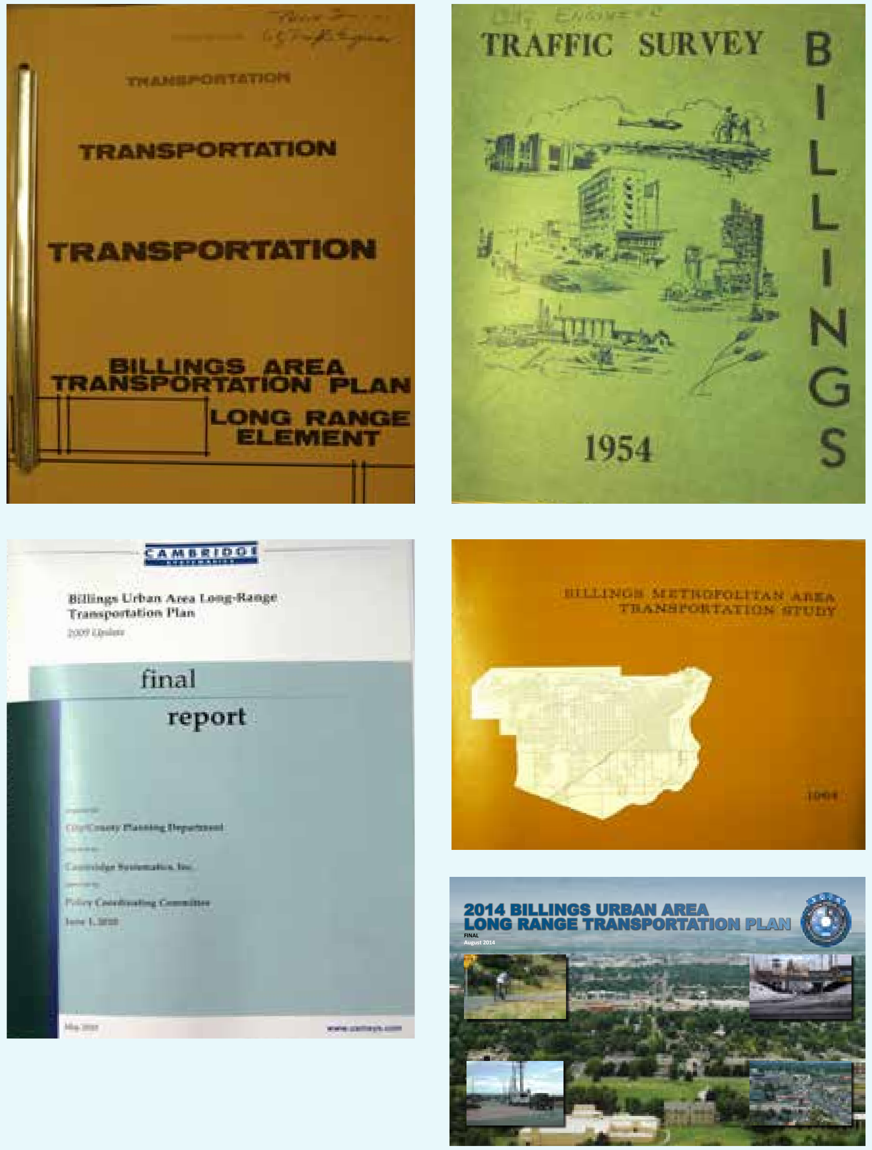
- Billings City Council
- Billings/Yellowstone County Planning Board
- Billings Metropolitan Transit
- Billings Planning
- Billings Public Works
- Billings/Yellowstone County MPO
- Lockwood Steering Committee
- Montana Department of Transportation (MDT)
- Yellowstone Board of County Commissioners
- Yellowstone County Public Works

Additional input was received from the Billings Technical Advisory Committee, Federal Highway Administration, Policy Coordinating Committee, Yellowstone Board of County Commissioners, neighborhood groups, members of the public, and other consultation efforts conducted through the 10-month planning process.

HISTORICAL CONTEXT

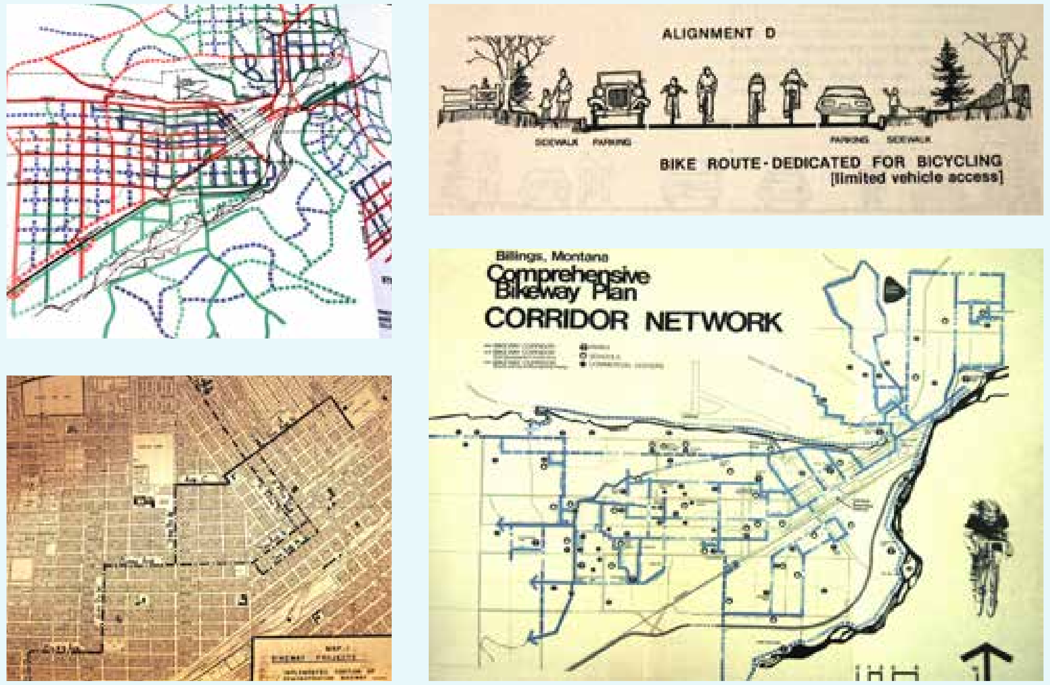
Transportation planning has been a key element of the City's planning efforts for over 100 years since its inception as a major rail hub. As such, one of the first transportation surveys was completed in 1954, which included a transportation inventory, traffic counts, parking, and other related data. Ten transportation plans (1961, 1964, 1969, 1977, 1983, 1990, 2000, 2005, 2007, 2009, 2014) have been completed since 1961. Exhibit 1.2 illustrates some of the transportation plan covers from past efforts.

Exhibit 1.2 Past Transportation Plans



Similar to today's planning efforts, the past transportation plans assessed existing and future transportation conditions to identify a set of financially constrained improvements for the Billings Urban Area. Exhibit 1.3 illustrates roadway and bicycle elements from past transportation plans.

Exhibit 1.3 Elements of Past Transportation Plans



Since the 1950s, the Billings Urban Area has seen considerable growth in the development of population and employment areas in the downtown, along the Rims, and to the west. Recognizing the ongoing growth in the Billings Urban Area, it is critical that the MPO and local agencies continue to invest in long range transportation and land use planning efforts. These efforts identify, preserve, support, and maintain the infrastructure of the region's transportation system.

TRANSPORTATION PLAN IMPLEMENTATION SINCE 2014

The previous LRTP, completed in 2014 (1-1) included several key elements:

- Implemented a robust public and stakeholder involvement plan
- Updated the planning horizon to year 2040
- Confirmed study area boundaries and plan goals
- Assessed existing and future transportation and land use conditions
- Reviewed and updated non-motorized, bus, safety, security, and conformity elements
- Prepared a short- and long-range project list and financial plan

Since the 2014 plan adoption, several transportation projects and studies have been completed that play a role in the overall transportation system. Figure 1-2 illustrates the completed and ongoing projects, studies, and plans since 2014. Over 31 major projects and 17 studies have been completed in the last four years, which shows a commitment from the agencies and community to continue to invest in the transportation system for the next generation. There are many other completed transportation projects, such as sidewalk and ramp enhancements, street signing, overlays, etc., that are not depicted on Figure 1-2, but have been completed and are important elements of enhancing and maintaining the transportation system. These completed projects along with new federal requirements served as a basis for this transportation update.

PLAN REQUIREMENTS AND PROCESS

Fundamental elements of this transportation plan were to encompass all transportation modes and identify how these modes are accommodated through the new planning horizon of year 2040. In developing this transportation plan, several federal, state, and local planning requirements were addressed to ensure compliance and consistency with these regulatory requirements.

FEDERAL REQUIREMENTS

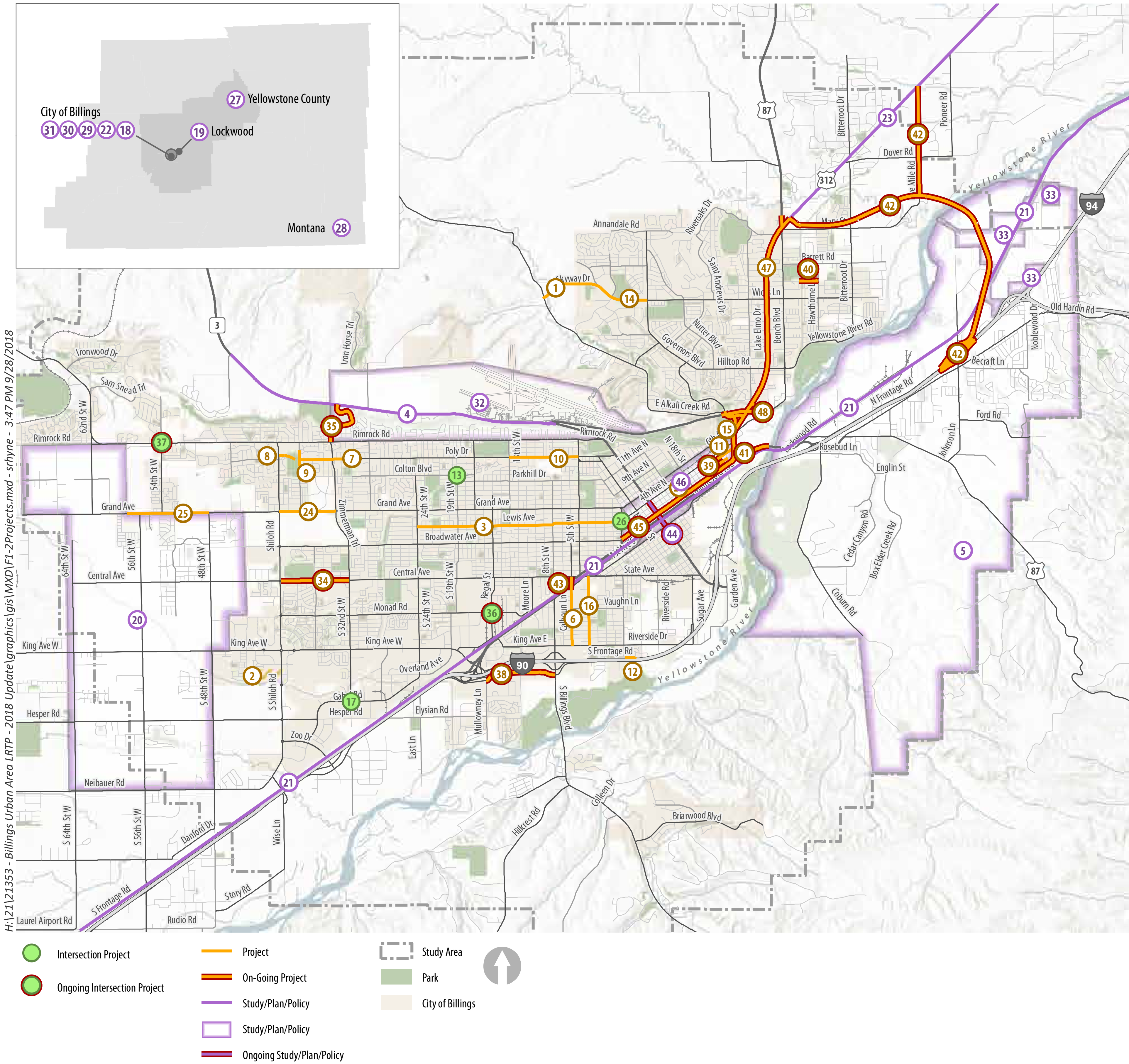
The scope of the planning process (1-2) for an MPO (urban areas with a population of more than 50,000 individuals) is to develop long-range transportation plans and Transportation Improvement Program (TIPs) through a performance-driven, outcome-based approach to planning for metropolitan areas of the State, such as Billings, MT. Additionally, this process needs to be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following planning factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism

The Moving Ahead for Progress in the 21st Century (MAP-21) Act (1-3) transformed the Federal-aid highway program by establishing requirements for performance management to promote the most efficient investment of Federal transportation funds. The Fixing America's Surface Transportation (FAST) Act (1-4) continues this performance-based approach to increase the accountability and transparency of this program and to support improved investment decisions through a focus on performance outcomes for the national planning factors. Additional information on the FAST Act is provided on FHWA's Fast Act website, as shown in Exhibit 1.4.

Exhibit 1.4 FAST Act Website

The Billings LRTP is consistent with the national transportation program, addresses priority issues, and leverages funding opportunities and initiatives incorporated in the national program. This LRTP was prepared in accordance with these federal requirements.



ID	Name	ID	Name
1	Inner Belt Loop Phase 1	25	Grand Avenue (48th to 58th Streets West)
2	Shiloh Conservation Area (Trail)	26	4th Ave N & Division Street Signal Reconstruction
3	Lewis Avenue Bike Lanes (24th Street W to Division Street)	27	Billings-Yellowstone Household Travel Survey
4	Highway 3 Corridor Study	28	TranPlanMT
5	Non-Motorized Transportation Plan	29	Billings Area Bikeways + Trails Master Plan Update
6	Calhoun Lane (King East to Underpass Avenue)	30	City of Billings Complete Streets Progress Report
7	Poly Drive (32nd Street W to 38th Street W)	31	City of Billings Comprehensive Parks and Recreation Master Plan
8	Arrowhead Trail (Arrowhead Elementary School to Shiloh Road)	32	Rims to Valley Bike-Pedestrian Feasibility Study
9	Poly Drive School Sidewalks	33	Targeted Economic Development District (TEDD)
10	Poly Drive/Virginia Lane Traffic Signal Reconstruction & Bike Lanes (Poly from Virginia to 13th St W)	34	Central Avenue (32nd St W to Shiloh Road)
11	Exposition Gateway (2nd & 3rd Ave N from Main Street to N. 10th)	35	Zimmerman Trail (Rimrock Road to Hwy 3)
12	Ponderosa Trail	36	Monad & Daniel Traffic Signal
13	19th St W & Colton School Crossing	37	Rimrock & 54th St W Traffic Signal
14	Wicks Lane Trail (Siesta to Governors)	38	Midland Road (S. Billings Blvd. to Mullowney Ln)
15	Swords Park Outlet Trail (Aronson to 6th Ave N)	39	EBURD Reconstruct (2nd & 3rd Ave N from N. 13th to N. 10th)
16	Orchard Lane (King East to State Ave)	40	Kyhl Lane (BBWA to Hawthorne)
17	Gabel Road & 32nd Street West Traffic Signal	41	1st Avenue North & Exposition Drive
18	City of Billings Growth Policy	42	Billings Bypass Arterial
19	Lockwood Growth Policy	43	Underpass Avenue Improvements
20	West End Multimodal Planning Study	44	27th Street Railroad Crossing Study
21	Montana Rail Grade Separation Study	45	1st Avenue North Billings
22	Billings Community Transportation Safety Plan	46	Billings Downtown Traffic Study
23	Old Highway 312 Corridor Study	47	Main Street Signal Timing
24	Grand Avenue Widening (32nd Street West to Shiloh Road)	48	Airport & Main Intersection

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Figure 1-2

Projects/Plans/Studies/Policies Completed and On-Going Since 2014 LRTP

STATE PLANNING REQUIREMENTS

TranPlanMT, Montana's long-range transportation plan, was last amended in 2017 (1-5). TranPlanMT identifies key transportation priorities and outlines long-range policy goals and strategies to assist MDT in addressing aging infrastructure, changing environmental conditions, and ongoing funding challenges. It also provides a framework for MDT to advance and manage its transportation programs in compliance with evolving federal requirements. In support of MDT and national goals, MDT conducts performance-based planning in the following key areas mandated through federal regulations:

- Safety
- Infrastructure Condition
- Transit Asset Management
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability

TranPlanMT cites safety as an overarching goal which is applied in nearly every MDT decision-making process for all projects and programs.

Montana's Comprehensive Highway Safety Plan (1-6) was amended in 2015, as required by the MAP-21 federal legislation. The CHSP is intended to be a living document to help guide the State of Montana to effectively address the state's safety needs. The vision of the plan is "zero fatalities and zero serious injuries" on any public roadway in the State. The goal of the plan is "to reduce fatalities and incapacitating injuries in the State of Montana by half in two decades, from 1,704 in 2007 to 852 by 2030."

Exhibit 1.5 Past Statewide Plans

LOCAL PLANNING REQUIREMENTS

Several local plans, studies, and policies were reviewed to inform the process and elements to be considered in development of the plan. It is important to review and incorporate these documents into the planning process, as to ensure that the integrity and value discussion of past planning efforts are carried forward into today's planning effort. Development of this plan was coordinated with guidelines developed in the Yellowstone County Board of Planning Public Participation Plan (2009 and most recent update in conjunction with this plan update in 2018), the 2014 Billings Urban Area Long Range Transportation Plan, and past transportation and land use plans/studies/policies highlighted in the text box.

Transportation Plans/Studies (Completed since 2014)

- Airport Road / Main Street Intersection Transportation Study
- Billings Complete Streets Benchmark Report
- Billings-Yellowstone County Household Travel Survey
- Billings Area Bikeway + Trails Master Plan Update
- Billings Community Transportation Safety Plan
- Highway 3 Corridor Study
- Lockwood Non-Motorized Transportation Plan
- MET Transit Asset Management Plan
- Montana's Comprehensive Highway Safety Plan
- Montana Rail Grade Separation Study
- Old Highway 312 Corridor Study
- Rims to Valley Study
- TranPlanMT
- Underpass Avenue Improvements Concept Design
- West End Multimodal Planning Study

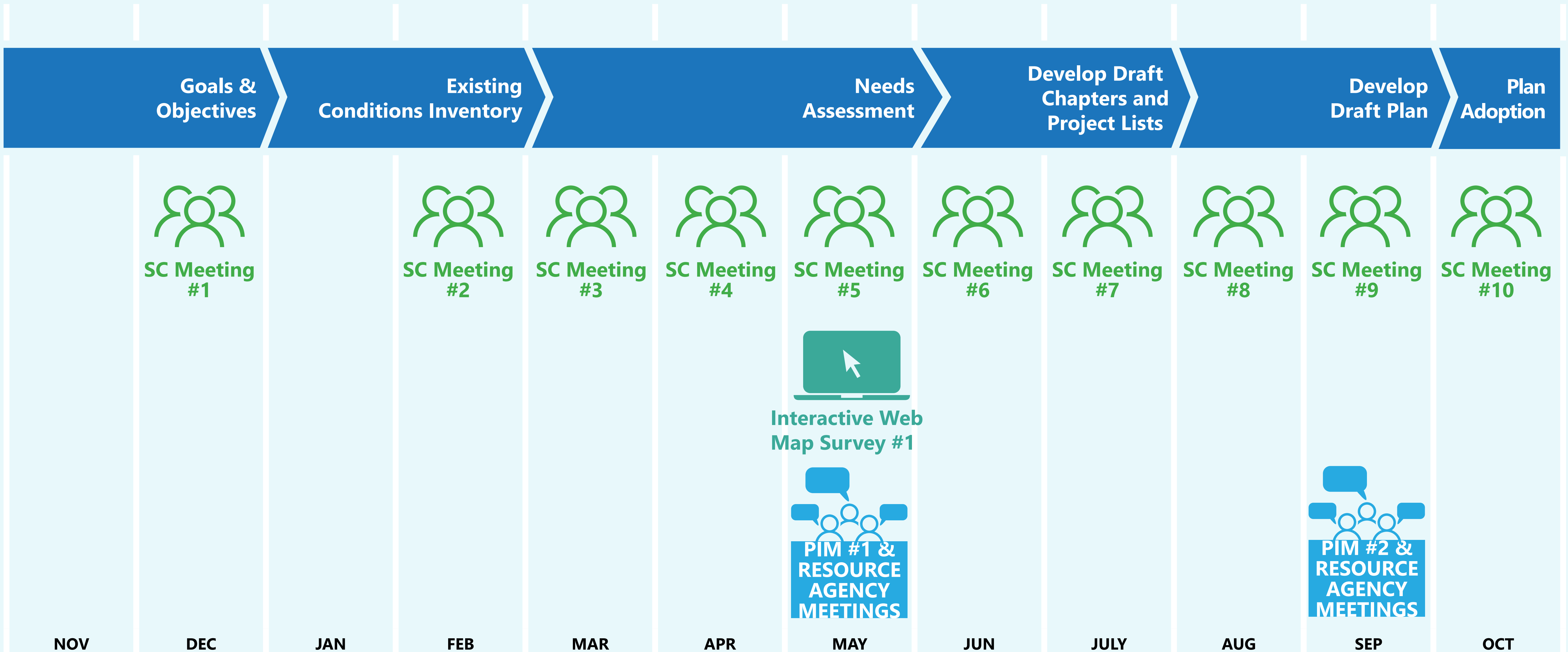
Land Use Plans/Policies (Completed since 2014)

- Billings Growth Policy
- Billings Stormwater Management Manual
- Downtown Billings Alliance Strategic Plan
- Lockwood Growth Policy
- Lockwood Targeted Economic Development District Comprehensive Development Plan
- Lockwood Targeted Economic Development District Strategic Plan

PLAN DEVELOPMENT PROCESS

The plan effort was initiated in November 2017 and completed with consideration for plan adoption in October 2018. Exhibit 1.6 illustrates the plan development process, which is described in more detail throughout this document.

Exhibit 1.6 Plan Development Process



2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 2

Interagency and Public Involvement Program

INTERAGENCY AND PUBLIC INVOLVEMENT PROGRAM

Public involvement and agency coordination during this plan is critical for plan development, acceptance, and adoption by the following groups:

- Policy Coordinating Committee (PCC), which is comprised of a representative from the Yellowstone County Planning Board, Yellowstone Board of County Commissioners, City Council, and Montana Department of Transportation
- Federal Highway Administration (FHWA)
- Montana Department of Transportation (MDT)
- City of Billings
- Yellowstone Board of County Commissioners
- Yellowstone County Planning Board (YCPB)

The public involvement plan (PIP) for this LRTP was developed based on past public involvement efforts for the 2014 LRTP and to be consistent with the public involvement elements of the YCBP 2009 Participation Plan (2-1), the development of the YCBP 2018 Public Participation Plan (2-2) in conjunction with this LRTP, and MDT's 2018 Public Involvement Plan (2-3).

Over 430 comments were received from the public to help inform the development of the plan. Thank you for your participation!

A collaborative and context-sensitive public engagement process was used in developing the plan. The public involvement approach strived to achieve the goals listed below.

- Facilitate an open, honest, and transparent decision-making process conducted through constructive two-way communication between the project team, agencies, and the public.
- Provide early and continuous opportunities for the public to share values, understand the opportunities and constraints within the study area, develop potential solutions, and raise issues and concerns to be considered.
- Inform and encourage community participation.
- Improve the public involvement process by measuring the effectiveness and modifying methods based on evaluation.

Interagency coordination and public involvement were achieved through the following methods:

Building Awareness of the Plan

- Steering Committee
- Resource agencies
- Neighborhood meetings
- Commissions, councils, and committees

Utilizing Various Outreach Methods

- Branding and logo
- Webpage
- Media coordination
- Email updates
- Youth engagement
- Online engagement
- Stakeholder interviews
- Public informational meetings
- Social media

Facilitating Plan Review and Approval

BUILDING AWARENESS OF THE PLAN

Prior to kicking off the project, the MPO formed a Steering Committee (SC) that represented agencies within the Billings Urban Area to help guide the plan development. Early in the process, team members connected with established regional boards and commissions and other community groups. The scope and schedule of the LRTP update was shared with boards, commissions, and community groups, which in turn provided valuable feedback on the initial direction of the plan development. The initial groups, which are identified in the following lists, also supplied additional contacts that helped the outreach effort extend deeper into the community.

STEERING COMMITTEE

The SC served as the primary sounding board for the development of the plan. The SC's responsibilities included reviewing project deliverables and providing guidance to the consultant team throughout plan development. The SC included staff from:

- City of Billings Administration
- City of Billings City Council
- City of Billings Planning
- City of Billings Public Works
- Lockwood Steering Committee
- MDT Billings District
- MDT Planning
- MET Transit
- Yellowstone County Commission
- Yellowstone County Planning Board
- Yellowstone County Public Works

The consultant team, with assistance from the MPO, scheduled and led ten meetings with the SC throughout the duration of the project. The goal of the SC meetings was to solicit feedback concerning the development of project deliverables and determine next steps for the consultant team. The consultant team would provide materials to the SC, prior to the meeting, for review and comment. All meeting agendas and minutes are included in the Appendix.

NEIGHBORHOOD MEETINGS

MPO staff provided updates to various neighborhood association groups and encouraged them to provide comments via the project website or interactive web map.

COMMISSIONS, COUNCILS, AND COMMITTEES

The project team and MPO met with other committees and officials throughout the LRTP development process. These meetings were meant to update these various groups of the progress being made and to solicit feedback at key stages of the project. These committees include:

- City of Billings City Council
- City of Billings / Yellowstone County Planning Board
- Policy Coordinating Committee
- Yellowstone Board of County Commissioners
- Technical Advisory Committee

RESOURCE AGENCIES

Prior to the first Public Involvement Meeting in May, the MPO sent a letter to resource agencies and stakeholders in the Billings Urban Area to notify them of the LRTP update. The letter also invited any interested groups to coordinate meetings with the consultant team to discuss the transportation planning process for the 2018 LRTP, changes in federal requirements through FAST Act, consistency with other plans, opportunities and constraints, ideas for implementation, and any questions they had about the project. Agencies or organizations highlighted with **bold** text participated in 1-on-1 meetings with the consultant team.

- Big Sky Economic Development Authority
- **Billings Area Chamber of Commerce (met twice)**
- Billings Association of Realtors
- Billings TrailNet
- **Billings Emergency Services/ Yellowstone County EMS**
- Billings Fire Department
- Billings Police Department
- Billings School District 2
- Billings Bicycle and Pedestrian Advisory Committee
- Billings Traffic Control Board
- Billings Community Development Board
- Billings Board of Adjustment
- Billings Zoning Commission
- Billings Aviation and Transit Board
- Billings Parking Board
- Bureau of Indian Affairs
- Downtown Billings Partnership, Inc
- Housing Authority of Billings
- Living Independently for Today & Tomorrow (LIFTT)
- **MET Transit**
- Montana Department of Environmental Quality
- Montana Department of Fish, Wildlife, and Parks
- Montana Department of Natural Resources & Conservation
- Montana Rail Link
- Central Terry Neighborhood Task Force
- Heights Neighborhood Task Force
- North Park Neighborhood Task Force
- Pioneer Park Neighborhood Task Force
- **Rimrock Neighborhood Task Force (met twice)**
- Southside Neighborhood Task Force
- Southwest Corridor Neighborhood Task Force
- **Westend Neighborhood Task Force**
- Riverstone Health (Yellowstone County Health Department)
- Weave Management Group, Inc.
- U.S. Bureau of Land Management
- U.S. Bureau of Reclamation
- Yellowstone County Sheriff's Office
- Yellowstone County Superintendent of Schools

UTILIZING VARIOUS OUTREACH METHODS

The public involvement activities for plan development reflected a multi-faceted approach. The outreach methods were created to facilitate communication between the public and project team throughout the project and gather insights and direction for plan development.

BRANDING AND LOGO

A logo, color scheme and reporting templates were developed and implemented with this LRTP to provide brand awareness and cohesiveness with plan materials through the planning and adoption of the plan.

PROJECT WEBPAGE

The project website (provided at URL www.BillingsLRTP.com, shown in Exhibit 2.1) was maintained by the consultant team and served as the primary, public, 24-hour source for information on the project. The website included maps, purpose, public involvement contacts, agency involvement, project schedule, documents, meeting information, and a place for the public to provide input, comments, or questions to the team.

Exhibit 2.1 Homepage of the 2018 Billings Urban Area LRTP Project Website

MEDIA COORDINATION

Outreach was conducted to appropriate media outlets to disseminate information regarding information on the plan and advising the community of public involvement opportunities. Media releases were provided to local media outlets in May and September 2018 regarding the plan development.

EMAIL UPDATES

The consultant team provided email updates to the MPO, which summarized the following:

- Consultant work tasks associated with the LRTP, PPP, and TDM - Included a summary of completed and on-going work tasks of the consultant's responsibility
- Action Items for MPO - Requests for guidance or materials review for the MPO from the consultant team
- Upcoming Meetings - Location, date, and time for any upcoming meetings

The goal of the updates was to keep a consistent line of communication between the MPO and the consultant team throughout the LRTP process. Additionally, the email updates were forwarded on to other agencies, committees, and elected officials to keep them apprised of the LRTP schedule.

YOUTH ENGAGEMENT

Involving elementary, middle, and high school teachers is a good way to inform and involve not only students, but also their parents. Social studies and government classes provide a good connection to this planning effort. Youth involvement is also a recommendation of Environmental Justice/Title VI best practices.

The consultant team presented to three classes (two geography classes and one social studies class) at the Riverside Middle School on Tuesday May 15th, 2018. These three classes included approximately 50 students. A presentation was provided on transportation planning and asking students to map how they traveled to school and to after school or weekend activities. The students mapped the routes they took, and color coded them by what mode of transportation they used. The students then discussed issues about these routes. Students were also asked "What makes a good transportation system?". They wrote these ideas down on sticky notes and placed them on a board for group discussion. These notes were also presented at the public open house in May 2018. Exhibit 2.2 shows a few of the completed maps, sticky notes, and ideas associated with what makes a good transportation system and challenges that exist today.

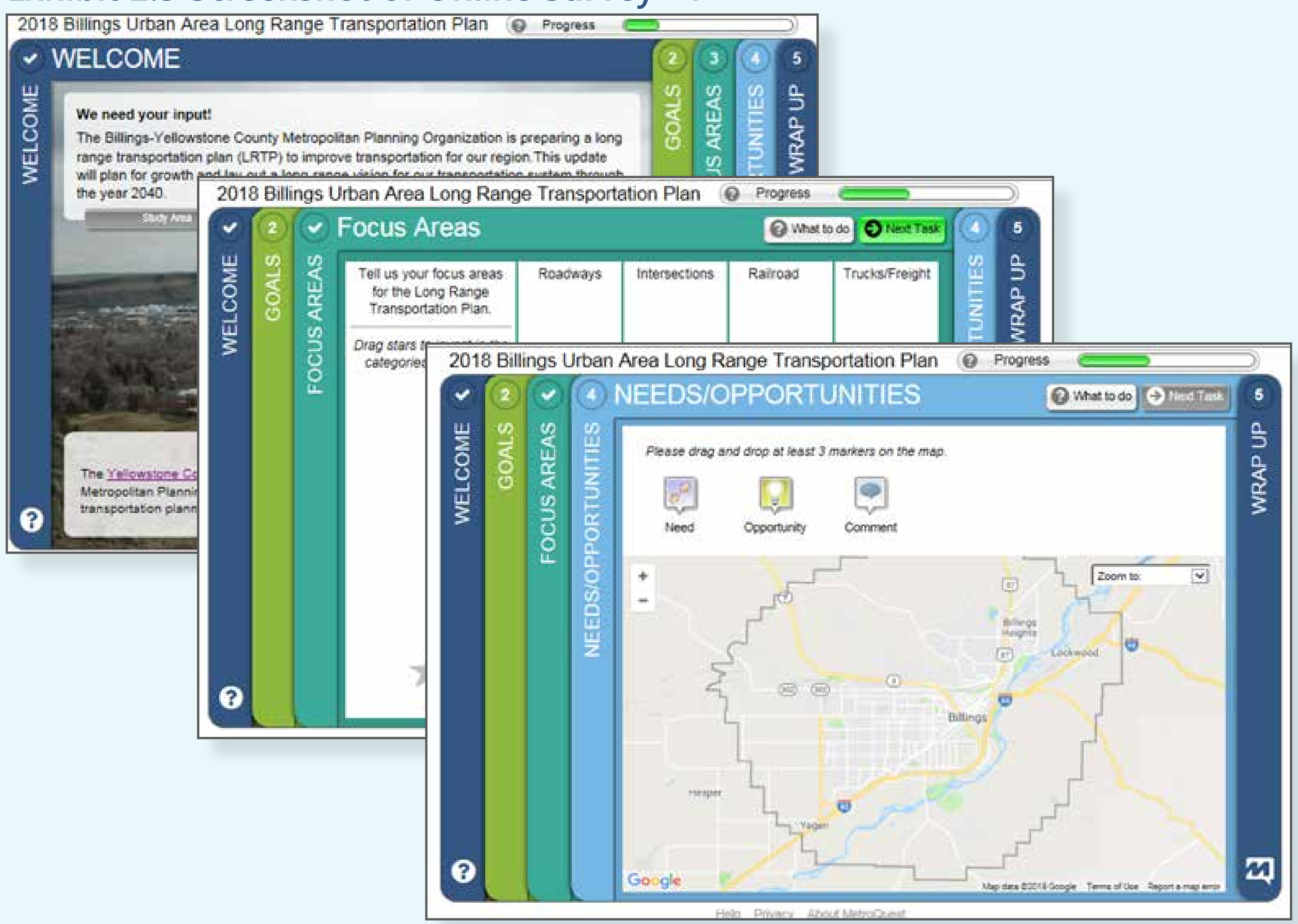
Exhibit 2.2 Middle School Outreach – What Makes a Good Transportation System? What Challenges Exist?

ONLINE ENGAGEMENT

Two online outreach efforts were used during plan development to collect feedback and comments from the public.

Online Outreach #1 – An online survey was developed and implemented in conjunction with the public informational meeting #1 in May 2018. This survey was developed to provide information on the LRTP, collect feedback on goals, priorities and allow users to map their comments regarding needs and deficiencies. The same questions were asked on the survey as at the public informational meeting. The online survey ran from May 14th to May 29th and had 139 participants. The site is no longer active, but the demo site can be viewed at: https://2018BillingsLRTP-demo.metroquest.com. Exhibit 2.3 shows the online survey #1.

Exhibit 2.3 Screenshot of Online Survey #1



Online Outreach #2 – The Public Informational Meeting #2 materials and Draft Plan of the LRTP was uploaded to the project website on September 27, 2018. This information was available form for public comment through October 9, 2018. Exhibit 2.4 shows the information available for public comment between September 27, 2018 and October 9, 2018.

Exhibit 2.4 Screenshot of PIM #2 Materials and Draft LRTP

SOCIAL MEDIA

Social media content and graphics were developed and provided to the MPO to publish on their existing social media networks. This information was used to provide updates on the plan and to promote meetings and opportunities for online engagement.

STAKEHOLDER INTERVIEWS

One-on-one meetings were held with various individuals and groups who have a key interest or stake in the plan. The purpose of these meetings included: introduce the plan, identify existing transportation deficiencies and/or concerns that should be addressed with the plan, and gather input on the proposed projects included in the plan. As noted in the resource agencies section, meetings were held with the Billings Area Chamber of Commerce, Billings Emergency Services/Yellowstone County EMS, MET Transit, and Rimrock Neighborhoods Task Force.

PUBLIC INFORMATIONAL MEETINGS

Public Informational Meeting #1

The public informational meeting #1 was held on May 14th at the Billings Library from 4 PM to 7 PM. The purpose of the open house was to give the public an opportunity to learn about the plan, review technical information about the LRTP, and provide comment on the following three items:

What goals are most important to you for the plan?	What transportation need and opportunities exist today?	What you like to see for the future transportation system?

Attendees were able to review materials on the LRTP, provide mapped comments regarding needs and opportunities, and provide feedback on goals and focus areas. 25 people signed into the meeting, 32 map comments were received and three comment sheets. Exhibits 2.5, 2.6, and 2.7 show the room layout and public at PIM #1.

Exhibit 2.5 PIM #1 Display Boards

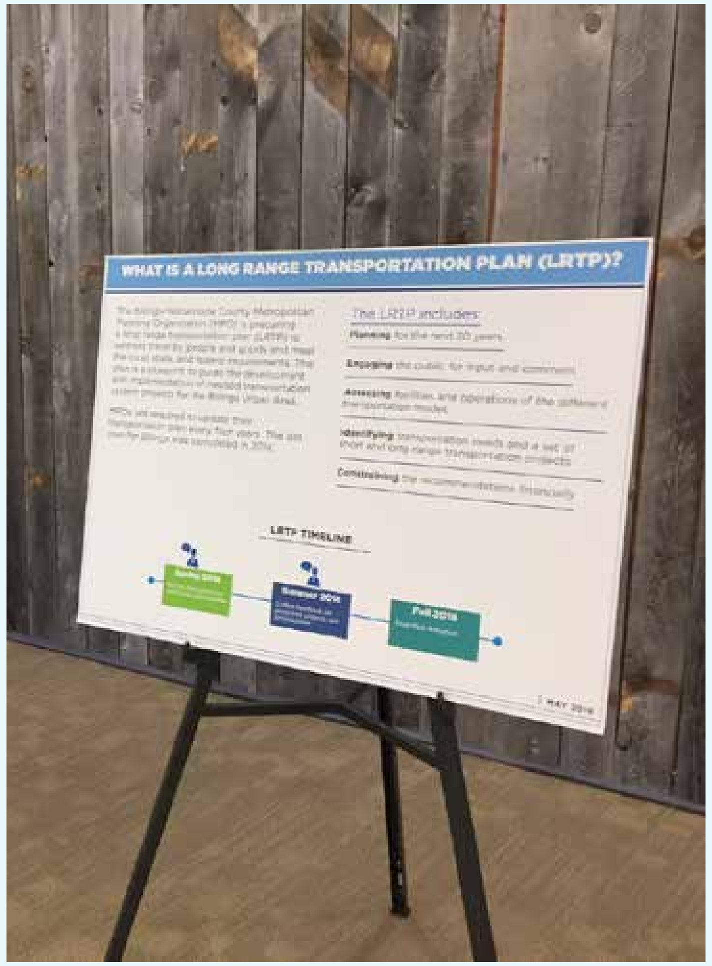
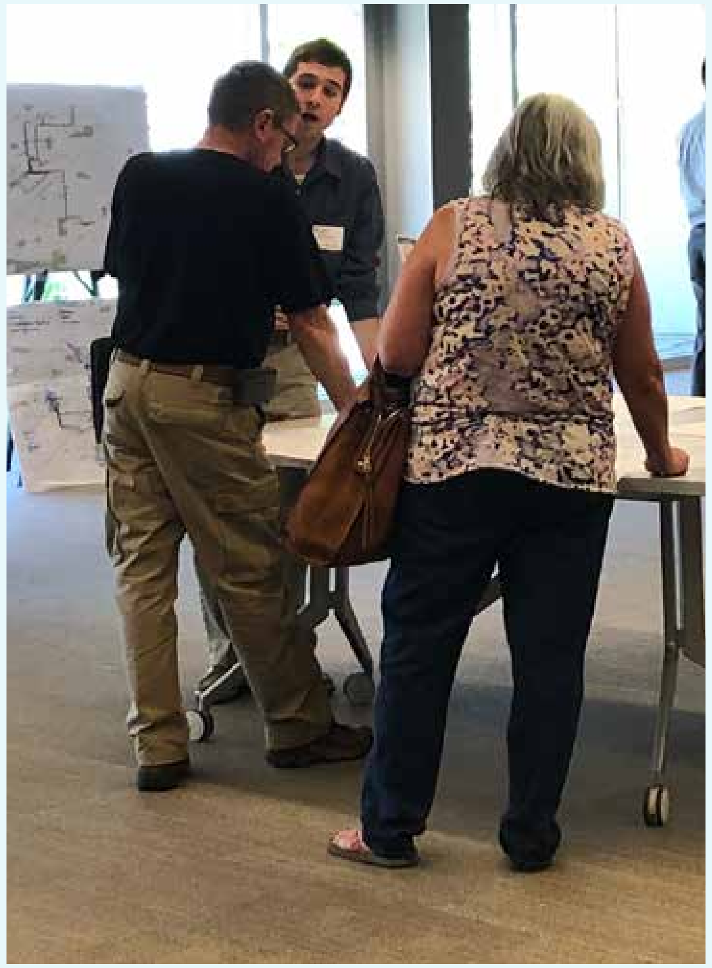


Exhibit 2.6 PIM #1 Public Using the Comment Map

Exhibit 2.7 PIM #1 Public Discussion



Public Informational Meeting #2

The public informational meeting #2 was held on September 25, 2018 at the Billings Library from 4:30 PM to 6:30 PM. The purpose of the open house was to give the public an opportunity to learn about the plan, review draft project lists for the LRTP, and provide comment on the following three items:

Rank the project areas that you would most like to see the MPO prioritize.	Are there any projects not shown on the project maps that you would like to see added? Please explain.	Are there any projects shown on the project maps that you would like to see revised or removed? Please explain.

Attendees were able to review materials on the LRTP, provide feedback on the project area priorities for the MPO, and provide comments on maps for the draft project lists. 35 people signed into the meeting, 51 map comments were received and four comment sheets were turned in. Exhibits 2.8, 2.9, and 2.10 show the room layout and public at PIM #2.

Exhibit 2.8 PIM #2

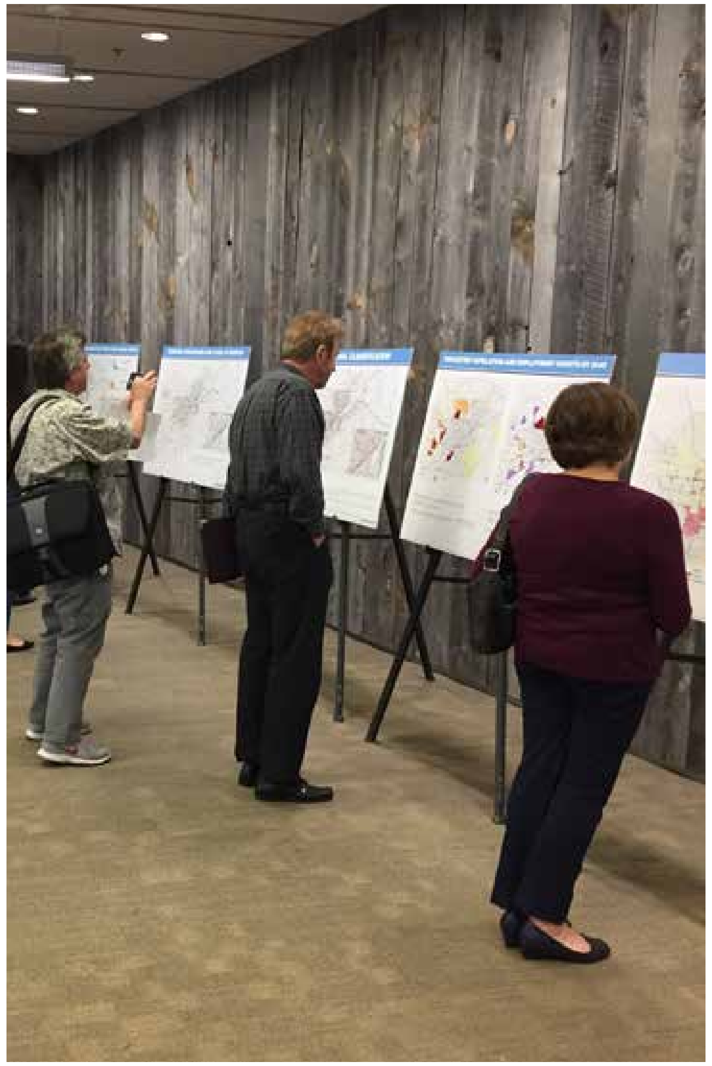


Exhibit 2.9 PIM #2

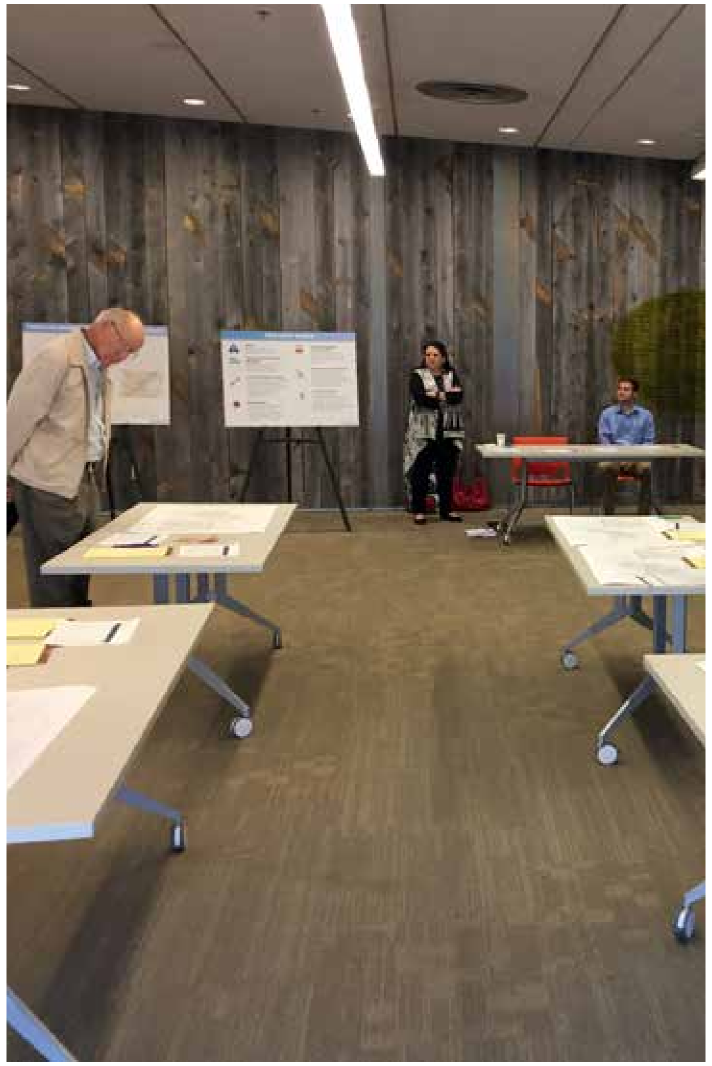


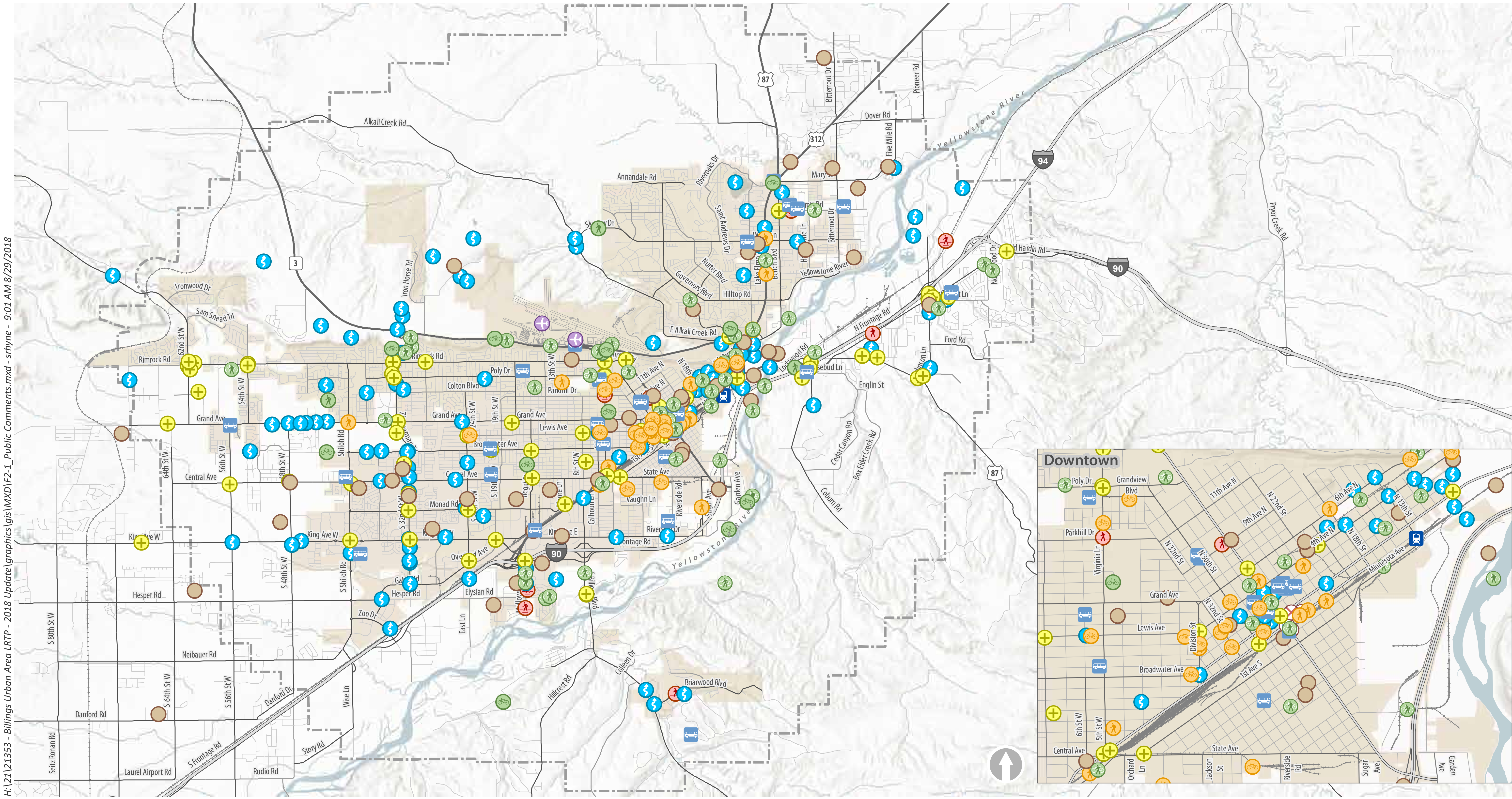
Exhibit 2.10 PIM #2

Summary of Comments from Online Survey, PIM #1 and PIM #2

Public comments from the online survey, PIM #1, and PIM #2 were summarized in this section. Table 2.1 summarizes the total comments received during the public involvement process.

Table 2.1 Total Comments Received During the Public Involvement Process

	Activity		Total
	PIM #1 (May 14th – May 29th, 2018)	PIM #2 (September 25th – October 9th, 2018)	
Comment Sheets	3	4	7
E-mail	2	1	3
Online Survey / Mapped Comments	369	51	420
Project Website	0	2	2
Total	**374**	**58**	**432**



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Public Feedback Categories

- Airport
- Bike Route
- Bike Trail
- Bike/Pedestrian
- Bus Transit
- General
- Intersection
- Pedestrian Crossing
- Pedestrian Trail
- Railroad
- Roadway
- Sidewalks
- Trains
- Study Area

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Figure 2-1

Needs and Opportunities from Public Comments

At PIM #1, focus areas with the most support were roadways, intersections, and bicycles followed by pedestrians, airport, and bus transit followed by railroad and truck/freight. Additionally, the public were asked to use the map to tell us about needs and opportunities with the existing transportation system in the Billings Urban Area. Figure 2-1 illustrates the needs and opportunities identified by category within the urban area at PIM #1 and via online survey #1. At PIM #2, the public were asked to use project maps by categories (bicycle and trail projects, congestion management projects, pedestrian projects, and roadway and intersection projects) to identify changes or additions to the project lists projects for consideration in the LRTP. Table 2.2 summarizes the project priorities identified by the public at PIM #2 and via online survey #2.

Table 2.2 Summary Table of Public Comments on Project Lists (September 25th, 2018)

Type	# of Comments on Existing Projects	# of New Projects Identified	# of General Comments	Total Comments	Common Themes
Bicycle and Trail Projects	8	6	5	19	• Bike boulevards and buffered bike lanes are critical for the safety of cyclists • Identified several east-west and north-south corridors as priorities • Identified a few new multiuse trails • Suggestions for road diets for buffered bike lanes and adding more wayfinding/ signage for the multiuse trails
Congestion Management Projects	0	6	0	6	• Install permanent traffic signal at 27th/Rimrock intersection • Add right turn lanes at a few intersections
Pedestrian Projects	4	10	2	16	• Consider remote drop/pick-up for vehicles at schools to reduce conflicts between students biking and walking • Add crossings to improve food dessert/equity due to railroad tracks and arterial roadway • Install additional sidewalks to fill in gaps near schools
Roadway and Intersection Projects	7	3	0	10	• Build the Inner Belt Loop • Left turn lanes are needed on Blue Creek Boulevard • Reconfigure the raised median on Laurel Road to add buffered bike lane • Improve the overcrossing on Zoo Drive • Left turn signal is needed at Montana/27th and 1st Avenue N/27th intersections • Signalize Virginia/Rimrock intersection • Build the new roadway between Highway 3 and Molt Road (this roadway is needed to accommodate growth in the City)
Total	**19**	**29**	**7**	**51**	

For more information about the content and summaries from the two PIMs, Public Comment Summary #1 and #2 are included in the Appendix.

FACILITATING PLAN REVIEW AND APPROVAL

The final phase of the plan update is completion and adoption of the LRTP. Between June and September, the SC reviewed the draft chapters of the LRTP and provided comments to the consultant team for incorporating in the final draft plan. In September, the draft LRTP was presented to the SC and public for review and comment. Additionally, the Technical Advisory Committee (TAC) met in October 2018 to review the draft plan, provide comments on the draft plan, and recommend approval of the LRTP to the Planning Board, Billings City Council, Yellowstone County Commissioners, and the PCC. The draft plan was also available to the public for review and comment from September 25th to October 30th 2018. Much like the development of the plan, continued awareness and review of the draft plan are important steps toward plan adoption. In October, the draft plan was presented to the Planning Board, Commission, and City Council. Following these meetings and work sessions, a public hearing was scheduled with each body to hear public comments and a recommendation for plan adoption. The plan was presented and adopted unanimously by the PCC on October 30, 2018. The consultant team assisted the MPO throughout the adoption process by providing materials for review and attending some of the meetings in-person or over the phone to present information on the LRTP and address questions that came up during the meetings.

2018 BILLINGS URBAN AREA
LONG RANGE TRANSPORTATION PLAN

Chapter 3

Goals, Objectives, Performance Measures, and Targets

GOALS, OBJECTIVES, PERFORMANCE MEASURES, AND TARGETS

This chapter describes the goals, objectives, performance measures, and targets that will be used to measure the Billings urban area's success in establishing a transportation system that 1) aligns with national and state standards and 2) fulfills community desires and needs. The establishment of these goals fosters accountability, encourages measurement of progress, and creates actionable steps for the MPO to take to improve transportation in the Billings urban area. Federal and state targets to which the Billings urban area plans to adhere to are presented first in this chapter. Goals, objectives, and performance measures specific to the Billings urban area and created by the MPO are presented second. Together, these metrics ensure that the Billings urban area establishes a transportation system that both meets federal and state criteria and reflects the unique needs and desires of the community it serves.

FEDERAL AND STATE TARGETS

The FAST Act aligns with federal code of regulations 23.450.306, which states that MPOs shall develop long-range transportation plans through a performance-driven, outcome-based approach to planning for metropolitan areas of the State. It also states that this planning process should address the ten planning factors listed below. These factors were first introduced through the MAP-21 Act and were expanded upon by the FAST Act.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.

Three Federal-aid programs manage the funds apportioned through the FAST Act: the Highway Safety Improvement Program (HSIP), the National Highway Performance Program (NHPP), and the Congestion Mitigation and Air Quality (CMAQ) Improvement Program. Each of these, and the Federal Transit Administration (FTA), prescribe targets to assess performance of the transportation system. MDT has implemented these national targets with exceptions made based on Montana's urban population sizes and lack of public transportation rail assets.

ADOPTED STATEWIDE TARGETS

Adopted statewide targets are summarized in Tables 3.1, 3.2, 3.3, and 3.4. The MPO has formally agreed to support the statewide targets.

Table 3.1 Safety Performance Targets*

Performance Measure	2019 Target 5-Year Average
Number of Fatalities	187.4
Fatality Rate	1.462
Number of Serious Injuries	892.8
Serious Injury Rate	6.968
Number of combined non-motorized fatalities and non-motorized serious injuries	73.2

** Safety performance targets are statewide totals or rates for 2018. Targets are based on a rolling 5-year average and determined annually.*

Table 3.2 NHS Pavement and Bridge Condition Targets

Performance Measure	2-Year Target	4-Year Target
Interstate Pavement	-	54% = Good Condition 3% = Poor Condition
Non-Interstate NHS Pavement	44% = Good Condition 6% = Poor Condition	44% = Good Condition 6% = Poor Condition
NHS Bridge Deck Area	12% = Good Condition 9% = Poor Condition	12% = Good Condition 9% = Poor Condition

Table 3.3 System Performance and Freight Targets

Category	2-Year Targets	4-Year Targets
Interstate Travel Time Reliability (TTR) (% Reliable – person miles)	98%	98%
Non-Interstate NHS TTR (% Reliable – person miles)	-	80%
Interstate Truck TTR (TTTR) (Truck Travel Time Reliability Index)	1.30	1.30

Table 3.4 CMAQ On-Road Emissions Sources Targets

Category	2-Year and 4-Year Targets*
CO Emissions	>0 kg/day
PM10 Emissions	
PM2.5 Emissions	

Transit Targets

FTA requires federally-funded public transportation providers to develop and implement transit asset management plans (TAMPs) with asset inventories, condition assessments of inventoried assets, and a prioritized list of investments to improve the state of good repair of their capital assets. The final rule (effective as of October 1, 2016) also established "state of good repair" (SGR) standards and four associated performance measures including:

- The percentage of non-revenue, support-service, and maintenance vehicles that have either met or exceeded their useful life benchmark (ULB);
- The percentage of rolling stock vehicles that have either met or exceeded their ULB;
- The percentage of track segments with performance restrictions for rail fixed guideway, track, signals, and systems; and
- The percentage of facilities rated below condition 3 on the Transit Economic Requirements Model (TERM) scale.

MET Transit completed a Transit Asset Management (TAM) Plan in 2019. This plan includes a summary of the current state of MET Transit assets and is intended to be used as a tool supporting state of good repair (3-1). The performance targets and measures set by the MET Transit Fiscal Year 2019 Transit Asset Management Plan are shown in Table 3.5.

Table 3.5 Transit Targets

Asset Category – Performance Measures	Asset Class	Targets				
		2019	2020	2021	2022	2023
Revenue Vehicles						
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark	BU – Bus	47%	42%	37%	32%	26%
	CU – Cutaway Bus	17%	17%	17%	17%	17%
	VN – Van	6%	14%	14%	14%	14%
Equipment						
Age - % of vehicles that have met or exceeded their useful life benchmark (ULB)	Non-Revenue/ Service Automobile	66%	66%	66%	66%	66%
	Trucks and other Rubber Tire Vehicles	75%	75%	75%	75%	75%
	Facility Maintenance Vehicle	75%	75%	75%	75%	75%
Facilities						
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Passenger Facilities	33%	33%	33%	33%	33%
	Administration and Maintenance	33%	33%	33%	33%	33%

LRTP GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

In addition to the federal and state targets listed above, the MPO created the following goals, objectives, and performance measures tailored specifically to the Billings urban area. Many of the goals established by the MPO are similar to the federal and state targets listed above. Both focus on a long-term vision for a safe, efficient, and sustainable transportation system, but the MPO's goals reflect feedback gathered by the Billings community, as well as align with other adopted plans within the Billings urban area. These goals are intended to more closely align with community desires and needs. Table 3.6 summarizes the 2018 LRTP goals, objectives and performance measures. Table 3.7 shows how the adopted state targets intersect with the LRTP goals established by the MPO.

Goals
Intended downstream outcomes of accomplishing the proposed objectives

Objectives
Trackable action items that align with the goals

Performance Measures
Type of data to be collected to track the objectives.

The 2018 LRTP goals are:

Safety – Develop a safe transportation system

Functional Integrity and Efficiency – Optimize, preserve, and enhance the existing transportation system

Prioritized Improvements – Identify and prioritize projects that mitigate deficiencies, maximize the use of existing facilities, and balance anticipated needs with available funding

Environment – Develop a transportation system that protects the natural environment and promotes a healthy, sustainable community

Public Transit and Transportation – Create a transportation system that supports the practical and efficient use of transit

Pedestrians and Bicyclists – Create a transportation system that supports the practical and efficient use of active transportation such as walking and bicycling

Economic Vitality – Ensure adequate transportation facilities to support the existing local economy and connect Billings to local, regional, and national commerce.

Table 3.6 LRTP Goals, Objectives, and Performance Measures

2018 LRTP Goal	Objective	Performance Measure(s)	Data Source	Related Federal Planning Factors	Supportive Plan / Policy
Safety	Reduce the rolling five-year average number of fatal and serious injury crashes by 20% between 2018 and 2023.	Fatal and serious injury crashes	MDT / City of Billings	1, 2, 3, 4, 6, 7, 8, 9, 10	Billings Community Transportation Safety Plan
	Reduce the rolling five-year average rate of fatal crashes and serious injury crashes per 100 million vehicle miles travelled by 20% between 2018 and 2023.	Fatal and serious injury crashes; vehicle miles travelled	MDT / City of Billings		
	Reduce the rolling five-year average number of fatal crashes and serious injury crashes involving non-motorized modes by 20% between 2018 and 2023.	Non-motorized fatal and serious injury crashes	MDT / City of Billings		
Functional Integrity and Efficiency	Develop an inventory of critical infrastructure. Update the regional emergency response plan at least once by 2023.	Critical infrastructure inventory and regional emergency response plan.	City of Billings / Yellowstone County	1, 3, 4, 6, 7, 8, 9, 10	Functional Classification Map Various Corridor and Intersection Studies Emergency Operations Plan Multi-Jurisdictional Pre-Disaster Mitigation Plan Update
	Reduce the number of intersections identified as operating at LOS E or worse during the peak hour in the 2018 LRTP by 10% between 2018 and year 2023.	Intersection level of service (LOS)	City of Billings / Yellowstone County		
	Reduce weekday peak hour vehicular and freight travel time on selected principal arterial corridors by 5% between year 2018 and 2023.	Weekday peak hour travel time	City of Billings/Yellowstone County		
Prioritized Improvements	Create an annual prioritized list of fiscally constrained projects.	List creation	City of Billings / Yellowstone County	7, 8	Transportation Improvement Program (TIP) Capital Improvement Plan (CIP) Unified Planning Work Plan (UPWP)
Environment	Develop and codify a stormwater management ordinance for the Billings urban area that establishes minimum stormwater management requirements and controls for major developments by year 2023.	Ordinance development and codification	City of Billings / Yellowstone County	5, 9	2017 Comprehensive Parks & Recreation Master Plan 2016 Billings Growth Policy 2016 Lockwood Growth Policy
Public Transit and Transportation	Maintain annual transit ridership each year from 2018 to 2023.	Total annual ridership	MET Transit	2, 3, 4, 6, 10	MET Business Plan MET Transit Asset Management Plan
	Maintain 2018 number of routes, hours of service of each route, and headways on each route for the next 5 years.	Number of routes, hours of service, headways	MET Transit		
	Maintain 2018 rate of replacement of buses for next 5 years.	Number of buses replaced	MET Transit		
Pedestrians and Bicyclists	Increase number of bicycle lane miles by 10% between year 2018 and 2023.	Number of bicycle lane miles	City of Billings / Yellowstone County	2, 3, 4, 6, 10	City of Billings Complete Streets Policy – 2016 Billings Area Bikeway and Trails Master Plan Update Lockwood Non-Motorized Transportation Plan Rims to Valley Study Highway 3 Corridor Study
	Increase number of shared-use trail miles by 10% between 2018 and 2023.	Number of trail miles	City of Billings / Yellowstone County		
	Incorporate bicycle or pedestrian facilities on 75% of projects between 2018 and 2023.	Number of projects with bicycle or pedestrian facilities incorporated			
	City of Billings / Yellowstone County				
	Increase bicycle and pedestrian traffic counts at selected trails and intersections by 10% between 2018 and 2023.	Number of bicyclists, number of pedestrians	City of Billings / Yellowstone County		
Economic Vitality	None – based on objectives shown for Functional Integrity and Prioritized Improvement Goals			1, 5, 10	None

Table 3.7 Statewide Targets and LRTP Goals

			Billings Urban Area LRTP Goals						
			Safety	Functional Integrity and Efficiency	Prioritized Improvements	Environment	Public Transit and Transportation	Pedestrians and Bicyclists	Economic Vitality
Statewide Targets	Pavement and Bridge Condition	Percentage of pavements on the Interstate System in Good condition		✓	✓				
		Percentage of pavements on the Interstate System in Poor condition		✓	✓				
		Percentage of pavements on the NHS (excluding the Interstate System) in good condition		✓	✓				
		Percentage of pavements on the NHS (excluding the Interstate System) in poor condition		✓	✓				
		Percentage of NHS bridges classified as in Good condition		✓	✓				
		Percentage of NHS bridges classified as in Poor condition		✓	✓				
	Safety Performance	Number of fatalities	✓						
		Rate of fatalities per vehicles miles traveled (VMT)	✓						
		Number of serious injuries	✓						
		Rate of serious injuries per VMT	✓						
		Number of combined non-motorized fatalities and non-motorized serious injuries	✓					✓	
	System Performance/Freight Movement/Congestion/CMAQ	Percent of reliable person-miles traveled on the Interstate		✓					✓
		Percent of reliable person-miles traveled on the non-Interstate NHS		✓					✓
		Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)		✓					✓
		Total emissions reductions for applicable pollutants				✓			
	Transit Asset Management	Percentage of non-revenue, support-service and maintenance vehicles that have either met or exceeded their useful life benchmark (ULB)			✓		✓		
		Percentage of rolling stock vehicles that have either met or exceeded their ULB			✓		✓		
		Percentage of facilities rated below condition 3 on the Transit Economic Requirements Model (TERM) scale			✓		✓		

REPORTING PROGRESS TOWARDS ACHIEVING PERFORMANCE TARGETS

The MPO will incorporate adopted statewide targets and MPO goals, objectives, and performance measures into the LRTP and discuss how the targets will be advanced and linked to investment priorities. The 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 Billings urban area. The information will help the MPO identify and advance projects in the LRTP which support adopted statewide targets and MPO goals, objectives and performance measures at the statewide and local level.

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 4

Land Use

LAND USE

This chapter summarizes the land use patterns under existing and future year 2040 forecast conditions in the study area. Knowing the locations of both existing (2017) and future 2040 population and employment patterns is critical for development of the base year 2017 and 2040 travel demand model.

The Billings urban area lies at the western edge of the northern High Plains. It serves as a central hub for a large region comprised of Montana, northern Wyoming, and the western Dakota's. Due to its location, Billings has developed as an important economic, cultural, educational, medical, and transportation urban center for the entire region. A critical part to developing a long-range transportation plan is understanding the current land use patterns and opportunities envisioned for growth. Through this understanding, the transportation system and land use vision can be integrated to effectively match future infrastructure and system management projects with the desires of the community.

Recent city-wide studies/plans were reviewed to gain an understanding of the existing and future land use patterns and policies that guide the community, including:

- Billings Urban-Area Long Range Transportation Plan (2014)
- West End Multimodal Planning Study (2016)
- City of Billings Growth Policy (2016)
- Lockwood Growth Policy (2016)
- Lockwood Targeted Economic Development District Comprehensive Development Plan (2016)
- Lockwood TEDD Strategic Plan (2017)
- Billings-Yellowstone County Household Travel Survey (2017)
- Downtown Billings Alliance Strategic Plan (2018)

The Billings urban area is expected to increase from a population of 127,056 to approximately 169,767 by 2040. Having an interconnected, multimodal transportation system is an important part to providing for this growth and creating a livable community.

LAND USE ANALYSIS

A key component of the land use analysis is incorporating the existing and future population/ employment data in the regional travel demand model to develop traffic volume projections.

The Billings MPO travel demand model is developed with transportation analysis zones (TAZs) that represent geographic groupings of population and employment. An individual TAZ is intended to group land uses that have common access to the transportation system (for example, a group of houses that all use local streets to access the same blocks of two collector streets). Physical barriers (such as hillsides, rivers, freeways or railroad tracks) are typical borders because traffic cannot traverse these without the roadway network. TAZs are typically bordered by major roadways (e.g. arterials and collectors) because it is assumed that traffic does not pass through them, but either starts or ends a trip there. TAZs often have uniform (or relatively similar) land use where trips are attracted and produced, but this is not a requirement. For the Billings travel demand model, the TAZs were based on census blocks defined by the 2010 United States Census. A portion of the census blocks were then aggregated or split as appropriate to best represent the access for individual land uses. Figure 4-1 shows the TAZs used for the analysis.

The existing population and employment data was derived from the 2010 United States Census and other records to identify the 2017 population and employment total. In order to anticipate projections in population and employment to year 2040, coordination with the MPO was conducted to illustrate growth in the region beyond simple historical projections. Local knowledge from the MPO was utilized to anticipate where growth in population and employment would increase or stagnate. The refined year 2040 population and employment dataset was then incorporated into the regional travel demand model to develop traffic volume forecasts.

EXISTING CHARACTERISTICS AND DEMOGRAPHICS

The Billings urban area currently encompasses approximately 151.2 square miles and includes all of the City of Billings (44.9 square miles) and Lockwood, as well as a planning area extending 4.5 miles outside of the city limits and into Yellowstone County. Figure 4-2 shows the existing zoning map and key destinations within the study area.

The primary drivers of transportation demand and regional travel patterns are the scale and geographic distribution of population and employment. The relationships between land-use development and the effects on generating travel demand are well-defined. Established land uses in the urban area have influenced the travel patterns that exist today. Understanding the relationship between the distribution of population/ housing and employment (and the resulting regional travel patterns) is key to projecting future transportation demand. Therefore, a review of existing land use conditions is necessary to understand how the traffic network is affected by the components of where people live and where people work and/or shop.

POPULATION, HOUSING,AND EMPLOYMENT

Yellowstone County has the highest population of any county in Montana with a reported 2010 population of 147,972 persons (US 2010 Census). Billings remains the largest city in Montana with a 2010 population of 104,170. This is an increase of 15.9 percent (addition of 14,323 persons) over the 2000 population.

Figures 4-3 and 4-4 show the 2017 population and housing concentrations, respectively in the study area. The 2017 total population is 127,056 in the study area. The 2017 total housing units is 55,464 in the study area.

Employment is typically broken up into two primary components: retail and non-retail employment. These uses are differentiated because they typically exhibit different travel patterns in terms of mode choice, the time-of-day trips utilize the network, etc. Table 4.1 summarizes the 2017 employment within the study area. Figure 4-5 shows the current geographic concentrations of employment centers in the study area.

Table 4.1 2017 Billings Urban Area Employment

Zoned Land Use	Percent of Total
Retail	21,739
Non-retail	55,900
TOTAL	77,639

Source: City/County Planning Division

Figure 4-5 shows employment concentrations are greatest around the major employment centers including Billings Airport, Downtown Billings, Saint Vincent and Billings Clinic Hospitals, Rimrock Mall, and industrial facilities to the south of the Exit 446 Interchange on Interstate 90.

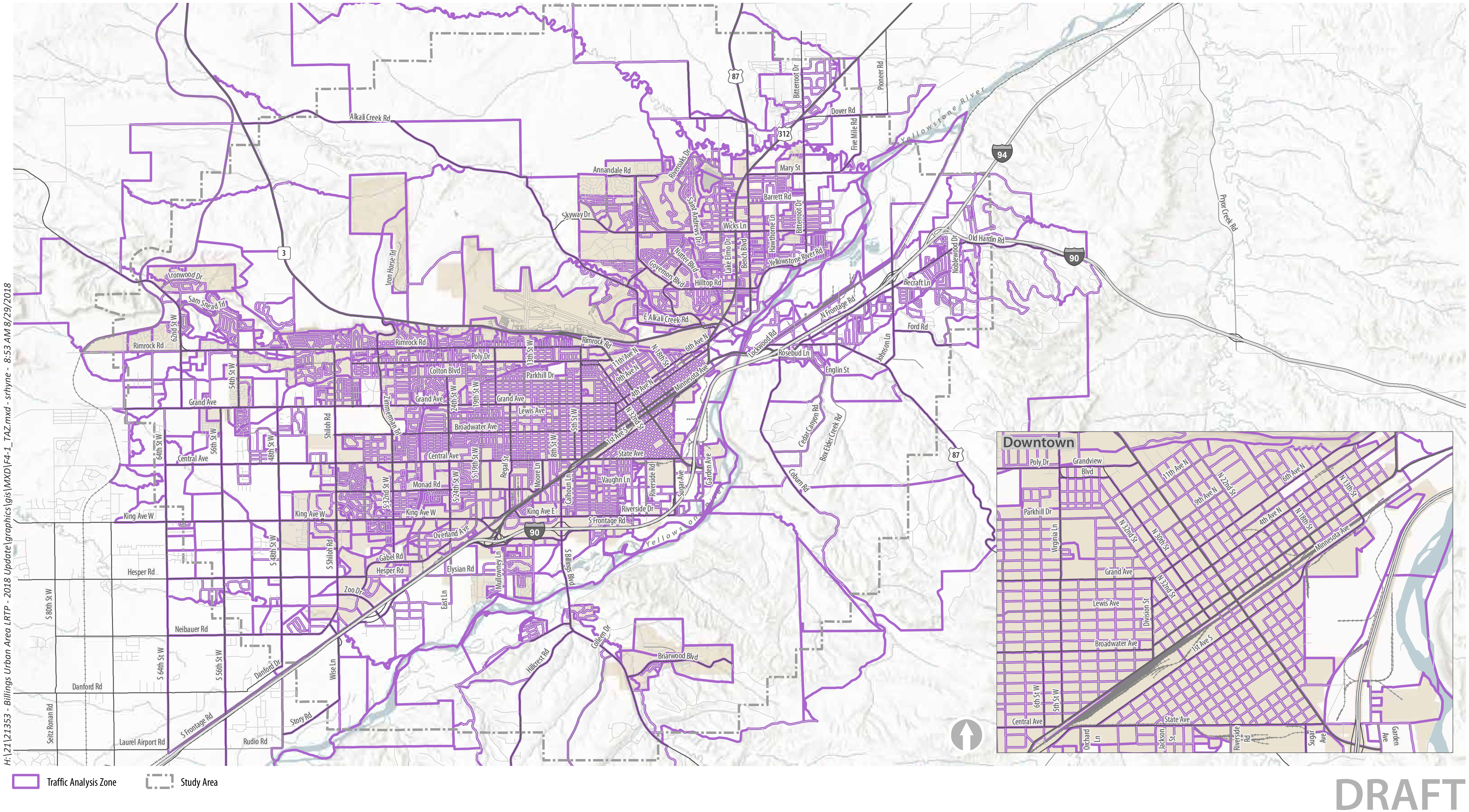

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Figure 4-1

TAZ Boundaries

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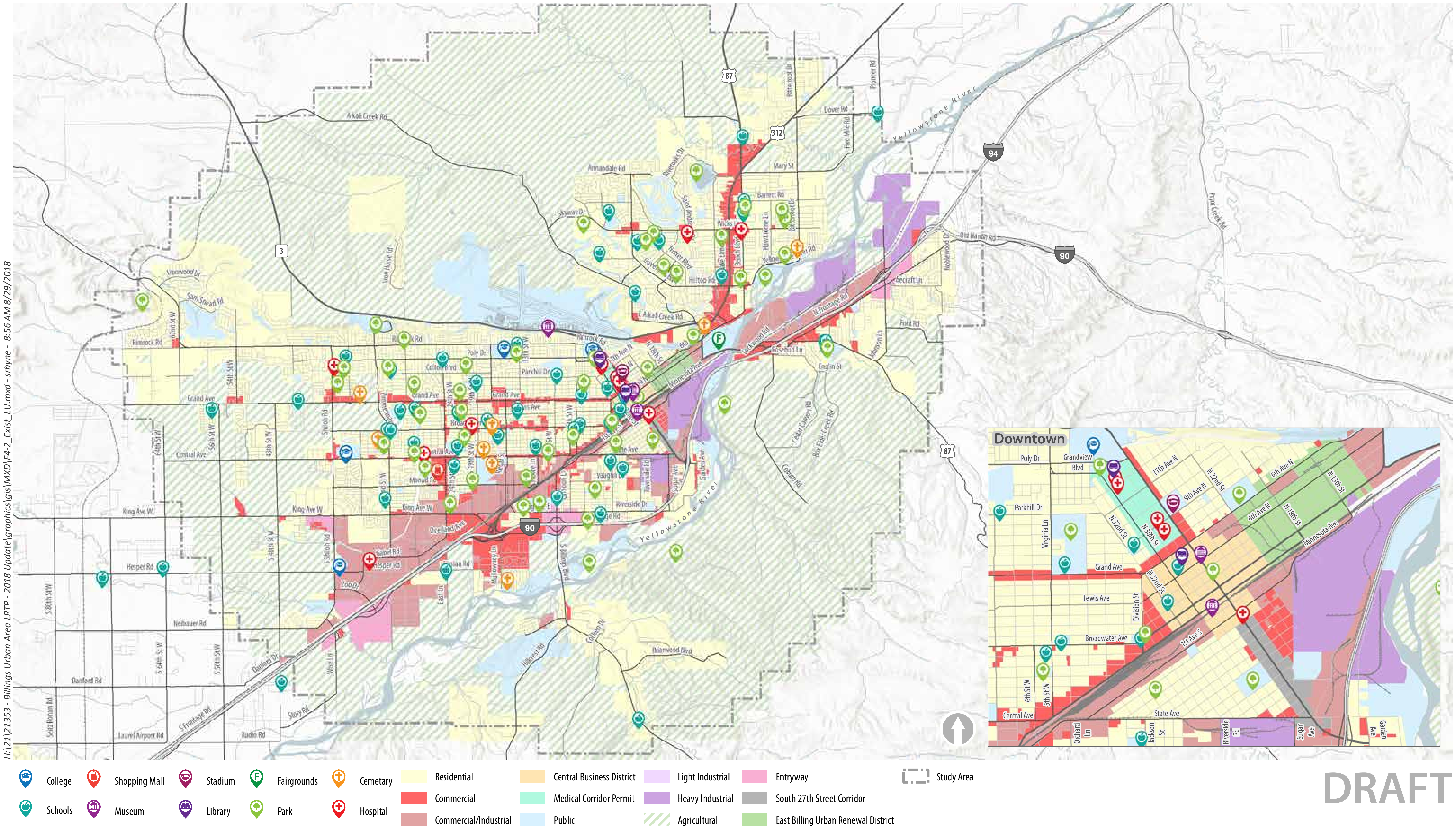

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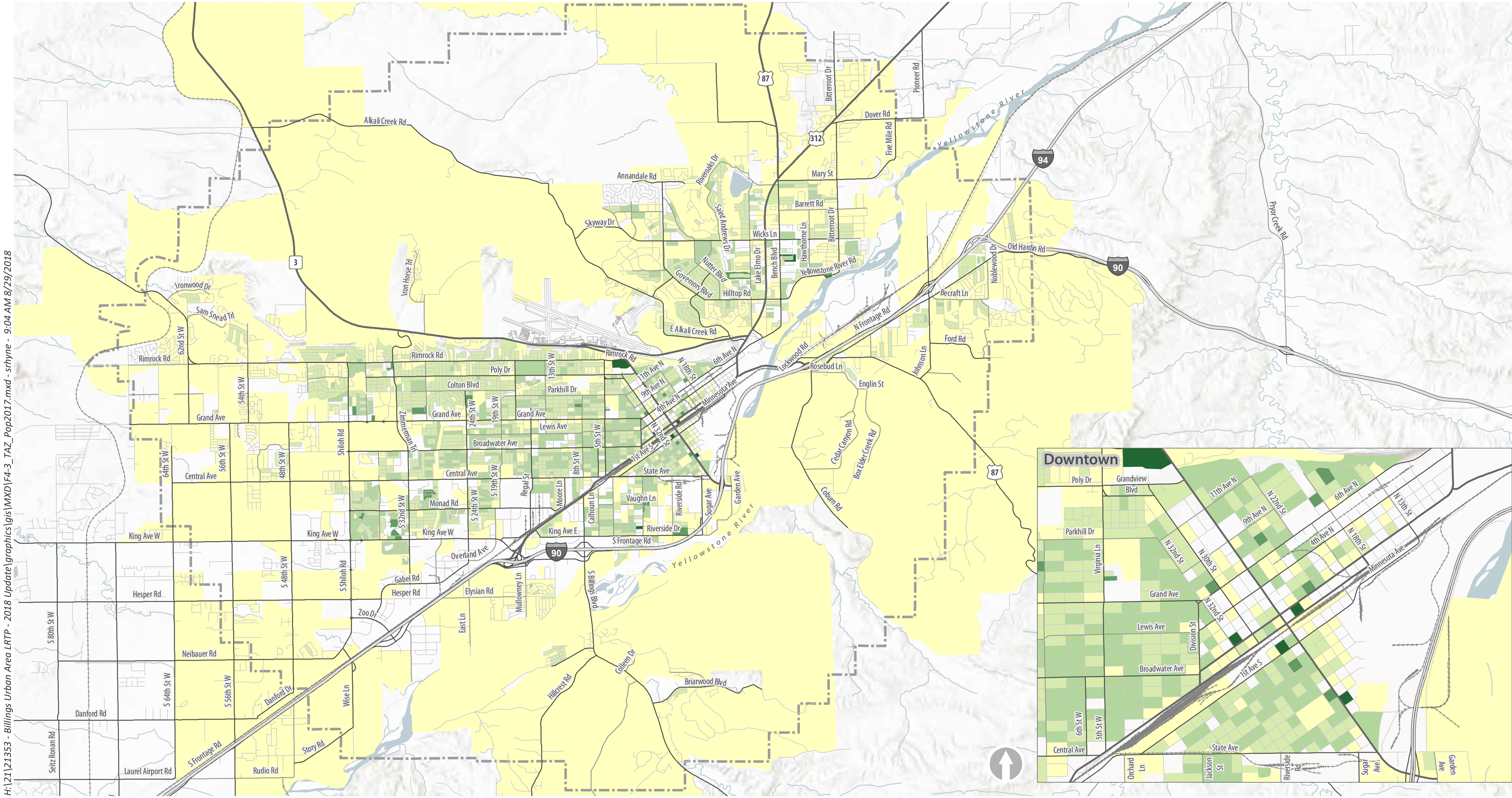
Figure 4-2

Existing Zoning Map



Population Density (residents/acre)

- 1 - 5
- 6 - 10
- 11 - 25
- 26 - 50
- >50

Study Area

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Figure 4-3

2017 Population

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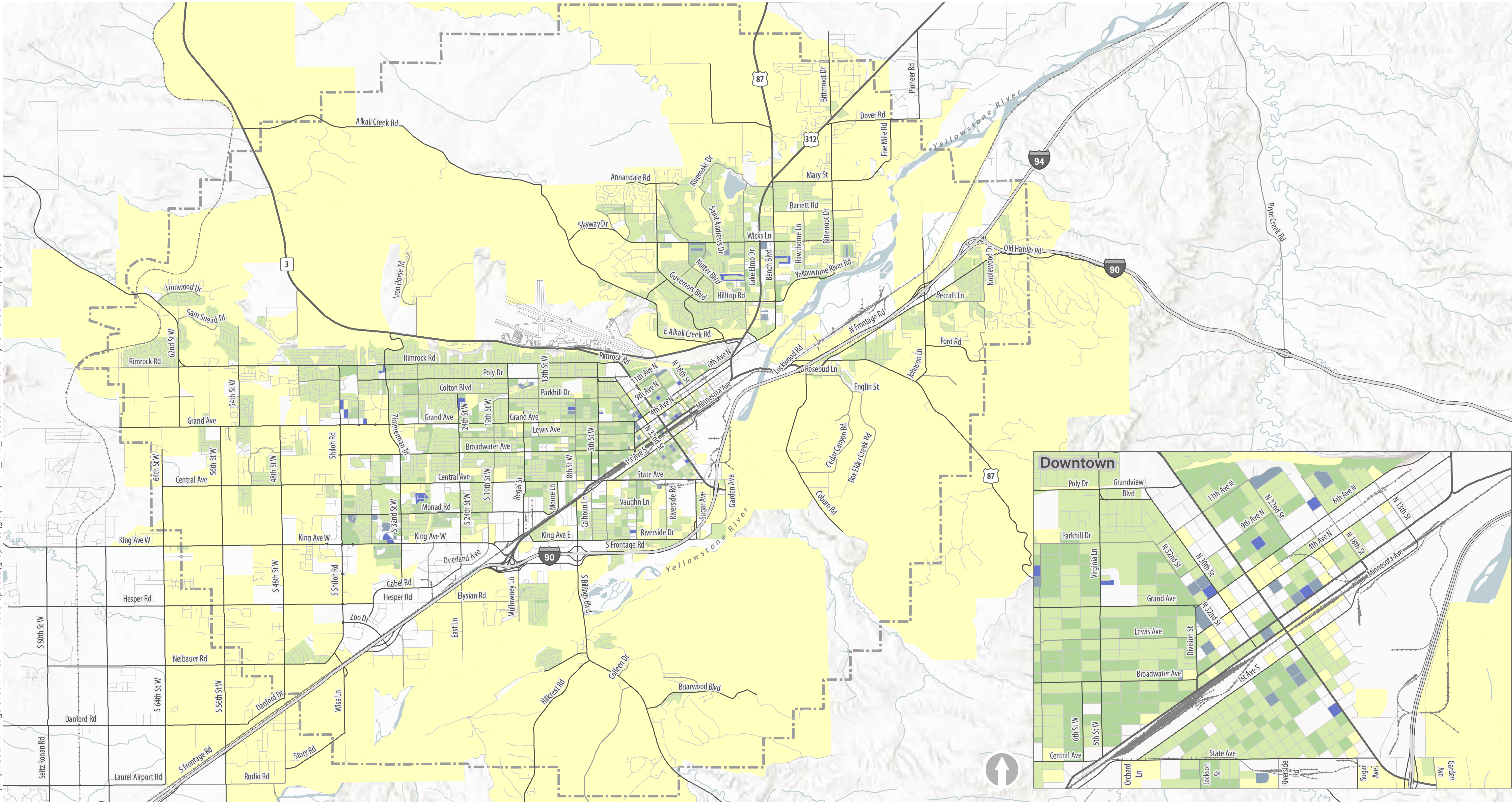

Housing Density (homes/acre)

- 0 - 1
- 2 - 5
- 6 - 10
- 11 - 15
- >15

Study Area

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Figure 4-4

2017 Housing

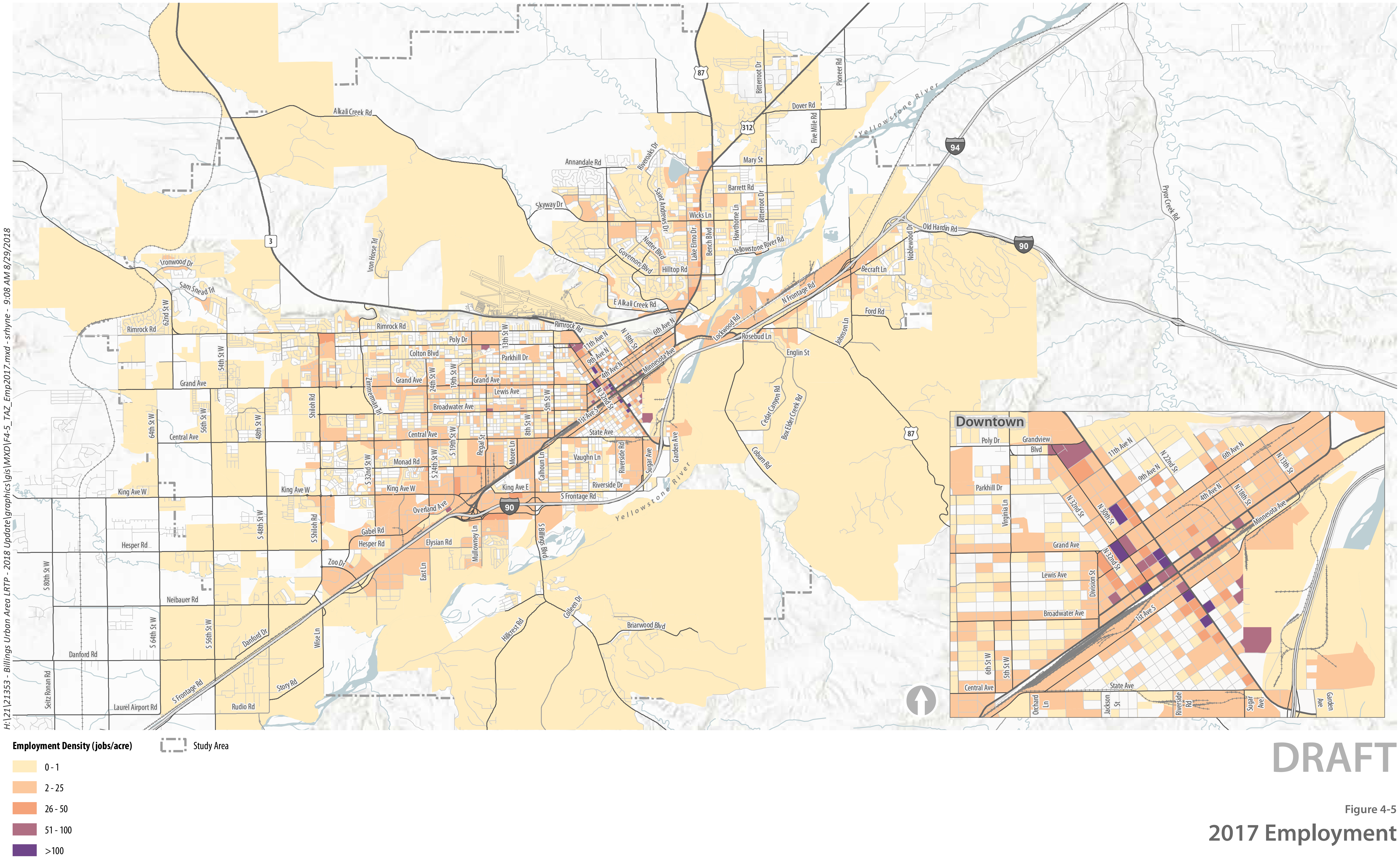

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Figure 4-5

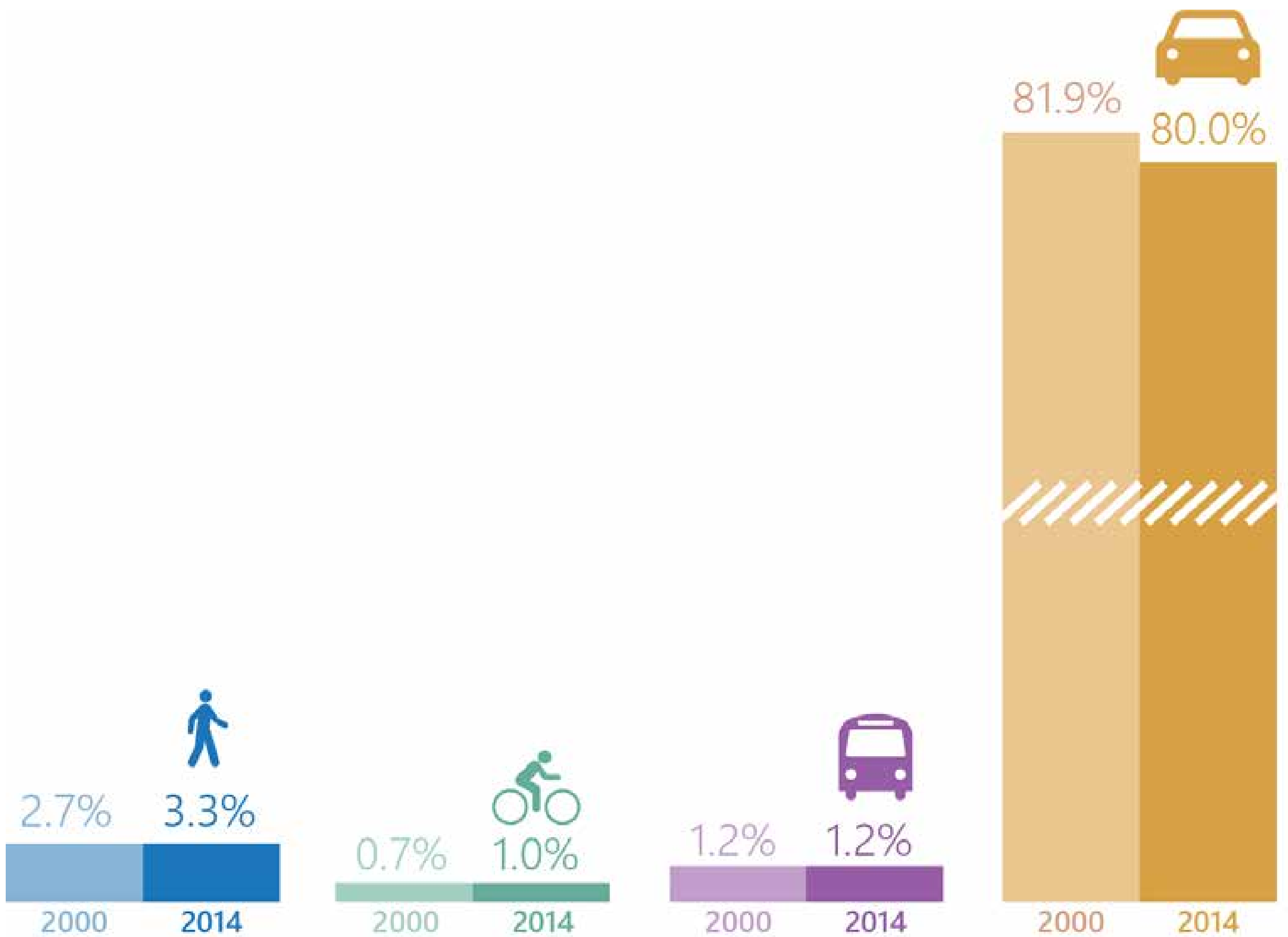
2017 Employment

TRAVEL PATTERNS

American Community Survey

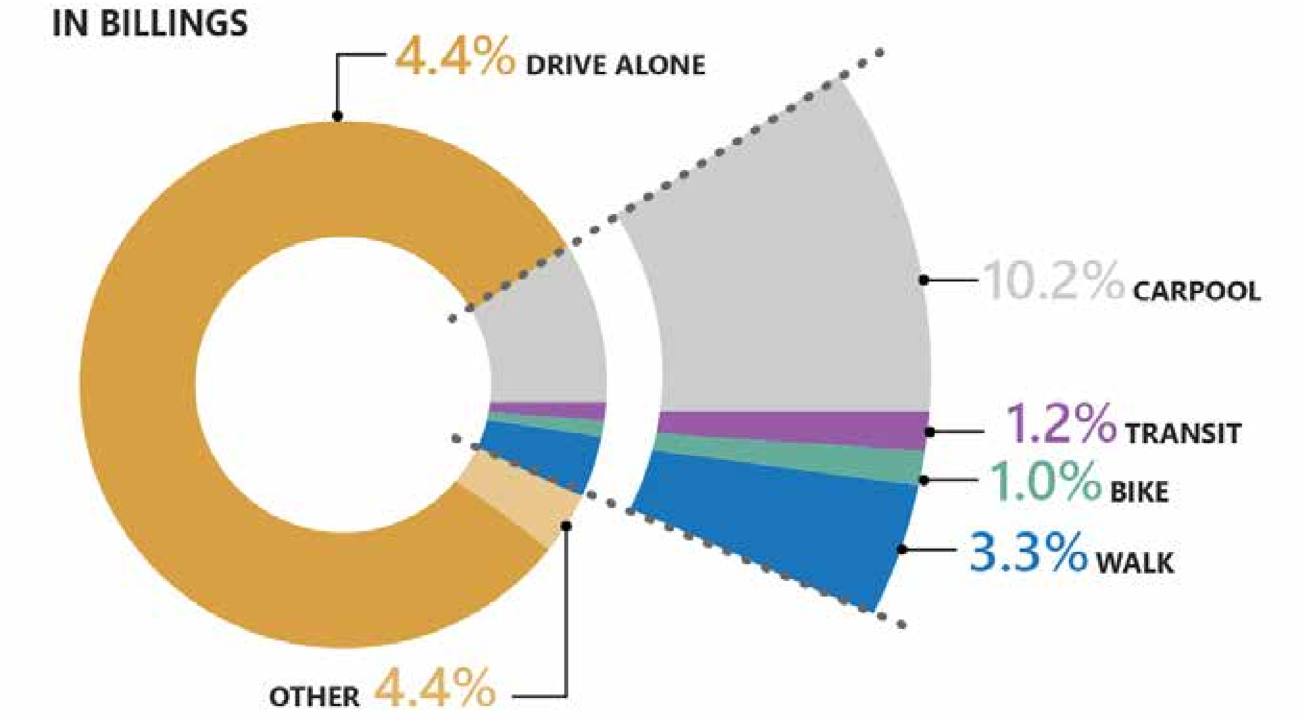
Data was summarized based on travel characteristics captured in the 2000 and 2010-2014 American Community Survey (ACS, 4-1) and presented in the recently completed Billings Area Bikeway and Trails Master Plan Update (4-2). Exhibit 4.1 illustrates the 2000 to 2014 mode share comparison for commute to work mode in the City of Billings. Exhibit 4.2 illustrates the 2014 mode share (commute to work trips) in the City of Billings.

Exhibit 4.1 2000 to 2014 Mode Share Comparison Commute to Work Mode (City of Billings)



Source: Census 2000 Summary File, 2010-2014 ACS

Exhibit 4.2 2014 Commute Mode Share (City of Billings)



Source: 2010-2014 ACS Data

Work trips comprise the majority of peak period travel, which has the highest impact on the transportation system. As shown, the predominant motorized mode is the single occupant vehicle, which is similar to other North American cities. Walking is the predominant non-motorized mode. Both walking and bicycling increased its' mode share since 2000 from a mode share percentage of 2.7% to 3.3% and 0.7% to 1.0%, respectively, which are both higher than the national average but lower than the cities of Bozeman, Helena, and Missoula in MT. A significant percent of work trips in the city (approximately 10.2 percent), are made by carpool, which is similar to the national average. In the Billings Area Bikeway and Trails Master Plan Update, travel time to work was summarized in detail. It was identified that the closer one lives to downtown Billings, the shorter their commute time is. The median trip length for the majority of the City of Billings ranges from less than 12 minutes to 17 minutes. There are a significant number of work trips made that are less than 15 minutes, which are trips that could be completed via a bicycle within a similar frame, especially when the time it takes to park a vehicle and access the final destination is included in the travel time calculation.

Yellowstone County Household Survey

The 2017 Billings / Yellowstone County Household Travel Survey (HTS, 4-3) was sponsored by the MPO with support from MDT. The 2017 survey was undertaken with the purpose of understanding the demographics and travel behavior of residents of Billings and Yellowstone County. Below is a summary of selected characteristics from the HTS results, as reported in the HTS:

- 1,066 households with completed surveys (about 1.7 percent of Yellowstone County)
- A typical surveyed household in the region makes 7.9 trips a day and a typical person makes 3.86 trips per day.
  - After applying weights, the average number of household trips rises to 8.6 per day and the average person trip rate falls to 3.75.
- The majority of trips made (89.7 percent) in the region are as the driver or passenger of an automobile, van or truck.
- Non-motorized trips (biking or walking) account for 6.9 percent of the total.
- Trips made using a private vehicle take 15.6 minutes and covered 5.7 miles on average compared to transit trips which take 23.4 minutes and covered 2.8 miles.
- Work trips take an average of 16 minutes in the region.
- The average distance traveled was 5.3 miles.
- Work trips account for 13.7 percent of all trips made in the region.
- Trips not categorized as work, school, shopping, or recreational account for 22.5 percent of all trips made (these include escorting minors, and non-mandatory errands and maintenance activities).

Data and results from the HTS were used in development of the travel demand model for Billings urban area.

FORECAST DEMOGRAPHICS

Using historical growth patterns and discussions with the MPO and SC, future population/housing and employment concentrations were developed for the horizon year 2040 to help determine where future travel demand occurs on the roadway network.

HISTORICAL AND FUTURE GROWTH

New residents are attracted to Billings by its quality of life, economic and recreational opportunities, and small town atmosphere with the amenities of a large urban center. The population projections for the Billings urban area from 2017 to 2040 are anticipated to increase by 42,712 persons, for an average increase of 1,857 persons per year.

As depicted in Figures 4-3 and 4-4, the strongest concentrations of population and housing are in the "Heights" area and to the west of downtown Billings. Smaller pockets of dense population in the central portion of the MPO along Rimrock Road represent the student population at Montana State University Billings and Rocky Mountain College. Aside from the Heights neighborhoods in the north of the city, population and housing is relatively spread out across the metropolitan area. Typically, this distribution of population/housing tends to generate more vehicle-based trips because of the longer trips distances that result and the relative cost ineffectiveness of providing transit to residential areas with low population density.

POPULATION AND HOUSING PROJECTIONS

In 2017, the Billings urban area population was approximately 127,056 persons residing in 55,464 dwelling units. By 2040, the population is expected to grow to approximately 169,768 persons in 73,656 dwelling units. The growth in population and housing between 2010 and 2040 within the Billings urban area is summarized in Table 4.3.

Table 4.3 Billings Urban Area Population and Housing 2017-2040

Demographic	2017	2040	Change	Percent Change
Population	127,056	169,767	42,711	+33.6%
Housing (Dwelling Units)	55,464	73,663	18,199	+32.8%

Source: MPO / Travel Demand Model

Figure 4-6 shows the population growth between 2017 and 2040. As depicted in the figure, residential growth is mostly expected to reach westward towards the urban area boundary, particularly west of Shiloh Road. Additionally, more residential growth is expected to occur along Highway 3 and Alkali Creek Road to the north of the city limits. Residential in-fill is expected to be limited around the downtown and Central Billings areas. Infill is projected to occur in the southern areas within the city limits, Lockwood, and the Heights neighborhoods.

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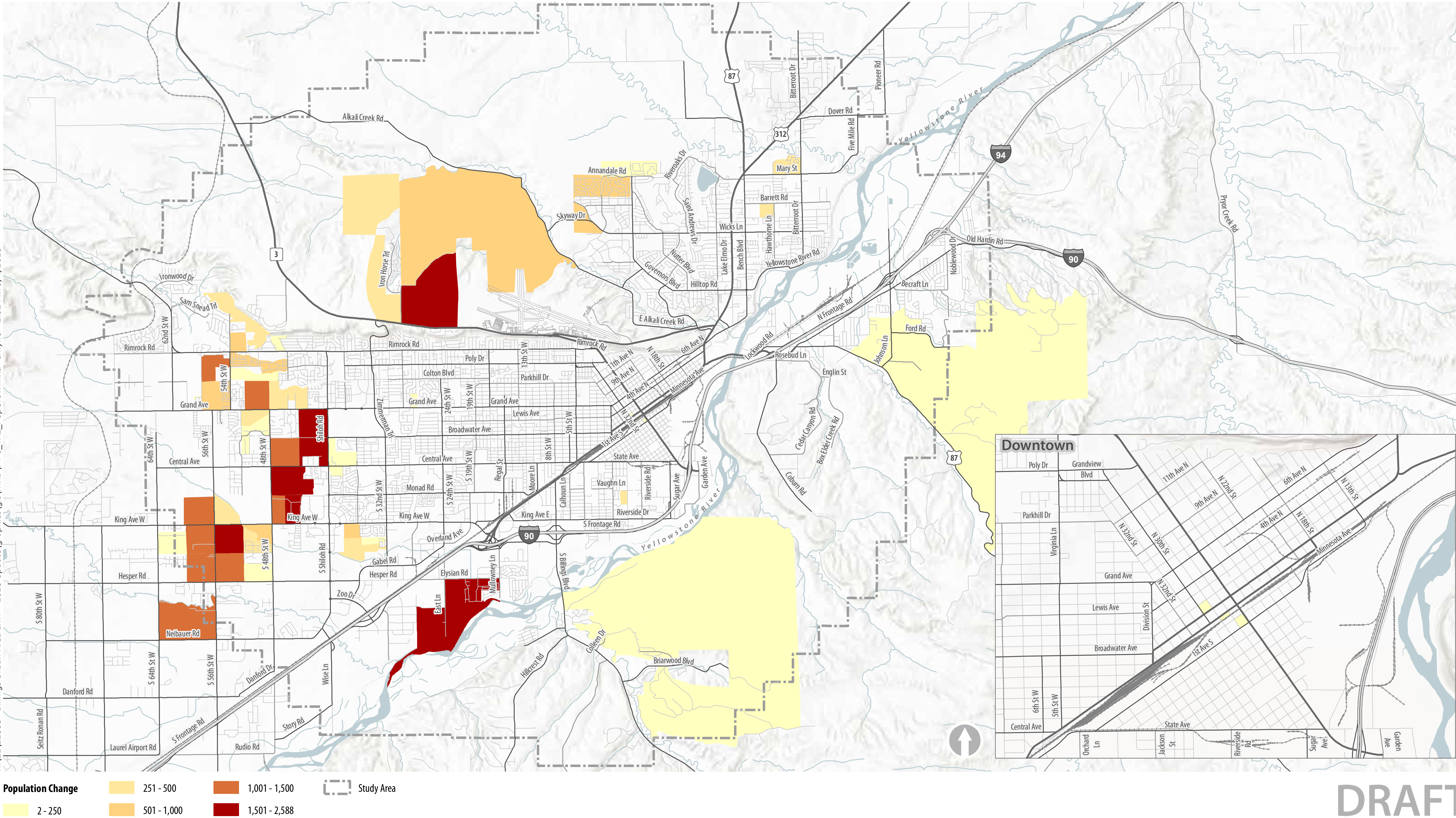

Figure 4-6

Population Growth (2017 to 2040)

FUTURE EMPLOYMENT

With growth in population, the employment sector within the study area is also expected to grow. As of 2017, the estimated total employment in the Billings urban area was approximately 77,639 jobs. By 2040, employment is projected to add another 26,690 jobs to result in an approximate 104,329 jobs in the Billings urban area. Table 4.4 summarizes the projected employment growth from 2017 to 2040.

Table 4.4 Billings Urban Area Employment Growth 2017-2040

Demographic	2017	2040	Change	Percent Change
Employment (Retail)	21,739	29,255	7,516	34.5%
Employment (Non-retail)	55,900	75,074	19,174	34.3%
Total Employment	77,639	104,329	+26,690	+34.3%

Source: MPO / Travel Demand Model

Figure 4-7 shows the comparison between 2017 and 2040 employment distributions. Employment growth within the Billings Urban Area is expected to expand generally within current commercial areas and to "densify" current employment locations. These commercial areas include S. 24th Street, Shiloh Road, the airport, downtown, and near the I-90 interchanges.

POTENTIAL EFFECTS OF GROWTH ON TRANSPORTATION SYSTEM

While the western portions of the urban area are expected to grow in population, these areas are expected to be relatively stagnant in terms of employment growth. This potentially translates into encouraging more people to commute by driving themselves rather than alternative modes because the trip distances are too far to be an appealing option. Additionally, there is currently no existing transit service northwest of King Avenue and Shiloh Road and to/from Lockwood to provide this option.

Generally, the residential population is projected to continue to spread out within the study area, with greatest density occurring west of Shiloh Road and north of Highway 3 near Zimmerman Trail. However, employment is expected to mostly increase in density around the following areas: Shiloh Road (south of Grand Avenue); Downtown Billings; Highway 3 near and at the airport; TEDD area in Lockwood; and near the Zoo Drive, S Billings Boulevard, and Johnson Lane interchanges along I-90. This type of growth pattern results in future residents having longer commute distances than today.

To manage these commute distances, the MPO and represented agencies should continue to implement and evaluate strategies that can improve the mode split of the urban area. The MPO has probably observed positive outcomes from current strategies, such as the recent Growth Policy's by the City of Billings and Lockwood, as well as recent Strategic Plan's by the Downtown Billings Alliance and TEDD. These elements should be continued with an emphasis on integrating land use and transportation to provide options and enhance the quality of life in the region.

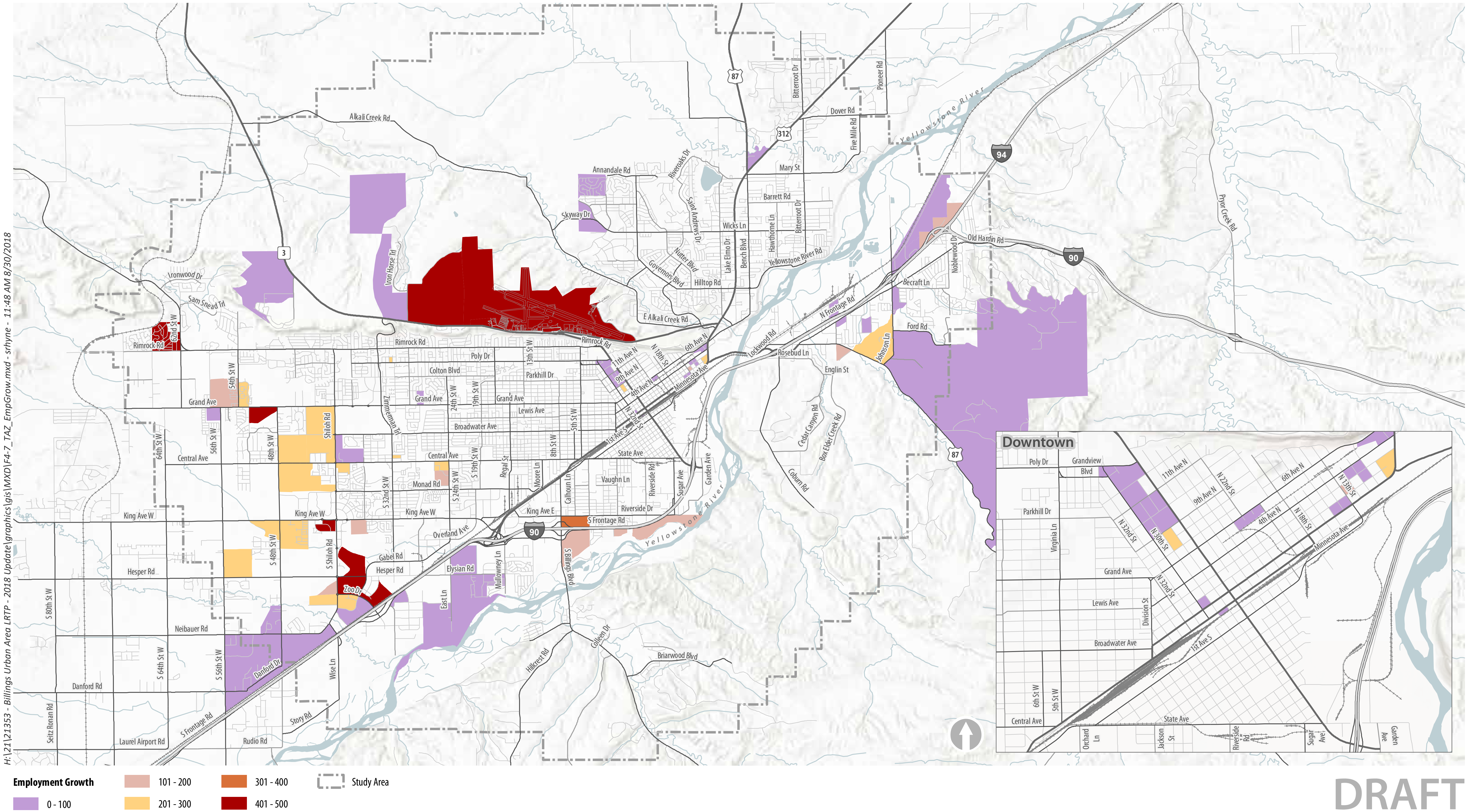

Figure 4-7

Employment Growth (2017 to 2040)

2018 BILLINGS URBAN AREA
LONG RANGE TRANSPORTATION PLAN

Chapter 5

Streets & Highways

STREETS AND HIGHWAYS

People in the Billings Urban Area travel using many modes of transportation. The automobile is the primary mode of transportation for residents but other modes such as transit, walking, and bicycling also play significant roles. The US Census Bureau estimates that approximately 90% of Billings Urban Area commuters travel to work in a private vehicle, with approximately 81% driving alone. This chapter explores the existing and future mobility of the region's streets and highways and identifies a list of projects to address operational and safety deficiencies and needs.

2018 LRTP Goals Related to Streets and Highways

Goal 1: Safety – Develop a safe transportation system

Goal 2: Functional Integrity and Efficiency – Optimize, preserve, and enhance the existing transportation system

Goal 3: Prioritized Improvements – Identify and prioritize projects that mitigate deficiencies, maximize the use of existing facilities, and balance anticipated needs with available funding

Goal 4: Environment – Develop a transportation system that protects that natural environment and promotes a healthy, sustainable community.

Goal 7: Economic Vitality – Ensure adequate transportation facilities to support the existing local economy and connect Billings to local, regional, and national commerce.

FUNCTIONAL CLASSIFICATION

The Roadway Functional Classification System defines a road's role in the overall context of the highway transportation system. In addition, it helps to define which standards are generally desirable for roadway width, right-of-way needs, access spacing, pedestrian and bicycle facilities, and other specifications. The functional classification system is typically established by the following hierarchy:

- **Freeways** serve high speed, long distance travel movements and provide limited access to adjacent lands. Often included in the Arterial classification, freeways are unique in that they provide access to other arterial roadways via grade-separated interchanges. In the Billings Urban Area, the freeways are classified as Interstate.
- **Arterials** are intended to serve higher volumes of traffic, particularly through-traffic, at higher speeds. They also serve truck movements and should emphasize traffic movement over access to adjacent property. Arterial roadways are further designated as Principal Arterials and Minor Arterials.
- **Collectors** represent the intermediate class. As the name suggests, these roadways collect traffic from the local street system and link travel to the arterial roadway system. These roadways provide a balance between through- traffic movement and property access and provide extended continuity to facilitate traffic circulation within an urban community or rural area.
- **Local Roads and Streets** are the lowest classification. Their primary purpose is to carry locally generated traffic at relatively low speeds to the collector street system and to provide more frequent access to individual businesses and residential property. Local streets provide connectivity through neighborhoods, but generally should be designed to discourage cut-through vehicular traffic.

In addition to the above functional classifications, a limited number of principal arterials are further identified as Interstate routes and National Highway System (NHS) routes. Within the Billings Urban Area, there are several roadways designated as NHS Routes (shown in Table 5.1). Exhibits 5.1 through 5.7 show a few different roadway types in the Billings Urban Area.

Exhibit 5.1 Main Street, Principal Arterial

Exhibit 5.2 Laurel Road, Principal Arterial

Exhibit 5.3 Rimrock Road, Principal Arterial

Exhibit 5.4 Monad Road, Minor Arterial

Exhibit 5.5 Lewis Avenue, Collector

Exhibit 5.6 Maurine Street, Local Street

Exhibit 5.7 Sedgwick Place, Local Street

Exhibit 5.8 Saddle Lane, Local Street

As shown in the exhibits, each of the classified roadways has some similar design characteristics, but there is some flexibility in the cross-section elements, number of lanes, and posted speed included for each category. As part of the LRTP planning process, the existing functional classification map was updated to reflect completed roadway projects, new connections, and future connections. The Federal Highway Administration (FHWA) makes the final functional classification determination. Figure 5-1 illustrates the updated functional classification map for the Billings Urban Area. The functional classification map is used for local planning purposes by the MPO and does not represent the federally approved system.

As shown in Figure 5-1, the future connections provide additional connectivity throughout the Billings Urban Area. The major proposed connections, listed in order of functional classification, include:

- **Freeway Connection** – provides an east-west connection from Interstate 94 to Highway 3, north of the Heights area and continues west of Highway 3 with a possible connection to Laurel (a study has not been completed to date)
- **Billings Bypass Arterial** – provides a connection from the junction of US 87 and Highway 312 to Interstate 90 at Johnson Lane (project currently in design and programmed for construction, Billings Bypass Environmental Impact Statement, 2014)
- **Alkali Creek Road to Highway 3 Arterial (Inner Belt Loop)** – provides a connection from Alkali Creek Road to Highway 3, north and west of the airport (programmed for construction, Inner Belt Loop Study, 2005)
- **Molt Road to Highway 3 Arterial** – provides a connection from Highway 3 to Molt Road (Molt Road/Highway 3 Study, 2004)

The 1964 Transportation Plan identified many of the roads that are in place today and planned in the future.

Exhibit 5.9 Future Roadway Network Identified in 1964

EXISTING CONDITIONS

This section summarizes the existing roadway facilities, traffic volumes, and operations within the study area.

FACILITIES

Several major highways and roadways serve the Billings Urban Area, including Interstate 90, Interstate 94, US Route 87, and Montana Highway 3. Billings also lies along the Camino Real Corridor, a high priority corridor on the National Highway System and part of the North American Free Trade Agreement (NAFTA) that connects Canada, the United States, and Mexico. In total, the Billings Urban Area encompasses 970 miles of roadway, 173 signalized intersections, and 18 roundabouts.

As shown in Figure 5-1, Interstate 90, Montana Highway 3, and US Route 87 are the three major roadways that converge near downtown Billings. Figure 5-2A through 5-2D show the existing roadways and traffic control devices.

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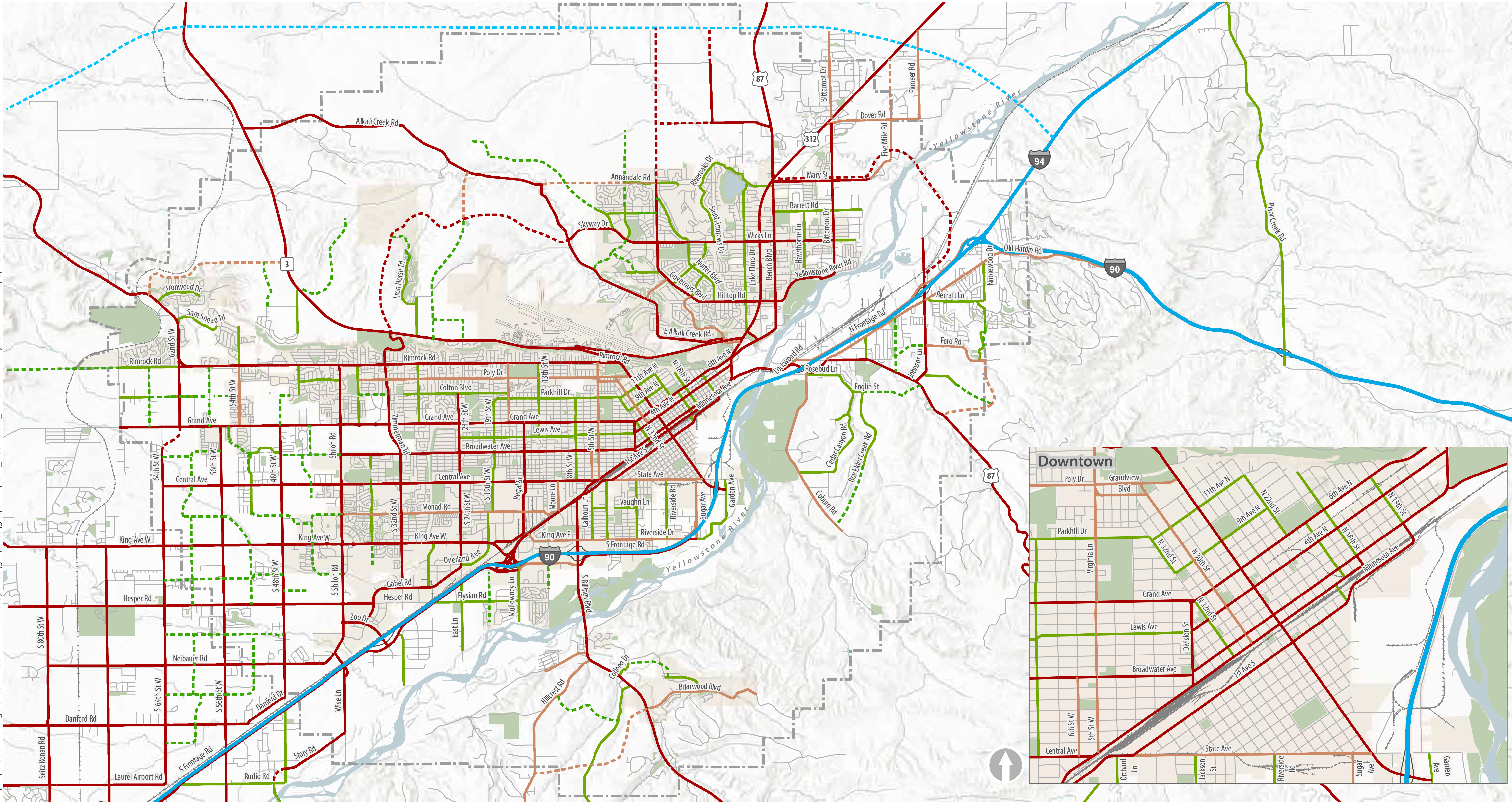

Roadway Classification

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Proposed Freeway Controlled Access
- Proposed Principal Arterial
- Proposed Minor Arterial
- Proposed Collector
- Study Area
- Park
- City of Billings

Note: This functional classification map does not represent the federally approved system.

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Figure 5-1

Functional Classification Map

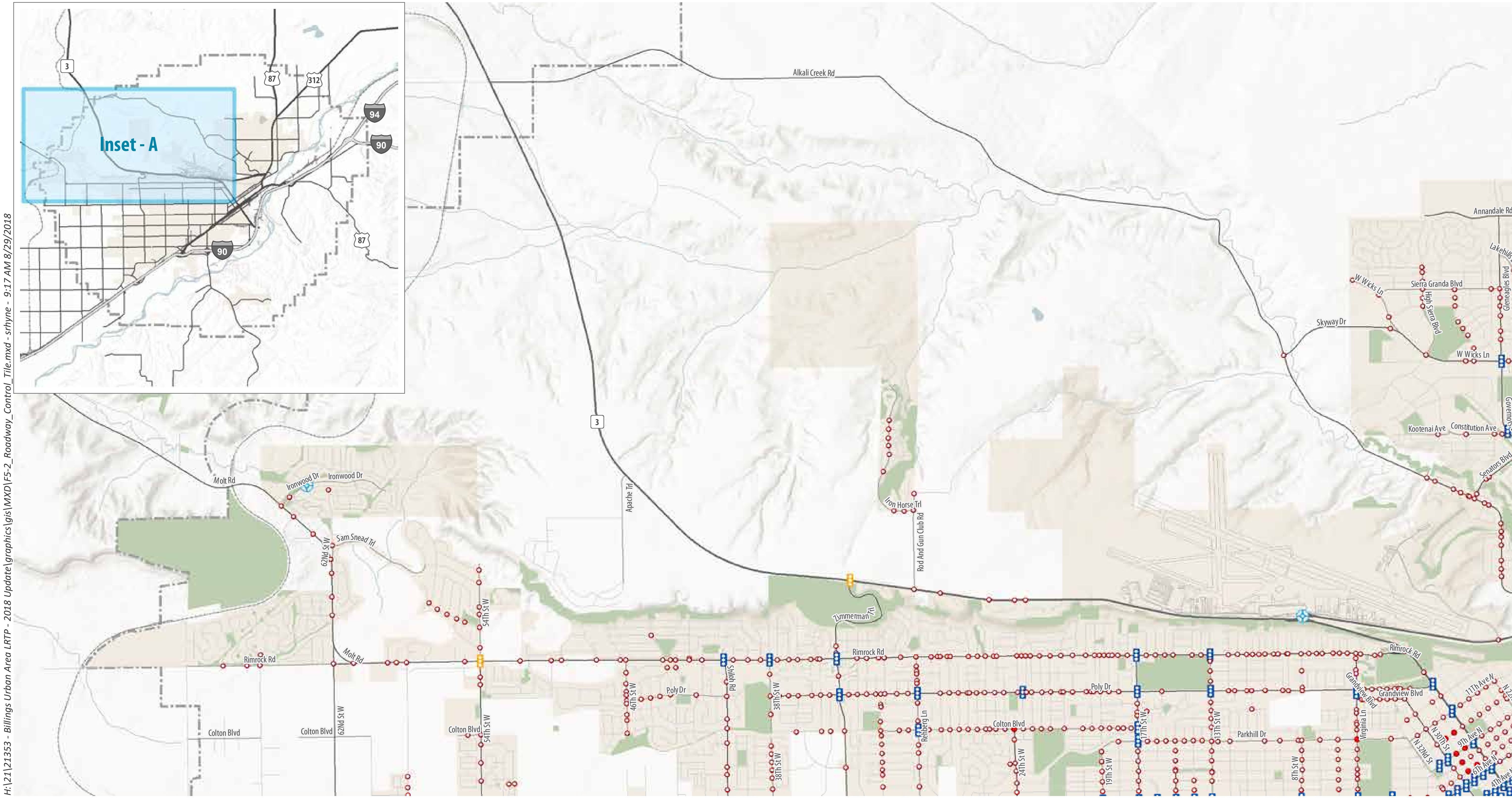

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Figure 5-2a

Existing Roadways and Traffic Control Devices

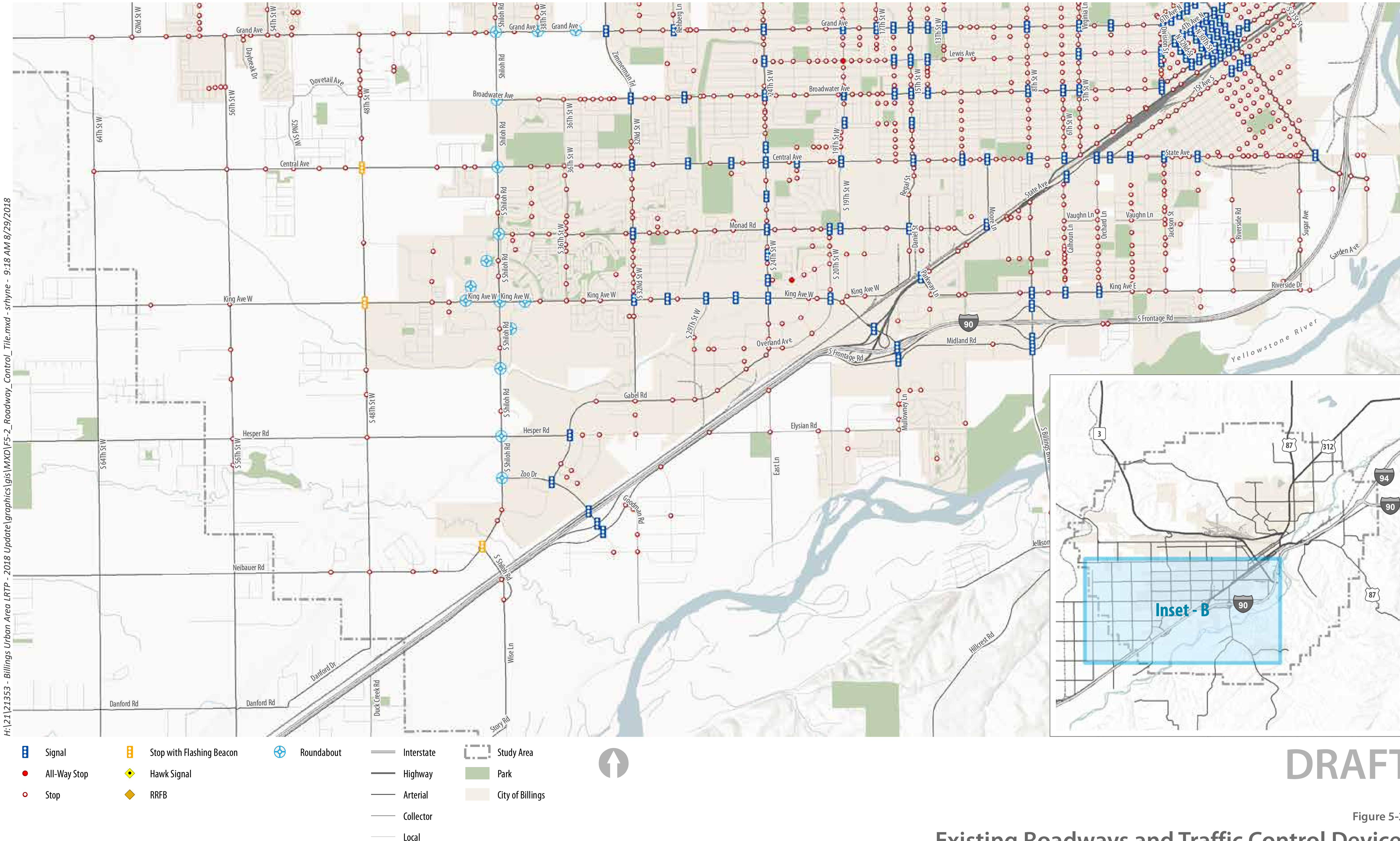

Figure 5-2b

Existing Roadways and Traffic Control Devices

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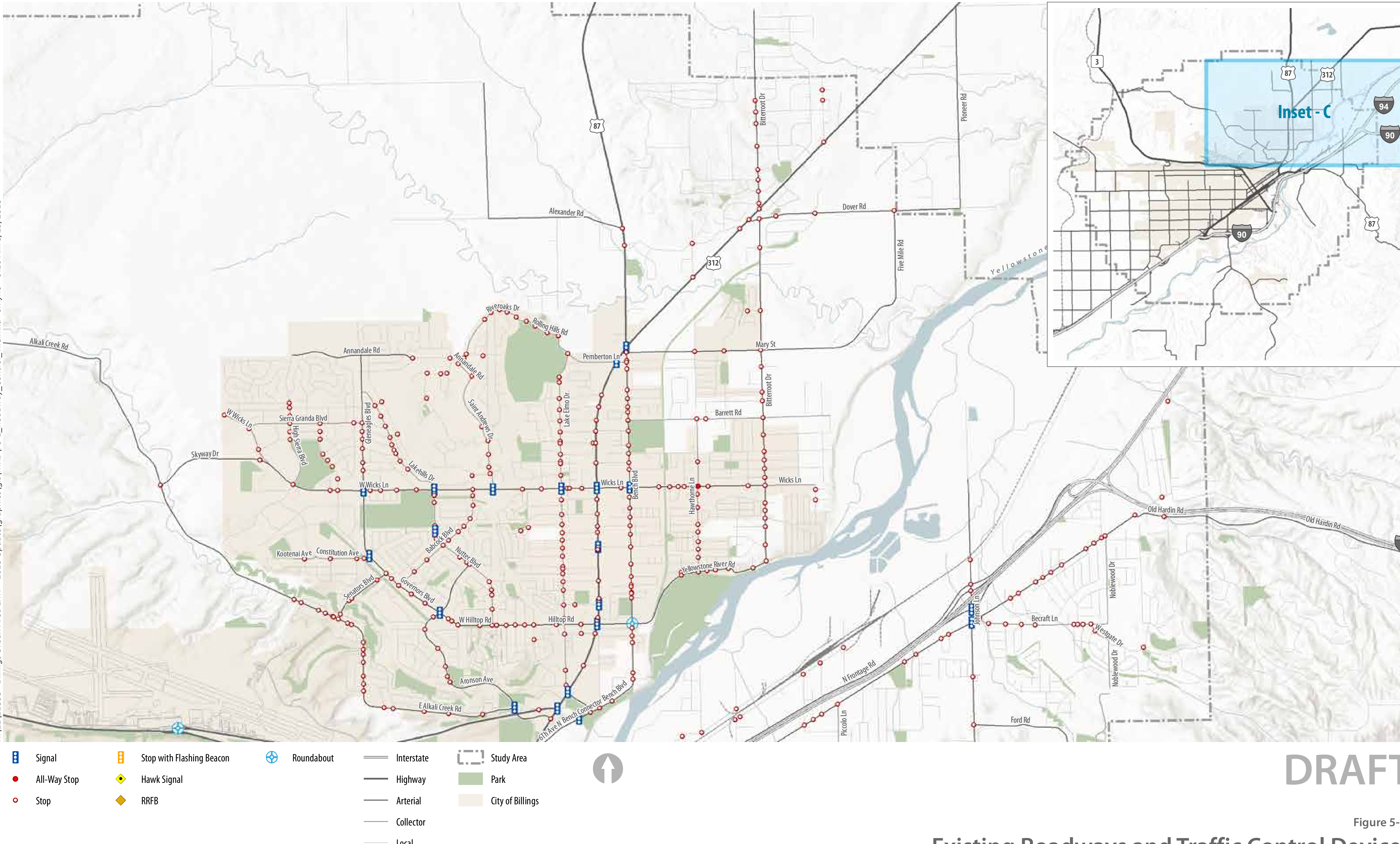

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Figure 5-2c

Existing Roadways and Traffic Control Devices

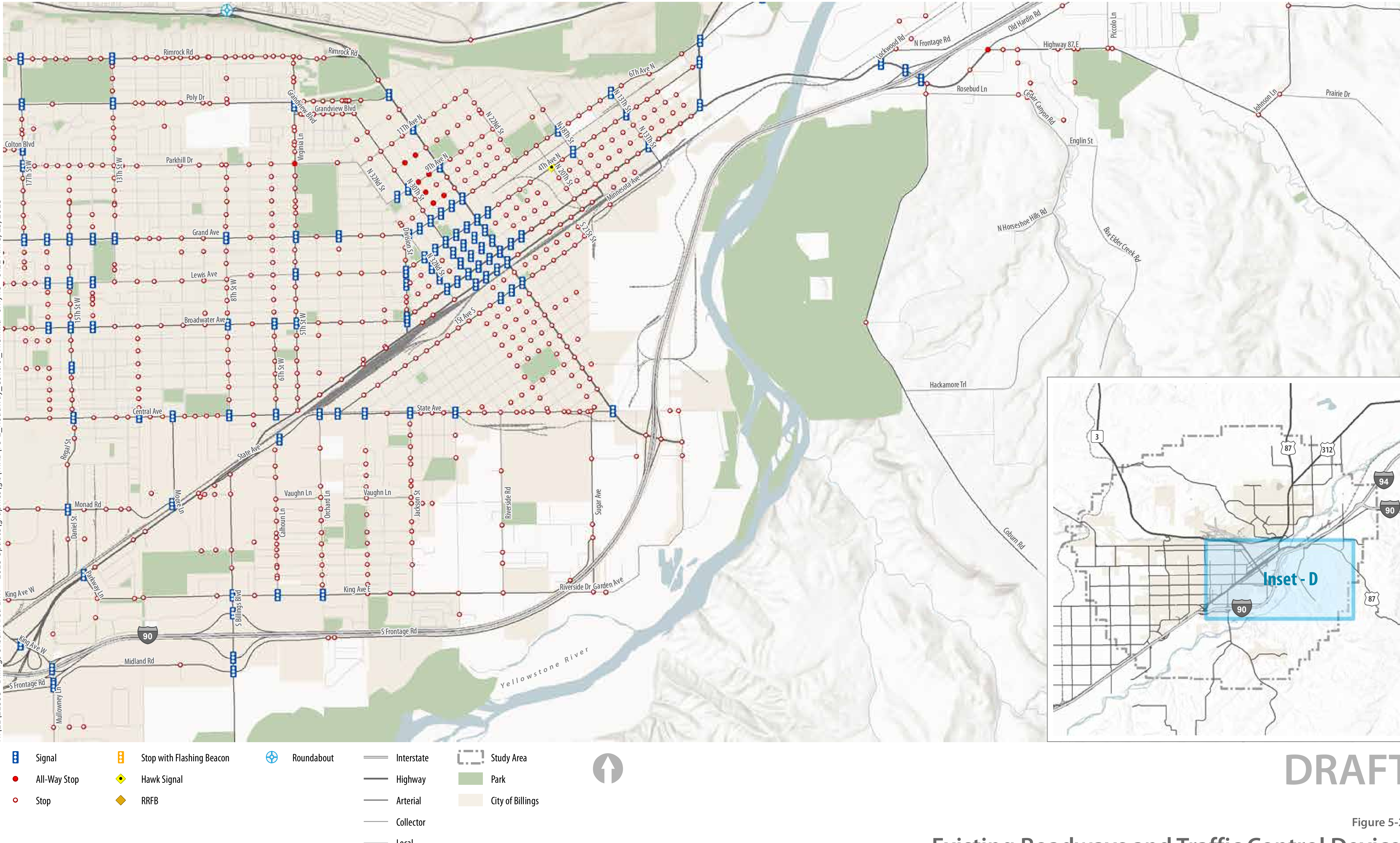

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Figure 5-2d

Existing Roadways and Traffic Control Devices

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Critical roadways that are part of the National Highway System (NHS) in the Billings Urban Area include the following:

- Interstate 90 (NHS, Eisenhower Interstate System)
- Interstate 94 (NHS, Eisenhower Interstate System
- Montana Highway 3 (NHS, STRAHNET Route)
- US Route 87 (NHS, Other NHS Route)
- King Avenue (MAP-21 NHS Principal Arterial)
- Zoo Drive (MAP-21 NHS Principal Arterial)
- Laurel Road (MAP-21 NHS Principal Arterial)
- 1st Avenue S (MAP-21 NHS Principal Arterial)
- Montana Avenue (MAP-21 NHS Principal Arterial)
- 1st Avenue N (MAP-21 NHS Principal Arterial)

SAFETY

Consideration of highway crash data and safety issues is a critical element in the planning and design of any transportation system. A review of 2013-2017 highway crash data for the arterial and collector roadways within the study area was completed to identify roadways and intersections that had significantly higher crash rates. A total of 14,577 reported crashes occurred in the Billings Urban Area during this five-year period. Figure 5-3 shows all reported crashes over this five-year time period. Tables 5.2 and 5.3 show the crash rates for the intersections and roadway segments with the highest crash rates. Three of the top four intersections are roundabouts located on the Shiloh Road corridor. As shown in Table 5.2, the King Avenue West and Main Street corridors both have five high crash intersections, while the 24th Street West corridor has four. Figure 5-4 illustrates the location of these intersections and roadway segments.

Table 5.2 Intersections with High Crash Rates (2013-2017)

	Intersection	Control Type	Total Crashes	Crash Rate
1	Shiloh Road & King Avenue W	Roundabout	149	3.57
2	Shiloh Road & Grand Avenue	Roundabout	129	2.67
3	24th Street W & Rosebud Drive	Signal	84	1.62
4	Shiloh Road & Central Avenue	Roundabout	58	1.49
5	Central Avenue & N 15th Street W	Signal	64	1.46
6	Main Street & 1st Avenue N	Signal	92	1.35
7	27th Street & 6th Avenue N	Signal	85	1.35
8	King Avenue W & 24th Street W	Signal	101	1.25
9	Main Street & Lake Elmo Drive	Signal	113	1.17
10	King Avenue W & 32nd Street W	Signal	72	1.15
11	27th Street & 1st Avenue N	Signal	53	1.13
12	Central Avenue & 24th Street W	Signal	81	1.13
13	Grand Avenue & N 17th Street W	Signal	59	1.13
14	King Avenue W & S 20th Street W	Signal	94	1.07
15	Grand Avenue & Zimmerman Trail	Signal	56	1.07
16	Main Street & Wicks Lane	Signal	62	1.02
17	24th Street W & Monad Road	Signal	53	0.85
18	King Avenue W & Interstate-90 Single Point Interchange (SPI)	Signal	68	0.81
19	Main Street & Airport Road	Signal	66	0.71
20	Main Street & 6th Avenue N	Signal	53	0.53

Source: MDT Crash Data (2013 - 2017)
Crash rates were calculated based on Total Number of Crashes x 1,000,000 vehicles / Vehicles per day x Number of Years x 365 days per year.

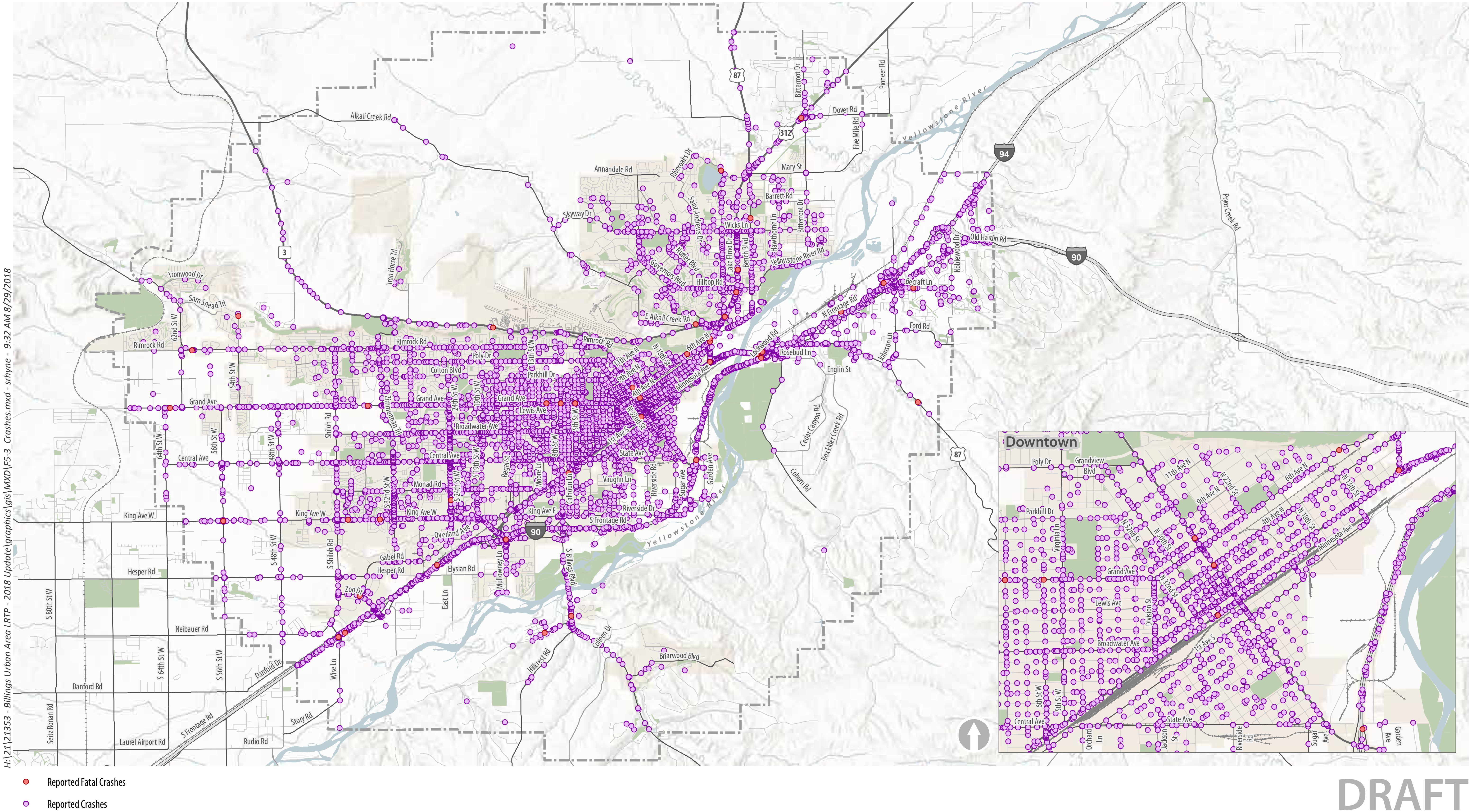

Figure 5-3

Total Reported Crashes (2013 - 2017)

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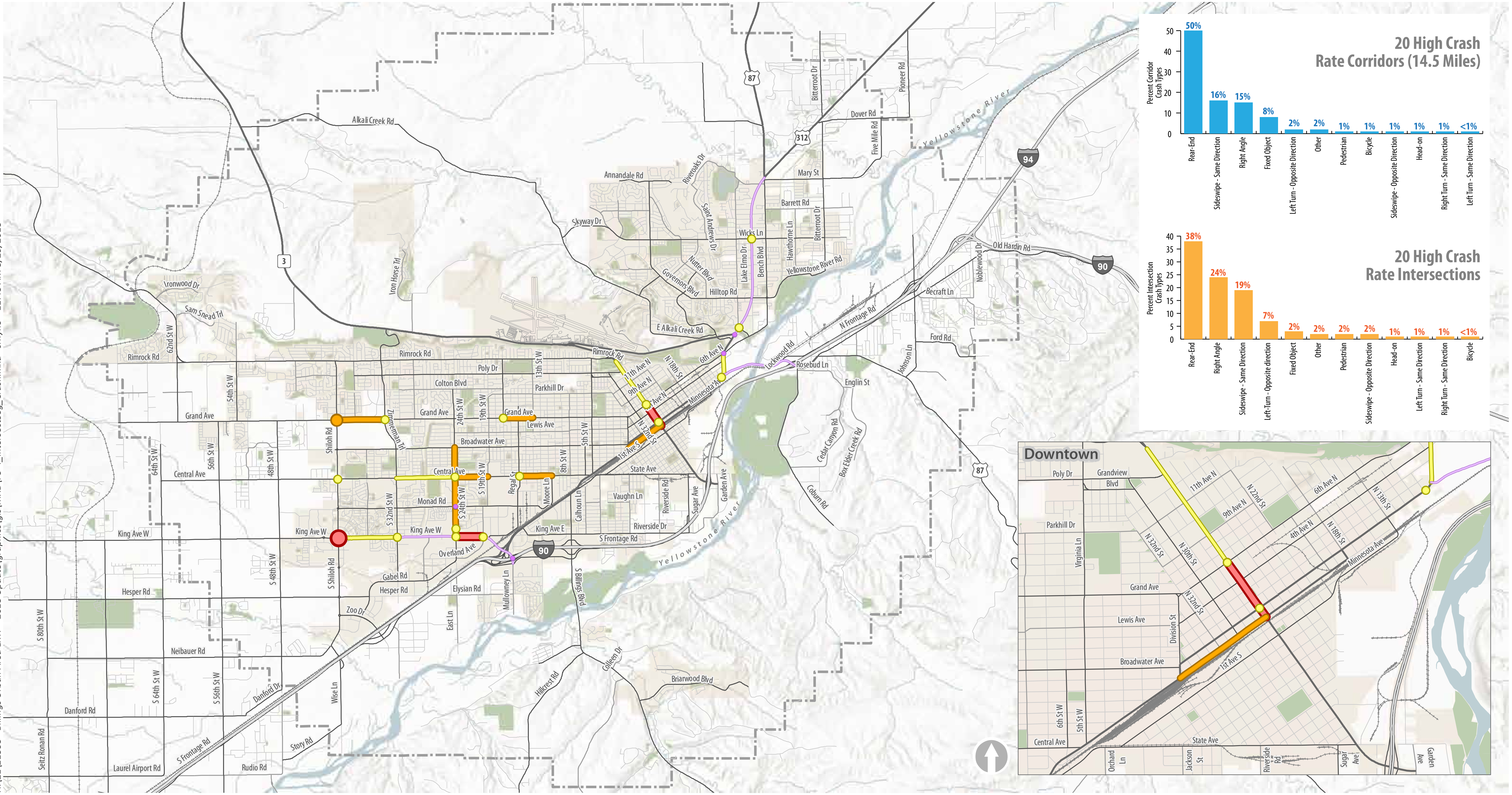

Intersection Crash Rates

- .53 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 3.6

Corridor Crash Rates

- 5.6 - 8
- 8 - 12
- 12 - 15
- 15 - 29.5

- Study Area
- City of Billings
- Park

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Figure 5-4

Intersection and Corridor Crash Rates

Table 5.3 Roadway Segments with High Crash Rates (2013 - 2017)

Roadway Segment		Extent	ADT	Length (miles)	Total Crashes	Crash Rate
1	N 27th Street	Montana Avenue to 6th Avenue N	16,595	0.4	386	29.5
2	King Avenue W	20th Street to 24th Street	24,100	0.5	310	15.2
3	Montana Avenue	27th Street to Division Street	10,980	0.7	203	14.9
4	S 24th Street W	King Avenue W to Monad Road	24,660	0.5	334	14.6
5	Central Avenue	19th Street to 24th Street	15,640	0.6	224	14.0
6	S 24th Street W	Monad Road to Central Avenue	26,280	0.5	317	13.2
7	Central Avenue	Moore Lane to 15th Street	16,895	0.5	219	12.9
8	Grand Avenue	Zimmerman Trail to Shiloh Road	12,160	0.8	230	12.8
9	24th Street W	Central Avenue to Broadwater Avenue	22,685	0.5	257	12.4
10	Grand Avenue	13th Street to 17th Street	18,810	0.5	214	12.4
11	King Avenue W	32nd Avenue to Shiloh Road	14,290	1.0	294	11.8
12	Central Avenue	24th Street to 32nd Street	13,790	1.0	277	11.1
13	Main Street	1st Avenue N to 6th Avenue N	36,440	0.4	248	10.5
14	N 27th Street	6th Avenue N to Rimrock Road	15,255	0.9	247	9.9
15	King Avenue W	24th Street to 32nd Street	25,660	1.0	368	7.9
16	Main Street	Airport Road to Hilltop Road	44,550	0.7	369	6.5
17	King Avenue W	Midland Road at Mullowney Lane to 20th Street	40,470	0.7	349	6.5
18	Main Street	Hilltop Road to Wicks Lane	27,220	1.0	306	6.1
19	Main Street	Wicks Lane to US 87	16,840	1.1	199	6.0
20	Highway 87E	Interstate 90 to 1st Avenue N	26,040	1.3	347	5.6

Source: MDT Crash Data (2013 - 2017)
Crash rates were calculated based on Total Number of Crashes x 1,000,000 vehicles / Vehicles per day x Number of Years x 365 days per year x Length of Segment.

TRAFFIC OPERATIONS

Intersection turning movement count data from a variety of sources informed peak hour level of service estimates at approximately 300 intersections throughout the Billings Urban Area. These estimates included most intersections featuring both approaches with collector or higher roadway classification. Turning movement counts taken before 2018 were normalized to 2018 levels by assuming a constant 1% annual growth rate. Figure 5-5 shows existing intersection peak hour level of service. Intersections operating at a critical peak hour level of service E or F or identified by the SC as potentially congested are shown in Table 5.4.

Table 5.4. Summary of LOS E, LOS F, and Potentially Congested Intersections During Critical Peak Hour (Year 2018)

Intersections Operating at LOS E	Intersections Operating at LOS F	Intersections Identified by SC as Potentially Congested
• Johnson Lane & Old Hardin Road • Laurel Road & Moore Lane • Wicks Lane & Main Street • Zimmerman Trail & Grand Avenue • Zimmerman Trail & Highway 3 • 6th Avenue N & N 26th Street • 11th Avenue N & N 30th Street • 24th Street W & King Avenue W • 24th Street W & Overland Avenue	• Aronson Avenue & Main Street • Daniel Street & Monad Road • King Avenue W & Laurel Road • King Avenue W & S 20th Street/W Overland Avenue • Lake Elmo Drive & Main Street • State Avenue & Underpass Avenue • 1st Avenue N & Main Street • 6th Street W & Central Avenue • 24th Street W & Grant Road • 24th Street W & Grand Avenue • 32nd Street W & Grand Avenue	• Governors Boulevard & Wicks Lane • N 27th Avenue & Rimrock Road

EXISTING DAILY TRAFFIC VOLUMES

In conjunction with the LRTP, the MPO developed a travel demand model for use in estimating traffic volumes and travel mode splits within the Billings Urban Area. The travel demand model includes a base year of 2017 and a future year of 2040. Existing daily traffic volumes for all roadway segments in the Billings Urban Area are shown in Figure 5-6.

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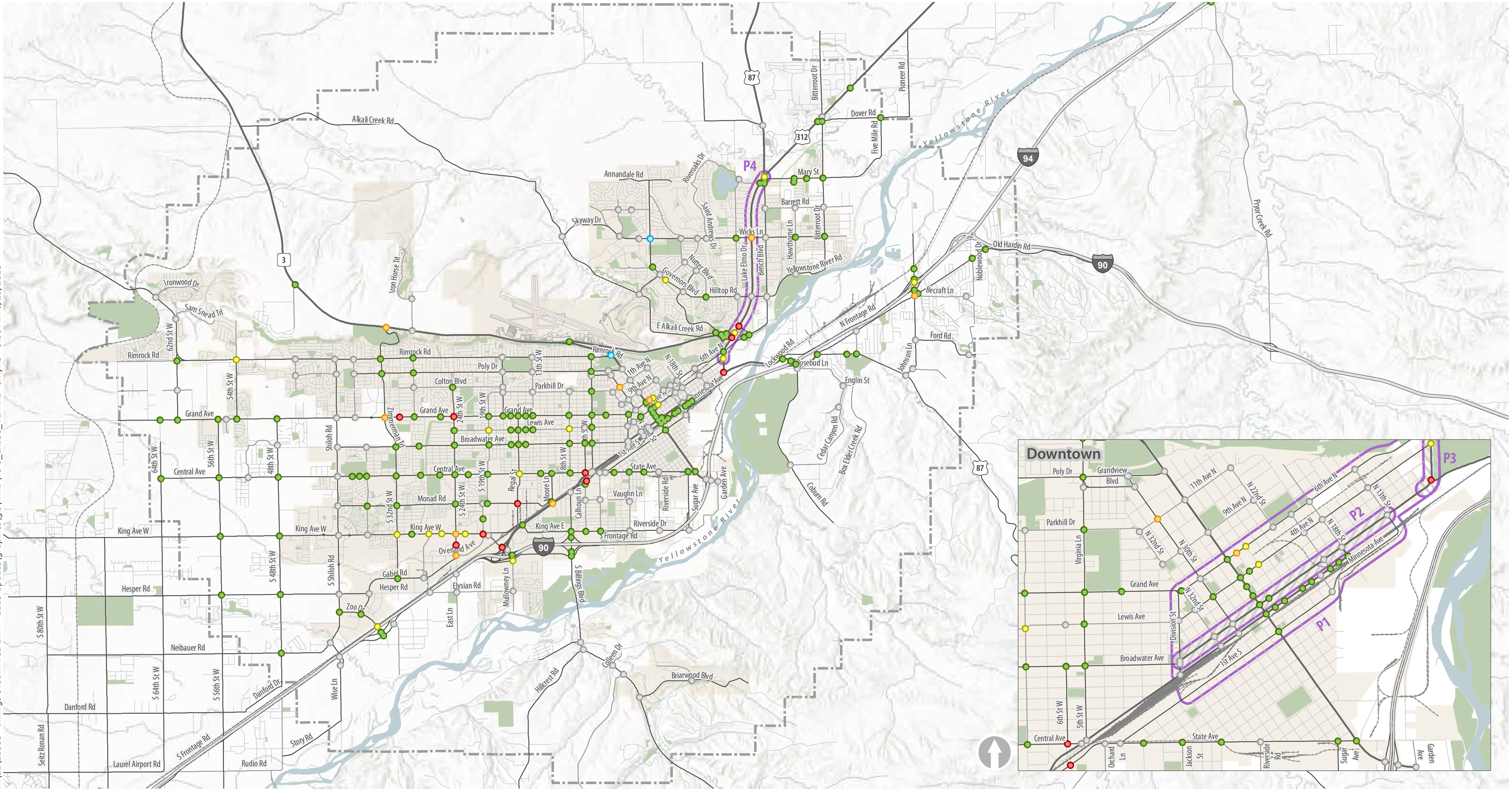

Level of Service

- A thru C
- D
- E
- F
- Intersections with No Data and Identified as Potentially Congested
- Intersections with No Data
- More detailed analysis is being performed in these areas by other studies/projects
- P1 - Downtown Traffic Study
- P2 - 1st Avenue North
- P3 - 1st Avenue N / Expo
- P4 - Main Street Signal Timing

Roadway Classification

- Interstate
- Highway
- Arterial
- Collector
- Local

- Study Area
- Park
- City of Billings

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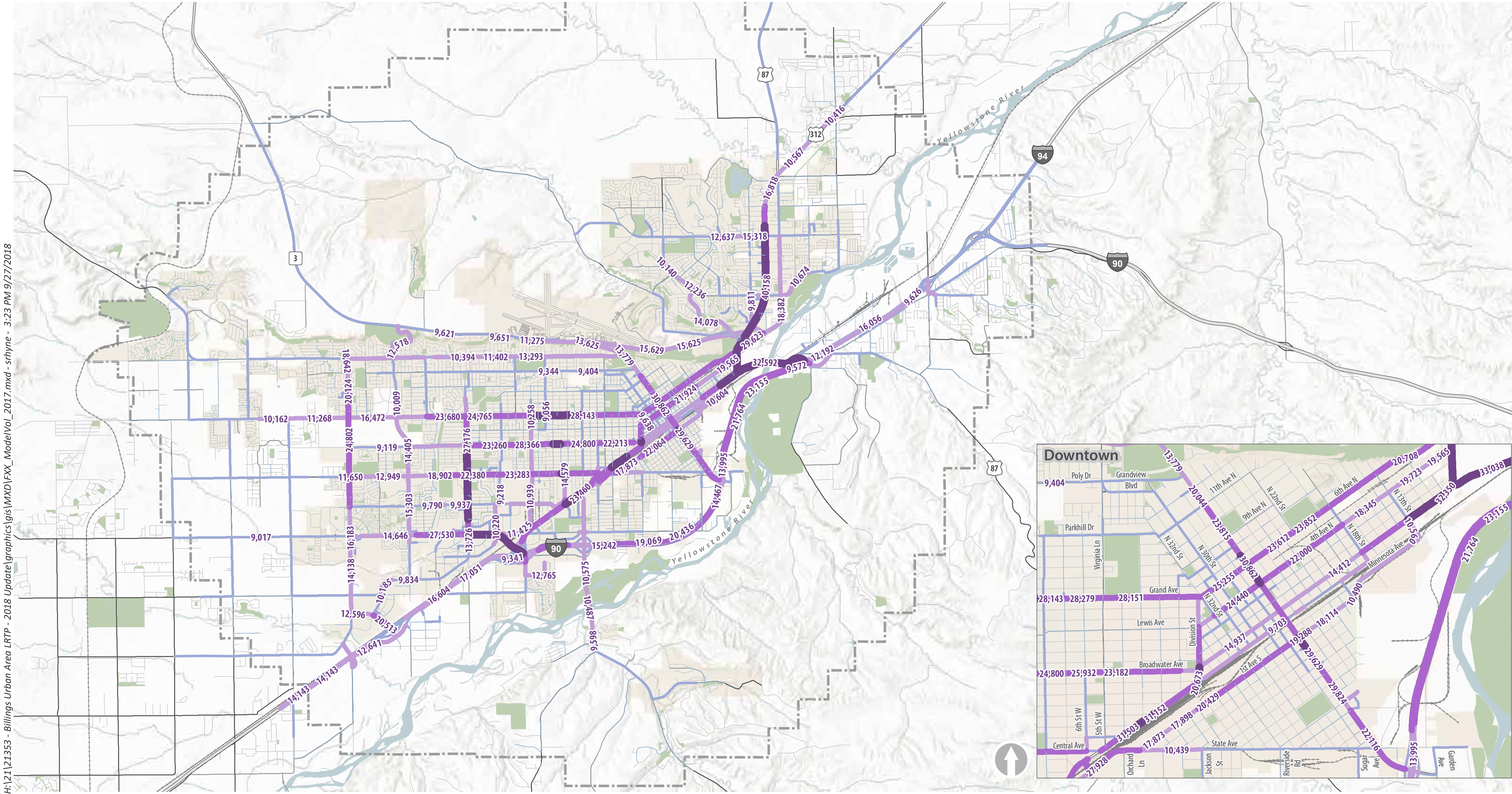
Figure 5-5

Existing Conditions and Level of Service



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2017 Model Volume

- 500 - 3,000
- 3,001 - 10,000
- 10,001 - 20,000
- 20,001 - 30,000
- 30,001 - 50,000
- Study Area
- Park
- City of Billings

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Figure 5-6

Existing Model Year (2017) Average Daily Traffic (ADT)

FUTURE CONDITIONS

This section summarizes the year 2040 traffic volumes and traffic operations within the study area.

TRAFFIC OPERATIONS

For the year 2040 conditions, the travel demand model was updated to include major committed and recommended projects within the Billings Urban Area. The major committed and recommended projects include:

Committed Projects

- Billings Bypass Arterial: 2-lane roadway from Johnson Lane interchange to Old Highway 312 and US 87
- Central Avenue: 5-lane roadway between 32nd Street W and Shiloh Road
- Five Mile Road: 2-lane roadway from Dover Road to Old Highway 312
- Inner Belt Loop: 2-lane roadway from Alkali Creek Road to Montana Highway 3
- King Avenue West: 5-lane roadway between Shiloh Road and 72nd Avenue
- Wicks Lane: 3-lane roadway between Bench Boulevard and Hawthorne Lane
- Zimmerman Trail: Add two-way left-turn lane between Montana Highway 3 and Rimrock Road
- 32nd Street West: 3-lane roadway between King Avenue W and Gabel Road
- Intersection improvements at Underpass Avenue, Airport/Main, Central Avenue/56th Street, Central Avenue/24th Street, Monad Road/19th Street/20th Street, 13th Street/1st Avenue N, Hillcrest Road/Blue Creek Road, Frontage Road/Wise Lane

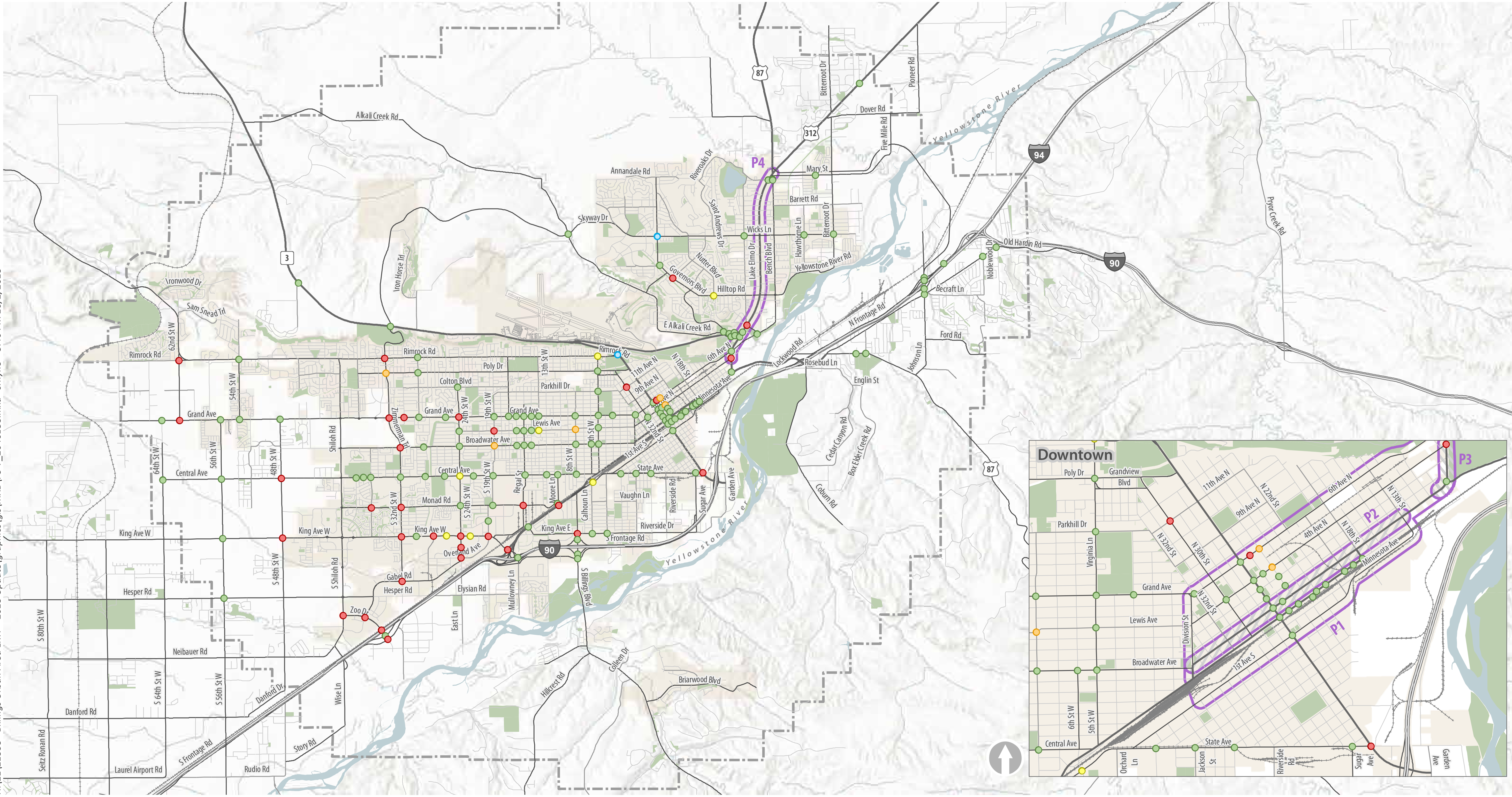
Recommended Projects

- Interstate 90 – Add 3rd lane in each direction between S Billings Boulevard Interchange and Johnson Lane Interchange)
- Montana Highway 3 - Add two-way left-turn lane between Zimmerman Trail and Airport Road
- Blue Creek Road - Turn lane improvements on Blue Creek Road
- Intersection improvements at 1st Avenue N/Exposition Drive

The travel demand model was used to estimate future year 2040 daily traffic volumes with the committed projects in place in the Billings Urban Area. Based on the year 2017 and 2040 traffic volumes, growth rates were identified for individual regions of the Billings Urban Area and then applied to the existing peak hour intersection volumes to calculate year 2040 peak hour traffic volumes at the intersections. Figure 5-7 shows year 2040 level of service estimates at approximately 300 intersections throughout the Billings Urban Area and Table 5.5 shows intersections operating at level of service E or F in year 2040. Projected average daily traffic volumes for all roadway segments in the Billings Urban Area in year 2040 are shown in Figure 5-8.

Table 5.5. Summary of LOS E, LOS F, and Potentially Congested Intersections During Critical Peak Hour (Year 2040)

Intersections Projected to Operate at LOS E	Intersections Projected to Operate at LOS F		Intersections Identified by SC as Potentially Congested
• 4th Avenue N & N 25th Street • 6th Avenue N & N 25th Street • Broadwater Avenue & 19th Street W • Lewis Avenue & 8th Street W • Wicks Lane & Main Street • Zimmerman Trail & Poly Drive	• 1st Avenue N & Exposition Drive • 6th Avenue N & N 26th Street • 11th Avenue N & N 30th Street • 24th Street W & King Avenue W • 24th Street W & Overland Avenue • 24th Street W & Grant Road • 24th Street W & Grand Avenue • 32nd Street W & Grand Avenue • 48th Street W & Central Avenue • 48th Street W & King Avenue • 62nd Street W & Rimrock Road • 62nd Street W & Grand Avenue • Broadwater Avenue & 32nd Street W • Gabel Road & 32nd Street W • Grand Avenue & 19th Street W • Governors Boulevard Babcock Boulevard • King Avenue W & Laurel Road • King Avenue W & S 20th Street/W Overland Avenue • King Ave W & S 29th St W • King Ave W & S 32nd St SW • King Avenue & S Billings Boulevard	• Lake Elmo Drive & Main Street • Laurel Road & Moore Lane • Lewis Avenue & 19th Street W • Monad Road & Daniel Street • Monad Road & 32nd Street W • Monad Road & 36th Street W • Mullowney Lane & Midland Road • Rimrock Road & Zimmerman Trail • State Avenue & S 27th Street • Zimmerman Trail & Grand Avenue • Zoo Drive & I-90 WB Ramps • Zoo Drive & I-90 EB Ramps • Zoo Drive & S Frontage Road • Zoo Drive & Gabel Road • Zoo Drive & S Shiloh Road	• Governors Boulevard & Wicks Lane • N 27th Avenue & Rimrock Road



Level of Service

- A thru C
- D
- E
- F
- Intersections with No Data and Identified as Potentially Congested

More detailed analysis is being performed in these areas by other studies/projects

- P1 - Downtown Traffic Study
- P2 - 1st Avenue North
- P3 - 1st Avenue N / Expo
- P4 - Main Street Signal Timing

Roadway Classification

- Interstate
- Highway
- Arterial
- Collector
- Local

- Study Area
- Park
- City of Billings

NOTE: Some intersections included in Figure 5-5 were not analyzed for future conditions and are not shown in this figure.

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Figure 5-7

Future Conditions (2040) and Level of Service

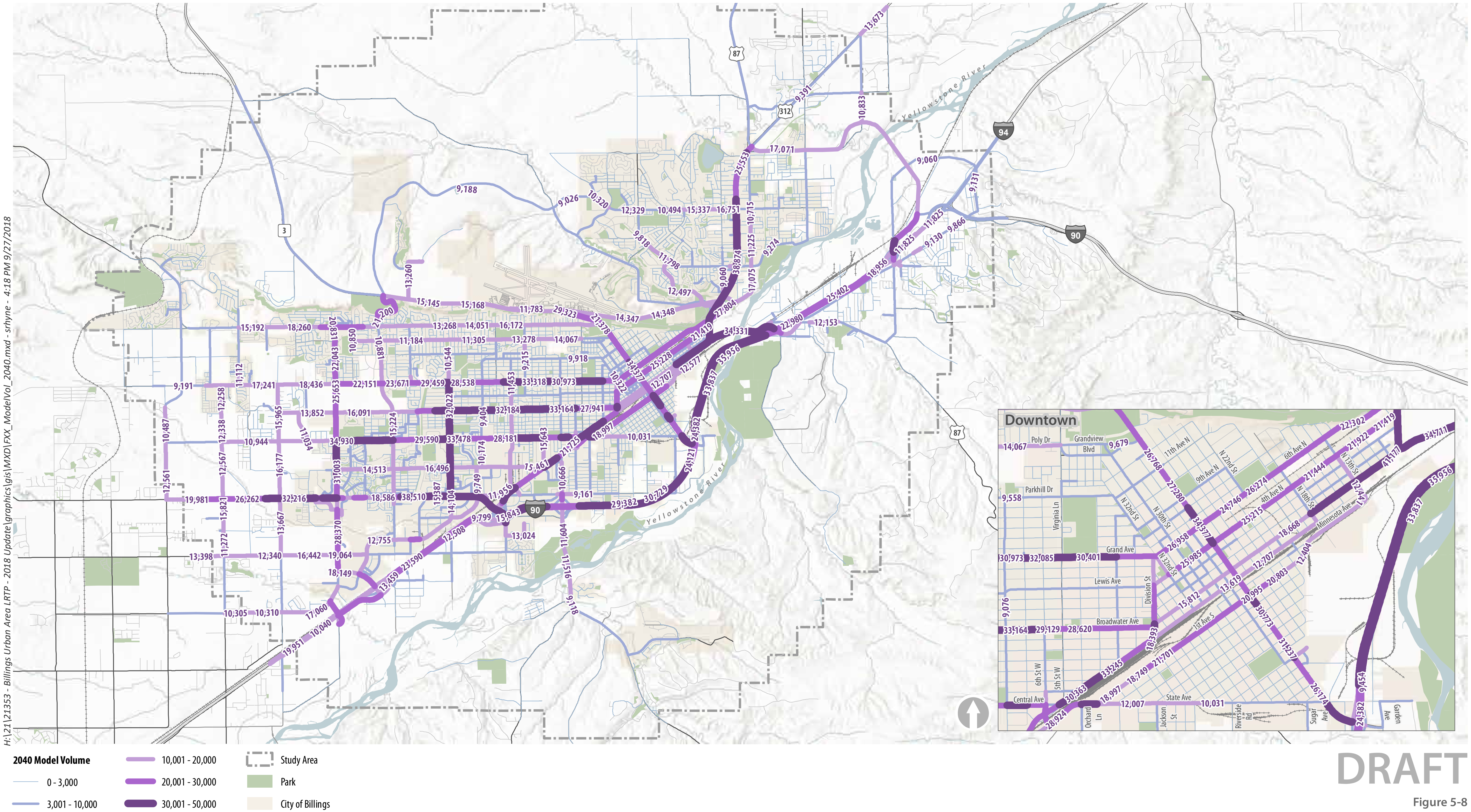

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Figure 5-8

Future Model Year (2040) Average Daily Traffic (ADT)

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NEEDS AND DEFICIENCIES

In order to guide identification of short- and long- range projects, deficiencies and needs were collected from the general public, the SC, and through a review of past plans/studies.

PUBLIC AND SC FEEDBACK

Forty-nine percent of the public comments corresponded to streets and highways or intersection deficiencies and needs in the study area. Review of the public comment feedback and SC comments suggested the following themes:

- Redesign unsafe intersections using roundabouts and traffic signals
- Improve traffic flow through signal retiming on congested corridors
- Provide better connectivity between the West End, Downtown, and Billings Heights
- Provide better connectivity between The Rims and the West End
- Maintain roadways, decrease the number of potholes, and improve snow removal
- Lower speed limits and calm streets with infrastructure improvements to reduce speeding
- Widen roadways to improve congestion
- Provide better connectivity between the west end and Lockwood
- Provide Inner Belt Loop and Outer Belt Loop connections
- Provide better connectivity over the Yellowstone River
- Increase capacity of railroad underpasses

NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

There have been several city-wide studies/plans, highlighted in Exhibit 5.10, that focus on streets and highway facilities in the City of Billings. Below is a list of these studies/plans and their key needs and findings:

- **Highway 3 Corridor Planning Study (2015)** provides an access management and transportation circulation plan for the Highway 3 corridor from North 27th Street to Apache Trail (approximately 5 miles). It incorporates bicycle/pedestrian facilities, a parking plan, and a stormwater management plan along the top of the Rims. Key improvements include intersection control and bicycle/pedestrian infrastructure implementation.
- **Old Highway 312 Corridor Study (2016)** develops a comprehensive long-range plan for managing the corridor and determining what can be done to improve the corridor, which connects the growing communities of Huntley, Shepherd, and Worden with Billings. Key improvements include safety measures such as overhead lighting, intersection control, and intersection realignment.
- **West End Multimodal Planning Study (2016)** develops a transportation model to project development and traffic demand growth on the west end and provides recommendations on scope and priority of improvement projects to mitigate projected impacts. Key improvements include intersection control implementation at intersections throughout the West End.
- **Underpass Avenue Improvements Conceptual Design Report (2016)** reviews and analyzes the existing site conditions and traffic needs to prepare possible improvement options to Underpass Avenue.
- **Lockwood TEDD Infrastructure Master Plan (2017)** documents the infrastructure needs of the Lockwood Targeted Economic Development District (TEDD) and addresses those needs while optimizing the potential of the Lockwood TEDD area for development. Key improvements include roadway segments to be implemented with development of the study area.
- **Billings Urban Area Long-Range Transportation Plan (2014)** summarizes several streets and highway projects in the urban area and details relevant studies and plans completed between 2008 and 2014:
  - **Lockwood Transportation Study (2008):** This study identifies a set of short and long-term improvements at intersections and roadways within in the Lockwood area (5-2).
  - **Billings Bypass EIS Project (2014):** The Billings Bypass Project proposes to construct a new principal arterial connecting Interstate 90 (I-90) east of Billings with Old Highway 312. The purpose of the proposed project is to improve access and connectivity between I-90 and Old Highway 312 to improve mobility in the eastern area of Billings. The Record of Decision (ROD) was issued on July 28, 2014. The Preferred Alternative has been separated into two phases, which are referred to throughout the FEIS as Phase 1 (an initial two-lane road) and the Full Buildout (a final four-lane road). Phase 1 will design and construct the initial two lanes of road along the entire length of the Preferred Alternative alignment and pursue right-of-way acquisition for a future four-lane road. The second phase will require a NEPA re-evaluation and separate ROD(s) to design and construct the Full Buildout four-lane road along this alignment (5-4).

Exhibit 5.10 Study Covers

- **I-90 Corridor Planning Study (2012):** The study recommends a set of near-term and long-term improvements to the I-90 corridor (mainline and interchanges) from the Laurel interchange to the Pinehills interchange. The improvements include mainline widening, bridge reconstruction, safety improvements, and geometric improvements (5- 4).
- **Molt Road/Highway 3 Collector Road Planning Feasibility Study (2004)**: The study demonstrated that a proposed collector alternative is feasible from a preliminary engineering analysis (5-5).
- **Billings Hospitality Corridor Planning Study (2013)**: This study identifies a set of near-term and long-term projects for the Main Street, Exposition Boulevard, and Highway 87 roadway segments and intersections. Key improvements include streetscape, sidewalk, pedestrian crossings, and roundabout at the 1st Street N./ Exposition Boulevard/Highway 87 intersection (5-6).

PROJECT LIST

Roadway, intersection, and congestion management projects were identified from the needs and deficiencies assessment and committed projects in the City of Billings Transportation Improvement Program, FY 2017-2021, Capital Improvement Program (5-8), Capital Improvement Program FY 2019 – 2023 (5-9), and MDT project programming. The LRTP identifies a total of 58 roadway projects, 62 intersection projects, and 28 congestion management projects. Investing in these types of projects supports the plan's goals and the region's desire to provide a robust, interconnected transportation system.

A project description and planning-level cost estimate was developed for each project. The planning-level cost estimates were developed from cost estimates included in past plans/studies, engineer's estimates made by the consultant team, or the sources described above.

Roadway projects include reconstruction of roadways, extension of existing roadways, and construction of new roadways. These projects represent maintenance, capacity, safety, and/or connectivity type projects. Table 5.6 summarizes the roadway projects. Figure 5-9 shows the approximate location of each project.

Intersection projects include reconstruction/ modifications of intersections, installation of traffic signals and/or roundabouts, and construction of new intersections. These projects represent maintenance, capacity, safety, and/or connectivity type projects. Table 5.7 summarizes the intersection projects. Figure 5-9 shows the approximate location of each project.

Congestion management projects include signal retiming or traffic signal upgrades on the roadway system. Other types of congestion management strategies could include promoting alternative modes, parking management, land use managements, and other traffic operational enhancements. Table 5.8 summarizes the congestion management projects. Figure 5-10 shows the approximate location of each project.

Table 5.6 Roadway Projects

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost
R1	32nd Street West - King Ave West to Gabel Rd	0.8	Reconstruct to a 3-lane urban roadway	Primary	$4,100,000
R2	Old Hardin Road - Lockwood Interchange to Johnson Ln	2.4	Reconstruct to a 3-lane urban roadway	Primary	$5,700,000
R3	Wicks Lane (Main to Hawthorne)	0.5	Reconstruct to a 3-lane urban roadway (includes Bitterroot)	Secondary	$300,000
R4	I-90 Yellowstone River - Billings	0.2	Replace bridges	Interstate	$72,160,000
R5	Inner Belt Loop - Alkali Creek Rd to Highway 3	5	Construction of a new road from Alkali Creek Road to Highway 3.	Primary	$7,000,000
R6	1st Avenue South- Minnesota Avenue - 21st St to N 13th St	0.6	Reconstruct to urban roadway	Secondary	$1,000,000
R7	Pemberton Lane - BBWA to Lake Elmo Dr	0.5	Reconstruct to urban roadway	Local	$2,900,000
R8	Broadwater Avenue – BBWA to Shiloh Rd	1.5	Reconstruct to urban roadway	Primary	$4,000,000
R9	48th Street West – King Ave to Grand Ave	2	Reconstruct – cross section to be determined	Secondary	$5,500,000

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost
R10	King Avenue East – Orchard Ln to Sugar Ave	1.7	Reconstruct to a 3-lane urban roadway	Primary	$1,528,586
R11	Billings Bypass - Five Mile Road		New roadway and intersection improvements	Primary	$4,500,000
	Billings Bypass - Yellowstone River		New roadway and bridge	Primary	$52,760,000
	Billings Bypass - RR O'pass		New roadway and overpass	Primary	$14,400,000
	Billings Bypass - Johnson Ln Interchange - RR O'Pass		New roadway and overpass	Primary	$8,700,000
	Billings Bypass - Five Mile Road to US 87		New roadway and intersection improvements	Primary	$16,000,000
	Billings Bypass - Johnson Lane Interchange		New interchange, roadway, and intersection imrovements	Primary	$25,800,000
R12	N 21st Street – Montana Ave to 1st Ave S	0.1	Reconstruct railroad underpass	Secondary	$3,052,000
R13	N 13th Street – 1st Ave N to Minnesota Ave	0.1	Reconstruct railroad underpass	Secondary	$18,400,000
R14	27th Street – 1st Ave S to Airport Rd	2.99	Signal Optimization, Mill Overlay, ADA Corners, Sidewalks	Primary	$15,300,000
R15	Main St - Billings	3.7	Pavement preservation with ADA work	Primary	$5,735,460
R16	1st Avenue North - Division St to Main St	2	Reconstruct existing cross section	Primary	$14,500,000
R17	Hawthorne Lane Reconstruction	0.6	Reconstruct the roadway between Yellowstone River Road and Wicks Lane	Local	$1,000,000

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost
R18	Lincoln Lane Reconstruction	0.6	Reconstruct the roadway between Bench Boulevard and Conway	Local	$1,000,000
R19	Daniel Street Reconstruction	1	Reconstruct the roadway between Monad Road and King Avenue	Secondary	$2,800,000
R20	Various Projects	N/A	Pavement Preservation	N/A	Per Project
R21	MDT Preventive Maintenance	N/A	Pavement Preservation	N/A	Per Project
R22	Billings - NW	N/A	Pavement Preservation	N/A	$5,035,360
R23	Airport Rd - Zimmerman Trail	N/A	Pavement Preservation	Primary	$2,303,073
R24 - A	PAVER Program	N/A	Annual Program responsible for crack sealing, overlay, and chip seals of various streets throughout the City. BARSAA funding will be used in PAVER replacing some of the previously approved gas tax funding. The savings in gas tax funding will be used for the Inner Belt Loop project.	N/A	$14,725,000
R25 - A	Travel Corridor Coordination	N/A	Engineering will be done within Public Works.	N/A	$400,000
R26 - A	Misc. curb, gutter, and sidewalk	N/A	Annual replacement and infill program of curb, gutter, and sidewalk	N/A	$3,825,000
R27 - A	Annual ADA Replacement	N/A	Replace handicapped ramps in accordance with the signed agreement between the City of Billings and the Department of Justice	N/A	$1,250,000
R28 - A	Annual SID Contribution	N/A	This project will provide SID funding for Public Work's property that may be included in an SID for a given year.	N/A	$6,650,000

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost
R29 - A	Snow Melt Facility	N/A	Snow melting system to melt some of the snow hauled from the City's streets. Additional funding in FY 2019 will allow development of a storage and melting location in addition to the other sites that will be used.	N/A	$1,200,000
R30	Mullowney Lane	0.8	Road reconstruction south of Midland Road	Secondary	$4,100,000
R31	Hallowell Lane Improvements	1	Reconstruct to urban roadway	Secondary	$1,781,058
R32 - A	SBURA Unimproved Streets Improvements	N/A		N/A	$1,500,000
R33	King Ave E	0.47	Pavement Preservation	Primary	$100,000
R34	Grand - 24th to Zimmerman	1.17	Pavement Preservation	Primary	$1,350,000
R35	Hardin Road	2.08	Pavement Preservation	Secondary	$240,000
R36	Shiloh Road	1.99	Pavement Preservation	Primary	$60,000
R37	Blue Creek Road	2.59	Pavement Preservation	Primary	$881,000
R38	Billings Blvd	0.2	Pavement Preservation	Primary	$60,000
R39	Highway 3 Widening - Zimmerman to Apache	2	Widen Highway 3 from Zimmerman Trail to Apache Trail with TWLTL	Primary	$2,600,000
R40	Highway 312 Capacity Improvements - Shoulder Widening	2.5	Shoulder Widening	Primary	$341,000
R41	Highway 312 Capacity Improvements - Three-lane Section	0.4	Three-lane section, including bridge replacement at seven mile creek	Primary	$450,000
R42	Highway 312 Pavement Preservation	2.3	Pavement Preservation	Primary	$2,000,000
R43	Highway 312 Traffic Control Devices and Safety/ Warning Features	N/A	Signing	Primary	$3500 per assembly
R44	Grand Ave - Shiloh Rd to 62nd St West	2.8	Widening/Reconstruction (5-lane section)	Primary	$11,000,000
R45	Rimrock Rd - Shiloh Rd to 62nd St West	2.8	Widening/Reconstruction (5-lane section/3-lane section)	Primary	$10,300,000
R46	King Ave West - MT Sapphire Dr to 64th St West	2.6	Widening/Reconstruction (5-lane section/3-lane section)	Primary	$9,300,000
R47	54th St West - Grand Ave to Rimrock Rd	1	Widening/Reconstruction (3-lane section)	Secondary	$3,300,000
R48	Central Ave - Shiloh Rd to 48th St West	1	Widening/Reconstruction (3-lane section)	Primary	$3,100,000
R49	62nd St West - Rimrock Rd to Western Bluffs Boulevard	0.5	Widening/Reconstruction (3-lane section)	Primary	$1,100,000
R50	South Frontage Road	3.75	Pavement Preservation	Primary	$670,000
R51	SF 169 Blgs Area Safety Imprv.	N/A	Signage -- RP 1.7 - 2.17 (U-1026, King Ave. E); RP 3.45 - 3.65 (U-1027, Yellowstone River Rd); RP 2.35 - 2.45 (L-56-2389, Lake Elmo Drive); RP 1.9 - 2.1 (X-56395, South Frontage Road); RP 0 - 1.379 (L-56-982, Garden Ave); RP 0 - 0.76 (L-56-23, Nahmis Ave); RP 0.05 - 0.3 (L-56-1665, Story Road)	Primary	$21,000
R52	SF 169 I90 W King Ave Lighting	1.7	Roadway Lighting	Interstate	$345,000
R53	King Avenue - Shiloh to 72nd	4	Reconstruct to a five lane section	Primary	$8,000,000

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost
R54	I-90 from S Blgs Blvd Inch to 27th St Intch	2.9	Add a third travel lane to I-90	Interstate	$4,000,000
R55	I-90 from Lockwood Intch to Johnson Lane Intch	2.5	Add a third travel lane to I-90	Interstate	$3,000,000
R56	Hwy 3 from Airport to Zimmerman Trail	3	Widen with two-way, left-turn lane	Primary	$3,200,000
R57	Various Projects 2017-2021	N/A	Pavement Preservation	N/A	$2,500,000
R58	Highway 3 to Molt Road Connection Study	2.6	Study the feasibility of constructing a new Roadway connecting Highway 3 to Molt Road	Primary	$250,000

Table 5.7 Intersection Projects

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
I1	Rimrock Rd/N 27th St	Improve intersection capacity, operations, and safety	$4,700,000
I2	Exposition Drive & 1st Ave N Blgs	Intersection Improvement	$1,600,000
I3	Monad Rd/Daniel Ln	Improve intersection capacity, operations, and safety	$400,000
I4	Central Ave/24th St W	Improve intersection capacity, operations, and safety	$400,000
I5	Airport Rd & Main St - BLGS	Intersection Improvements	$11,700,000
I6	Rimrock Rd/Virginia Ln	Improve intersection capacity, operations, and safety	$410,000
I7	Underpass Avenue Improvements	Intersection Improvements	$8,600,000
I8	King Ave/24th St	Evaluate intersection to identify alternative intersection treatment	$1,500,000
I9	Grand Ave/24th St	Evaluate intersection to identify alternative intersection treatment	$250,000
I10	Division/Grand/6th Ave/N 32nd St	Improve intersection capacity, operations, and safety	$560,000
I11	Division/Broadway/1st Ave N	Improve intersection capacity, operations, and safety	$560,000
I12	Lockwood Road & N Frontage Road	Reconfiguration of existing intersection	$495,000
I13	US Highway 87 & Old Hardin Road	Upgrade 3-way stop intersection to a roundabout	$630,000
I14	Johnson Lane & Old Hardin Road	Intersection improvements and access management around Johnson Lane Interchange	Included with R23
I15	Shiloh Interchange	Geometric improvements to improve operations and safety	$1,900,000
I16	South Billings Blvd Interchange	Additional EB and WB mainline lanes under and through the Interchange	$1,600,000
I17	27th Street Interchange	Construct additional EB and WB mainline lanes under and through Interchange. Restripe EB off-ramp and improve pedestrian facilities	$1,900,000
I18	Lockwood Interchange	Construct additional EB and WB mainline lanes under and through the Lockwood Interchange and improve pedestrian facilities	$1,900,000
I19	Johnson Ln Interchange	Geometric improvements to improve operations and safety	Included with R23
I20A	West Billings Interchange	Update geometry to match C standards, improve landscaping and improve pedestrian facilities	$6,900,000

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
I20B		Construct additional EB and WB mainline lanes through interchange, modify vertical curve, reconstruct bridge segments and restripe WB off-ramp at West Billings Interchange.	$12,600,000
I21	SF 129-RNDABOUT KING 56TH	Construct a roundabout at this intersection	$4,246,201
I22	SF 139-RNDABOUT CENTRAL/56TH	Construct a roundabout at this intersection	$3,500,000
I23	Pinehills Intch-Pryor CR Intch	Pavement Preservation	$887,557
I24	W Blgs Intch - Pinehills Intch	Mill Fill	$4,462,609
I25	27th Street RR Crossing	Railroad crossing study	$300,000
I26	SF-149 HILLCREST RIGHT TURN LN	Intersection Improvement	$331,073
I27	SF 129 BILLINGS HORIZONTAL CURVE SIGNAGE	Signage	$1,126,611
I28	SF 169 ROUNDABOUT RIMROCK & 62ND ST. W	Roundabout	$3,655,843
I29	SF 169 ITS INTERSECTION DETECTION	Intersection Improvement	$73,000
I30	SF 169 KING AVE E. RUMBLE STRIPS	Rumble Strips	$11,000
I31	SF 169 YELLOWSTONE RIVER RD CHEVRONS	Signage	$6,000
I32	SF 169 JOHNSON LANE DELINEATION	Signage	$700
I33	SF 169 LAKE ELMO DRIVE DELINEATION	Signage	$420
I34	SF 169 SOUTH FRONTAGE ROAD SIGNAGE	Signage	$6,700

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
I35	SF 169 OLD HIGHWAY 312 DELINEATION	Signage	$3,500
I36	SF 169 GARDEN AVE SIGNAGE	Signage	$26,000
I37	SF 169 NAHMIS AVE DELINEATION	Signage	$7,500
I38	SF 169 STORY RD SIGNAGE	Signage	$3,000
I39	SF 149 - KING INTCH SFTY IMPRV	Safety	$14,942
I40	Intersection Capacity Improvements	Evaluate and construct improvements to selected intersection trouble areas.	$2,000,000
I41	Monad and 19th/20th St W Intersection Reconstruction		$3,500,000
I42	SF-169 Frontage Rd Wise Ln Intx	Intersection Improvement	$97,800
I43	Highway 3/Rod & Gun Club Road	Install roundabout at Highway 3/Rod & Gun Club Road, including single circulating lane, single-lane approaches, and bike and pedestrian accomodations	$1,500,000
I44	Highway 312 Intersection Improvements - Intersection Control	Intersection Control	$1500000 per intersection
I45	Neibauer Rd & 56th St West	All-way stop control/OH Flashing Beacons/Transverse Rumble Strips	$200,000
I46	Neibauer Rd & 48th St West	OH Flashing Beacons/Transverse Rumble Strips	$200,000
I47	Grand Ave & 48th St West	Traffic Signal or Roundabout	$1,500,000
I48	Grand Ave & 56th St West	Traffic Signal or Roundabout	$1,500,000
I49	King Ave West & 48th St West	Traffic Signal or Roundabout	$1,500,000
I50	Central Ave & 48th St West	Traffic Signal or Roundabout	$1,500,000
I51	King Ave West & 64th St West	Traffic Signal or Roundabout	$1,500,000

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
I52	Grand Ave & 62nd St West	Traffic Signal or Roundabout	$1,500,000
I53	Hesper Rd & 56th St West	All-Way Stop	$200,000
I54	King Ave/20th St	Evaluate intersection to identify alternative intersection treatment	$1,500,000
I55	Various Safety Projects	Safety	$4,500,000
I56	Laurel Road & Moore Lane	Study for capacity improvements	$250,000
I57	24th Street W & Overland Avenue	Study for capacity improvements	$250,000
I58	11th Avenue N & N 30th Street	Study for capacity improvements	$250,000
I59	24th Street W & Grant Road	Study for capacity improvements	$250,000
I60	24th Street West and Rosebud Drive/Market Place	Study for safety improvements	$250,000
I61	Blue Creek Rd at Briarwood and Riverfront Park	Add left turn lanes at the two intersections	$1,000,000
I62	Rimrock Rd/N 27th St	Study for safety improvements	$250,000

Table 5.8 Congestion Management Projects

Project ID	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
CM1	Grand Avenue – 3rd St W to 24th St W	2.6	Update signal timing for 10 signals	$100,000
CM2	Broadwater Avenue – 5th St W to Zimmerman	3.3	Update signal timing for 8 signals	$80,000
CM3	Central Avenue – 6th St W to Zimmerman	3.2	Update signal timing for 10 signals	$100,000
CM4	24th St West Signal Improvements	2	Upgrade of signals from King Avenue to Grand Avenue	$220,000
CM5	27th Street – State Ave to Poly Dr	2.1	Update signal timing for 11 signals	$110,000
CM6	Main Street – 1st Ave N to Permberton Ln	3.4	Signals	$218,000
CM7	Division Street – Broadwater Ave to 4th Ave N	0.3	Update signal timing for 3 signals	$30,000
CM8	Grand Avenue – 24th St W to Zimmerman	1.2	Update signal timing for 3 signals	$30,000
CM9	Rimrock Road – 38th St W to 13th St W	2.6	Update signal timing for 5 signals	$50,000
CM10	15th Street West – Central Ave to Grand Ave	1	Update signal timing for 5 signals	$50,000
CM11	Wicks Lane – Governors Blvd to Bench Blvd	2	Update signal timing for 5 signals	$50,000
CM12	19th Street West – Monad Rd to Grand Ave	1.5	Update signal timing for 5 signals	$50,000
CM13	17th Street West – Grand Ave to Rimrock	1	Update signal timing for 5 signals	$50,000
CM14	Monad Road – 19th St W to 32nd St W	1	Update signal timing for 4 signals	$40,000

Project ID	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
CM15	Governors Boulevard/Hilltop Road – Wicks Ln to Main St	2.4	Update signal timing for 3 signals	$30,000
CM16	ITS Signage and Advanced Warning System	N/A	Implement a signage and advanced warning system to inform transportation users of crossing delays due to incoming and stopped trains	$500,000
CM17	Downtown Billings Signal Upgrades (No 27th Street signals)	N/A	Traffic signal controller and signal timing upgrades at 36 signals in the downtown area, excluding 27th Street	$305,875
CM18	Downtown Billings Signal Upgrades	N/A	Traffic signal controller and timing upgrades at 13 signals in downtown	$316,091
CM19	Downtown Billings Signal Upgrades	N/A	Traffic signal controller and timing upgrades in the downtown area	$3,160,911
CM20	Citywide Signal Timing	N/A	Traffic signal controller and timing upgrades at 24 signals within Billings	$372,000
CM21	Billings Signal Upgrades	N/A	Signal Optimization	$320,869
CM22	Lockwood Signals	N/A	Signal Optimization	$18,948
CM23	Downtown State Signals BLGS		Signals	$6,522,824
CM24	Zoo Drive Signals		Signals	$50,000
CM25	Johnson Lane Signals		Signals	$12,970
CM26	MDT - MACI	N/A	Statewide CMAQ - Various	$1,000,000
CM27	MDT - MACI	N/A	Statewide CMAQ - ADA Compliance	$1,750,000
CM28	Traffic Signal Controller Upgrade	N/A	Traffic signal upgrades throughout the City	$3,225,000

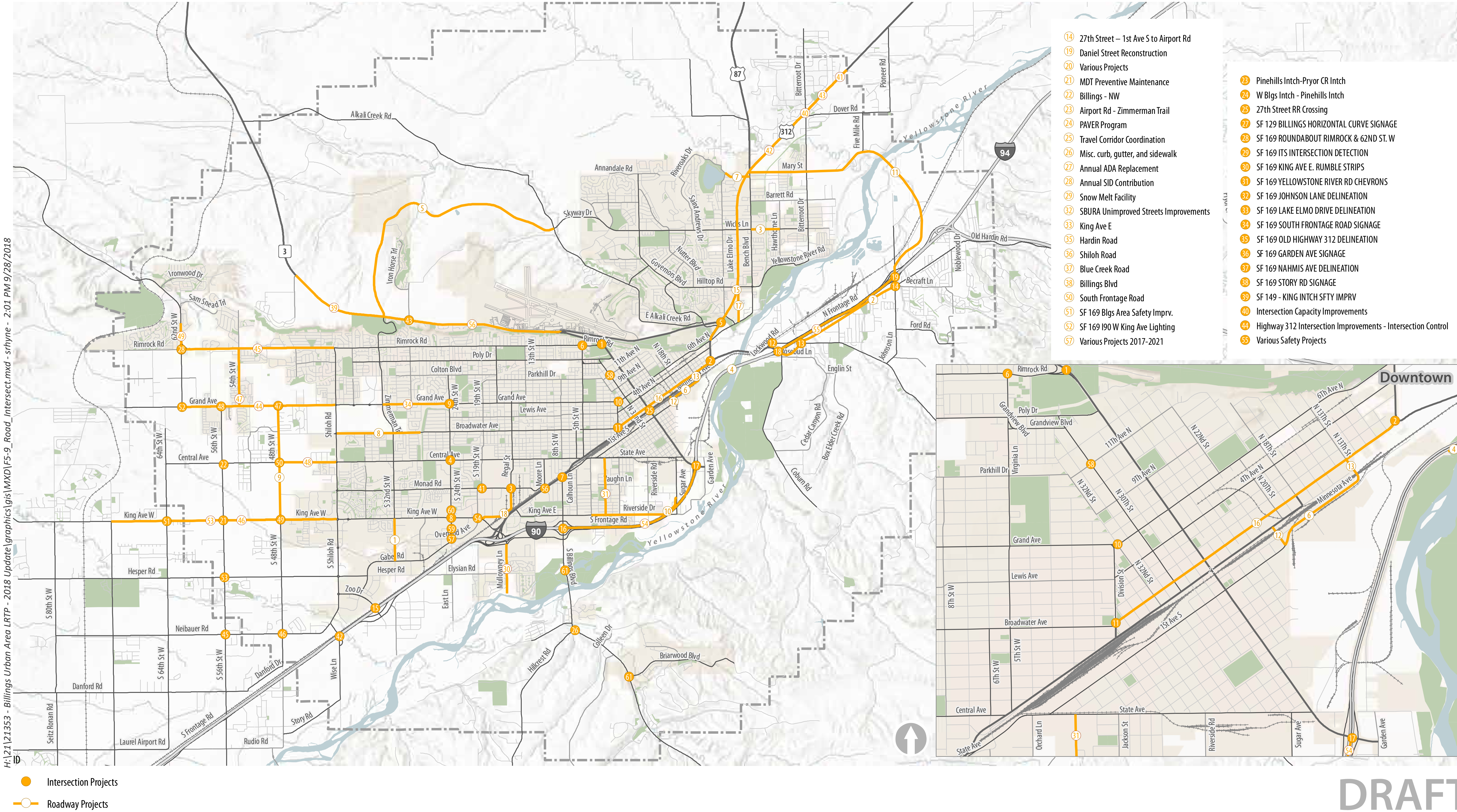

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Figure 5-9

Intersection and Roadway Projects

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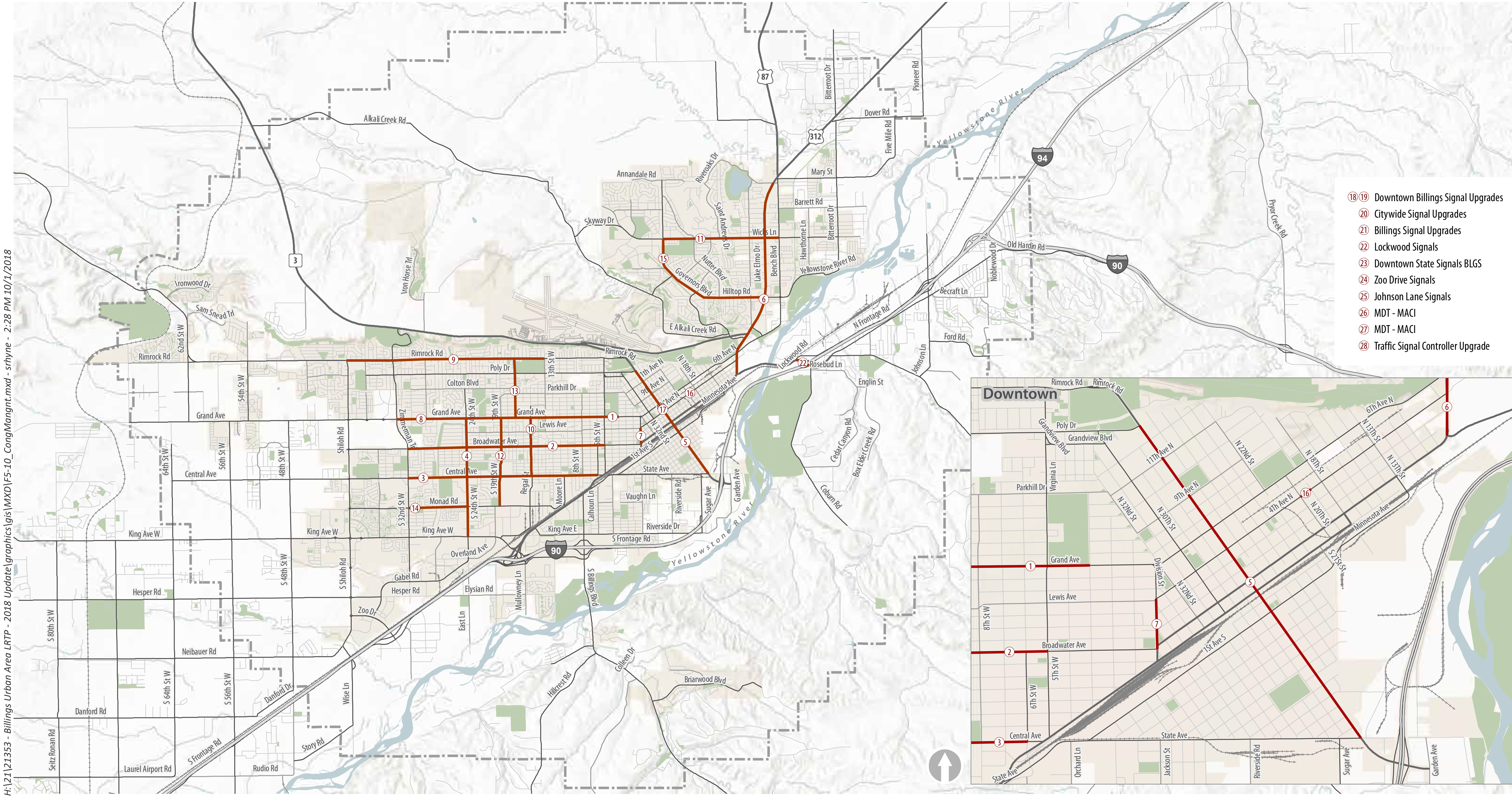

Congestion Management

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Figure 5-10

Congestion Management Projects

Chapter 6

Public Transit and Transportation

PUBLIC TRANSIT AND TRANSPORTATION

Like most public transportation systems, MET Transit (herein, referred to as MET) has been effective in developing a transit system with the limited funding resources available. Marginal revenue growth and rising operational costs have allowed for minimal service expansion over the past few years. For public transit service to be expanded significantly in the region, an increase in the operations funding would need to occur through an increase in the local mill levy, other local funding sources, and additional federal funds. Through this LRTP process, the community continued to identify projects and support for the public transportation system. Other services that complement MET include private for-profit public transportation providers, transportation network companies such as Uber and Lyft, and air service through the Billings Logan International Airport.

MET started in 1973 with five fixed routes in the Billings Urban Area. MET currently operates 18 routes with flag service and bus stops, transfer centers, and other amenities.

Public transportation continues to be a priority of the community. Public transportation provides access to employment, recreation, shopping and social opportunities and also encourages active transportation such as walking and bicycling to reach transit routes. As such, the 2018 LRTP outlines several goals related to public transportation:

2018 LRTP Goals Related to Public Transit and Transportation

Goal 1: Safety – Develop a safe transportation system

Goal 2: Functional Integrity and Efficiency – Optimize, preserve, and enhance the existing transportation system

Goal 5: Public Transit and Transportation – Create a transportation system that supports the practical and efficient use of transit

Goal 6: Pedestrians and Bicyclists – Create a transportation system that supports the practical and efficient use of active transportation such as walking and bicycling.

Goal 7: Economic Vitality – Ensure adequate transportation facilities to support the existing local economy and connect Billings to local, regional, and national commerce.

EXISTING PUBLIC TRANSIT SERVICES

PUBLIC FIXED ROUTE

MET serves as the City of Billings fixed-route public transit service provider. Established in 1973 with only five routes, MET currently operates with eighteen routes and has two primary transfer centers. The MET complex is a 31,000 square-foot facility located at 1705 Monad Road in Billings. This complex, built in 1983 with renovations in 1998, 2000, and 2016 provides a centrally located facility for MET operations that includes administration, dispatch, vehicle maintenance, washing, and fueling. MET operates all routes through two transfer centers:

1. **Stewart Park Transfer Center** – This transfer center was constructed in 1993 and renovated in 2003, and is located next to the Rimrock Mall off of Central Avenue. This transfer center has ten bus parking spaces, passenger shelters and benches, and a driver break area.
2. **Downtown Transfer Center** – This transfer center (shown in Exhibit 6.1) was constructed in 2008 (opened in 2009) and is located at 220 N 25th Street in Downtown Billings. This transfer center has fifteen bus parking spaces, passenger shelters and benches, a covered passenger pavilion, and a driver break area. These transfer centers operate a “pulse” system where buses arrive and depart from the transfer center simultaneously.

Fleet

MET operates a fleet of 40 vehicles as detailed in Table 6.1. Exhibit 6.2 shows an example of a typical bus in the MET fleet. Exhibit 6.3 shows a bicycle on the bus..

Table 6.1 MET Fleet

Manufacturer	Description	Number of Vehicles	Equipment
Gillig LLC	35’ low floor type	2	Wheelchair ramps, front bumper two-slot bicycle racks
Gillig LLC	35’ standard floor type	17	Wheelchair lifts, front bumper two-slot bicycle racks
Champion	30’ standard floor type	6	Wheelchair ramps, front bumper three-slot bicycle racks
Gasoline Powered Van	25’, 13 passenger van	15	Wheelchair lifts and tie down areas
Total		**40 Vehicles**	

Source: MET

Exhibit 6.1 Downtown Transfer Center

Source: MET

Exhibit 6.2 Typical MET Bus

Source: MET

Exhibit 6.3 Bicycle on a MET Bus

Source: MET

SERVICE

MET currently provides eighteen fixed routes within the Billings city limits. These eighteen fixed routes include: nine all-day routes; four peak-hour routes; one midday-only route; and four tripper routes.

On July 2, 2018, MET updated the bus routes and schedules. Seven routes operate on Saturdays. No service is provided on Sunday. Figures 6-1 and 6-2 show the weekday and Saturday routes, respectively. Routes shown in Figures 6-1 and 6-2 reflect the updated route changes that took place in July 2018. MET also provides four tripper routes to and from middle and senior high schools in the area. Current service hours are shown in Table 6.2.

The downtown transfer center opened in 2009 and is one of the only transit centers in the US that is Leadership in Energy and Environmental Design (LEED) certified Platinum.

Table 6.2 MET Service Hours

Day(s)	Time Service is Available
Monday through Friday	5:50 AM – 6:50 PM
Saturday	8:10 AM – 5:45 PM
Sunday	No Service Available

Source: MET

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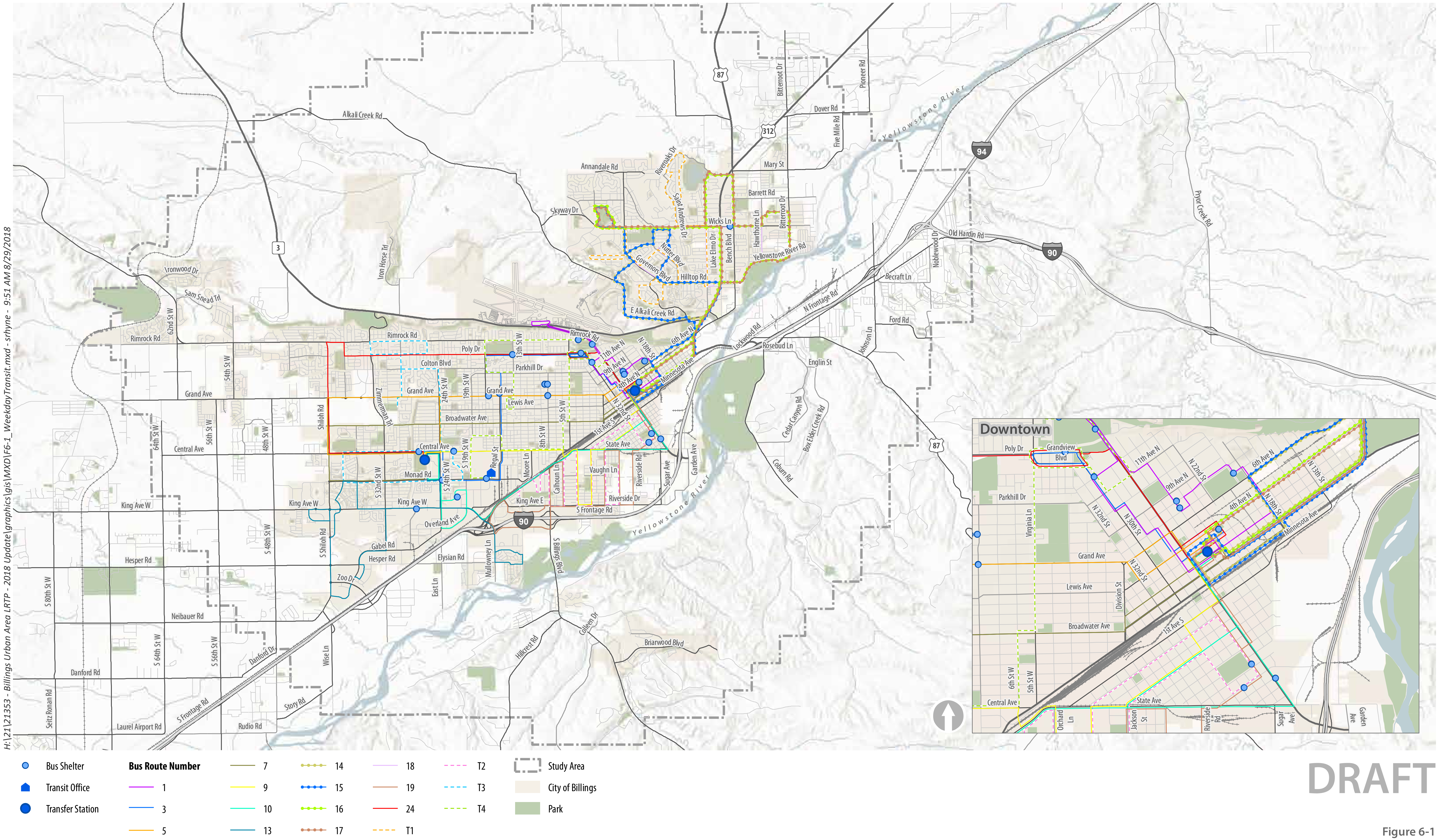

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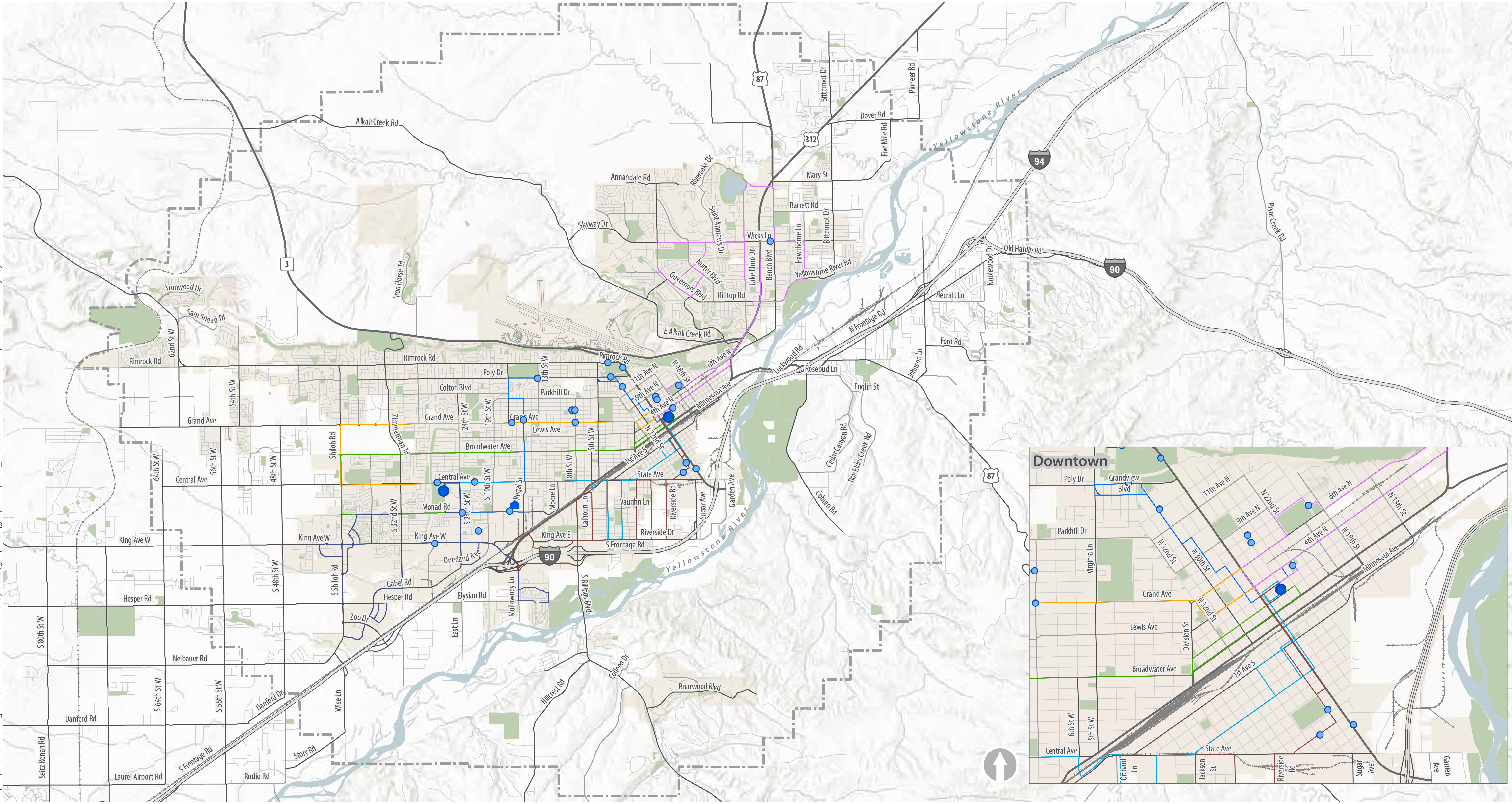
Figure 6-1

Existing Weekday Transit Routes



Bus Shelter
Transit Office
Transfer Station

Route Number

S3	S5	S7
S9	S13	S18
S19		

Study Area
Park
City of Billings

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Figure 6-2
Existing Saturday Transit Routes

MET does not provide service on the following holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day. The weekday routes typically operate on 60-minute headways with the exception of two routes: the 1 route operates on 30- to 55-minute headways and the 18 and 19 routes operate on 55-minute to two-hour headways.

MET operates a fixed route system with 24 bus shelters in addition to bus benches and signed stops along the routes. MET riders can also flag down the bus at any safe intersection. Shelters are mostly concentrated along the high-volume routes to provide the most heavily used stops with protection from weather. Exhibit 6.4 shows an example of a MET bus shelter. Signed stops are located along all routes to help maintain headways and allow for a more orderly system of boarding and alighting. Additionally, benches are provided at many of the stops.

The current extent of service reaches most every geographic location within the Billings city limits including service to the Billings Logan International Airport. Transit service is not provided in the newer residential areas west of Shiloh Road, except for a short section on King Avenue West. Within the urban area, transit service is not provided to Lockwood. Lockwood is located outside of MET's service area, since MET only serves the City of Billings.

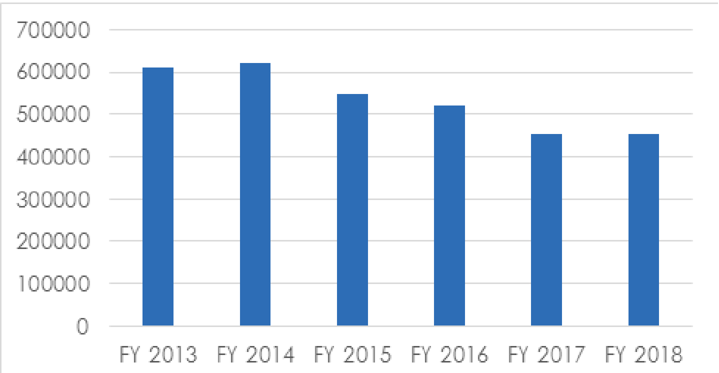
Ridership

Exhibit 6.5 shows the annual ridership trends on the fixed route service between 2013 and 2018.

Exhibit 6.4 Typical MET Bus Shelter

Source: MET

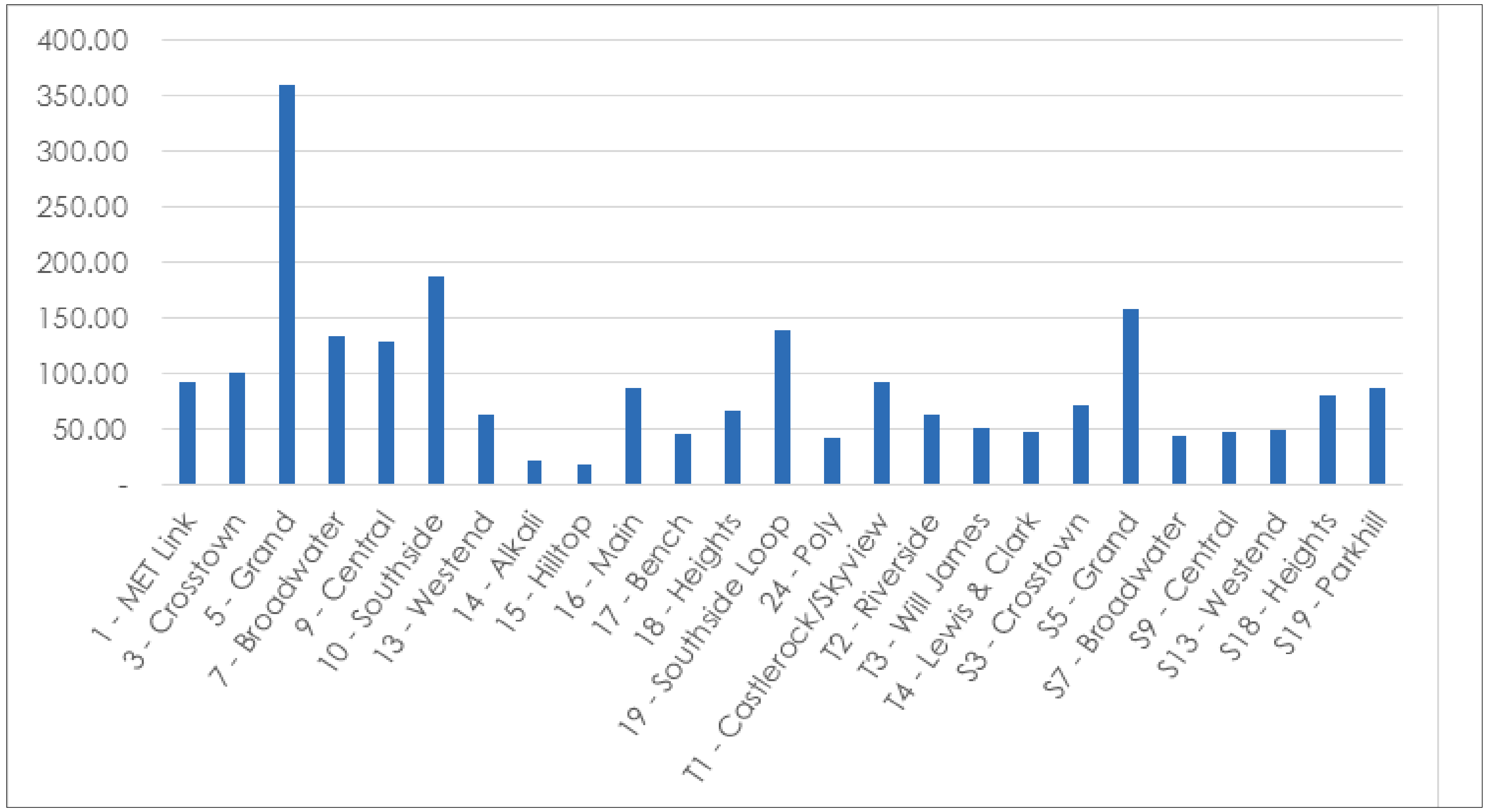
Exhibit 6.5 MET Annual Ridership Trends (FY 2013-FY 2018)



Source: MET

As shown in Exhibit 6.5, fixed route ridership is in a steady decline. Fiscal year 2018 saw a total of 454,395 MET riders and was similar to the FY 2017 ridership total. Exhibit 6.6 shows fiscal year 2018 ridership by route. As shown in Exhibit 6.6, the most productive weekday routes are Grand, Southside, and Southside Loop. Grand is also the most productive weekend route.

Exhibit 6.6 FY 2018 Average Daily Ridership by Route



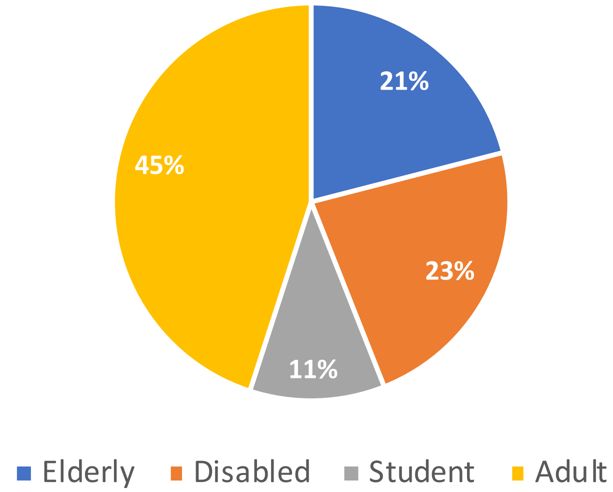
Source: MET

Additionally, based on conversations with MET staff, the Tripper routes are productive during the school year.

The demographic composition of MET ridership is shown in Exhibit 6.7 (6-1). Students represent the 2nd highest rider from their repeated use of the school tripper routes.

Public transportation makes up about 1.6% of commute trips in the Billings Urban Area (Source: ACS 2011)

Exhibit 6.7 MET Ridership



Source: MET

FINANCES

MET is primarily funded through the local transit-designated 10-mill levy property tax approved by voters in 1980. Funding is further supplemented by farebox revenue, advertising revenue, and by Federal Transit Administration (FTA) grants. In 2017, property taxes supported about 42.3% of the total annual operating cost (see Table 6.3) whereas the farebox revenue only supported approximately 11.7% of the total operating cost. Exhibit 6.8 shows the breakdown of actual FY 2017 funding sources.

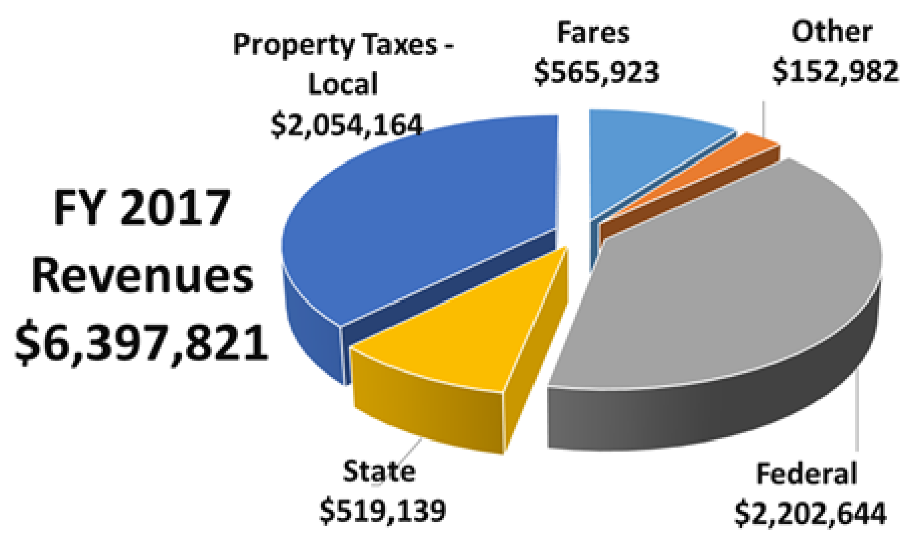
The breakdown of METs expenditures for fiscal years 2017 through 2022 is shown in Table 6.3. The current rate for MET passengers is $1.75 per trip. The fiscal year 2017 cost per MET passenger was $7.58.

Table 6.3 MET Expenditures FY 2017 to FY 2022

Expenditures	Assumed Annual Growth	FY 2017 Actual	FY 2018 Budget	FY 2019 Projected	FY 2020 Projected	FY 2021 Projected	FY 2022 Projected
Operating Expenditures							
Personnel Services	5%	$3,696,042	$3,907,846	$4,103,238.30	$4,308,400	$4,523,820	$4,750,011
Operations & Maintenance	3%	$871,961	$1,410,785	$1,453,109	$1,496,702	$1,541,603	$1,587,851
Fuel	2%	$284,785	$400,451	$408,460	$416,629	$424,962	$433,461
Total Operating		$4,852,788	$5,719,082	$5,964,807	$6,221,731	$6,490,385	$6,771,323
Capital Expenditures							
Federal Capital		$850,385	$1,006,264	$944,077	$1,350,000	$500,000	$800,000
Local Capital		$212,596	$251,566	$236,019	$337,500	$125,000	$200,000
Total Capital		$1,062,981	$1,257,830	$1,180,096	$1,687,500	$625,000	$1,000,000
Total Expenditures		$5,915,769	$6,976,912	$7,144,903	$7,909,231	$7,115,385	$7,771,323

Source: MET

Exhibit 6.8 MET FY 2017 Revenue Sources



Source: MET

PUBLIC PARATRANSIT

MET also operates MET Special Transit (MST) which serves as a specialized, demand-responsive paratransit service. The MST service provides public transportation to persons whose disabling condition prevents the use of fixed route transit. MST is also available for local agencies to contract to provide service to clientele. It also serves as the City's MET-PLUS day-before advance reservation service that provides full compliance with the Americans with Disabilities Act (ADA) requirements. Persons who use this service must be certified as ADA complementary paratransit eligible. A person may be eligible for all or some of their trip needs. Exhibit 6.9 shows an example of a typical MST bus.

Exhibit 6.9 MST Bus

Source: MET

Service

MST operates 15 paratransit buses and provides ADA complementary paratransit service within all areas of the City of Billings. All trips must take place within this defined service area. The service schedule (i.e. when trips can be scheduled) is shown in Table 6.4.

Table 6.4 MST Service Hours

Day(s)	Time Service is Available
Monday through Friday	5:50AM – 6:50PM
Saturday	8:10AM – 5:45PM
Sunday	No Service Available

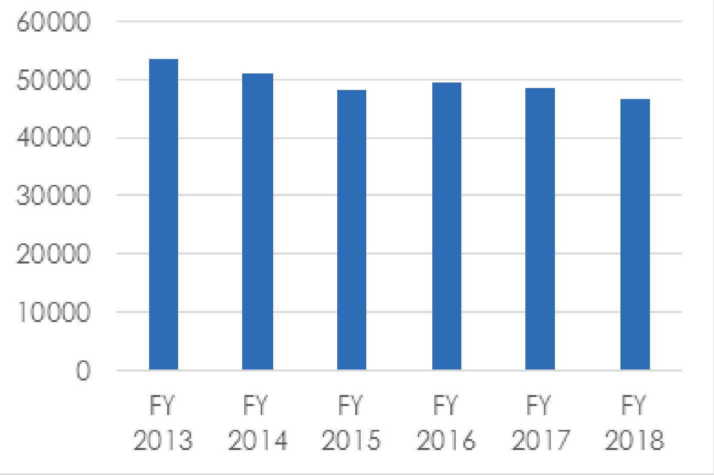
Source: MET

MST does not provide service on the following holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

Ridership

Ridership for MST has fallen in recent years, as shown in Exhibit 6.10. Paratransit ridership decreased from 53,500 rides in FY 2013 to 46,575 rides in FY 2018.

Exhibit 6.10 MST Annual Ridership Trends (FY 2013 - FY 2018)



Source: MET

Finances

The current rate for paratransit passengers is $3.50 per trip. The FY 2017 average cost per paratransit customer is $33.46 (up from $27.02 in 2013). MST operates at a deficit, which is not uncommon for paratransit systems. The budget for MST is incorporated in MET's overall budget.

PRIVATE OPERATORS

Private for-profit public transportation providers operating in and through the Billings Urban Area include intercity bus lines, charter and rental bus services, and taxicab services. Jefferson Lines provides the most extensive service connecting to Bozeman, Butte, Glendive, Livingston, Miles City, Missoula, and Sidney. Table 6.5 shows the private bus operators and their primary connections.

Billings also has several transportation network companies and private taxi services available:

- Uber
- Lyft
- Transportation Services LLC
- Billings Yellow Cab
- Taxiing Services
- City Cab
- Total Transportation (A Plus Limos)
- Billings Limousine Service
- Red Lodge Tour and Taxi

Table 6.5 Private Operator Connections

Company	Connections
Greyhound Lines	Missoula, Superior
Powder River Trailways	Cody, Lovell, Sheridan, WY
Jefferson Lines	Billings, Bozeman, Butte, Glendive, Livingston, Miles City, Missoula, Sidney
Flathead Transit	Missoula, Kalispell, Whitefish
Salt Lake Express	Dillon, Butte

EXISTING AIRPORT FACILITIES/ ACCESS

Billings Municipal Airport was officially opened in 1928. In 1971, the airport was renamed, as it is presently referred to, Billings Logan International Airport (airport code is BIL). The Billings Logan International Airport Master Plan was completed in March 2010 (6-3). This Master Plan documents planned expansions and improvements for the airport over the next twenty years. One of the improvements documented is the design for an expanded concourse area that will allow for more passenger gates and aircraft parking positions to accommodate the growing number of passengers. The existing five aircraft loading positions will be expanded to at least eight, with expanded passenger hold rooms, restrooms, and concessions. The terminal improvements are expected to be completed by 2021.

AIRPORT SERVICE

Currently, the airport serves as a regional hub for air traffic (shown in Exhibit 6.11) with nonstop service to five cities in Montana and ten U.S. cities outside of Montana:

- Chicago (seasonal)
- Dallas
- Denver
- Las Vegas – biweekly
- Los Angeles – seasonal
- Mesa – biweekly
- Minneapolis
- Portland
- Salt Lake City
- Seattle
- Sidney, Wolf Point, Havre, Glasgow, and Glendive, Montana

The Federal Aviation Administration (FAA) classifies the airport as a small hub with a local market area extending throughout central and eastern Montana.

The airport's importance to the region and State has been growing with passenger enplanements of 437,810 in FY 2017.
The airport has cargo and mail operations with 41,324 tons passing through in FY 2017. United Parcel Service and Federal Express serve the Billings market as well as several smaller cargo feeder airlines. The airlines currently serving the airport are shown in Table 6.6.

PLACEHOLDER

Table 6.6 Private Operator Connections

Airline	Direct Services	Daily Departures from BIL	Weekly Departures from BIL
Delta	Minneapolis, Minnesota and Salt Lake City, Utah	5	
United	Denver, Colorado and seasonally to Chicago, Illinois	5	
Alaskan	Seattle, Washington and Portland, Oregon	3	
American	Dallas, Texas	1	
Allegiant	Mesa, Arizona; Las Vegas, Nevada; and seasonal to Los Angeles, California		6
Cape Air	Glasgow, Glendive, Havre, Sidney and Wolf Point, Montana	13	

Exhibit 6.11 National and Regional Direct Flights from BIL

NEEDS AND DEFICIENCIES

To guide identification of future public transportation strategies, deficiencies and needs were collected from the public and MET.

PUBLIC FEEDBACK

Nine percent of the public comments corresponded to transit deficiencies and needs in the study area. Review of the public comment feedback suggested the following themes:

- Better bus frequency, especially to:
  - Billings Heights
  - West End
  - Montana State University – Billings (MSUB)
  - Hospitals
- Longer service spans, especially in:
  - Billings Heights
  - West End
  - South Side
- New service to:
  - Laurel
  - Briarwood
  - Schools throughout the Billings urban area
- More bus stops and bus shelters
- Better schedule coordination for transfers, especially downtown
- Better bus schedule advertisement and publicization
- Right-sized buses
- Sustainable fuel sources for buses
- More affordable flights at Billings Logan International Airport

MET NEEDS IDENTIFICATION

Key needs identified through discussions with MET include:

- **Funding** – Explore opportunities to increase funding through federal and local sources.
- **Capital Assets** – Specific asset needs are defined in the Transit Asset Management Plan, which was recently completed by MET. These needs include rolling stock, equipment, and facilities.
- **Service** – MET intends to have an all-day fixed-route service to Billings Heights by 2020.
- **Technology** – MET intends to provide all fixed-route buses with Automatic Vehicle Locators (AVL) by 2019 and to provide all fixed-route buses with automated fare collection systems and automated passenger counters by 2025.
- **Transit Stops** – MET intends to implement designated fixed-route bus stops by year 2025.
- **Service Analysis** – MET intends to complete a comprehensive service analysis by year 2025.

MET will monitor its progress towards addressing these needs to align with the goals, objectives, and targets established in Chapter 3.

PUBLIC TRANSPORTATION STRATEGIES

At this time, MET does not have the ability to expand the public transit system based on the current and projected operational funds. For public transit service to be expanded significantly in the region, an increase in the operations funding would need to occur through an increase in the local mill levy, other local funding source, and/or additional federal funds. Through this LRTP process, the community continued to identify projects and support for the public transportation system. Public transportation continues to be a priority of the community. It is recommended that the MPO and MET partner and investigate further the operations funding options for the region, what support there is within the community to fund transit and determine a plan to begin funding expansion of public transit in the Billings urban area. It is also recommended that MET monitor its progress towards the funding, capital assets, and service analysis related goals described above.

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 7

Truck Services and Facilities

TRUCK SERVICES AND FACILITIES

The movement of goods and services is an economic driver for the City of Billings. As the largest city in Montana, Billings experiences a significant amount of truck traffic on its roadway system due to the geographic location and proximity to other major hubs. Exhibit 7.1 shows the designated National Highway Freight Network in Montana (7-1). Exhibit 7.2 shows the level of commercial truck traffic on highways within Montana (7-2). As shown in Exhibit 7.1, Interstate 90 through Billings is designated on the freight network and connects with other cities to the west in Montana and to the south in Wyoming. As shown in Exhibit 7.2, Interstate 90 is the busiest Interstate route within the state, with commercial vehicle activity being the greatest in the Billings area. Several of the 2014 LRTP goals correspond to the movement of goods and services:

2018 LRTP Goals Related to Truck Services and Facilities

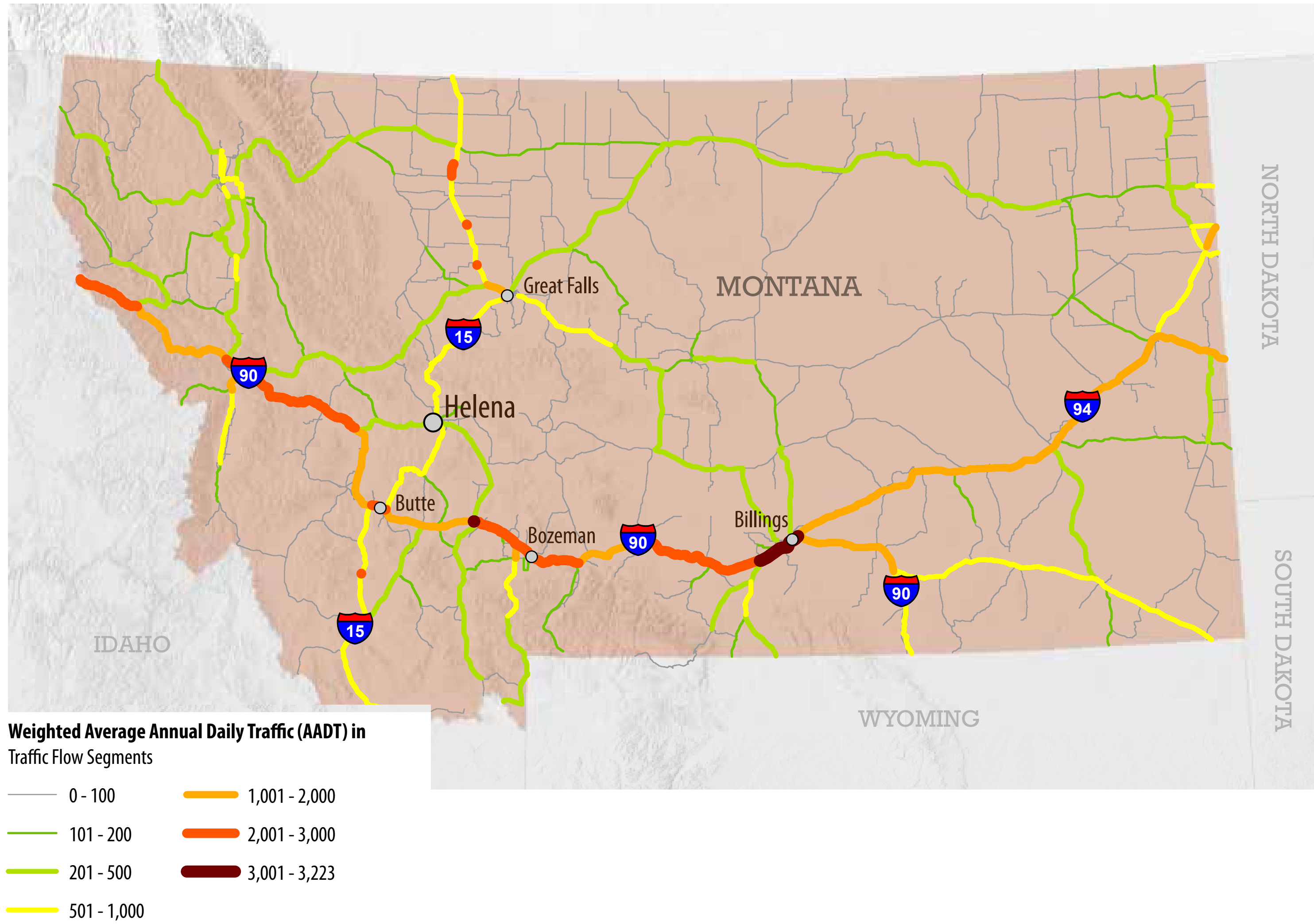
Goal 1: Safety – Develop a safe transportation system

Goal 2: Functional Integrity and Efficiency – Optimize, preserve, and enhance the existing transportation system

Goal 7: Economic Vitality – Ensure adequate transportation facilities to support the existing local economy and connect Billings to local, regional, and national commerce.

Exhibit 7.1 National Highway Freight Network in Montana

Exhibit 7.2 Montana Commercial Truck Traffic 2015



LITERATURE REVIEW

Recent city and statewide studies/plans were reviewed for existing conditions, available data, and short and long-range projects related to railroad facilities in the study area. These studies/plans are described below:

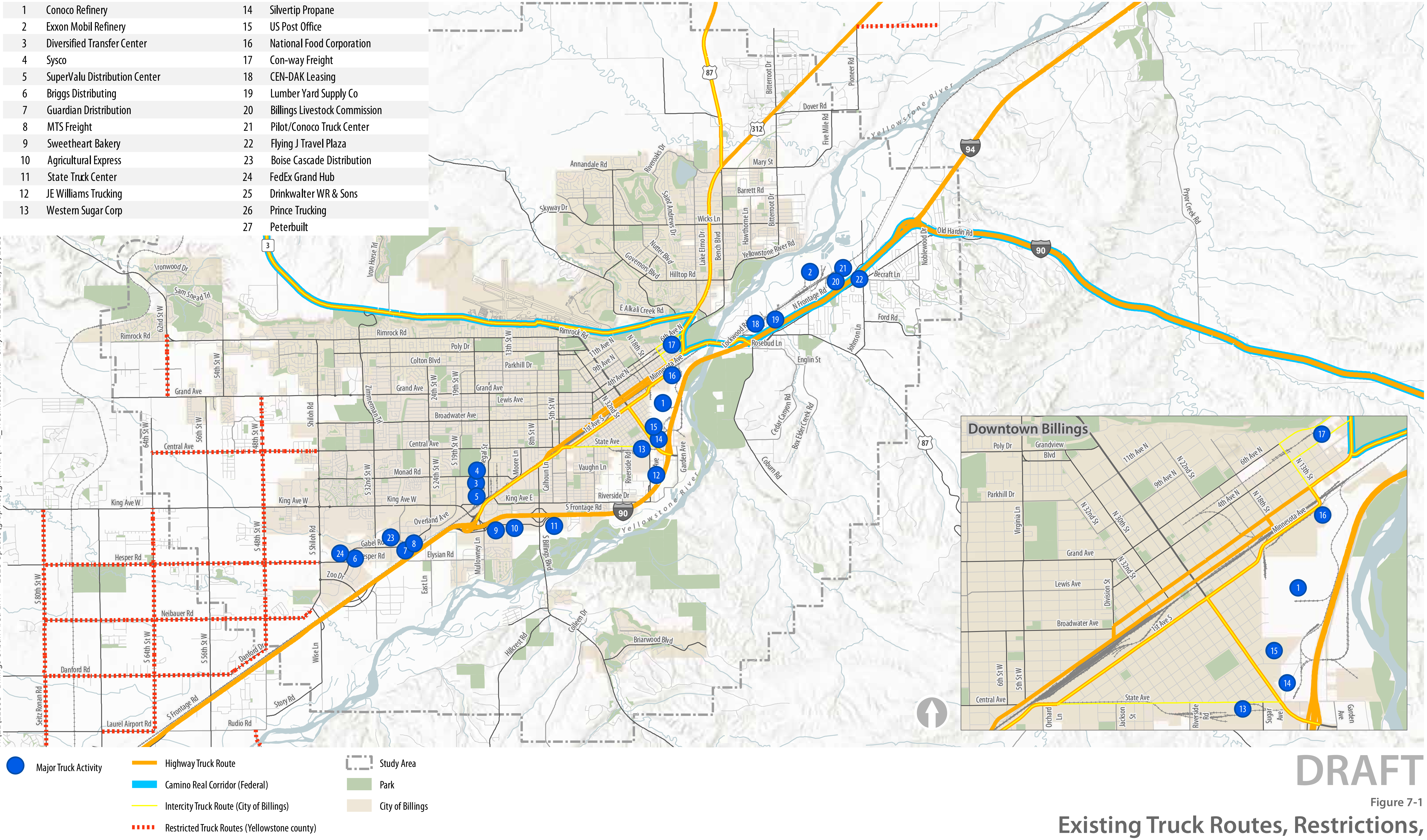
- **2017 Montana Freight Plan** (7-2) represents the first plan specific to freight for MDT and for the state. This plan provides a comprehensive evaluation of freight transportation in Montana and provides guidance for both short and long-term freight-related transportation investment decisions.
- **2016 City of Billings Growth Policy** (7-3) includes a goal that the transportation system is designed to be safer and more efficient for all users. This goal has an objective on rail and freight, specifically for safe railroad crossings (both vehicle and pedestrian) and passenger rail.
- **2016 Lockwood Growth Policy** (7-4) has a growth guideline for the TEDD, which is an area located in the northeast area of Lockwood that has an emphasis on industrial uses and connectivity with the railroad.
- **Lockwood TEDD Strategic Plan** (7-5) provides a path for further developing a competitive advantage for Yellowstone County over competing locations for business and professional employment. The purpose of the Lockwood TEDD is to provide planned industrial space in order to attract and retain industrial and manufacturing businesses in Yellowstone County. The location of the Lockwood TEDD is located next to the rail service provided by MRL. The plan identifies that additional rail spurs and a transloading facility would benefit the development of the Lockwood TEDD.
- **Montana Freight Assessment:** Trends and Opportunities to Improve Access and Create Freight Efficiencies for Montana Companies (7-6) summarizes the potential for improving Montana's freight infrastructure to benefit producers and manufacturers.
- **Freight Analysis Framework** (7-7) produced through a partnership between BTS and FHWA, integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. FAF version 4 (FAF4) provides estimates for tonnage (in thousand tons) and value (in million dollars) by regions of origin and destination, commodity type, and mode. Available data used for the 2018 LRTP includes data from 2016 and forecasts to 2045.
- **Billings Montana City Code Article 24-900** – Truck Travel and Truck Routes (7-8) designates the routes for intracity and intercity truck travel.
- **Yellowstone County Ordinance 07-107 to Limit Truck Traffic on Certain County Roads** (7-9, 7-10) designates routes for truck travel within Yellowstone County.

EXISTING CONDITIONS

This section includes a summary of existing truck facilities, routes, and high freight activity zones within the study area. A brief safety and operations analysis was performed to identify any trends related to truck traffic along key corridors and at key intersections.

FACILITIES

Figure 7-1 shows the existing truck routes, restrictions, and local generators within Billings. As shown in Figure 7-1, the study area is served by Interstate 90, Interstate 94, US Route 87, US Route 312, and Montana Route 3. Billings lies along the Camino Real Corridor, a high priority corridor on the National Highway System and part of the North American Free Trade Agreement (NAFTA) that connects Canada, United States, and Mexico. In Montana, the Camino Real Corridor follows Interstate 90 from Buffalo, WY to Billings, MT, then continues north on Montana Route 3, US Route 12, US Route 191, US Route 87 to Interstate 15 at Great Falls and continues from Great Falls on Interstate 15 to the Canadian border. Truck traffic within Billings plays a critical part in the economic vitality and movement of commerce throughout the state, country, and world.



1	Conoco Refinery	14	Silvertip Propane
2	Exxon Mobil Refinery	15	US Post Office
3	Diversified Transfer Center	16	National Food Corporation
4	Sysco	17	Con-way Freight
5	SuperValu Distribution Center	18	CEN-DAK Leasing
6	Briggs Distributing	19	Lumber Yard Supply Co
7	Guardian Distribution	20	Billings Livestock Commission
8	MTS Freight	21	Pilot/Conoco Truck Center
9	Sweetheart Bakery	22	Flying J Travel Plaza
10	Agricultural Express	23	Boise Cascade Distribution
11	State Truck Center	24	FedEx Grand Hub
12	JE Williams Trucking	25	Drinkwalter WR & Sons
13	Western Sugar Corp	26	Prince Trucking
		27	Peterbuilt

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Figure 7-1

Existing Truck Routes, Restrictions, and Local Generators

Table 7.1 summarizes the roadway characteristics for the existing truck routes within the study area.

Table 7.1 Truck Route Roadway Characteristics

Roadway[1]	Functional Classification[2]	Truck Route Designation[3]	Access Type	# of Through Lanes	Posted Speed (mph[4])	AADT [5, 6]	Truck %[7]
Interstate 90	Interstate	Highway, Camino Real, Intercity	Grade Separated	4	75	30,000	10% - 18%
Interstate 94	Interstate	Highway	Grade Separated	4	75	9,000	15% - 21%
US Route 87	Principal Arterial	Highway, Camino Real, Intercity	Limited Access	2	70	5,000	5%
Roadway[1]	**Functional Classification[2]**	**Truck Route Designation[3]**	**Access Type**	**# of Through Lanes**	**Posted Speed (mph[4])**	**AADT [5, 6]**	**Truck %[7]**
US Route 312	Principal Arterial	Highway, Intercity	Limited Access	2	60	11,500	
Montana Route 3	Principal Arterial	Highway, Camino Real, Intercity	Limited Access	2	60	4,200 - 14,400	
Main Street	Principal Arterial	Highway, Camino Real, Intercity	Signalized	6	45	18,500 - 44,200	2%
27th Street	Principal Arterial	Intercity	Signalized	4	30	13,000 – 18,500	
6th Avenue N	Principal Arterial	Intercity	Signalized	4	35	13,700	
4th Avenue N	Principal Arterial	Intercity	Signalized	3	35	11,700	
1st Avenue N	Principal Arterial	Intercity	Signalized	4	35	13,800 – 26,200	
N 13th Street	Collector	Intercity	Signalized	4	25	4,800	
Laurel Road	Principal Arterial	Highway, Intracity	Signalized	4	45	20,700 – 23,900	
Shiloh Road	Principal Arterial	Intracity	Roundabout	4	45	13,300 - 16,400	
Zoo Drive	Principal Arterial	Intracity	Signalized	4	35	4,700 - 10,000	
King Avenue W	Principal Arterial	Intracity	Signalized	4	35	5,000 - 43,500	
State Avenue	Minor Arterial	Intracity	Signalized	2	35	5,700 – 6,700	
Zimmerman Trail	Principal Arterial	Intracity	Signalized	2	25	9,000 - 12,800	
S. Billings Blvd	Principal Arterial	Intracity	Signalized	2	35	9,500 - 16,500	
1st Avenue S – Minnesota Avenue	Principal Arterial	Intercity	Signalized	2 to 4	25	9,200 - 10,200	
Old Hardin Road	Principal Arterial	-	Unsignalized	2	45	3,900 - 9,100	
Johnson Lane	Principal Arterial	-	Signalized	2	45	2,100 - 13,300	12% - 16%

[1]*Refer to Figure 7-1 for limits of truck routes*
[2]*Billings Urban Area Functional Classification Map (7-11)*
[3]*GIS data provided by the City of Billings*
[4]*mph – miles per hour*
[5]*MDT Traffic Data (7-12); 2017 Traffic Count Map (7-13); Yellowstone County Traffic Counts (7-14) - range provided if multiple AADT values were given.*
[6]*AADT – Average Annual Daily Traffic*
[7]*Truck percentages*

As shown in Table 7.1 and Figure 7-1, the area is connected by a number of major highway and interstate facilities. These facilities provide trucks with direct access to several Principal Arterial roadways to travel through the City and access to various land uses associated with truck activity. Key characteristics of the truck routes are identified in Table 7.1, such as signalized corridors along Main Street and King Avenue, and a roundabout corridor along Shiloh Road. The City of Billings and Yellowstone County have designated truck travel and truck routes within the city limits.

- The Billings Montana City Code (BMCC) Article 24-900 – Truck Travel and Truck Routes (7-8) designates the routes for intracity and intercity truck travel. A truck is defined as a vehicle with a combined gross vehicle weight of 8,000 pounds (except for unloaded agricultural vehicles being used for passenger transportation) or more, which includes medium trucks, delivery trucks, dump trucks, tractor trailer trucks, heavy trucks, and super-heavy trucks. The BMCC directs truck routes passing through the City to an outside destination to use the major highways and arterials to connect with Interstate 90. The BMCC discourages truck use on Zimmerman Trail and 27th Street.
- Yellowstone County Ordinance 07-107 to Limit Truck Traffic on Certain County Roads (7-9, 7-10) designates routes for truck travel within Yellowstone County. A truck is defined as a vehicle with a combined gross vehicle weight of 16,000 pounds or more, which includes some medium trucks, delivery trucks, dump trucks, tractor trailer trucks, heavy trucks, and super-heavy trucks. The ordinance restricts truck activity along several county roads with the intent to reduce deterioration of the roads.

MAJOR TRUCK ACTIVITY CENTERS

Figure 7-1 identifies the location of major truck activity centers. These activity centers typically generate more truck traffic than other uses in the city. As shown in Figure 7-1, most of the truck destinations identified lie near Interstate 90, usually close to an existing interchange. Access is provided to Interstate 90 with interchanges at Shiloh Road/Zoo Drive, King Avenue (West Billings), South Billings Boulevard, South 27th Street, Old US 87 (Lockwood), and Johnson Lane. From a network perspective, truck traffic leaving the city to travel east or west is located close to the Interstate, providing easy travel for commercial trucks traveling east-west. However, trucks traveling north must pass through Billings to connect with Montana Route 3, US Route 87, or Old Highway 312. The lack of north-south routes in the city make this difficult for truck travel. Additionally, two of the existing north-south routes, N. 27th Street and Zimmerman Trail, have steep grades that make it challenging for truck/commercial vehicles to traverse and are discouraged for truck use by the BMCC. Additionally, Main Street, the other north-south route, includes several signalized intersections and a few congested intersections during the morning and evening peak hours, which increases the travel time and adds difficulty for trucks that stop and have to get started again.

In addition to the overall network/system, the local connections from the Interstate are critical to support freight movement between the region and local uses. Exhibit 7.3 shows truck activity centers near the Johnson Lane interchange in Lockwood. As shown in Exhibit 7.3, access to this truck activity center is served by the Johnson Lane interchange with Interstate 90. The interchange has two signalized intersections and larger radii at the intersections to accommodate truck travel. This interchange area experiences heavy truck activity, as shown in Exhibits 7.4, 7.5, and 7.6.

The Johnson Lane/ Interstate 90 interchange area experiences a large proportion of daily truck activity. Improvements to this area with the Billings Bypass and Montana's first diverging diamond interchange will enhance truck mobility and the movement of goods to and from Billings.

Exhibit 7.4 Truck Activity Center near Johnson Lane Interchange

PLACEHOLDER

Exhibit 7.5 Turning Trucks at the Johnson Lane and Frontage Road Intersection

Exhibit 7.6 Single Truck at the Johnson Lane and Frontage Road Intersection

Exhibit 7.7 Truck Activity at the Pilot/Conoco Truck Center

SAFETY

Crash data for the study area was reviewed to identify crashes involving commercial vehicles over the five-year period from 2013 to 2017. Table 7.2 summarizes the commercial vehicle related crashes.

Table 7.2 Commercial Vehicle Related Crash Summary (2013-2017)

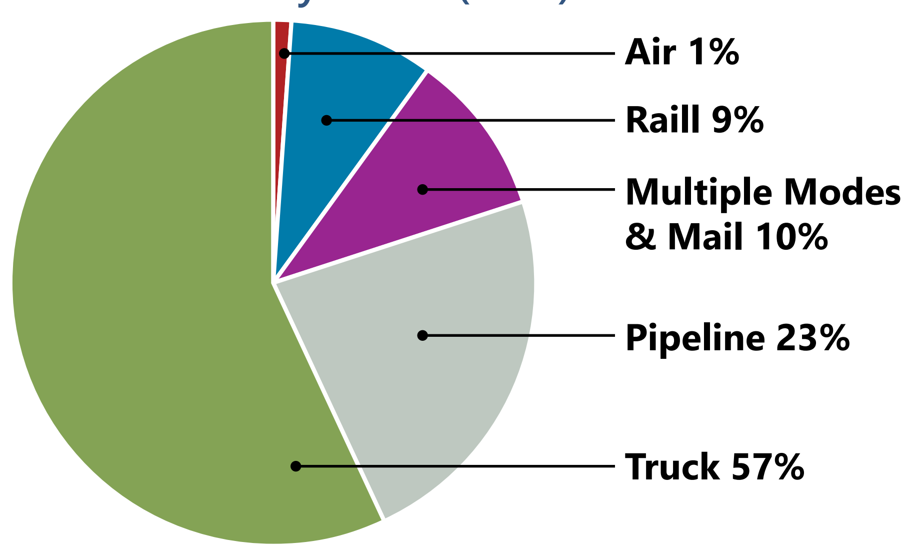
Category	Property Damage Only	Possible Injury	Non- Incapacitating Injury	Incapacitating Injury	Fatal	Unknown	Total
Crash Involving a Commercial Vehicle (Truck >10,000 pounds)	410 (80%)	64 (12%)	25 (5%)	9 (2%)	2 (<1%)	3 (<1%)	513

As shown in Table 7.2, there have been 513 reported crashes involving a commercial vehicle over the five-year time period. Of the crashes, 80% were property damage only crashes. Of the 100 crashes that did result in a type of injury, two of them were fatal crashes. Figure 7-2 shows the location and severity of commercial vehicle related crashes within the study area.

FUTURE TRUCK DEMAND

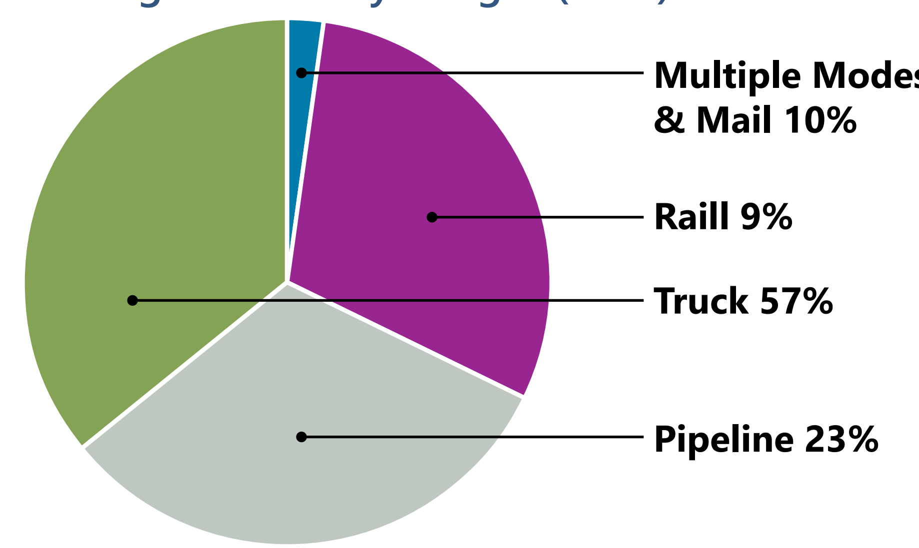
To aid in the identification of truck facility needs, year 2015/2016 and future year (year 2045) rail demand was summarized based on data provided in the Freight Analysis Framework by Federal Highway Administration (FHWA) (7-10). Exhibit 7.8 and Exhibit 7.9 show the percent breakdown of mode choice for moving freight by value and by weight in 2015, respectively.

Exhibit 7.8 Montana Freight Value Moved by Mode (2015)

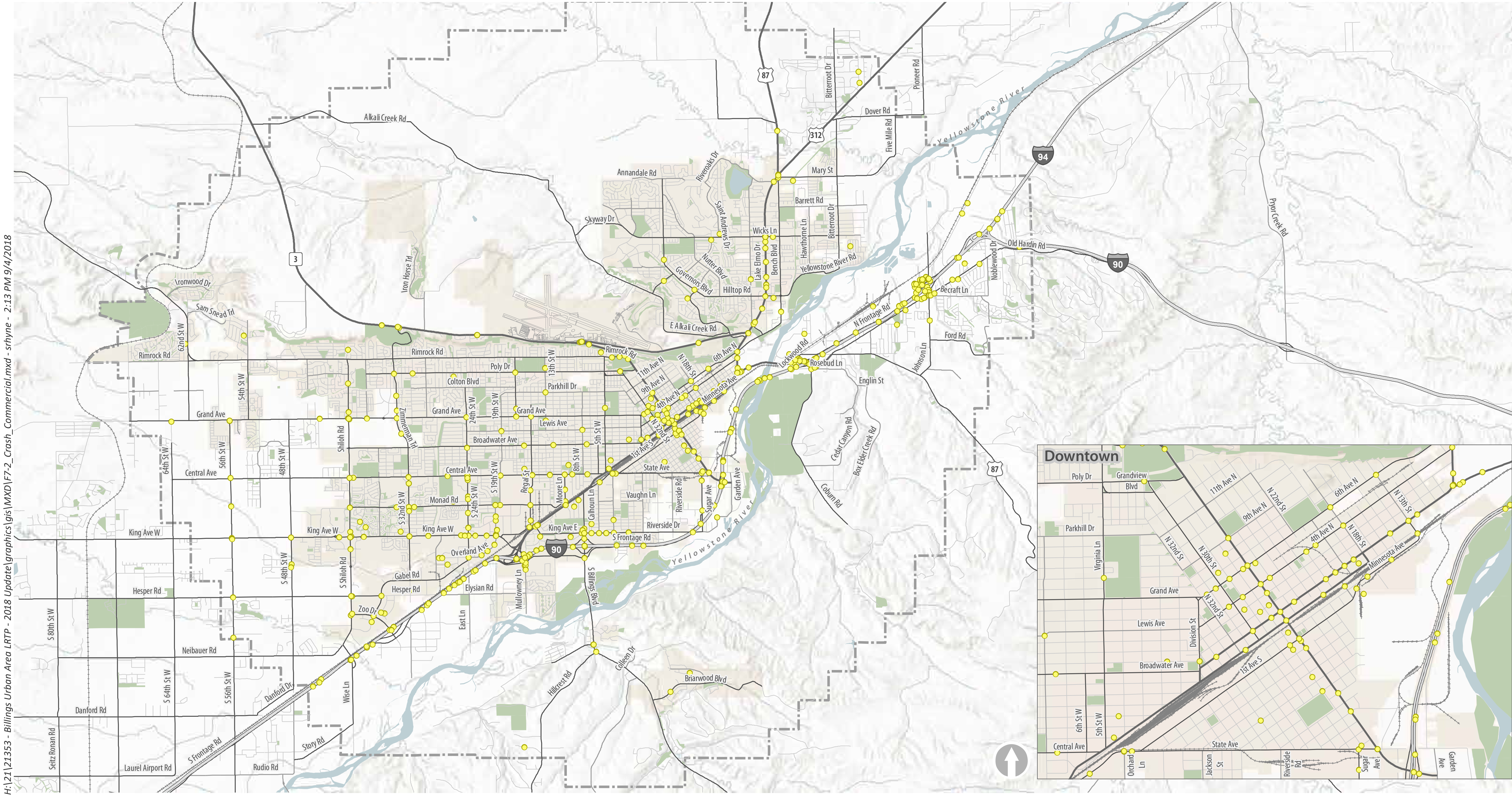


Source: US DOT FHWA Freight Management and Operations - Montana Freight Profiles and Maps (http://ops.fhwa.dot.gov/freight/freight_analysis/state_info/montana/mt.htm)

Exhibit 7.9 Montana Freight Tonnage Moved by Weight (2015)



Source: US DOT FHWA Freight Management and Operations - Montana Freight Profiles and Maps (http://ops.fhwa.dot.gov/freight/freight_analysis/state_info/montana/mt.htm)



- Medium/Heavy Vehicle Crash

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Figure 7-2

Commercial Vehicle Crashes (2013 - 2017)

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Billings serves as a central location for trucking traffic in the state and the region. The area projects to continue serving in this capacity based on the future freight tonnage moved by truck within Montana. Exhibits 7.10 and 7.11 show the major flows by truck to, from, and within Montana in 2012 and 2045, respectively.

Exhibit 7.10 Major Flows by Truck To, From, and Within Montana (2012)

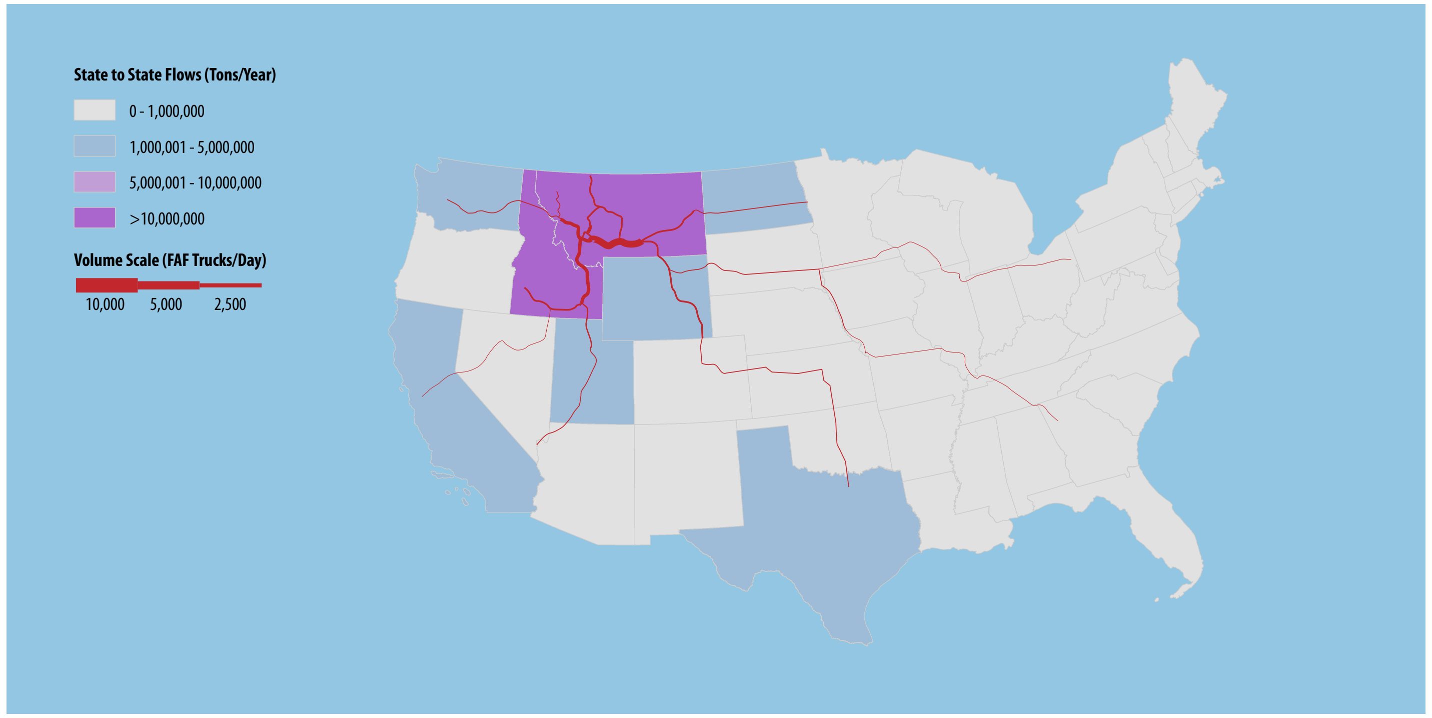
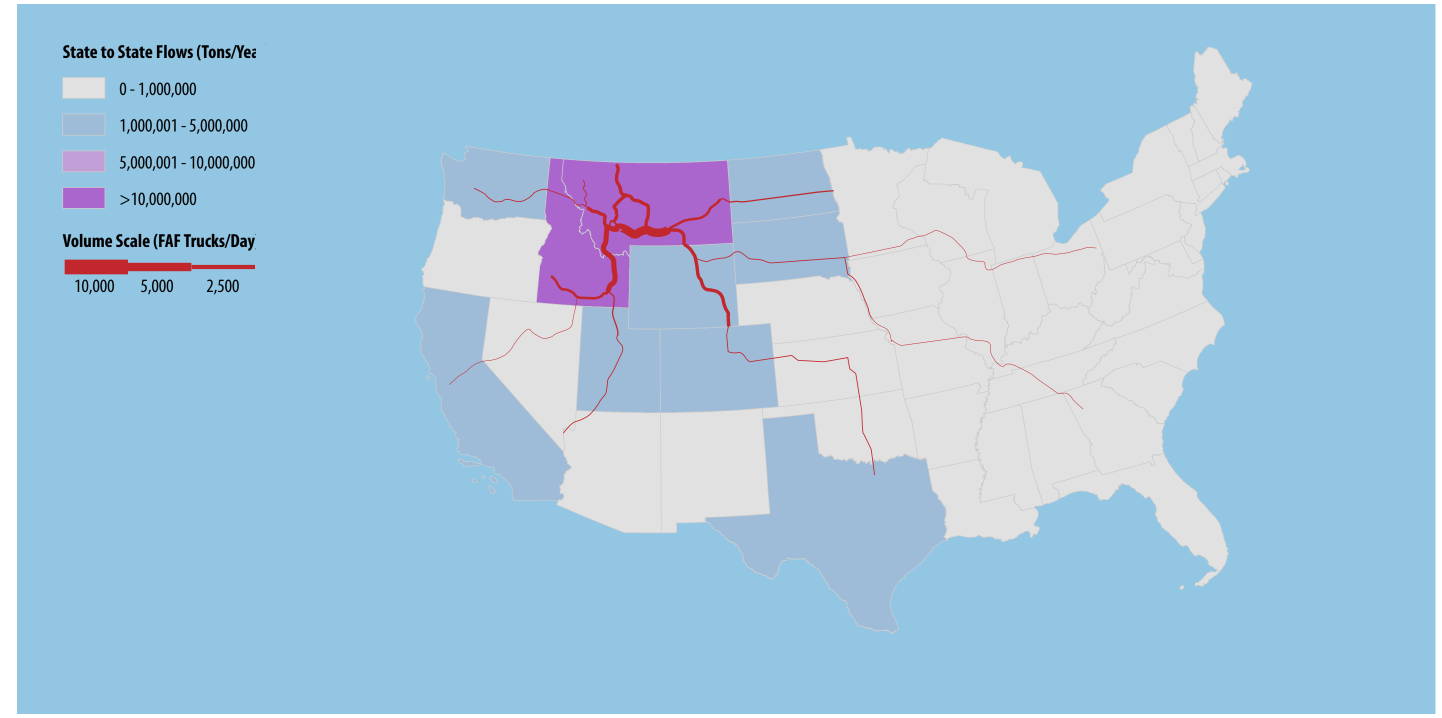


Exhibit 7.11 Major Flows by Truck To, From, and Within Montana (2045)



As shown in Exhibits 7.10 and 7.11, I-90 through Billings carries the highest truck activity in the state currently and projected in 2045. Table 7.3 compares the year 2016 and projected year 2045 rail demand within, from, and to the state in millions of tons and millions of dollars.

Table 7.3 Year 2016 and 2045 Total Freight Moved by Truck

Montana Truck Shipments	Within State			From State			To State		
	2016	2045	% change	2016	2045	% change	2016	2045	% change
In Millions of Tons (% moved by Truck)	29.8 (59%)	40.7 (39%)	37%	16.8 (21%)	21.9 (22%)	30%	12.8 (48%)	24.1 (55%)	88%
In Millions of Dollars (% moved by Truck)	$15,143 (56%)	$21,416 (52%)	41%	$12,256 (42%)	$24,419 (46%)	99%	$22,682 (63%)	$67,207 (75%)	196%

Source: Freight Analysis Framework by Federal Highway Administration (FHWA) - Freight Management and Operations (8-10)

Total freight moved by truck within, from, and to Montana is expected to increase by 46% between 2016 and 2045. As shown in Table 7.3, truck traffic is projected to continue to be a vital part of the City's economy, so it is important to continue to make investments for maintenance, capacity, and safety projects on the truck routes within the Billings urban area.

NEEDS AND DEFICIENCIES

In order to guide identification of short and long-range truck projects, deficiencies and needs were collected from the public, SC, and review of past plans/studies.

PUBLIC AND SC FEEDBACK

Four percent of the public comments corresponded to truck deficiencies and needs in the study area. Review of the public comment feedback and SC comments suggested the following themes:

- Rebuild the underpass at North 13th Street to accommodate large trucks
- Rebuild the underpass at North 21st Street to accommodate large trucks
- Improve operations on Main Street, Exposition Drive, and US 87
- Improve the operations for trucks at the I-90 interchanges
- Connect Montana Highway 3 to Molt Road
- Provide a major north-south corridor on the western edge of the Billings urban area that connects Montana Highway 3 to Interstate 90
- Maintain a safe and efficient balance between residential and truck traffic on the roadway network.

NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

Several recent city-wide studies/plans focus on facilities that currently support most of the truck traffic in the Billings urban area. Key needs from these studies/plans include:

- **2017 Montana Freight Plan** (7-2) identifies the following strategies and two specific infrastructure project for improving truck mobility and alleviating congestion in Billings and other locations in the state:
  - Address heavy vehicle impacts on infrastructure
  - Mitigate delay caused by freight
  - Alleviate freight mobility issues on state owned infrastructure caused by recurring or non-recurring congestion.
  - Utilize innovative technology for the safe, secure, and efficient movement of freight.
  - The Billings Bypass Arterial project will construct an alternate route in Billings to promote connectivity, improve access, decrease congestion and improve operations (LOS) on major routes in the Billings area. This project includes new (and improved) roadway network between Interstate 90 (at the Johnson Lane Interchange) and US-87 (near the Old Highway 312 intersection), as well as a roadway extension of Five Mile Road to connect with Old Highway 312.
  - I-90 Yellowstone River – Billings is a bridge replacement project on Interstate 90 in Billings to improve operations (increase LOS), decrease congestion and promote safety. This project includes additional lanes, new structures and ramp modifications.
- **2016 City of Billings Growth Policy** (8-3) calls out reduced congestion, improved traffic flow, and designated truck routes to support freight.
- **2016 Lockwood Growth Policy** (8-4) identifies growth guidelines for the TEDD, which is an area located in the northeast area of Lockwood that has an emphasis on industrial uses and connectivity with the railroad.
- **Lockwood TEDD Strategic Plan** (7-5) provides a path for further developing a competitive advantage for Yellowstone County over competing locations for business and professional employment. The purpose of the Lockwood TEDD is to provide planned industrial space in order to attract and retain industrial and manufacturing businesses in Yellowstone County. This plan includes new roadway connections to serve the industrial uses and connect to/from Interstate 90.
- **Billings Urban Area Long Range Transportation Plan** (2014, 7-15) summarizes several streets and highway projects in the urban area and details relevant studies and plans completed between 2008 and 2014 related to improving truck mobility:
  - **Lockwood Transportation Study** (7-16) identifies that the Lockwood area intersections and roadways should improve to accommodate heavy commercial trucking vehicles.
  - **Billings Bypass Arterial** (7-17) provides a new roadway connecting Lockwood and Billings.
  - **East Billings Urban Renewal District (EBURD) Master Plan** (7-18) identifies that new roadway facilities need to be developed that maintain access and circulation for large trucks.
  - **I-90 Corridor Planning Study** (7-19) identifies several capacity and safety projects at interchanges and the mainline segment along I-90.

PROJECT LIST RELATED TO FREIGHT FACILITIES FOR TRUCKS

A list of projects related to freight facilities for trucks were identified through the literature review and the discussion of existing deficiencies and needs with the public and SC. Table 7.4 summarizes truck projects in the Billings Urban Area.

Table 7.4 Truck Projects

Project ID	Name	Description	Estimated Planning Level Cost	Referenced Plan/Study
FT1	Billings Bypass Arterial	Construct new roadway from US 87/Old Highway 312/Main Street intersection to Johnson Lane/I-90 and the Five Mile Road extension to Old Highway 312	$166,000,000	A, B, E, G
FT2	I-90 Yellowstone River – Billings	Replace bridges	$72,160,000	B
FT3	Inner Belt Loop – Alkali Creek Rd to Highway 3	Construction of a new road from Alkali Creek Road to Highway 3.	$7,000,000	C
FT4	Old Hardin Road – Lockwood Interchange to Johnson Lane	Reconstruct to a 3-lane urban roadway	$5,700,000	H
FT5	Highway 3 to Molt Road Connection	Construct a new Roadway connecting Highway 3 to Molt Road	$11,605,115	I
FT6	Highway 3 Widening – Zimmerman to Apache	Widen Highway 3 from Zimmerman Trail to Apache Trail with TWLTL	$2,600,000	J
FT7	I-90 from S Billings Boulevard interchange to 27th Street interchange	Add a third travel lane in each direction on I-90	$4,000,000	E, G
FT8	I-90 from Lockwood interchange to Johnson Lane interchange	Add a third travel lane in each direction on I-90	$3,000,000	E, G
FT9	Lockwood Road & N Frontage Road	Reconfiguration of existing intersection	$495,000	H
FT10	US 87 & Old Hardin Road	Upgrade 3-way stop intersection to a roundabout	$1,000,000	H
FT10A	West Billings Interchange	Update geometry to match C standards, improve landscaping and improve pedestrian facilities	$6,900,000	E, G
FT10B		Construct additional EB and WB mainline lanes through interchange, modify vertical curve, reconstruct bridge segments and restripe WB off-ramp at West Billings Interchange.	$12,600,000	E, G
FT11	Shiloh Interchange	Geometric improvements to improve operations and safety	$1,900,000	E, G
FT12	South Billings Blvd Interchange	Additional EB and WB mainline lanes under and through the Interchange	$1,600,000	E, G
FT13	27th Street Interchange	Construct additional EB and WB mainline lanes under and through Interchange. Restripe EB off-ramp and improve pedestrian facilities	$1,900,000	E, G
FT14	Lockwood Interchange	Construct additional EB and WB mainline lanes under and through the Lockwood Interchange and improve pedestrian facilities	$1,900,000	E, G
FT15	Johnson Ln Interchange	Geometric improvements to improve operations and safety	Included with Bypass project	A, B, E, G
FT16	21st Street Underpass	Add capacity and pedestrian/bicycle enhancements at the 21st Street underpass	$3,052,000	D
FT17	13th Street Underpass	Add capacity and pedestrian/bicycle enhancements at the 13th Street underpass	$18,400,000	D, G
FT18	Lockwood TEDD Rail Coordination	Coordinate with the Lockwood TEDD regarding rail infrastructure improvements for this area	-	F
FT19	Exposition Drive & 1st Avenue N Blgs	Intersection improvement	$1,600,000	B
FT20	Underpass Avenue Improvements	Intersection Improvements	$8,600,000	B
FT21	Laurel & Moore Lane	Study for capacity improvements	$250,000	H
FT22	Airport Rd & Main St – BLGS	Intersection Improvements	$11,700,000	B

A – Montana Freight Plan
B - Billings Urban Area Transportation Improvement Program, FY 2017-2021
C - City of Billings Capital Improvement Program, FY 2019-2023
D - 2016 Montana Rail Grade Separation Study
E – I-90 Corridor Planning Study
F – Lockwood TEDD Strategic Plan
G – MDT
H – Consultant Team
I – Molt Road/Highway 3 Collector Road Planning Feasibility Study (7-20)
J – Highway 3 Corridor Planning Study (7-21)

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 8

Rail Services and Facilities

RAIL SERVICES AND FACILITIES

Billings serves as a regional hub for freight rail traffic due to the geographic location and rail system that runs through the City and connects with adjacent states. Exhibit 8-1 shows the location of Billings and active railway lines in the state of Montana. No passenger rail service is provided through the City of Billings. Rail traffic within Billings plays a critical part in the economic vitality and movement of commerce throughout the state, country, and world. As such, the 2018 LRTP outlines several goals related to rail services and facilities:

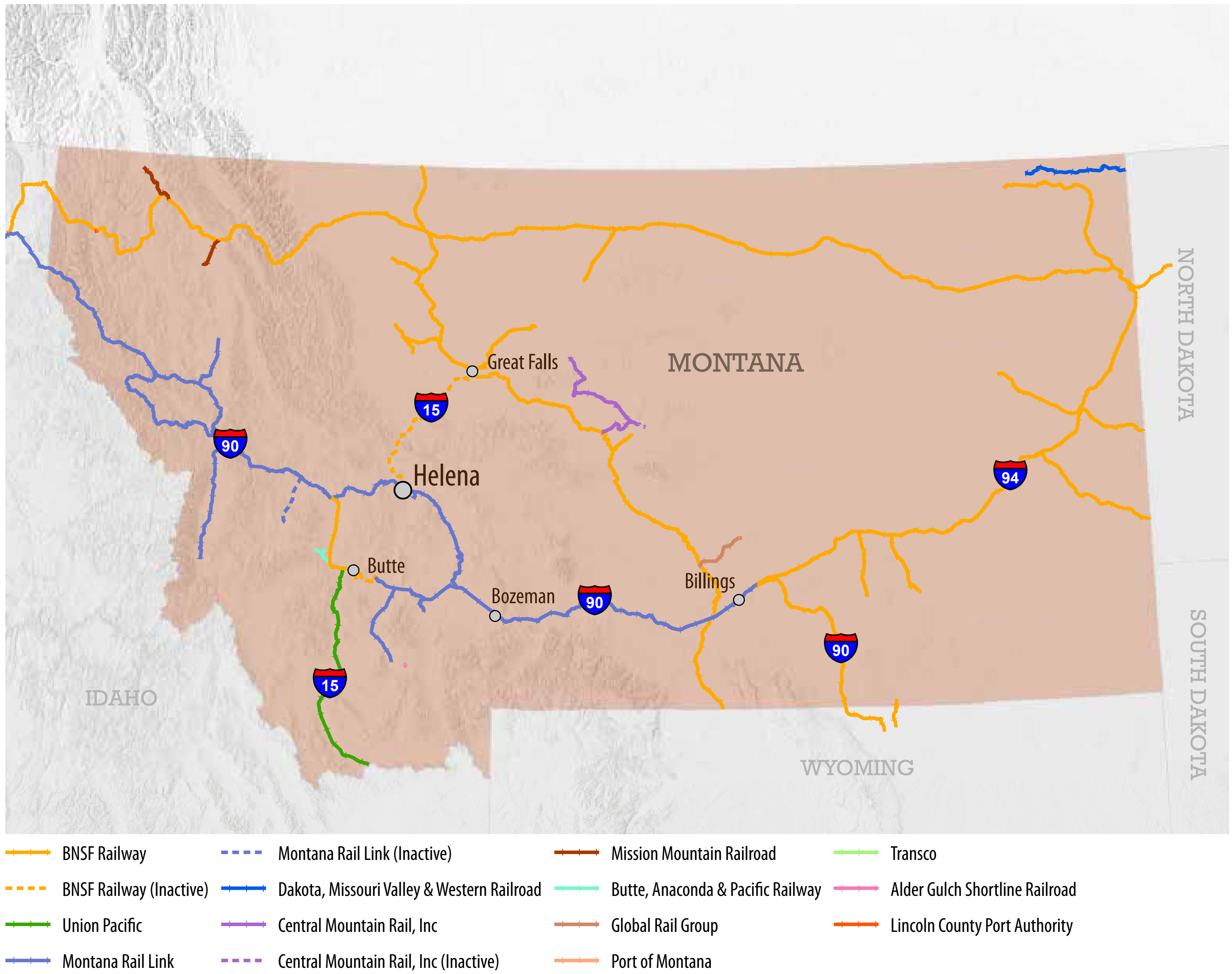
2018 LRTP Goals Related to Rail Services and Facilities

Goal 1: Safety – Develop a safe transportation system

Goal 2: Functional Integrity and Efficiency – Optimize, preserve, and enhance the existing transportation system

Goal 7: Economic Vitality – Ensure adequate transportation facilities to support the existing local economy and connect Billings to local, regional, and national commerce.

Exhibit 8-1. Montana Rail System



LITERATURE REVIEW

Recent city and statewide studies/plans were reviewed for existing conditions, available data, and short and long-range projects related to railroad facilities in the study area. These studies/plans are described below:

- **2017 Montana Freight Plan** (8-1) represents the first plan specific to freight for MDT and for the state. This plan provides a comprehensive evaluation of freight transportation in Montana and provides guidance for both short and long-term freight-related transportation investment decisions.
- **2010 Montana State Rail Plan** (8-2) summarizes statewide rail trends and facilities, feasibility of passenger rail service, and estimates rail trends for year 2035.
- **2016 City of Billings Growth Policy** (8-3) includes a goal that the transportation system is designed to be safer and more efficient for all users. This goal has an objective on rail and freight, specifically for safe railroad crossings (both vehicle and pedestrian) and passenger rail.
- **2016 Lockwood Growth Policy** (8-4) has a growth guideline for the TEDD, which is an area located in the northeast area of Lockwood that has an emphasis on industrial uses and connectivity with the railroad.
- **Lockwood TEDD Strategic Plan** (8-5) provides a path for further developing a competitive advantage for Yellowstone County over competing locations for

business and professional employment. The purpose of the Lockwood TEDD is to provide planned industrial space in order to attract and retain industrial and manufacturing businesses in Yellowstone County. The location of the Lockwood TEDD is located next to the rail service provided by MRL. The plan identifies that additional rail spurs and a transloading facility would benefit the development of the Lockwood TEDD.

- **2016 Montana Rail Grade Separation Study** (8-6) addresses changed conditions from the 2003 Montana Rail Grade Separation Study and assesses highway-rail crossing needs across that state. The 2016 Montana Rail Grade Separation Study used a data-driven evaluation process to identify a list of at-grade and grade-separated railroad crossings where potential feasible improvements may be considered. The findings included four locations in Billings—27th Street, Moore Lane, 13th Street, and 21st Street with more details provided below:
    - 27th Street (at-grade) – MDT is currently conducting a more detailed feasibility study at this location.
    - Moore Lane (at-grade) – An undercrossing is recommended at this location.
    - 13th Street (underpass) – Improvement options include modification to the horizontal and vertical clearances at the crossing locations to facilitate legal height truck usage.
    - 21st Street (underpass) - Improvement options include lowering the roadway to increase the vertical clearance of the underpass to enhance capacity.
- **27th Street Railroad Crossing Study** (8-7) is an ongoing feasibility study to develop improvement options at the 27th Street at-grade crossing location in downtown Billings.
- **Billings Railroad Crossing Feasibility Study** (8-8) examined current and future conditions with emphasis placed on effective delivery of emergency services, safety, and efficiency for all travel modes, business viability, and elimination of any real or perceived socio-economic division of the community created by the railroad tracks. This study identified several possible alternatives ranging from do nothing to technology upgrades to grade-separation (underpass or overpass) on 27th Street to relocating the main railroad line and/or operations.
- **Montana Freight Assessment: Trends and Opportunities to Improve Access and Create Freight Efficiencies for Montana Companies** (8-9) summarizes the potential for improving Montana's freight infrastructure to benefit producers and manufacturers.
- **Freight Analysis Framework** (8-10) produced through a partnership between BTS and FHWA, integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. FAF version 4 (FAF4) provides estimates for tonnage (in thousand tons) and value (in million dollars) by regions of origin and destination, commodity type, and mode. Available data used for the 2018 LRTP includes data from 2016 and forecasts to 2045.

EXISTING CONDITIONS

This section includes a summary of existing rail facilities, operators, and crossings in the study area. A brief safety analysis was performed to identify any trends related to crashes near railroad crossing facilities.

RAIL FACILITIES AND OPERATORS

The Billings Urban Area is served by two railroad operators, Burlington Northern Santa Fe (BNSF) and Montana Rail Link (MRL). MRL enters the study area from the east and continues parallel to Interstate 90 to the west, connecting Billings with Bozeman, Helena, Missoula, and eventually entering Northern Idaho. BNSF breaks off of the MRL line west of the city and continues north. In addition to the railroad lines operated by BNSF and MRL, there is a section of abandoned rail to the west of Billings and several rail spurs that serve industrial zones in the study area. Figure 8-1 shows the existing rail facilities and crossings in the study area.

There are 27 grade crossings of the BNSF and MRL lines, of which 16 crossings are located at-grade within the Billings Urban Area

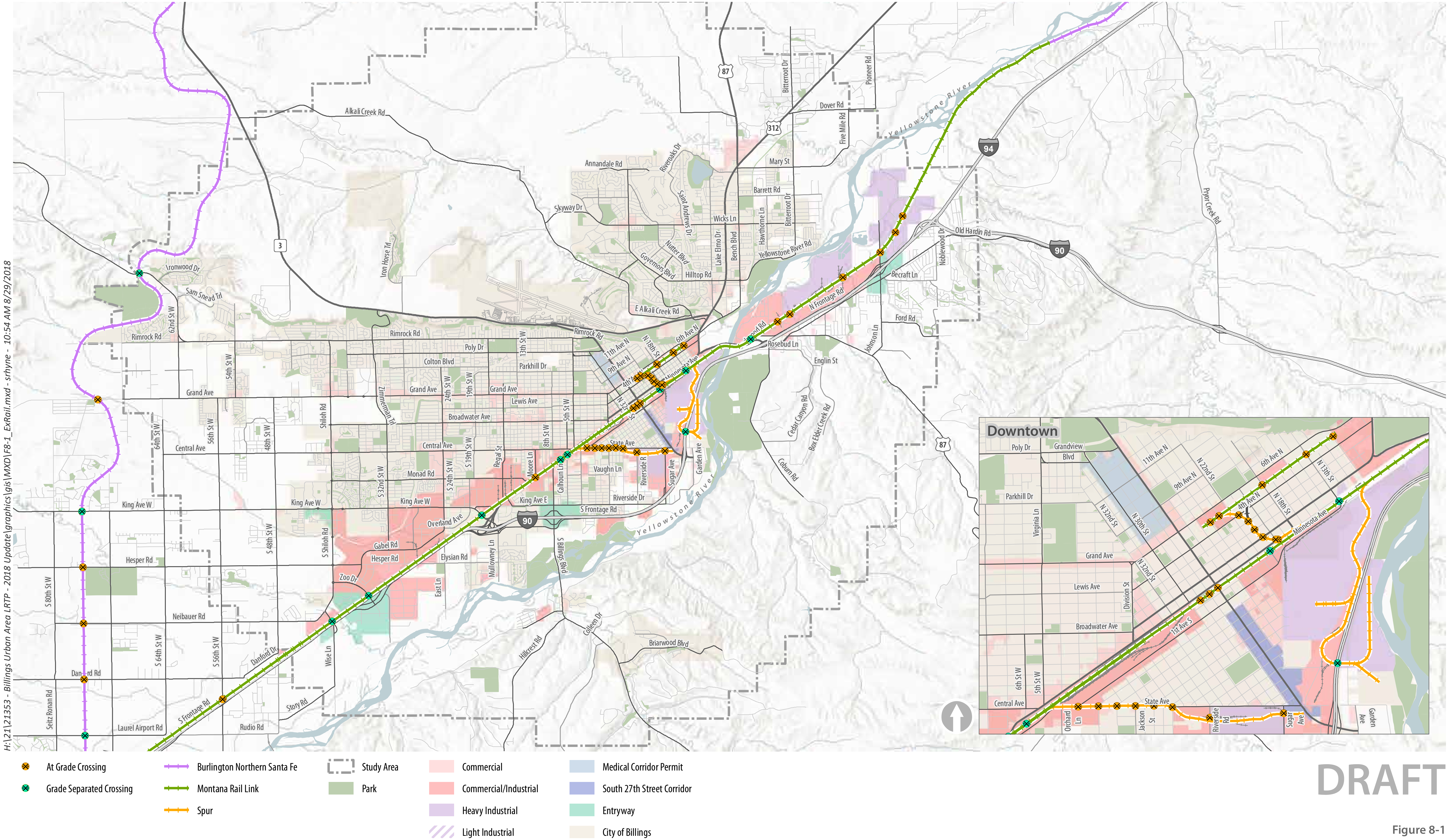


Figure 8-1

Existing Railroad Facilities

RAIL CROSSINGS AND FREQUENCY

The MRL railroad tracks generally traverse along the north side of Interstate 90, along the south side of 1st Avenue South, and along the north side of Interstate 94 through the study area. The BNSF railroad tracks, although located mostly outside of the MPO study area follow Highway 3 to the north. The Manual for Uniform Traffic Control Devices (MUTCD) (8-11), defines an active crossing as any active traffic control that notifies the road user of rail traffic at grade crossings. The types of traffic control can include, but are not limited to, four-quadrant gate systems, automatic gates, flashing-light signals, traffic control signals, and actuated blank-out and variable message signs. A passive crossing would not include any of these traffic control devices.

There are 27 grade crossings of the BNSF and MRL lines, as shown in Figure 8-1. Table 8.1 summarizes the characteristics and level of train activity at the rail crossings for the BNSF and MRL lines the study area.

Table 8.1 Major Rail Crossing Characteristics – MRL and BNSF

Location of Railroad Crossing	Rail Operator	Type	Active or Passive	Number of Trains[1]		Roadway AADT[2] at Crossing Location	Pedestrian Crossing Treatment
				Thru Movements	Switching Movements		
72nd Street	MRL	At-Grade	Active	32	0	2,000	No
56th Street	MRL	At-Grade	Active	32	0	2,000	No
Shiloh Road	MRL	Grade Separated	N/A	32	0	5,000	N/A
Zoo Drive	MRL	Grade Separated	N/A	32	0	10,000	N/A
King Avenue W (Access Road)	MRL	Grade Separated	N/A	32	0	40,000	No
Moore Lane	MRL	At-Grade	Active	32	0	10,000	No
Montana Avenue	MRL	Grade Separated	N/A	32	0	20,000	N/A
6th Street	MRL	Grade Separated	N/A	32	0	10,000	N/A
29th Street	MRL	At-Grade	Active	32	10	2,600	Yes
28th Street	MRL	At-Grade	Active	32	6	2,100	Yes
27th Street	MRL	At-Grade	Active	32	6	15,000	Yes
N 21st Street	MRL	Grade Separated (underpass)	N/A	32	0	2,600	N/A
N 13th Street	MRL	Grade Separated (underpass)	N/A	32	0	10,000	N/A
US 87	MRL	Grade Separated	N/A	30	0	26,000	N/A
Steffes Road	MRL	At-Grade	Active	30	0	Not Available	No
Brickyard Lane	MRL	At-Grade	Active	30	0	Not Available	No
Exxon Refinery Road	MRL	At-Grade	Active	30	2	Not Available	No
Johnson Lane	MRL	At-Grade	Active (no gates)	30	0	500	No
Gravel Pit Road	MRL	At-Grade	Active	30	2	Not Available	No
Local Road	MRL	At-Grade	Passive	30	0	Not Available	No
Laurel Airport Road	BNSF	Grade Separated	N/A	6	0	2,000	N/A
Danford Road	BNSF	At-Grade	Passive	6	0	500	No
Neibauer Road	BNSF	At-Grade	Passive	6	0	500	No
Hesper Road	BNSF	At-Grade	Passive (stop sign)	6	0	500	No
King Avenue West	BNSF	Grade Separated	N/A	6	0	4,000	N/A
Grand Avenue	BNSF	At-Grade	Active	6	0	4,500	No
Molt Road	BNSF	Grade Separated	N/A	6	0	3,500	N/A

[1]*Source: Federal Rail Administration*
[2]*Source: Billings Urbanized Area Traffic Count Map (8-12), Yellowstone County Traffic Counts Map (8-13)*

As shown in Figure 8-1, there are several at-grade crossings in the downtown area that cross the MRL railroad tracks and spur lines. As shown in Table 8.1, AADT is reported for roadways that intersect rail lines in the study area. AADT's on roadways with at-grade crossings are typically below 5,000 vehicles, with the exception of 27th Street and Moore Lane, which both have an AADT of greater than 10,000 vehicles. As shown in Table 8.2, the train traffic through the study area is consistent and accommodations should be made to balance rail movement with other modes. Switching movements create additional delays compared to thru movements, as switching movements require the trains to stop for some amount of time.

The Montana Rail Link has approximately 30 to 32 daily trains that pass through the Billings Urban Area.

Pedestrian crossing treatments are included at three at-grade rail crossings in the downtown area. Exhibit 8.2 shows the railroad crossing and pedestrian treatment at 27th Street.

Crossing warning signals and technology upgrades, similar to those installed at 27th Street, have also been installed at 28th Street, 29th Street, and Moore Lane. Crossing upgrades such as these are completed through MDT with federal safety funds provided by the Administrative Rules of Montana (ARM 18.6.304) (8-14). Upgrades at 27th Street, 28th Street, and 29th Street were completed through the Billings Quiet Zone project in 2008 (8-15). There are currently two grade-separated rail crossings within the downtown area, located at 21st Street and 13th Street. Exhibit 8.3 and 8.4 show the crossings at 13th Street and 21st Street, respectively. The crossing at 13th Street is signed with a vertical clearance of 13 feet 8 inches, while the MDT BMS documents the vertical clearance at 14 feet. The underpass is approximately a half-mile long with sidewalk on the west side only and serves an AADT of approximately 10,000 vehicles per day. The crossing at 21st Street has a clearance of 8 feet with sidewalk on both sides of the road. The underpass is approximately a tenth of a mile long and has an AADT of approximately 2,500 vehicles per day. Improvement options were identified at both of these crossing locations in the 2016 Montana Rail Grade Separation Study.

Exhibit 8.2 Rail and Pedestrian Crossing at 27th Street

Exhibit 8.3 Rail Crossing at 13th Street

Exhibit 8.4 Rail Crossing at 21st Street

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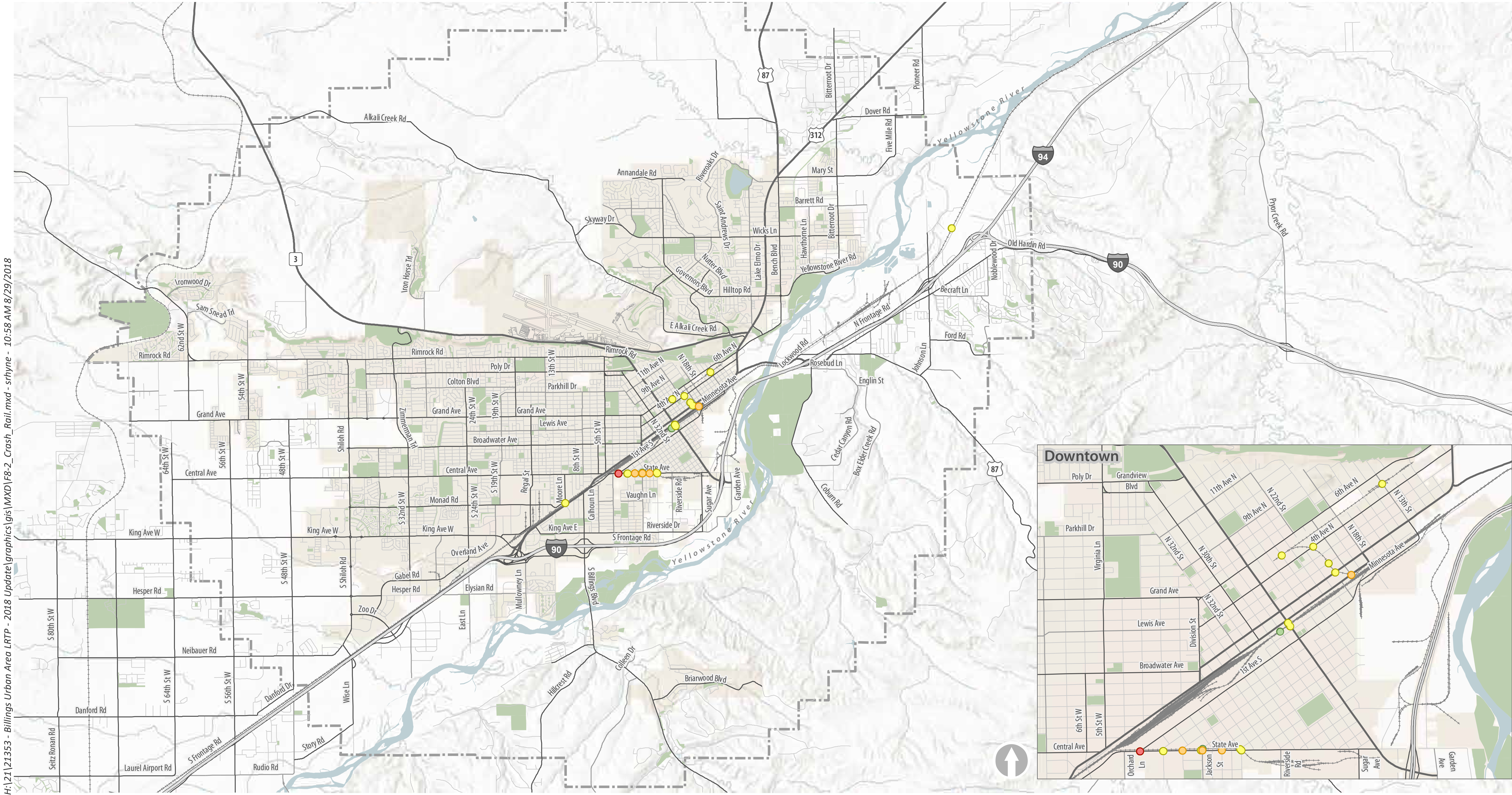

Crash Severity

- Incapacitating Injury Accident
- Non-Incapacitating Evident Injury Accident
- Non-Injury Accident (Property-Damage-Only-Accident)
- Possible Injury Accident
- Unknown

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Figure 8-2

At-Grade Rail Crossings Crashes (2013 - 2017)

SAFETY

Crash data for the study area was reviewed to identify crashes related to the rail crossings over the five year period from 2013 to 2017. Table 8.2 summarizes the crashes related to rail crossings in the study area. Figure 8-2 summarizes the rail related crashes in the study area.

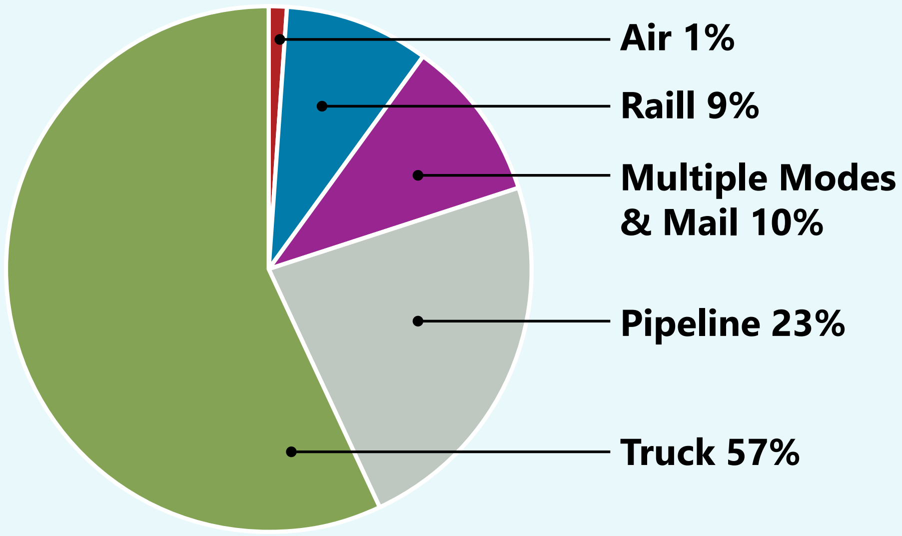
Table 8.2 At-Grade Rail Crossings Crash Summary (2013-2017)

Category	Property Damage Only	Possible Injury	Non- Incapacitating Injury	Incapacitating Injury	Fatal	Unknown	Total
Crash Related to At-Grade Rail Crossing	64 (73%)	16 (18%)	5 (6%)	1 (1%)	0 (0%)	2 (2%)	88

EXISTING AND FUTURE RAIL DEMAND

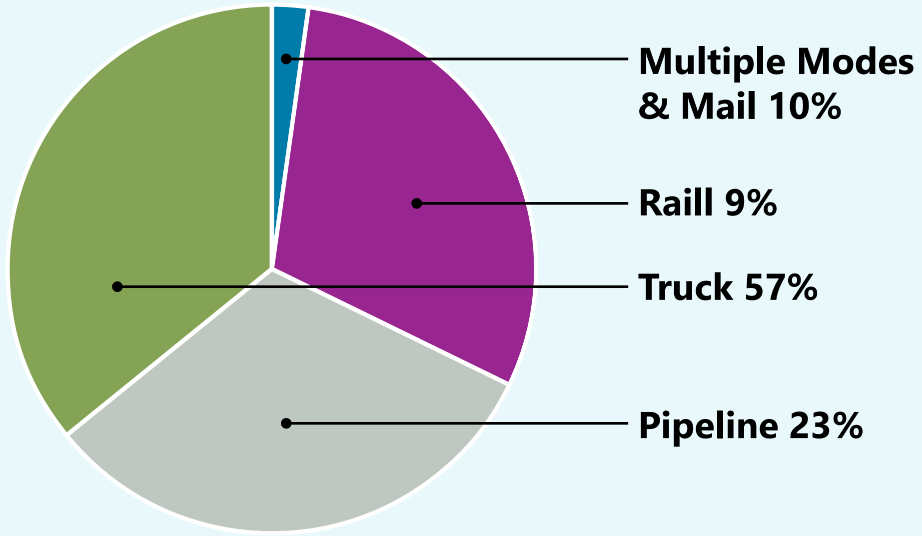
To aid in the identification of rail facility needs, year 2015/2016 and future year (year 2045) rail demand was summarized based on data provided in the Freight Analysis Framework by Federal Highway Administration (FHWA) (8-10). Exhibit 8.5 and Exhibit 8.6 show the percent breakdown of mode choice for moving freight by value and by weight in 2015, respectively.

Exhibit 8.5 Montana Freight Value Moved by Mode (2015)



Source: US DOT FHWA Freight Management and Operations - Montana Freight Profiles and Maps (http://ops.fhwa.dot.gov/freight/freight_analysis/state_info/montana/mt.htm)

Exhibit 8.6 Montana Freight Tonnage Moved by Weight (2015)



Source: US DOT FHWA Freight Management and Operations - Montana Freight Profiles and Maps (http://ops.fhwa.dot.gov/freight/freight_analysis/state_info/montana/mt.htm)

Rail is projected to continue to serve as a valuable economic driver in Billings and Montana. Approximately 30% of freight shipments by weight was moved by rail in 2015. Freight moved from the state by rail continues to account for the majority of rail traffic in the state. Coal accounts for a significant amount of freight tonnage originating in the state. Montana is the nation's sixth largest coal producing state with over 93% of it being shipped via rail (8-1, 8-10). Most of this production is in the rural southeast corner of the state, which is the reason for the high level of train activity through Billings. Table 8.3 compares the year 2016 and projected year 2045 rail demand within, from, and to the state in millions of tons and millions of dollars.

Table 8.3 Year 2016 and 2045 Total Freight Moved by Rail

Montana Rail Shipments	Within State			From State			To State		
	2016	2045	% change	2016	2045	% change	2016	2045	% change
In Millions of Tons (% moved by Rail)	4.2 (8%)	5.5 (5%)	31%	39.6 (48%)	32.0 (32%)	-20%	6.4 (24%)	8.8 (20%)	18%
In Millions of Dollars (% moved by Rail)	$1,158 (4%)	$1,584 (4%)	37%	$4,029 (14%)	$6,561 (12%)	60%	$2,960 (8%)	$6,221 (7%)	110%

Source: Freight Analysis Framework by Federal Highway Administration (FHWA) - Freight Management and Operations (8-10)

As shown in Table 8.3, freight moved from the state by rail is projected to decrease by 20% in total tonnage by the year 2045. Overall, the amount of freight moved around and across the state of Montana is projected to increase by 2045. Billings is anticipated to continue serving as a central hub for rail transport in Montana and several surrounding areas.

NEEDS AND DEFICIENCIES

In order to guide identification of short and long-range rail projects, deficiencies and needs were collected from the public, SC, and review of past plans/studies.

PUBLIC AND SC FEEDBACK

Comments and feedback received identified delays during closures of roadways at the at-grade crossings as the primary concern regarding rail traffic in the study area. Comments from the Public Open House and feedback received from the SC identified the following focus areas for projects related to freight rail traffic.

- Provide a grade separated crossing of the railroad tracks on 27th Street in downtown Billings.
- Move the railroad tracks a way from downtown (A major urban center does not have a train track dividing its core downtown area in half).
- Provide an alternate route to 27th Street during closures/train delays – consider improvements to the underpasses at 13th Street and 21st Street.
- Consider advanced warnings, signal modifications, and other smart technology solutions for alerting motorists of trains. Real-time information is needed to alert transportation users of the time table of approaching trains in downtown and to expect delays. Advanced warning systems linked to websites and mobile devices could warn roadway users of delays at the at-grade intersections and identify potential alternate routes.
- Address capacity and design issues at railroad underpasses with 13th Street and 21st Street.

NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

Review of recent studies/plans identified several needs for rail facilities, listed below and used to identify recommended projects.

- **2017 Montana Freight Plan** (8-1) represents the first plan specific to freight for MDT and for the state. This plan identified the following strategies related to rail:
  - BNSF invested approximately $180 million in Montana for capital improvements in 2016. This included maintaining and expanding the core network and related assets; new locomotives, freight cars, and other equipment; continuing implementation of positive train control (PTC); and investing in expansion and efficiency projects to enhance productivity and velocity.
  - The at-grade railroad crossings located at 27th Street and Moore Lane should be evaluated further to determine if improvements at these locations are viable and cost effective.
  - MDT will continue to work with railroad owners/lessees to implement effective safety technologies, particularly where rail and highway systems meet.
- **2016 City of Billings Growth Policy** (8-3) calls out providing safe railroad crossings (both vehicle and pedestrian) and passenger rail.

- **2016 Lockwood Growth Policy** (8-4) identifies growth guidelines for the TEDD, which is an area located in the northeast area of Lockwood that has an emphasis on industrial uses and connectivity with the railroad.
- **Lockwood TEDD Strategic Plan** (8-5) identifies that additional rail spurs and a transloading facility would benefit the development of the Lockwood TEDD.
- **2016 Montana Rail Grade Separation Study** (8-6) included four locations in Billings—27th Street, Moore Lane, 13th Street, and 21st Street with more details provided below:
  - 27th Street (at-grade) – The underpass improvements were identified at $73.9 million. The overpass improvements were identified at $39.2 million. MDT is currently conducting a more detailed feasibility study at this location, titled 27th Street Railroad Crossing Study.
  - Moore Lane (at-grade) – An undercrossing is recommended at this location with the cost estimate at $31 million.
  - 13th Street (underpass) – Improvement options include modification to the horizontal and vertical clearances at the crossing locations to facilitate legal height truck usage. The cost estimate is $1-2 million.
  - 21st Street (underpass) – Improvement options include lowering the roadway to increase the vertical clearance of the underpass to enhance capacity. The cost estimate is $1.5-3 million.
- **27th Street Railroad Crossing Study** (8-6) is an ongoing feasibility study to develop improvement options at the 27th Street at-grade crossing location in downtown Billings.
- **Billings Railroad Crossing Feasibility Study** (8-7) identified several possible alternatives ranging from do nothing to technology upgrades to grade-separation (underpass or overpass) on 27th Street to relocating the main railroad line and/or operations. The alternatives present significant challenges for implementation due to physical constraints and project cost. As a result, the grade separated crossings located at 13th Street and 21st Street are a high priority for potential improvements as they are the only grade separated crossings in the downtown area. Geometric improvements are needed to improve drainage, visibility, and accommodate emergency services vehicles and large trucks. In addition, pedestrian and bicycle facilities are needed at the two underpasses to improve connectivity and safety for non-motorized users. These two underpasses are identified with potential improvements in the 2016 Montana Rail Grade Separation Study.
- **Montana Freight Assessment: Trends and Opportunities to Improve Access and Create Freight Efficiencies for Montana Companies:** This assessment identifies the challenges of freight services in Montana (8-8).

FREIGHT PROJECTS RELATED TO RAIL TRAFFIC

A list of projects related to freight facilities for rail were identified through the literature review and the discussion of existing deficiencies and needs with the public and SC. Table 8.4 summarizes rail projects in the Billings Urban Area.

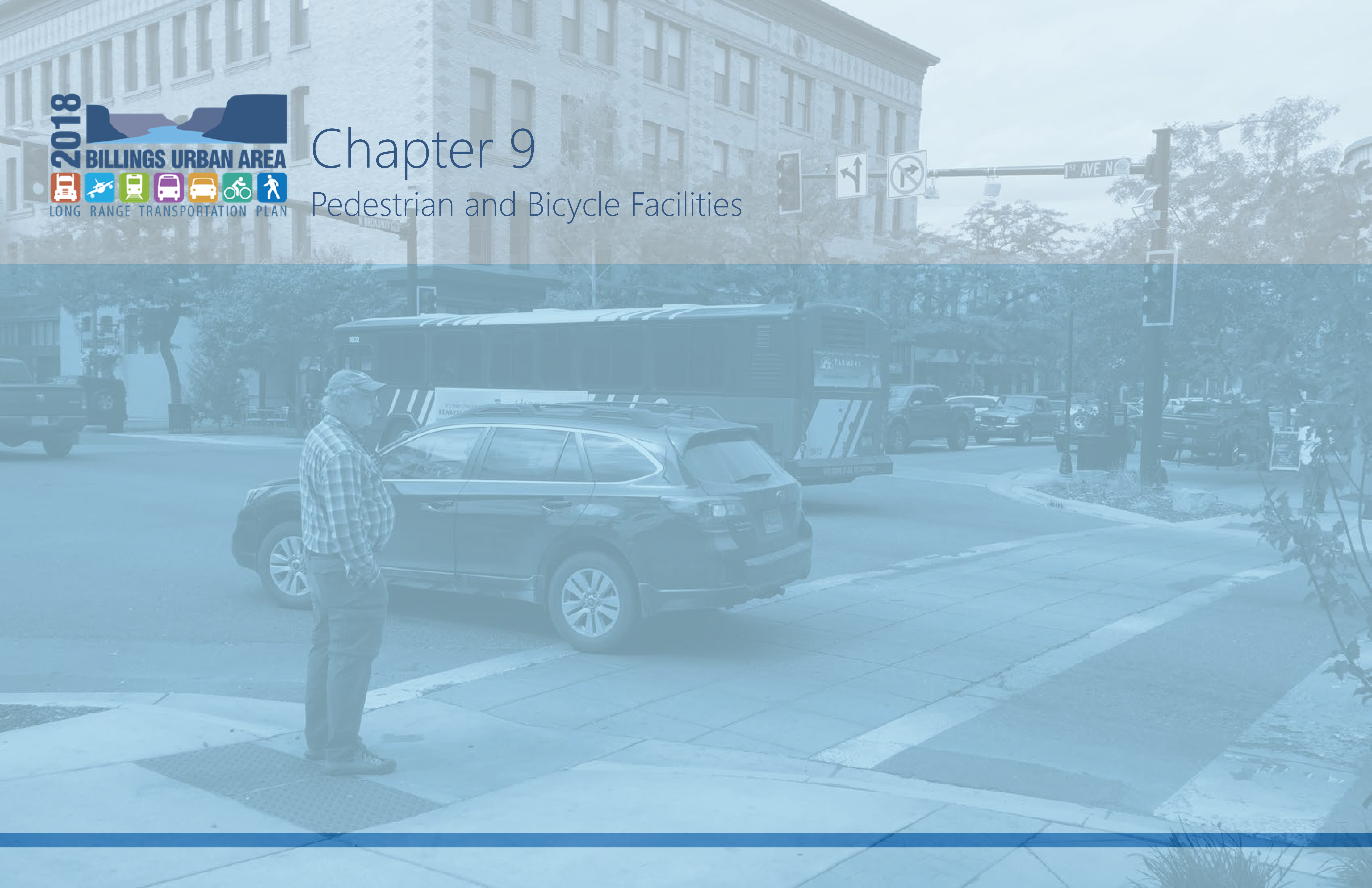
Table 8.4 Rail Projects

Project ID	Name	Description	Estimated Planning Level Cost	Referenced Plan/Study
FR1	27th Street Railroad Crossing Study	Complete the feasibility study for the at-grade rail crossing at 27th Street	Ongoing	A, B, C
FR2	Moore Lane Railroad Crossing Study	Perform a feasibility study for the at-grade rail crossing at Moore Lane	$300,000	A, B
FR3	21st Street Underpass	Add capacity and pedestrian/bicycle enhancements at the 21st Street underpass	$3,000,000	B
FR4	13th Street Underpass	Add capacity and pedestrian/bicycle enhancements at the 13th Street underpass	$2,000,000	B
FR5	Lockwood TEDD Rail Coordination	Coordinate with the Lockwood TEDD regarding rail infrastructure improvements for this area	-	D

A - Montana Freight Plan, B - 2016 Montana Rail Grade Separation Study, C - 27th Street Railroad Crossing Study, D – Lockwood TEDD Strategic Plan

2018 BILLINGS URBAN AREA
LONG RANGE TRANSPORTATION PLAN

Chapter 9
Pedestrian and Bicycle Facilities



PEDESTRIAN AND BICYCLE FACILITIES

The Billings Urban Area has been upgrading sidewalk facilities, constructing trail systems, and adding bike lanes to roadways over the last 25 years. Recent examples by the City of Billings, Lockwood, and the MPO include the following:

- The City of Billings has taken steps toward this goal by promoting programs such as Safe Routes to School, by partnering with St. Vincent Healthcare and School District #2 to develop bicycle education and repair events at elementary schools, and by adopting planning studies such as the BikeNet Plan (1995), Heritage Trail Plan (2004), Billings Area Bikeway and Trail Master Plan (2011) and Update (2017), and Complete Streets Policy (2011 and 2016), Benchmark Study (2013), and Progress Report (2017).
- Lockwood has taken recent steps towards this goal with the completion of a Non-Motorized Transportation Plan (2015).
- Promoting active transportation has led to the completion of nine Safe Routes to School Studies (SRTS) for elementary schools in Yellowstone County by RiverStone Health. Additional studies are in progress as of this report's publication. These studies aim to enhance student safety and encourage more students to walk and bike to school.
- The MPO has added an Active Transportation Planner to help lead and coordinate these efforts.

Active transportation continues to be a priority of both communities and the MPO. Active transportation also supports transit use, as many transit trips begin and end with walking or bicycling. As such, the 2018 LRTP outlines several goals related to pedestrian and bicycle elements:

> A goal of the region is to establish one of the most comprehensive bicycle and trail networks in the State of Montana, and a 'Gold Bicycle Friendly Community' rating by the League of American Bicyclists by the year 2030.

2018 LRTP Goals Related to Active Transportation

Goal 1: Safe – To develop a safe transportation system.

Goal 4: Environment – To develop a transportation system that protects the natural environment and promotes a healthy sustainable community.

Goal 6: Pedestrians and Bicyclists – To create a transportation system that supports the practical and efficient use of active transportation such as walking and bicycling

Goal 7: Economic Vitality – To ensure adequate transportation facilities to support the existing local economy and connect Billings to local, regional, and national commerce.

LITERATURE REVIEW

Recent studies/plans were reviewed for existing conditions, available data, and short/long-term projects related to pedestrian and bicycle facilities in the study area. These studies/plans are described below:

- **2014 Billings Urban Area Long Range Transportation Plan (9-1):** This plan summarizes active transportation in the Urban Area and identifies priority projects for the area.
- **Billings Area Bikeway and Trail Master Plan Update (9-2):** This plan identifies eight goals associated with the bikeway and trail system in the Billings Urban Area. The plan includes a demographic analysis, inventory of existing facilities, project, program and policy recommendations, and implementation plan. This plan is an excellent technical resource for the community regarding bikeway and trail facilities, usage, and project recommendations.
- **Trail Asset Management Plan (9-3):** The plan discusses the maintenance needs of the existing and future trail system including a discussion of potential funding sources.
- **Safe Routes to School Study Phase I & Phase II (9-4):** The plan evaluates active transportation options to and from the 22 existing elementary schools in the City of Billings. Two goals are identified by the project: 1) enhance the safety for students traveling to and from school, and 2) increase the number of students walking or bicycling to school. The study focuses primarily on engineering improvements but discusses the 5 E's for SRTS efforts: Engineering, Enforcement, Encouragement, Education, and Evaluation.
- **Complete Streets Progress Report (9-5):** This report offers a performance-based approach to the Billings transportation system to ensure it works for all people of all abilities. It examines current and future opportunities for a balanced transportation network using data from the previous three years.
- **Lockwood Non-Motorized Transportation Plan (9-6):** This plan seeks to eliminate fatalities and serious injuries caused by vehicular and pedestrian conflicts throughout the Lockwood area. It identifies a five-year work plan and 20-year desired project list in the areas of education, enforcement, engineering, evaluation, and partnerships and funding to achieve this goal.

The studies listed below were also reviewed, but either had a larger scope than just pedestrian/bicycle elements or focused on a particular section of the urban area.

- Billings-Yellowstone County Household Travel Survey (2017)
- TranPlanMT (2017)
- Billings Community Transportation Safety Plan (2016)
- City of Billings Growth Policy (2016)
- Lockwood Growth Policy (2016)
- West End Multimodal Planning Study (2016)
- Rims to Valley Study (2016)

EXISTING CONDITIONS

The existing facilities for the study area were summarized into three categories: pedestrian facilities, bicycle facilities, and trail facilities. Existing facilities and available data are discussed for each category, as well as available mode share data for the entire system. A safety analysis was also completed for all pedestrian and bicycle related crashes in the study area.

MODE SHARE

Year 2016 mode share data was obtained through the American Community Survey (ACS). Table 9.1 summarizes the mode share data for commuters in Billings.

Table 9.1 Year 2016 Mode Share for Commuters in the City of Billings

Mode Used	Number of Commuters	Percent of Commuters
Drove Alone	44,908	81.0%
Carpool (2 people)	4,180	7.5%
Carpool (3+ people)	1,108	2.0%
Public Transportation	592	1.1%
Bike	425	0.8%
Walk	1,760	3.2%
Other	390	0.7%
Worked at Home	2,045	3.7%
Total	**55,408**	**100%**

Source: ACS 2016

As shown in Table 9.1, driving alone to work is the most common commuter mode share (81.0%). Active transportation (biking and walking) makes up 4.0% of commuter mode share. Public transportation, which relies on the active transportation network for many of its users to begin and end their trips, makes up 1.1% of the commuter mode share.

Biking and walking trips account for 4% of the commuter mode share.

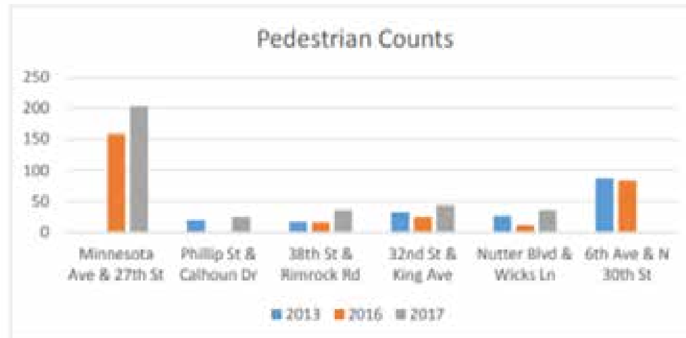
As part of the 2013 Complete Streets Benchmark Study (9-5), bicycle and pedestrian counts were collected on a weekday and weekend in September 2013 at the following six intersections:

- Minnesota Avenue & South 25th Street - unsignalized
- Philip Street & Calhoun Drive - unsignalized
- 38th Street & Rimrock Rd - unsignalized
- 32nd Street & King Avenue - signalized
- Nutter Boulevard & Wicks Lane - signalized
- 6th Avenue & North 30th Street – signalized

The 2017 Complete Streets Progress Report again measured bicycle and pedestrian counts at these six intersections. These counts were taken in May 2016 and May 2017, making an annual comparison to the 2013 data difficult.

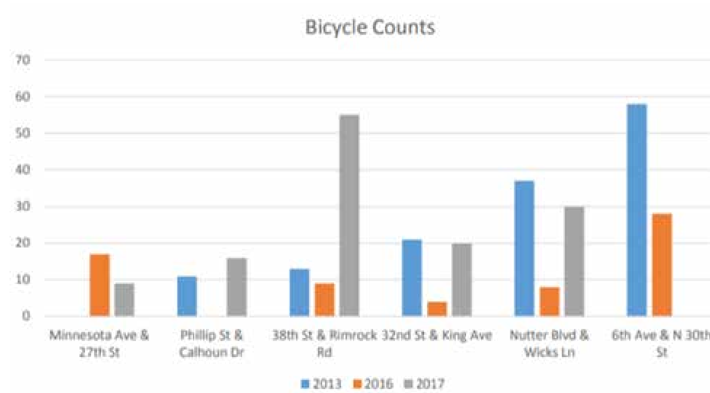
The pedestrian and bicycle counts across the three years are shown in Exhibits 9.1 and 9.2, respectively. Pedestrian and bicycle usage was found to be consistently higher on weekdays than weekends. The 2017 pedestrian volumes increased at all counted locations from 2016. The 2017 bicycle volumes increased significantly at all locations from 2016, except for the Minnesota Avenue/27th Street location.

Exhibit 9.1 Billings Pedestrian Counts by Location



** Note that data gaps represent counts not taken due to road construction*

Exhibit 9.2 Billings Bicycle Counts by Location



School-Related Mode Share

The Billings-Yellowstone County travel survey collected data in early 2017. Table 9.2 uses data from this survey to show mode share to school across the Billings area. As shown, about 75% of respondents reported typically driving to school, either as the driver or passenger, and a similar rate did drive to school on the day of the survey. About 6.5% of respondents reported typically walking or bicycling to school and a similar rate did walk or bicycle to school on the day of the survey.

As shown in Table 9.2, driving to school and being driven to school are still the most popular mode choices. Because over 5% of students walk to school, the City of Billings has increased focus on providing safe travel for students walking to school. This includes updating and maintaining sidewalk facilities, using speed zones to reduce speeds near schools, and providing crossing guards at popular locations.

The RiverStone Health SRTS program is in the process of evaluating the pedestrian and bicyclist network supporting elementary schools in Yellowstone County. These studies recommend improvements at each school to make active transportation a safer choice for children's commutes.

Table 9.2 School-Related Mode Share

	Typical School Mode							
Actual School Mode	**Passenger**	**Driver**	**School Bus**	**Walk**	**Carpool**	**Public Transit**	**Bike**	**Grand Total**
Passenger	42.98%	0.85%	3.40%	1.28%	2.55%		0.43%	51.149%
Driver	6.81%	16.17%	0.43%					23.40%
School Bus	4.68%	0.43%	10.21%	0.43%	0.43%			16.17%
Walk	0.85%			4.26%				5.11%
Carpool	0.85%				0.85%			1.70%
Public Transit						0.43%		0.43%
Bike	0.85%		0.85%					1.70%
Total	**57.02%**	**17.45%**	**14.89%**	**5.96%**	**3.83%**	**0.43%**	**0.43%**	**100.00%**

Source: Billings-Yellowstone County Travel Survey

PEDESTRIAN FACILITIES

Figure 9-1 shows the existing pedestrian and trail facilities in the study area. Sidewalk facilities exist in the downtown area, approximately from N 32nd Street to N 22nd Street and Montana Avenue to 6th Avenue, and most areas throughout the city. Exhibits 9.3, 9.4, and 9.5 illustrate some of the existing pedestrian facilities in the region.

Exhibit 9.3 Sidewalks and Pedestrian Buffer Zone in Downtown Billings

Exhibit 9.4 Pedestrian Hybrid Beacon (HAWK) at 4th Avenue in Downtown Billings

Exhibit 9.5 Rectangular Rapid Flashing Beacon (RRFB) on King Avenue

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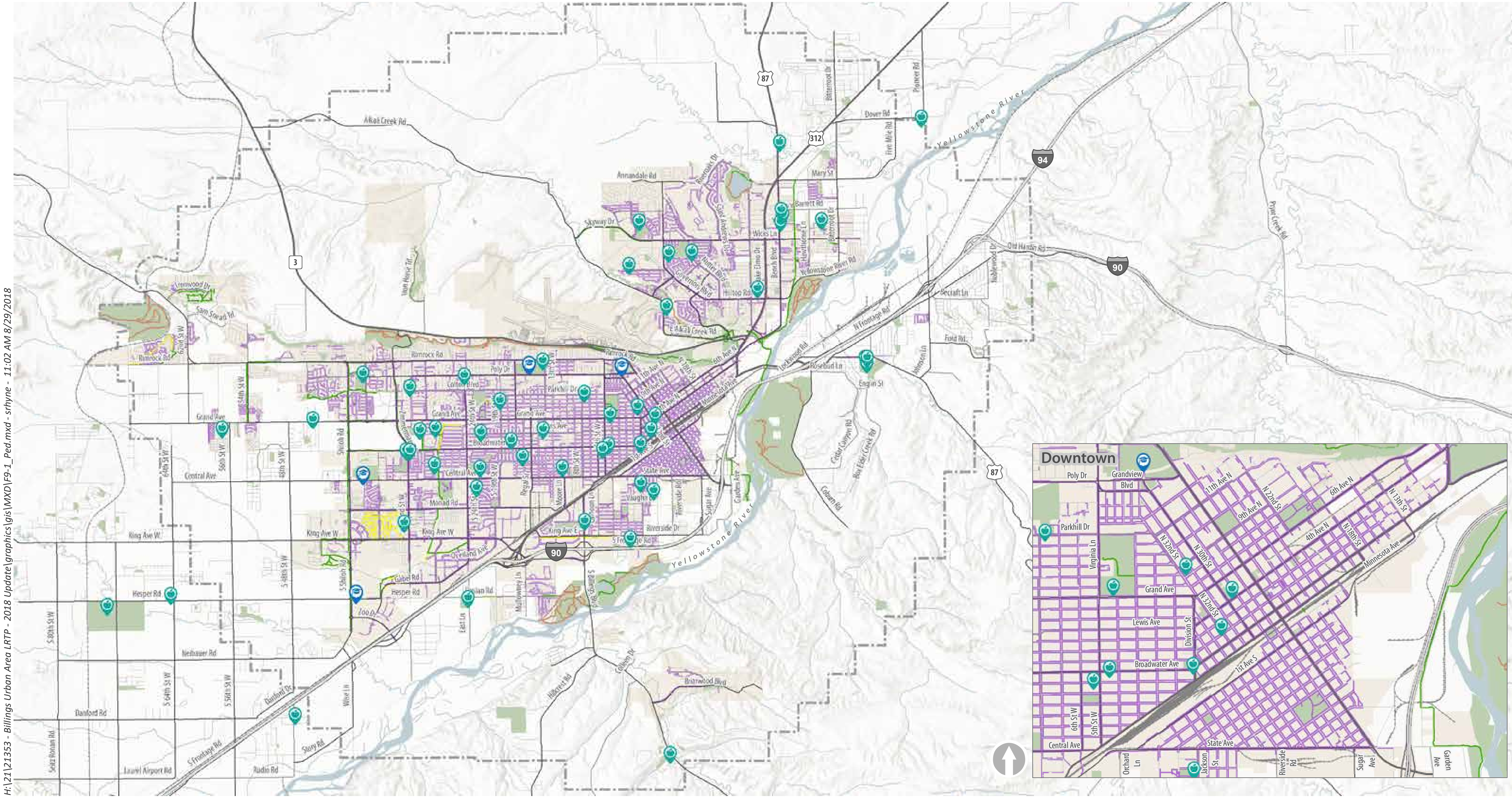

Shared Use Path
Neighborhood Trail
Unpaved Trail
Sidewalks
College
Schools
Study Area
Park
City of Billings

DRAFT

Figure 9-1

Existing Pedestrian and Trail Facilities

BIKEWAY FACILITIES

Development of the City's bicycle facilities has mostly occurred over the last fifteen years, including 6.5 miles of new bike lanes provided during 2010. The overall rate of bike lane implementation has remained essentially constant at a rate of close to two miles per year over this time. The City of Billings currently maintains close to 30 miles of bikeway facilities, classified as bike lanes or shared roadways. Figure 9-2 shows the existing bikeway and trail facilities in the study area. Existing bikeway and trail facilities work together to provide good connectivity around the city.

The types of bikeways are described below.

- **Bike Lanes:** This type of facility provides a dedicated space within the roadway for bicyclists to travel and uses signage and striping to delineate the right-of-way assigned to bicyclists and motorists. Billings currently has 26 miles of bike lanes in its transportation system.
- **Shared Roadways:** Shared roadways are designated by signage and/or shared lane markings. Shared lane markings are pavement markings that indicate the position within a roadway where bicyclists should ride. They also provide wayfinding guidance to bicyclists and indicate to motorists to be aware that bicyclists will be travelling in the roadway. Streets marked with shared lane markings, or sharrows, are intended to be shared streets, with motorists and bicyclists sharing the travel lane. Billings currently has 2.6 miles of shared roadways in its transportation system.

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In addition to these existing types of bikeways, the Bikeway and Trails Master Plan Update describes a variety of new bikeway types that could help provide low-stress connections for bicyclists in areas of high traffic volumes. These include:

- **Separated Bike Lanes:** Of all on-street bicycle facilities, separated bike lanes offer the most protection and separation from adjacent motor vehicle traffic. Separated bike lanes are bicycle facilities that are physically separated from motor vehicle traffic by a painted buffer and physical barriers such as flexible delineators, curbs, or planters.
- **Bicycle Boulevards:** Bicycle boulevards are local streets with low motorized traffic volumes and speeds that have been designated as bicycle routes. Bicycle boulevards should have a maximum posted speed of 25 mph and target motor vehicle volumes of less than 1,500 vehicles per day. Many streets in Billings exhibit these characteristics already, and minor modifications such as the addition of signage and pavement markings could cost-effectively designated key corridors as bicycle boulevards.
- **Buffered Bike Lanes:** Buffered bike lanes are conventional bike lanes that are enhanced through the application of diagonally striped buffer space. While not providing physical separation, this creates a wider buffer area between vehicles and bicyclists than a conventional six-inch bike lane stripe.

As shown in Figure 9-2, the bikeway and trail system almost provide a complete "loop" around Billings, as well as north-south connectivity in the Heights and the west end on Shiloh Road. To promote the construction of consistent facilities, the City of Billings has adopted specific design standards for all types of bikeway facilities, included in their Design Standards for Trails & Bikeways (9-7). Exhibits 9.6, 9.7, 9.8, and 9.9 illustrate some of the existing bike facilities in the region.

> Implementing bike lanes, sharrows, cycle tracks, and bike boulevards on roadways, in conjunction with wayfinding signs, bike racks, and other amenities are great ways to increase bicycle awareness and usage in the region.

Exhibit 9.6 Bike Rack in Downtown Billings

Exhibit 9.7 Bikes Lanes on Rimrock Road

Exhibit 9.8 Bikes Lanes on Monad Road

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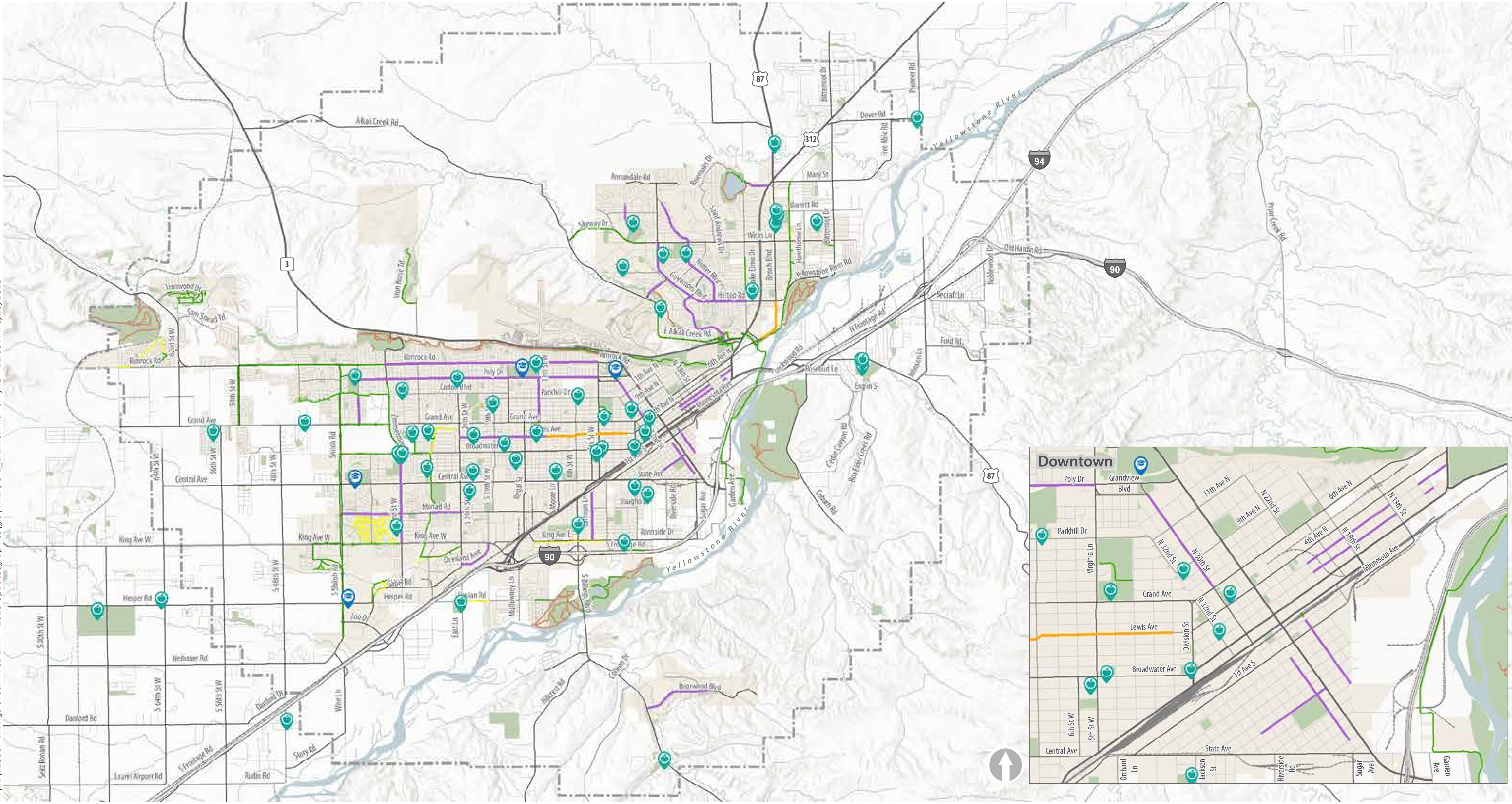


Bike Lane
Shared Lane Marking
Shared Use Path
Neighborhood Trail
Unpaved Trail
College
Schools
Study Area
Park
City of Billings

DRAFT

Figure 9-2

Existing Bikeway and Trail Facilities

Exhibit 9.9 Buffered Bike Lane on Monad Road

TRAIL FACILITIES

The City of Billings currently maintains approximately 81 miles of trails throughout the study area. As shown in Figures 9-1 and 9-2, multi-use trails are provided along Shiloh Road from Rimrock Road to past Zoo Drive, from Alkali Creek Road and Mary Street in the Heights to an area close to the 27th Street interchange with I-90, and east-west across the rims parallel to Airport Road from Billings Logan International Airport to Skeleton Cliff. Soft surface trails are also provided through Riverfront Park to the south, Two Moon Park in the Heights, and around Lake Elmo. Most of the neighborhood trails are provided in neighborhoods between Shiloh Road, 32nd Street, King Avenue, and Monad Road. Some of the cities unimproved trails are in Phipps Ranch Park, located outside of the MPO boundary and others connect multi-use paths in Zimmerman Park to those on the eastern half of the rims, connecting into the Heights. Table 9.4 summarizes the types and lengths of trails.

Table 9.4 Type and Length of Existing Trails in the Billings Urban Area

Type of Facility	Mutli-Use	Soft Surface	Neighborhood	Unimproved	Total
Length (miles)	45	11	11	14	81

Source: GIS data provided by City of Billings

Exhibits 9.10 and 9.11 illustrate some of the existing trail facilities in the region.

Exhibit 9.10 Jim Dutcher Trail by MetraPark Arena

Exhibit 9.11 Swords Park Trail Near the Airport

Trail Counts

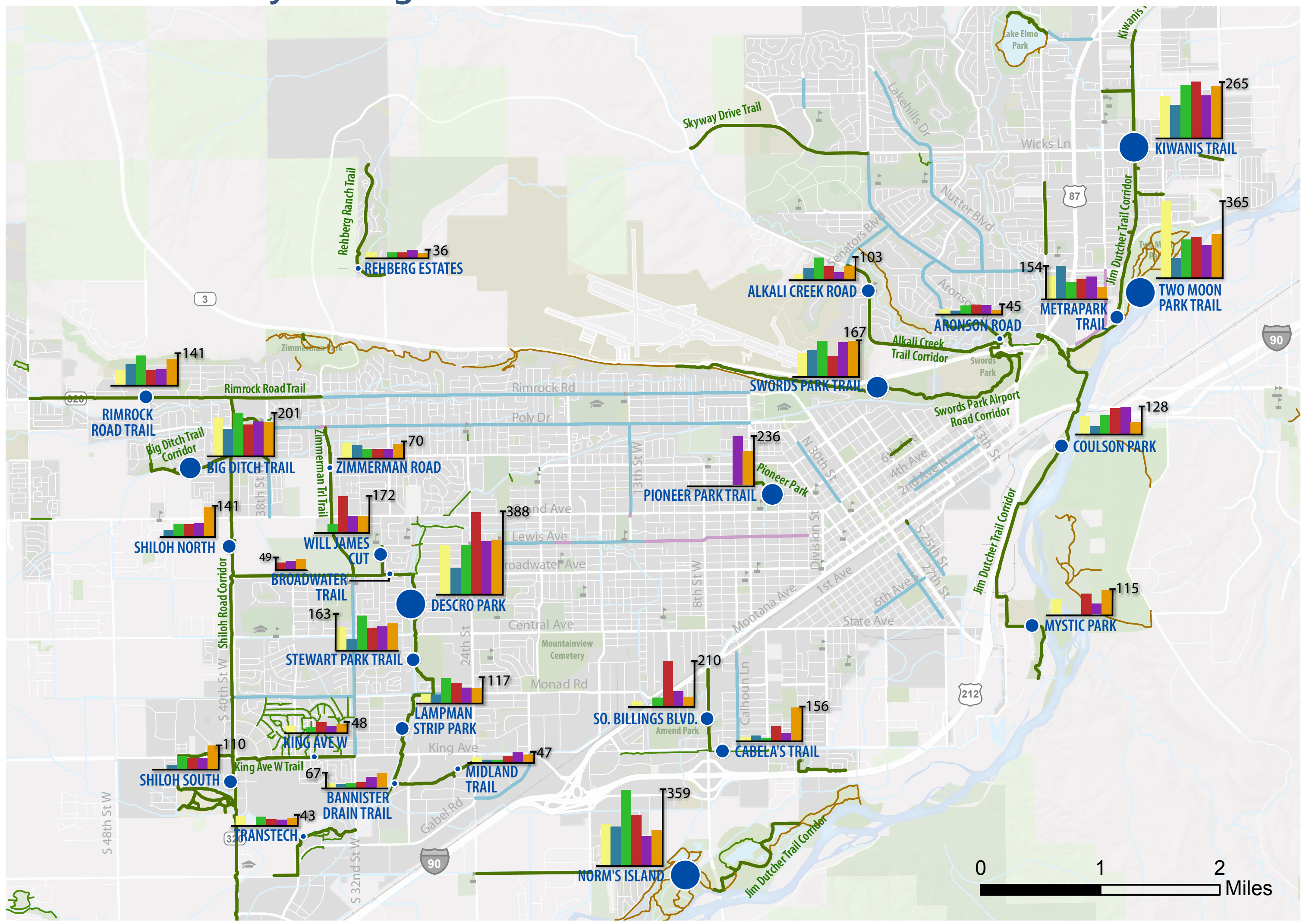
Billings currently uses two methods to count people walking and biking on its trails at 26 locations: automated trail counters and manual counts.

Automated counters are typically left alongside a trail for one week and then rotated to a new location. The City owns three counters and rotates them such as that the same location is counted during the same time frame each year, making year-to-year comparisons possible. Two locations use permanently installed counters along shared-used paths.

In addition to automatic counts, Billings has been conducting manual counts at key locations throughout the area to better understand bicycle and pedestrian transportation patterns. Between 2013 and 2015, counts were conducted at twenty-five different locations, with the largest concentration in downtown Billings. However, because no locations was counted twice, annual or seasonal comparisons should not be drawn.

As shown in Exhibit 9.12, trail usage in the study area has steadily increased over the last six years. The total annual number of trail users counted on the system has steadily risen from 2,287 in 2010 to 2,617 in 2015, an increase of 21% over that timeframe.

Exhibit 9.12 Daily Average Trail Counts Per Year



Source: 2017 Billings Area Bikeway and Trails Master Plan Update

CRASH HISTORY

Crash data for the study area was reviewed to identify crashes involving a pedestrian or bicyclist over the five-year period from 2013 to 2017. Table 9.6 summarizes the pedestrian and bicycle related crashes. Figure 9-3 shows the approximate location of pedestrian-related crashes in the study area from 2013 – 2017 and Figure 9-4 shows the approximate location of bicycle-related crashes in the study area from 2013-2017.

As shown in Table 9.6, there have been 350 reported crashes involving a pedestrian or bicyclist over the five- year time period. 80% of the crashes involving a pedestrian or bicyclist resulted in some type of injury. Nine fatal crashes involving a pedestrian or bicyclist occurred during the five-year time period. Eight involved pedestrians and one involved a bicyclist.

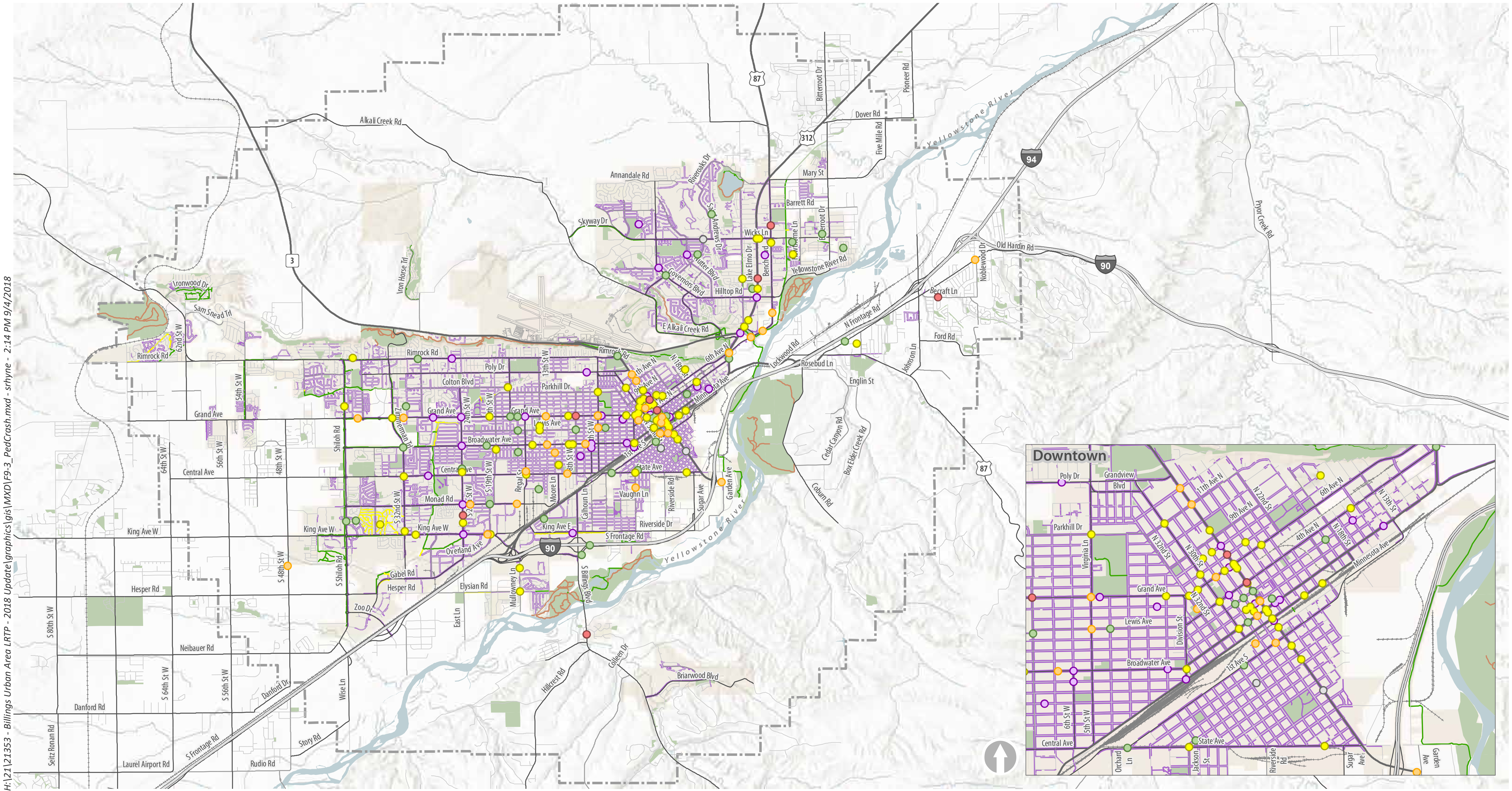
Table 9.6 Pedestrian and Bicycle Crash Summary by Severity (2013-2017)

Category	Possible Injury	Non-incapacitating (Injury Evident)	Incapacitating Injury	Property Damage Only	Fatal	Unknown	Total
Pedestrian	84	42	31	42	8	3	210
Bicycle	68	35	8	28	1	0	140
Total	152 (43%)	77 (22%)	39 (11%)	70 (20%)	9 (3%)	3 (1%)	350

As shown in Table 9.7, bicycle and pedestrian crash occurrences have stayed relatively constant over the five-year period from 2013 to 2017. Crash occurrences of both kinds fell slightly from 2013 to 2015 but then rose slightly from 2015 to 2017.

Table 9.7 . Pedestrian and Bicycle Crash Summary by Year (2013-2017)

Year	2013	2014	2015	2016	2017
Bicycle Crashes	31	23	28	31	27
Pedestrian Crashes	49	39	40	37	46



Crash Severity

- Fatal Accident
- Incapacitating Injury Accident
- Possible Injury Accident
- Non-Incapacitating Evident Injury Accident
- Non-Injury Accident (Propoert- Damage-Only Accident)
- Unknown

- Shared Use Path
- Neighborhood Trail
- Unpaved Trail
- Sidewalks
- Study Area
- Park
- City of Billings

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Figure 9-3

Pedestrian Crashes (2013 - 2017)

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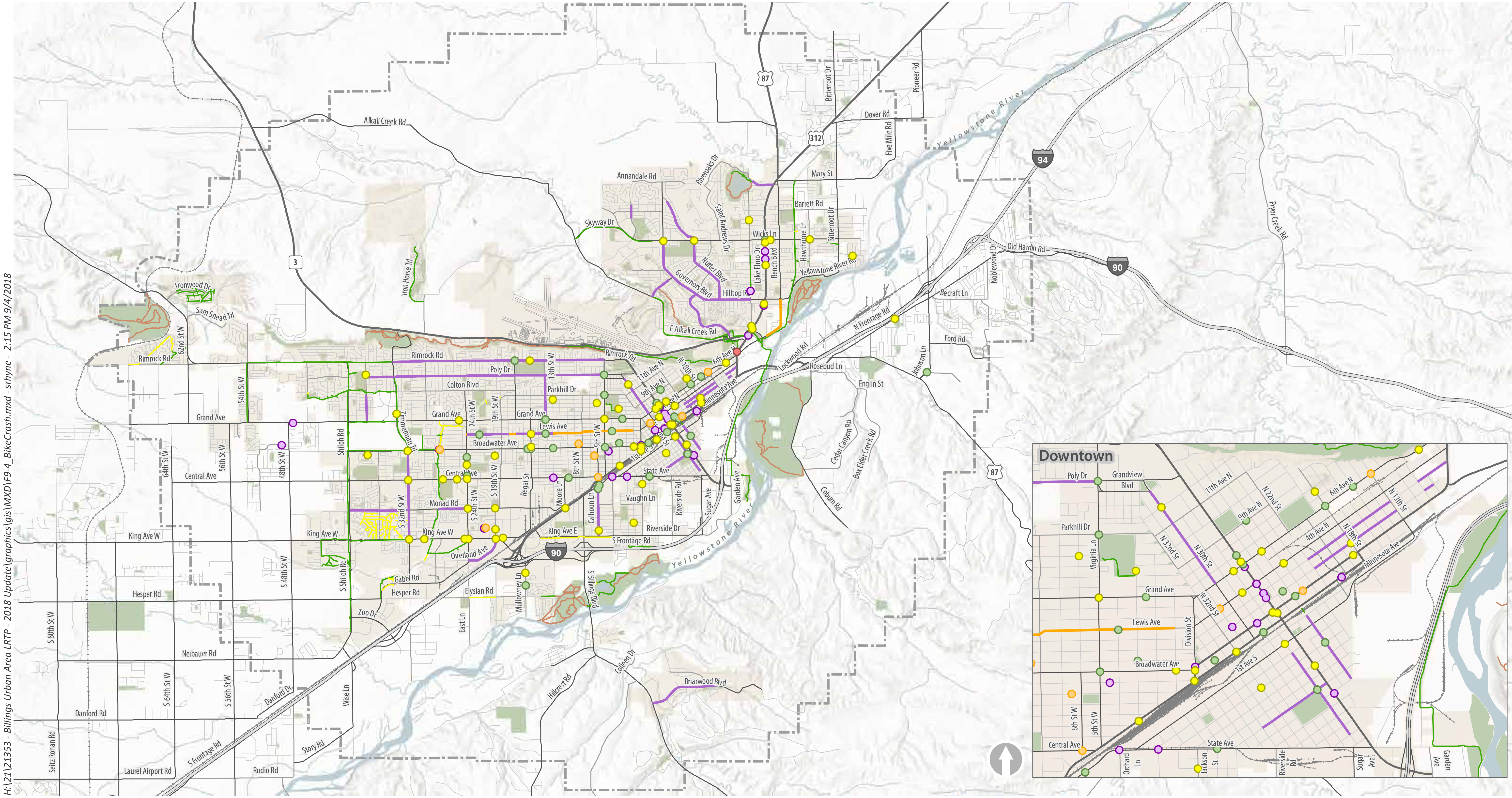


Crash Severity

- Fatal Accident
- Incapacitating Injury Accident
- Possible Injury Accident
- Non-Incapacitating Evident Injury Accident
- Non-Injury Accident (Propoert- Damage-Only Accident)
- Unknown

- Bike Lane
- Shared Lane Marking
- Shared Use Path
- Neighborhood Trail
- Unpaved Trail
- Study Area
- City of Billings
- Park

DRAFT

Figure 9-4

Bicycle Crashes (2013 - 2017)

DEFICIENCIES AND NEEDS

In order to guide identification of short and long-range bicycle and pedestrian projects, deficiencies and needs were collected from the general public, Steering Committee, and review of past plans/studies.

PUBLIC AND SC FEEDBACK

Forty-four percent of the public comments received corresponded to bicycle, pedestrian, or multi-use facilities. In addition, public comment identified the bicycle and pedestrian element of the LRTP to be among the most important elements of the 2018 LRTP update.

NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

Several recent city-wide studies/plans identified pedestrian and bicycle facility needs. Key needs from these studies/plans include:

- **2014 Billings Urban Area Long Range Transportation Plan:** Prioritized projects related to on-street bikeways and multi-use trails with the following criteria.
    - On-street bikeways- route continuity, nonmotorized travel demand, bicycle compatibility index and public opinion
    - Multi-use trails- safety, connectivity/ accessibility, route continuity, aesthetics/recreational value, nonmotorized travel demand, and public opinion
- **Billings Area Bikeway and Trail Master Plan Update:** Prioritized bikeway and trail projects according to a needs assessment, system coverage, safety, connectivity, and connections to adjacent jurisdictions. The top noted priorities for investment in the bicycle and trail system include:
    1. Expansion of the trail network
    2. Maintenance of the existing bikeway and trail network, and
    3. Expansion of existing on-street bikeways

  The most critical gaps in the existing bicycle and trail system include:

    1. Riverfront trails along the Yellowstone River
    2. Connections from West Billings to Downtown
    3. Connection atop the Rimrocks from 27th Street to Zimmerman Trail
    4. Connection from Billings Heights to Downtown
    5. Connection from the river/Lockwood to Downtown
    6. Connection from the Rimrocks to Downtown, and
    7. Connections from South Billings to Downtown
- **Trail Asset Management Plan:** Identifies need to maintain existing trail facilities related to safety and aesthetics.
- **Safe Routes to School Study Phase I & II:** Projects were identified to enhance safety and increase the number of students walking or biking to school.
- **Lockwood Non-Motorized Transportation Plan:** Identifies education, enforcement, encouragement, engineering, evaluation, and partnership and funding action items to improve non-motorized transportation safety in the Lockwood area.
- **Other Documents Reviewed:** Recommendations based on projects that would best improve facilities in the specific study area. These studies/ plans included:
    - West End Multimodal Planning Study (9-8)
    - Rims to Valley Study (9-9)

PROJECT LIST RELATED TO PEDESTRIAN AND BICYCLE FACILITIES

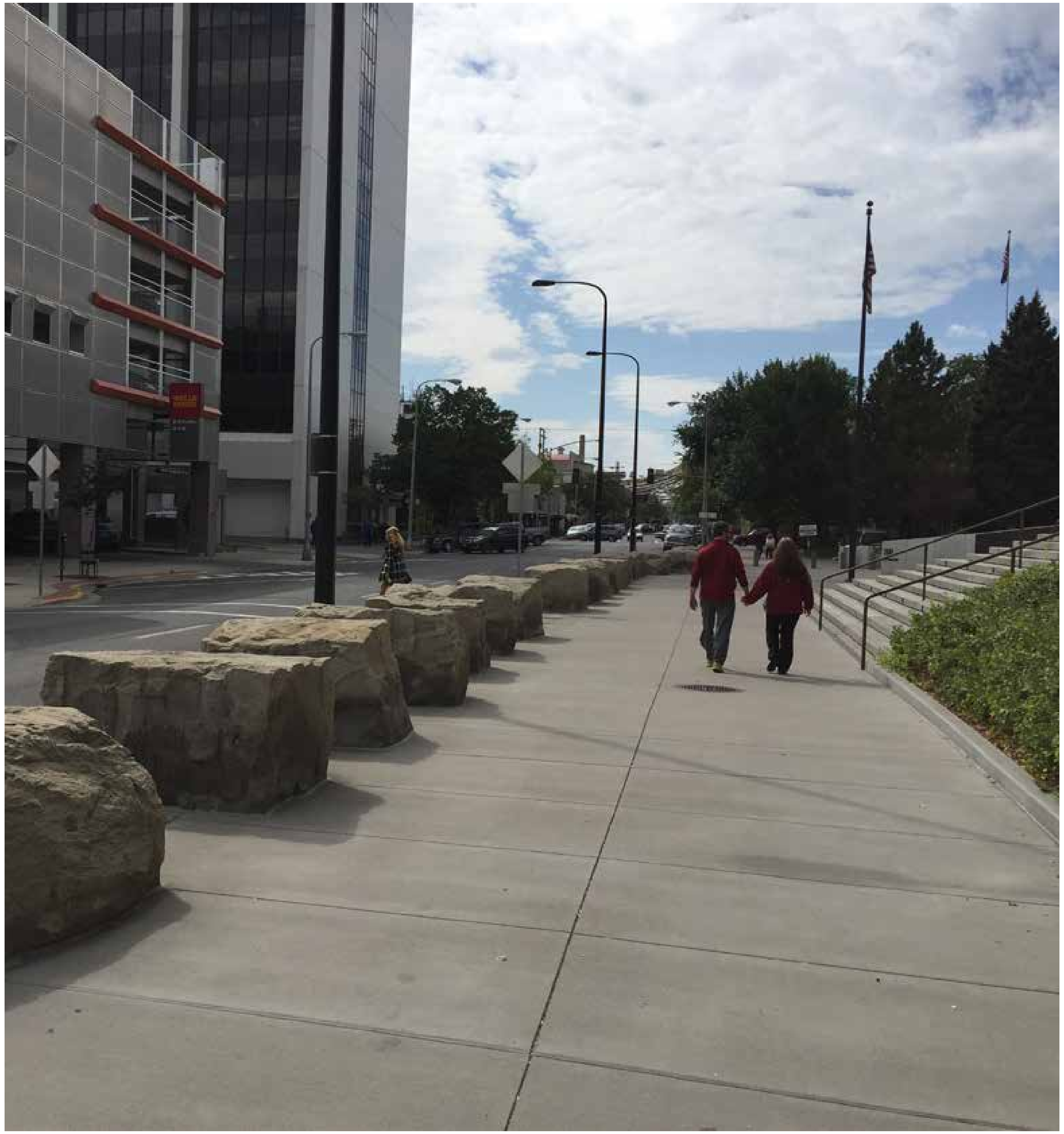
Pedestrian, bicycle, and multi-use path projects were identified from the needs and deficiencies assessment. The LRTP identifies a total of 53 pedestrian facility projects, 144 bicycle facility projects, and 116 trail projects. Investing in these types of projects supports the plan's goals and the region's desire to implement one of the most comprehensive bicycle and trail networks in the State of Montana.

A project description and planning-level cost estimate was developed for each project. The planning-level cost estimates were developed from cost estimates included in past plans/studies, engineer's estimates made by the consultant team, or City of Billings Capital Improvement Plan, FY 2019 – 2023 (9-10).

Pedestrian projects include pedestrian crossings, safe routes to school projects, and sidewalk projects. Safe Routes to School (SRTS) projects are listed by school name and include a brief description. Table 9.8 summarizes the pedestrian projects. Figure 9-5 shows the approximate location of each project.

Bikeway projects include on-street bike lanes, shared roadways, and bicycle boulevards. Bicycle routes and boulevards are classified as secondary bikeways. Table 9.9 summarizes the bikeway projects. Figure 9-6 and Figure 9-7 show the approximate location of each project.

Multi-use trail projects include both soft-surface and paved trails. Table 9.10 summarizes the multi-use trail projects.



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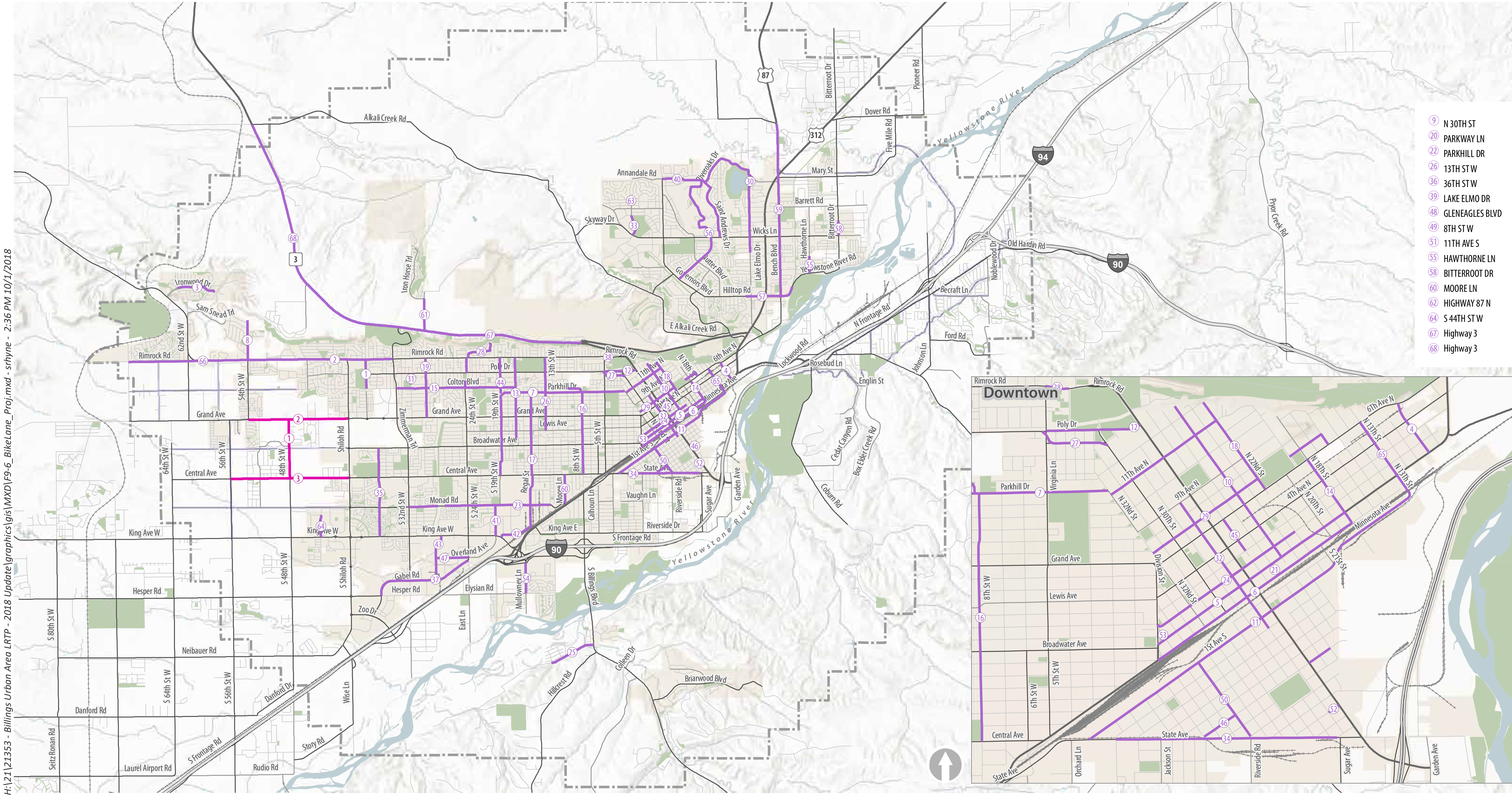

Bicycle Lane

Buffered Bike Lane

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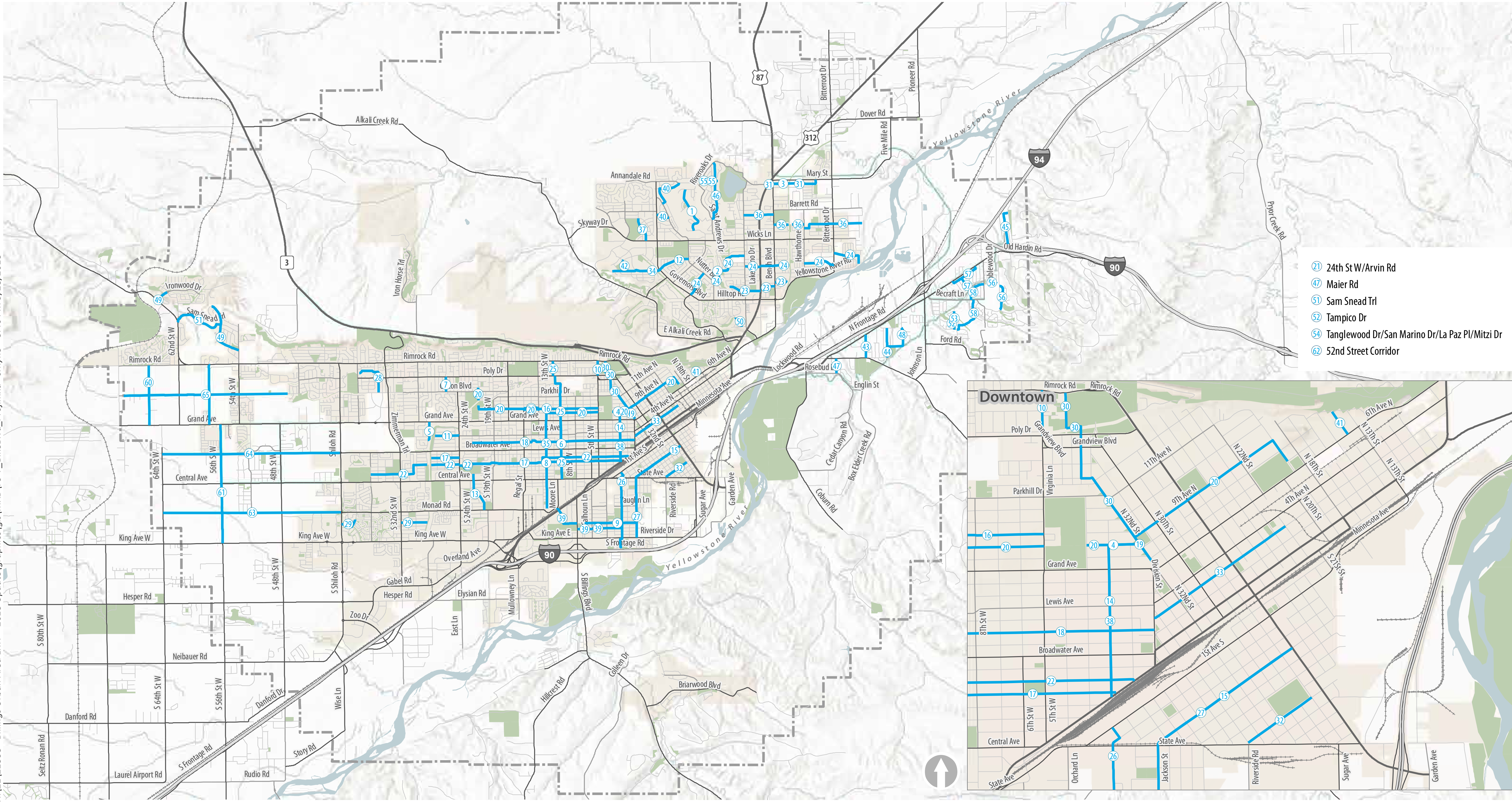
Figure 9-6

Bicycle Lane and Buffered Bike Projects



Bicycle Boulevard

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Figure 9-7

Bicycle Boulevard Projects

Table 9.8 Pedestrian Projects

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
P1	SRTS - Beartooth	Install a crosswalk on Barrett Road at Linden Drive and install a new sidewalk or multi-use trail along the south side of Barrett and the west side of the alley; install sidewalk along the east side of Bitterroot Drive from Cherry Creek Estates to Wicks Lane with a school crosswalk at Wicks Lane and the access to Emma Jean Estates Subdivision. Installation of sidewalk will likely require private property easements from adjacent landowners; Sign alley adjacent to school one-way northbound.	$524,621
P2	SRTS - Bench	Install an east-west sidewalk or trail connection to the north end of school property along Lola Lane. This connection would shorten the walking distance coming from the north on Lake Elmo Drive. Install sidewalks on Rex Lane.	$102,199
P3	SRTS - Bitterroot	Construct pedestrian path connection and crossing over the Holling Drain from residential area to the east. (Requires local SID for roadwork). Install sidewalk or pedestrian path along Barrett Road. Installation of sidewalk will likely require private property easements from adjacent landowners. Install fluorescent yellow school crossing signs and ladder-style crosswalk at the multi-use trail crossing on Barrett Road.	$840,585
P4	SRTS - Boulder	Install sidewalks and curb and gutter along Boulder Avenue. Consider installing a flasher on the existing school zone speed limit sign. Install sidewalks on Poly Drive west of 32nd Street West.	$354,289
P5	SRTS - Eagle Cliffs	Construct a trail connection from the intersection of Constitution Avenue and Kootenai Avenue to Marias Drive. Permission must be obtained from DNRC.	$115,825
P6	SRTS - Meadowlark	Install enhanced school crossing with curb extensions or pedestrian refuge island on 32nd Street West near the intersection with St. John's Avenue.	$144,782
P7	SRTS - Newman	Install sidewalks where missing along Calhoun Lane. Install sidewalks where missing along east-west side streets.	$1,140,880
P8	SRTS - Poly Drive Sidewalk Improvements	Pedestrian Improvements at the Poly Drive and Arvin Road Intersection	$97,147
P9	SRTS - Ponderosa	Improve the landing/pedestrian storage area on the northeast corner of King Avenue East and Hallowell Lane. Reconfigure intersection of Hallowell, Arlington, and school access to reduce pedestrian conflicts and improve traffic operations. Install trail connection and ditch crossing between Kings Green Subdivision and south end of school property. Construct a pedestrian path along King Avenue East.	$1,192,320
P10	SRTS - Sandstone	Install sidewalks on neighborhood streets southeast of Babcock Boulevard. Install sidewalks on neighborhood streets north of Wicks Lane. Consolidate crosswalks on Nutter Boulevard in front of school to the north location and restripe as a ladder style crosswalk.	$1,111,816
P11	SRTS - Alkali Creek	Install sidewalk along south side of Alkali Creek Road northwest of school. Install sidewalk along Pinon Drive just west of Alkali Creek Road. Install sidewalk along south side of Indian Trail.	$472,443
P12	SRTS - Big Sky	Enhance crossing at 32nd Street West and Lampman Drive or move crossing to Granger Avenue and signalize. Perform a signal warrant analysis at 32nd Street West and Granger Avenue. If warranted, move the school crossing from Lampman Drive to Granger and signalize the intersection. Install crosswalk markings on the south leg of the intersection of Monad Road and 36th Street West. Enhance existing crossing on west leg.	$182,678
P13	SRTS - Broadwater	Install curb extensions at the intersection of 4th Street West and Wyoming Avenue. Improve loading zone through alley by defining entry to separate from local business, improve sight distance around corner, reducing the exit to a single lane and providing physical separation between the walking area and the parking area.	$398,427
P14	SRTS - Burlington	Install curb extensions at the intersection of Lewis Avenue and 22nd Street West. Install signing, striping and curb extensions for midblock crossing on 22nd Street West directly in front of main school entrance and consider requiring students to use this entrance.	$119,686

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
P15	SRTS - Central Heights	Widen sidewalks on Lexington Drive, Alamo Drive, and Pueblo Drive, and install curb extensions at mid-block crossings on Alamo Drive and Lexington Drive. Install curb extensions at intersection of Lexington Drive and Eldorado Drive and marked crosswalk on east leg. Install curb extensions or another form of traffic calming at Santa Fe Drive and Eldorado Drive. Install curb extensions for crosswalk at Monad Road/Monterey Drive.	$444,096
P16	SRTS - Highland	Install sidewalks and curb extensions at the intersection of O'Malley Drive and Virginia Lane. Install crosswalks with enhancements to shorten crossing distance at Rimrock Road/Missouri Street and Rimrock Road/ Virginia Lane. Install sidewalk and/or a bike lane on Virginia Lane from Rimrock Road to Parkhill Drive.	$330,710
P17	SRTS - McKinley	Install pedestrian crossings and enhancements at the intersections of Parkhill Drive/North 32nd Street and 11th Avenue North/North 32nd Street. Install curb extensions at 9th Avenue North/North 31st Street. Install curb extensions at 8th Avenue North/North 31st Street. Install curb extensions at 8th Avenue North/North 32nd Street.	$403,151
P18	SRTS - Miles Avenue	Install curb extensions at 16th Street West and Miles Avenue. Install pull-out area along east side of alley to enhance loading zone and move loading away from pedestrian traffic. Sign alley "one-way" northbound, but allow exception for garbage trucks.	$149,607
P19	SRTS - Orchard	Install curb extensions and crosswalk enhancements on Jackson Street crossings.	$129,134
P20	SRTS - Rose Park	Install curb extensions at 19th Street West/Avenue E; eliminate crosswalk on south leg of this intersection and south leg of Avenue F intersection. Install traffic calming improvements on 19th Street West to slow traffic speeds. Complete curb and sidewalk on Parkhill Drive to provide continuous walking route, including curb extensions at corner; would also prevent most U-turns.	$305,513
P21	S 32nd Street Pedestrian Crossing	Install a midblock crossing on S 32nd Street	$210,000

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
P22	6th Ave Underpass	Pedestrian Improvements to Existing Underpass	$102,211
P23	King Ave Pedestrian Crossings	Seven proposed crossings along King Ave	$264,992
P24	S. Billings Blvd & Simpson St Crossing	Pedestrian crossing treatment to be determined	$158,995
P25	State Ave Pedestrian Crossings	Three proposed crossings along State Ave	$149,910
P26	Moore Ln & Laurel Rd Pedestrian Crossing	Pedestrian crossing treatment to be determined	$210,000
P27	Washington St Pedestrian Crossing	Overpass or underpass crossing of Interstate 90	$1,680,000
P28	1st Ave N/ US 87/ Main St (Exposition Dr)	Add pedestrian crossings to existing intersections	$28,000
P29	US 87 Pedestrian Easement	1.0 miles adjacent to Metra Park from Airport Rd to Yellowstone River	$369,600
P30	N 10th St/1st Ave N	Add pedestrian crossings to existing intersection (potential new signal with pedestrian phase)	$280,000
P31	1st Ave N/US 87 Sidewalk	Add 0.7 miles of sidewalks to N 10th Street to Yellowstone River	$258,720
P32	US 87 Sidewalks	Add 0.3 miles of sidewalks to northside of Bridge crossing Yellowstone River	$110,880
P33	N 32nd Street Pedestrian Crossing	Install a midblock crossing on N 32nd Street	$210,000
P34	Aronson Ave Sidewalk	Add sidewalk along Aronson Ave south of E Alkali Creek	$73,920

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
P35	Jackson Street Sidewalks	Construct new 5-foot sidewalk on west side of Jackson/crossing at Orchard	$216,500
P36	Broadwater Elementary School	Install sidewalk, fencing, and landscaping	$131,290
P37	Evaluate re-opening of cut-through path at East Ridge Estates	Cut-through to connect residents to Highway 87 Sidewalk	Unknown
P38	School Bus Stop Waiting Areas	Lighting for students at bus stops; waiting area so children aren't forced to wait in street due to snow; install curb and gutter to add buffer for pedestrians; install bus stops every other year	$350,000
P39	Becraft Lane Sidewalk	Path from Old Hardin Rd to Noblewood Drive; serves as Pedestrian Connection to the commercial area at the Old Hardin Rd/Johnson Ln intersection and to Harris Park; path to run along north side of Becraft Lane	$410,000
P40	Piccolo Ln	Five foot concrete curb-walk from Old Harding Rd to Highway 87; serving housing along street and create a pedestrian connection to the IGA convenience store on the southwest corner of the Piccolo Ln/Old Hardin Rd intersection; Piccolo Ln has potential to become neighborhood shareway/greenway or a woonerf	$250,000
P41	Old Hardin Road Sidewalk (Segment 1)	Path from Johnson Lane to Noblewood Drive; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	$625,000
P42	Old Hardin Road Sidewalk (Segment 2)	Path from the I-90 Interchange to Ford Rd; pedestrian connection to Lockwood School and connection to Hillner Park; opportunity to use irrigation canal to construct pedestrian path; path would run along the west side of Johnson Ln from Old Hardin Rd to the irrigation canal, run along the north side of the canal from Johnson Lane to Greenwood Ave, run along the south side of Sunrise Ave, and along the east side of Hemlock Dr	$587,000
P43	Old Hardin Road Sidewalk (Segment 3)	Current 8-foot shoulder planned; letter submitted to the Yellow County Commission indicating desire for a separated facility parallel to the road to provide pedestrian safety	$600,000

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost
P44	Old Hardin Rd Sidewalk (Segment 4)	At terminus of multi-use path (north end of Cottonwood Park); mid-block pedestrian-actuated beacon, possibly a pedestrian hybrid beacon (HAWK Signal) or rectangular rapid flashing beacon (RRFB)	Unknown
P45	Johnson Ln	From west boundary of Foxtail Subdivison to HAWK signal	Unknown
P46	Billings Bypass Sidewalk	The East End TIFF will determine if adqeuate funding is available for this project in FY 2019	$3,500,000
P47	54th St W Mid-block Crossing	Path from US 87 to Piccolo Lane; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	$350,000
P48	Grand Ave Sidewalk	Path from Piccolo Lane to Greenwood Avenue; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	$410,000
P49	Pedestrian Overpass on Main Street	Path from Greenwood Avenue to Johnson Lane; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	$250,000

Table 9.9 Bikeway Projects

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
Bicycle Lane Projects				
BL1	38TH ST W	0.5	Bicycle Lane from Rimrock Rd to S of Colin Dr	$32,330
BL2	RIMROCK RD	2	Bicycle Lane from Poly Dr to Zimmerman Trl	$129,320
BL3	IRONWOOD DR	0.25	Bicycle Lane from Woodcreek Dr to Molt Rd	$16,165
BL4	N 10TH ST	0.25	Bicycle Lane from 6th Ave N to 1st Ave N	$16,165
BL5	1ST AVE N	1.25	Bicycle Lane from N 13th St to N 36th St	$80,825
BL6	MONTANA AVE	0.5	Bicycle Lane from N 18th St to Division St	$32,330
BL7	11TH AVE N	0.75	Bicycle Lane from N 22nd St to 19th St W	$48,495
BL8	54TH ST W	0.75	Bicycle Lane from N of Billy Casper Dr to Rimrock Rd	$48,495
BL9	N 30TH ST	0.25	Bicycle Lane from N 27th St to Virginia Ln	$16,165
BL10	N 24TH ST	0.5	Bicycle Lane from 1st Ave N to North of 12th Ave N	$32,330
BL11	N 13TH ST	2.25	Bicycle Lane from N 13th St to State Av	$145,485
BL12	POLY DR	0.25	Bicycle Lane from N 27th St to Virginia Ln	$16,165
BL13	17TH ST W	1	Bicycle Lane from Rimrock Rd to Yellowstone Ave	$64,660
BL14	N 18TH ST	0.5	Bicycle Lane from 6th ave N to Montana Ave	$32,330
BL15	COLTON BLVD	1.5	Bicycle Lane from 17th St W to Zimmerman Trl	$96,990
BL16	8TH ST W	1	Bicycle Lane from Azalea Ln to Central Ave	$64,660
BL17	15TH ST W	2.25	Bicycle Lane from Parkhill Dr to King Ave W	$145,485

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
BL18	N 22ND ST	0.5	Bicycle Lane from 6th Ave N to 12th Ave N	$32,330
BL19	REHBERG LN	1	Bicycle Lane from Rimrock Rd to Grand Ave	$64,660
BL20	PARKWAY LN	0.25	Bicycle Lane from Laurel Rd to S Billings Blvd	$16,165
BL21	N 25TH ST	0.25	Bicycle Lane from 1st Ave N to Montana Ave	$16,165
BL22	PARKHILL DR	1.5	Bicycle Lane from N 22nd St to 19th St W	$96,990
BL23	MONAD RD	0.5	Bicycle Lane from S Plainview St to S 32nd St W	$32,330
BL24	2ND AVE N	0.25	Bicycle Lane from N 22nd St to Yellowstone Ave	$16,165
BL25	JELLISON RD	0.75	Bicycle Lane from Quanta Ln to Aldonna St	$48,495
BL26	13TH ST W	0.25	Bicycle Lane from Rimrock Rd to Lewis Ave	$16,165
BL27	GRANDVIEW BLVD	0.5	Bicycle Lane from N 27th St to Virginia Ln	$32,330
BL28	24TH ST W	0.25	Bicycle Lane from Country Club Cir to Colton Blvd	$16,165
BL29	7TH AVE N	0.75	Bicycle Lane from 6th Ave N to N 32nd St	$48,495
BL30	ROLLING HILLS RD	1.25	Bicycle Lane from Annandale Rd to Uinta Park Dr	$80,825
BL31	32ND ST W	0.5	Bicycle Lane from Poly Dr to Boulder Ave	$32,330
BL32	N BROADWAY	0.75	Bicycle Lane from 9th Ave N to State Ave	$48,495
BL33	HIGH SIERRA BLVD	0.25	Bicycle Lane from Siesta Ave to W Wicks Ln	$16,165
BL34	STATE AVE	1.25	Bicycle Lane from Sugar Ave to Hallowell Ln	$80,825

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
BL35	S 36TH ST W	0.75	Bicycle Lane from Broadwater Ave to King Ave W	$48,495
BL36	MONAD RD	1	Bicycle Lane from S Plainview St to S 32nd St W	$64,660
BL37	GABEL RD	1.75	Bicycle Lane from S 24th St W to Hesper Rd	$113,155
BL38	RIMROCK RD	0.25	Bicycle Lane from Normal Ave to Virginia Ln	$16,165
BL39	LAKE ELMO DR	1.25	Bicycle Lane from Annandale Rd to Uinta Park Dr	$80,825
BL40	SAINT ANDREWS DR	1.75	Bicycle Lane from Gleneagles Blvd to Wicks Ln	$113,155
BL41	S 20TH ST W	0.5	Bicycle Lane from Rimrock Rd to King Ave W	$32,330
BL42	KING AVE W	0.25	Bicycle Lane from S 15th St W to King Ave W	$16,165
BL43	S 29TH ST W	0.75	Bicycle Lane from King Ave W to Gabel Rd	$48,495
BL44	S 19TH ST W	0.5	Bicycle Lane from Rimrock Rd to King Ave W	$32,330
BL45	N 26TH ST	0.25	Bicycle Lane from 6th Ave N to 3rd Ave N	$16,165
BL46	6TH AVE S	0.25	Bicycle Lane from S 25th St to State Ave	$16,165
BL47	OVERLAND AVE	0.5	Bicycle Lane from S 24th St W to Hesper Rd	$32,330
BL48	GLENEAGLES BLVD	0.5	Bicycle Lane from Black Diamond Rd to W Wicks Ln	$32,330
BL49	8TH ST W	0.25	Bicycle Lane from Azalea Ln to Central Ave	$16,165
BL50	S 34TH ST	0.5	Bicycle Lane from 1st Ave S to State Ave	$32,330
BL51	11TH AVE S	0.25	Bicycle Lane from 9th Ave N to State Ave	$16,165
BL52	10TH AVE S	0.25	Bicycle Lane from S 29th St to S 28th St	$16,165
BL53	N 35TH ST	0.25	Bicycle Lane from 2nd Ave N to 1st Ave N	$16,165
BL54	MULLOWNEY LN	0.5	Bicycle Lane from Midland Rd to Elysian Rd	$32,330
BL55	HAWTHORNE LN	0.25	Bicycle Lane from Hemingway Ave to Yellowstone River Rd	$16,165
BL56	BABCOCK BLVD	1	Bicycle Lane from Annandale Rd to Governors Blvd	$64,660
BL57	YELLOWSTONE RIVER RD	0.25	Bicycle Lane from E of Bench Blvd to West of Hansen Ln	$16,165
BL58	BITTERROOT DR	0.25	Bicycle Lane from Elaine St to Wicks Ln	$16,165
BL59	BENCH BLVD	0.5	Bicycle Lane from Alexander Rd to Hilltop Rd	$32,330
BL60	MOORE LN	0.5	Bicycle Lane from Rimrock Rd to Monad Rd	$32,330
BL61	ROD AND GUN CLUB RD	0.5	Bicycle Lane from Iron Horse Trl to High Way 3	$32,330
BL62	HIGHWAY 87 N	0.75	Bicycle Lane from Alexander Rd to Hilltop Rd	$48,495
BL63	HIGH SIERRA BLVD	0.25	Bicycle Lane from Benjamin Blvd to Matador Ave	$16,165
BL64	S 44TH ST W	0.5	Bicycle Lane from Georgina Dr to Hesper Rd	$32,330
BL65	N 13TH ST	0.5	Bicycle Lane from 6th Ave N to Minnesota Ave	$32,330
BL66	RIMROCK RD	0.25	Bicycle Lane from Rimrock to 50th St W	$16,165
BL67	Highway 3	3	Bike Lanes from North 27th St to Zimmerman Trail	$4,500,000
BL68	Highway 3	2	Bike Lanes from Zimmerman Trail to Apache Trail	$2,600,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
Bicycle Boulevard Projects				
BB1	Wentworth Drive	1.5	Bicycle route from Annandale Rd to Wicks Ln	$10,080
BB2	Butterfly Lake Lane	1	Bicycle route from Nutter Blvd to Uninta Park Dr	$6,720
BB3	Crist Drive	0.5	Bicycle route from Main St to Yellowstone River Trail	$3,360
BB4	Avenue C	0.5	Bicycle route from 3rd St W to N 32nd St	$3,360
BB5	28th Street West	0.5	Bicycle route from Grand Ave to Broadwater Ave	$3,360
BB6	10th Street West	1.5	Bicycle route from Parkhill Dr to Central Ave	$10,080
BB7	Wingate Lane	0.5	Bicycle route from Rimrock Rd to Colton Blvd	$3,360
BB8	12th Street West	1	Bicycle route from Lewis Ave to Central Ave	$6,720
BB9	Simpson Street	1	Bicycle route from Newman Ln to Jackson St	$6,720
BB10	Virginia Lane	0.5	Bicycle route from Rimrock Rd to Poly Dr	$3,360
BB11	Lewis Avenue	0.5	Bicycle route from 24th St W to Parkview Dr	$3,360
BB12	Kootenai Ave/ Constitution Avenue	1	Bicycle Boulevard from Calico Ave to Nutter Blvd	$337,459
BB13	Berthoud Drive/ Santa Fe Drive	1	Bicycle Boulevard from Monad Rd to St Johns Ave	$194,039
BB14	2nd Street West	1	Bicycle Boulevard from Avenue C to Miles Ave	$230,597
BB15	4th Avenue South	1	Bicycle Boulevard from S 27th St to State Ave	$258,719

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
BB16	Avenue D	2	Bicycle Boulevard from 21st St W to Virginia Ln	$568,056
BB17	Miles Avenue/ Terry Avenue	3.5	Bicycle Boulevard from 28th St W to Montana Ave	$928,013
BB18	Yellowstone Avenue	3	Bicycle Boulevard from 22nd St W to Division St	$815,526
BB19	North 32nd Street	1	Bicycle Boulevard from Grand Ave to Poly Dr	$230,597
BB20	Lyman Ave/Avenue D/ Avenue C/9th Ave		Bicycle Boulevard from 7th Ave N to West to Meadowood St	$244,000
BB21	24th St W/Arvin Rd		Bicycle Boulevard from Country Club Cir to Colton Blvd	$133,000
BB22	Terry Ave/Howard Ave/24th St W		Bicycle Boulevard from Montana Ave to 36th St W	$68,000
BB23	Milton/Prince of Wales/ Heights Ln/Shawnee Dr/Arronson/Nutter		Bicycle Boulevard from Heights Ln to West of Prince Charles Dr	$50,000
BB24	Arronson/Uinta Park Dr/ Riley/Cherry Creek Lp		Bicycle Boulevard from Cherry Creek Loop to Governors Blvd	$44,000
BB25	Azalea Ln/10th St W/11th St W/Missouri St/Moore Ln		Bicycle Boulevard from Rimrock Rd to Monad Rd	$75,000
BB26	S 41st St/Hallowell Ln/Arlington Dr/ Carlton Ave SW		Bicycle Boulevard from 1st Ave S to Carlton Ave SW	$20,000
BB27	4th Ave S/Jackson St		Bicycle Boulevard from S 28th St to King Ave E	$28,000
BB28	Avalong Rd/Vickery Dr/Vickery Ct		Bicycle Boulevard from Colton Blvd to Vickery Ct	$11,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
BB29	Lampman Dr/Decathlon Pkwy/S 38th St W		Bicycle Boulevard from S 29th St W to S Shiloh Rd	$12,000
BB30	Normal Ave/Ash St/ Colton Blvd/N 32nd St		Bicycle Boulevard from Rimrock Rd/South of Avenue B	$19,000
BB31	Pemberton Ln/Crist Dr/Columbine Dr		Bicycle Boulevard from Mary St/Main St	$13,000
BB32	8th Ave S		Bicycle Boulevard from S 28th to S 34th St	$7,000
BB33	Yellowstone/Clark		Bicycle Boulevard from Division to 10th St W	$90,000
BB34	Constitution/Kootenai		Bicycle Boulevard from Nutter Blvd to West of Amendment Cir	$20,000
BB35	12st W		Bicycle Boulevard from Avenue C to South of Kalmar Dr	$24,000
BB36	Jerrie Ln/Kyhl Ln/Elaine/ Primrose/Maurine		Bicycle Boulevard from East of Walter Rd to Lake Elmo Dr	$162,000
BB37	Fantan St		Bicycle Boulevard from Siesta Ave to Wicks Ln	$7,000
BB38	2nd St W		Bicycle Boulevard from Avenue C to Montana Ave	$13,000
BB39	Simpson St/Moore Ln/Stone St		Bicycle Boulevard from Carlton Ave SW to Moore Ln	$19,000
BB40	Cherry Hills/ Black Diamond		Bicycle Boulevard from Saint Andrews Dr to Gleneagles Blvd	$14,000
BB41	N 14th St		Bicycle Boulevard from Park Pl to 6th Ave N	$3,000
BB42	Marias Dr		Bicycle Boulevard from Keno St to Kootenai Ave	$3,000
BB43	Piccolo Ln		Bicycle Boulevard from Old Hardin Rd to Highway 87E	$6,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
BB44	Hemlock Dr		Bicycle Boulevard from Clayton St to Hillner Ln	$8,000
BB45	Bobolink St/Canary Ave		Bicycle Boulevard from Dickie Rd to Old Hardin Rd	$9,000
BB46	Constellation Trl/Eagle/ Southern Hills/Venus		Bicycle Boulevard from Riveroaks Dr to Saint Andrews Dr	$15,000
BB47	Maier Rd		Bicycle Boulevard from Highway 87E Rosebud Ln	$4,000
BB48	Sunrise Ave/ Greenwood Ave		Bicycle Boulevard from Nutter Blvd to West of Amendment Cir	$9,000
BB49	Ironwood Dr/ Ben Hogan Ln		Bicycle Boulevard from Molt Rd to 54th St W	$32,000
BB50	Shamrock Ln		Bicycle Boulevard from North of Killarney St to Emerald Dr	$3,000
BB51	Sam Snead Trl		Bicycle Boulevard from Ben Hogan Ln to Molt Rd	$14,000
BB52	Tampico Dr		Bicycle Boulevard from El Paso St to Baja Pl	$1,000
BB53	El Paso St/Tampico Dr		Bicycle Boulevard from Guadeloupe Dr to La Paz Dr	$6,000
BB54	Tanglewood Dr/ San Marino Dr/La Paz Pl/Mitzi Dr		Bicycle Boulevard from N 13th St to N 36th St	$9,000
BB55	Lakewood Ln		Bicycle Boulevard from East of Constellation Trl to Riveroaks Dr	$125,000
BB56	Spotted Jack Loop S/Westgate Dr		Bicycle Boulevard from Spotted Jack Loop E to Trailmaster Dr	$9,000
BB57	Driftwood Ln/Marie Dr		Bicycle Boulevard from Driftwood Ln to Mitzi Dr	$12,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
BB58	Tanglewood Dr/ San Marino Dr/La Paz Pl/Mitzi Dr		Bicycle Boulevard from Noblewood Dr to La Paz Dr	$17,000
BB59	58th Street		Construct Low-Stress Roadway from Rimrock Road to Grand Ave	Unknown
BB60	66th Street		Construct Low-Stress Roadway from Rimrock Road to Grand Ave	Unknown
BB61	60th Street Corridor		Construct Low-Stress Roadway along 60th St corridor	Unknown
BB62	52nd Street Corridor		Construct Low-Stress Roadway along 52nd St corridor	Unknown
BB63	Monad Road		Construct Low-Stress Roadway Extension of Monad Rd	Unknown
BB64	Broadwater Ave		Construct Low-Stress Roadway Extension of Broadwater Ave	Unknown
BB65	Colton Blvd		Construct Low-Stress Roadway Extension of Colton Blvd	Unknown
Separated or Buffered Bicycle Facility Projects				
BBL1	54th St		Improvements from Rimrock Rd to Grand Ave; could include shoulder widening, protected bicycle lane, or sidepaths	Unknown
BBL2	48th St		Improvements from Central Ave to Grand Ave; could include shoulder widening, protected bicycle lane, or sidepaths	Unknown
BBL3	Grand Ave		Improvements from 58th St to Shiloh Rd; could include shoulder widening, protected bicycle lane, or sidepaths	Unknown

1 BL = Bike Lane Project, BB = Bicycle Boulevard Project, BBL = Buffered Bicycle Lane Project

Table 9.10 Multi-use Trail Projects

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT1	Audubon Conservation Education Center Connector Trail	0.5	Construct a multi-use trail from ACEC Trails to Mullowney Lane	$274,017
MT2	Audubon Conservation Education Center Trail	0.5	Construct a multi-use trail from Riverfront Park to Josephine Crossing	$456,695
MT3	Alkali Creek Trail	0.5	Extend trail from Swords Park northeast along Alkali Creek or Swords Lane to Main Street Pedestrian Underpass	$250,000
MT4	Arnold Drain Trail	0.5	Construct a multi-use trail from Arnold Drain Connector to Grand Ave	$456,695
MT5	Arnold Drain/Shiloh Road Connector Trail	1	Construct a multi-use trail from Broadwater Ave to Shiloh Rd	$913,390
MT6	BNSF Rail with Trail	15	Construct a multi-use trail from MRL Rail with Trail to Highway 3	$8,220,506
MT7	Briarwood to Blue Creek School	1.5	Construct a multi-use trail from Briarwood Blvd to Blue Creek School	$1,370,084
MT8	Briarwood to Pictograph Caves	2.5	Construct a multi-use trail from Briarwood Blvd to Pictograph Caves State Park	$1,370,084
MT9	Canyon Creek	6	Construct a multi-use trail from Zoo Montana to BNSF Rail with Trail	$3,288,202
MT10	Castle Rock	1	Construct a multi-use trail from Governors Blvd to BBWA Canal	$913,390
MT11	Colton Connector	1	Construct a multi-use trail from 32nd St W to 38 St W	$913,390
MT12	Cove Ditch	2	Construct a multi-use trail from Molt Rd to Hogans Slough	$1,096,067
MT13	Downtown - Coulson Park Trail Connection	1	Extend trail from South 25th Street to 8th Ave. South to South 26th Street to Lillian Avenue and Coulson Park Trail	$1,000,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT14	Four Dances Connector	1	Construct a multi-use trail from Lockwood Trail to Four Dances Natural Area	$548,034
MT15	Heights BBWA	3	Construct a multi-use trail from Aronson Ave to Lake Elmo State Park	$2,740,169
MT16	Heights Upper Loop	4.5	Construct a multi-use trail from Yellowstone River to Alkali Creek Rd	$4,110,253
MT17	High Ditch	4	Construct a multi-use trail from Rimrock West Trail to Hogans Slough	$2,192,135
MT18	Hogans Slough	5.5	Construct a multi-use trail from Shiloh Rd to BNSF Rail with Trail	$3,014,186
MT19	Inner Belt Loop	6.5	Construct a multi-use trail from Governors Blvd to Highway 3	$5,937,032
MT20	King Avenue	1	Construct a multi-use trail from S 44th St W to Hogans Slough	$913,390
MT21	Lockwood	6	Construct a multi-use trail from Interstate-90 to Shiloh Rd	$5,480,337
MT22	Monad	1	Construct a multi-use trail from S 45th St W to Hogans Slough	$913,390
MT23	Monad	2.5	Construct a multi-use trail from BBWA Canal Trail to 48th St W	$2,283,474
MT24	MRL Rail with Trail	9	Construct a multi-use trail from Interstate-90 to Highway 312	$8,220,506
MT25	Rehberg Ranch	1	Construct a multi-use trail from Extension of Existing Trail to Inner Belt Loop	$913,390
MT26	Rimrock Road	1.5	Construct a multi-use trail from 54th St W to Cove Ditch	$1,370,084
MT27	Senators Park	1	Construct a multi-use trail from Aronson Ave to Inner Belt Loop Trail	$913,390

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT28	Snow Ditch	2	Construct a multi-use trail from Shiloh Rd to Big Ditch	$1,096,067
MT29	South Hogans Slough	1	Construct a multi-use trail from Suburban Ditch to MRL Rail with Trail	$913,390
MT30	Spring Creek Extension	1	Construct a multi-use trail from 24th St W to 15th St W	$913,390
MT31	Transtech Connector	0.5	Bring McCail trail segment up to standards and complete connection to Transtech Center Trail at 32nd Street West	$480,000
MT32	Two Moon Park to Five Mile Creek	3	Construct a multi-use trail from Kiwannis Trail to Five Mile Creek	$2,740,169
MT33	Western Yellowstone River Trail	5	Construct a multi-use trail from Josephine Crossing Trail to Shiloh Rd Trail	$4,566,948
MT34	Riverfront Park	2.5	Construct a multi-use trail from Mystic Park Trails to Riverfront Park Trails	$1,500,000
MT35	25th Street Railroad Bridge	0.5	Construct a multi-use trail from Montana Avenue to Minnesota Avenue	$1,700,000
MT36	BBWA to Swords Park Trail	5.5	Construct a multi-use trail from Lillis Park to Aronson Ave	$5,023,643
MT37	Rim Top Trail from 27th Street West/ Airport Road to Zim-merman Trail Vicinity	3.5	New Trail along the Rims resulting from Highway 3 corridor study	$1,200,000
MT38	Downtown BBWA Corridor Trail/On Street Facilities	1.5	Complete Trail through MSU-B Campus in alignment with MSU-B Master Plan and trail/ on-street facilities along Poly Dr. through Virginia Lane intersection to 13th/Poly Drive	$210,000
MT39	34th Street Pedestrian Bridge	0.25	Construct a multi-use bridge to cross the tracks near 34th Street	$2,000,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT40	44th Street West	0.5	Construct a multiuse bike/pedestrian path along 44th Street from Shiloh Conservation Area to King Avenue West	$102,000
MT41	Heights Middle School Path	0.25	Construct a trail from the Kiwanis trail to New Heights Middle School near Bench and Barrett	$131,290
MT42	6th Avenue N		Multi-use Trail from 6th Avenue Bypass to N 19th St	$1,062,000
MT43	BBWA Canal Trail		Multi-use Trail from 6th Avenue N to Transtech Way	$6,115,000
MT44	Montana Ave/ Underpass Ave		Multi-use Trail from Division St to S Billings Blvd	$1,509,000
MT45	Wicks Ln		Multi-use Trail from Gleneagles Blvd to Kiwanis Trail	$2,351,000
MT46	Rosebud Ln		Multi-use Trail from Highway 87E to West of Rosebud Ln	$2,765,000
MT47	N 27th St		Multi-use Trail from Rimrock Rd to Mountain View Blvd	$312,000
MT48	Grand Ave		Multi-use Trail from 24th St W to Zimmerman Trl	$674,000
MT49	Hesper Rd		Multi-use Trail from East of Shiloh Rd to S Shiloh Rd	$181,000
MT50	Highway 87E		Multi-use Trail from Johnson Ln to Old Hardin Rd	$824,000
MT51	24th		Multi-use Trail from Stillwater to South of King Ave W	$332,000
MT52	Broadwater Ave		Multi-use Trail from 24th St W to 28th St W	$505,000
MT53	1st Ave/Old Hardin Rd/Highway 87E		Multi-use Trail from N 13th St to Hogan Rd	$6,168,000
MT54	BBWA Canal Trail North		Multi-use Trail from East of Shadow Heights to Aronsen Ave	$3,337,000
MT55	26th St Trail		Multi-use Trail from S 25th St to S 27th St	$177,000
MT56	Gabel Rd		Multi-use Trail from Hesper Rd to Zoo Rd	$317,000
MT57	South of Emerald Dr/Sword Ln		Multi-use Trail from Emerald Dr to Sword Lane	$540,000
MT58	Rimrock Rd		Multi-use Trail from 54th St W to 66th St W	$855,000
MT59	King Ave E		Multi-use Trail from Sugar Ave to King Ave W	$1,297,000
MT60	King Ave W/Moland Rd		Multi-use Trail from S 29th St W to S Frontage Rd	$2,796,000
MT61	Arnold Drain Trail		Multi-use Trail from 18th St W to 25th St W	$849,000
MT62	Chrysalis Acres		Multi-use Trail from Van Buren St to Hallowell Ln	$75,000
MT63	Suburban Ditch Trail		Multi-use Trail from Songbird Dr to Mullowney Ln	$526,000
MT64	Falcon Ridge		Multi-use Trail; unspecified	$200,000
MT65	Kiwanis Trail Corridor		Multi-use Trail from Bitterroot Dr to Mary St	$559,000
MT66	Highway 87 Bypass		Multi-use Trail from Roundup Rd to Johnson Ln	$6,747,000
MT67	Jim Dutcher Trail		Multi-use Trail from South of Mary St to E&F St	$1,479,000
MT68	Mullowney Ln		Multi-use Trail from S Frontage Rd to Story Rd	$432,000
MT69	Terrace Park Trail		Multi-use Trail from High Sierra Blvd to Alkali Creek Rd	$1,295,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT70	Tania Cir Ditch Trail		Multi-use Trail from Naples St to Bitterroot Dr	$436,000
MT71	Colton Blvd		Multi-use Trail from Zimmerman Trl to 36th St W	$304,000
MT72	S Billings Blvd/ Blue Creek Rd		Multi-use Trail from King Ave S to Glengary Ln	$3,712,000
MT73	SE Shiloh Rd/Entryway Dr/Shakelford Ln		Multi-use Trail from East of Mullowney Ln to Shiloh Rd	$4,450,000
MT74	Gabel Rd		Multi-use Trail from S 32nd St W to Transtech Way	$194,000
MT75	62nd St W		Multi-use Trail from Falcon Ridge Way to Rimrock Rd	$183,000
MT76	West Wicks Ln		Multi-use Trail from Annandale Rd to Skyway Dr	$1,012,000
MT77	Hesper Rd		Multi-use Trail from East of Majestic Ln to Gabel Rd	$190,000
MT78	Alkali Creek Rim Trail		Multi-use Trail from Judicial Ave to Alkali Creek Rd	$317,000
MT79	Peters St		Multi-use Trail from Highway 87E to East of Peters St	$465,000
MT80	State Ave/S 27th St		Multi-use Trail from 12th Ave S to Garden Ave	$601,000
MT81	Railroad/State Ave Trail		Multi-use Trail from 2nd Ave S to Trail near S 24th St W	$3,225,000
MT82	Shiloh Rd		Multi-use Trail from Pierce Pkwy to Autumn Ln	$755,000
MT83	Zimmerman Trl		Multi-use Trail from Highway 3 to Poly Dr	$1,308,000
MT84	Unita Park/Twin Oaks Park		Multi-use Trail from Wicks Ln to Ditch Trail	$547,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT85	South of Governors Blvd		Multi-use Trail from W Wicks Ln to Aronson Ave	$871,000
MT86	Lockwood Tributary Trail		Multi-use Trail from Old Hardin Rd to Highway 87E	$1,804,000
MT87	Central Ave		Multi-use Trail from Shiloh Rd to East of 64th St W	$1,541,000
MT88	West of Governors Blvd		Multi-use Trail from South of W Wicks Ln to Constitution Ave	$219,000
MT89	Innter Belt Loop Trail		Multi-use Trail from Alkali Creek Rd to Highway 3	$3,367,000
MT90	Blue Creek Rd		Multi-use Trail from Colleen Dr to Prestwick Rd	$430,000
MT91	Broadwater Ave		Multi-use Trail from Shiloh Rd to unspecified	$806,000
MT92	Monad Rd		Multi-use Trail from S 12th St W to Laurel Rd	$221,000
MT93	Hogans Slough Trail		Multi-use Trail from S 48th St W to Discovery Dr	$1,778,000
MT94	Monad Rd		Multi-use Trail from S Shiloh Rd to East of S 64th St W	$1,676,000
MT95	King Ave W		Multi-use Trail from S 44th St W to East of S 72nd St W	$1,974,000
MT96	Lockwood Canal		Multi-use Trail from Nobelwood Dr to Hillner Ln	$2,642,000
MT97	Coburn Rd		Multi-use Trail from Old Hardin Rd to South extent of Coburn Rd	$2,921,000
MT98	Johnson Ln/Highway 87E		Multi-use Trail from Jim Dutchner Trail to Stonehaven Trl	$5,123,000
MT99	Krumheuer Dr		Multi-use Trail from Old Hardin Rd to Mitzi Dr	$497,000

Project ID1	Proposed Name	Length (Miles)	Project Description	Estimated Planning-Level Cost
MT100	Enfield St/Toledo St/La Paz Dr		Multi-use Trail from Becraft Ln to Ford Rd	$580,000
MT101	Ford Rd		Multi-use Trail from East of Eagle Cliff Meadows Rd to Johnson Ln	$669,000
MT102	S 52nd St W		Multi-use Trail from North of Rich Ln to South of Onyx Blvd	$712,000
MT103	Nobelwood Dr		Multi-use Trail from Old Hardin Rd to Ford Rd	$1,063,000
MT104	Highway 3 Multi-use Trail		Consider future paved multi-use trail on north side of highway as development occurs	$2,000,000
MT105	6th Avenue North Widening		Street widening project for a multi-use path from Main St. to 13th. PAVER funds will be used for the overlay.	$450,000
MT106	Johnson Lane Multiuse Trail		Connects new trail alignment with Bypass	$500,000
MT107	Lower Lockwood Irrigation Ditch	n/a	Placing trails in the Lockwood Irrigation Ditch District; lower ditch trail would run from Maier Rd to Rykken Circle and Old Hardin Rd; parallel to Old Hardin Rd, may be an alternate route until solution for Old Hardin Rd can be obtained	$200,000
MT108	Upper Lockwood Irrigation Ditch	n/a	Placing trails in the Lockwood Irrigation Ditch District; upper ditch trail would run from Dickie Rd, past Coburn Rd, and provides an alternative trail alignment for people wishing to connect from the Johnson area to Lockwood School; greatest potential to safely move people from east side of Lockwood ubranized area to the west side; opportunities for tourism route	$30 per linear foot
MT109	Johnson Lane	n/a	Interest from property owners to construct trail corridor linking Johnson Ln at I-90 north to the Yellowstone River	Unknown
MT110	Bicycle Tourist Route	n/a	Route to promote tourism within the LPSD; starting point at Holiday Inn Express; route follows Lockwood Irrigation District canal over to Coburn Rd; route then extends to the Four Dances Natural Area and Pictograph Caves State Park; route could extend to Billings with an Interstate Bridge connection, connecting into the proposed "Marathon Loop"; tourists staying at Holiday Inn Express could potential ride north towards the future Dover Park, connect tot the Heights Kiwanis Bike trail, and also tie into the Marathon Loop	Unknown

CLOSING

One of Billings' seven goals for this plan is to create a transportation system that supports the practical and efficient use of active transportation such as walking and bicycling. By investing in active transportation infrastructure such as sidewalks, trails, and bike lanes, the City can increase the safety and comfort of these modes and thus increase their use.

Billings is pursuing this goal because of the wide variety of community benefits caused by prioritizing active transportation. As described in the Billings Bikeway and Trails Master Plan Update, increasing active transportation mode share can lead to community benefits.

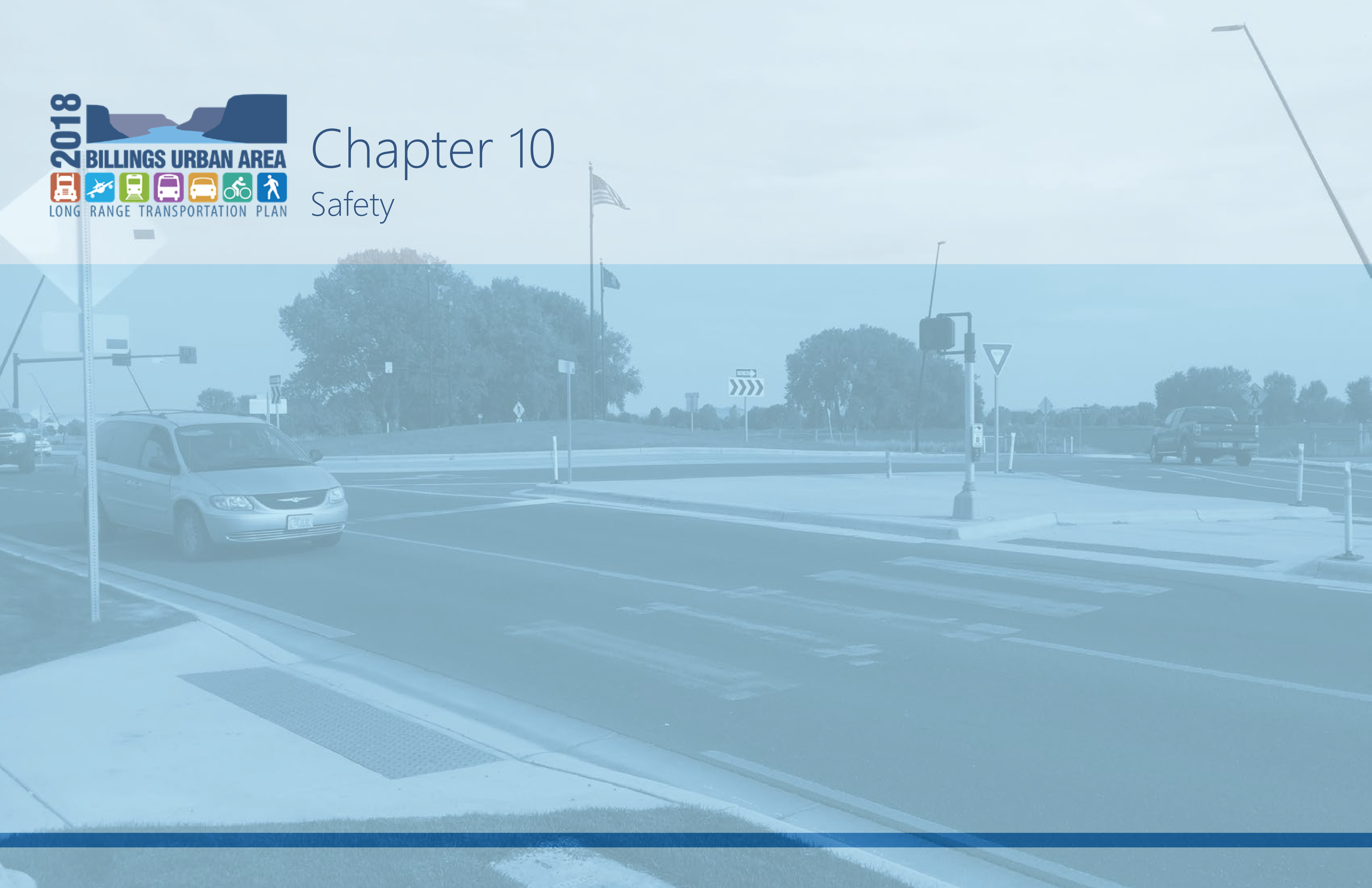
Given the existing usage of the bicycle and pedestrian system, the plan estimates the total value of the health benefits associated with frequent exercise, environmental benefits associated with not generating vehicle emissions, and economic benefits associated with additional transportation options for those without access to vehicles at over eight million dollars per year. The plan also estimates that, with high growth in biking and walking mode share, this value could increase to over 22 million dollars.

To achieve this high level of growth in pedestrian and bicycle use, the City of Billings, Lockwood, and the MPO will need to continue to invest in its pedestrian and bicycle system and continue to strive to make its transportation system appealing to all modes.

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 10

Safety



SAFETY

A variety of federal, state, and local requirements and guidelines address incorporating safety into the transportation planning process. This chapter presents background information, analysis, and strategies to address safety within the Billings Urban Area. Previous chapters also include discussion on crash data and analysis for their respective modes. Overall, safety is a key element in the transportation planning process. As such, the 2018 LRTP outlines several goals related to safety elements:

2018 LRTP Goals Related to Safety

Goal 1: Safe – Develop a safe transportation system.

Goal 4: Environment – Develop a transportation system that protects the natural environment and promotes a healthy sustainable community.

With new research and available data, safety can be incorporated in planning, project development, and operation/maintenance activities to effectively identify countermeasures to reduce crashes and crash severity for the Billings community.

BACKGROUND

FEDERAL REQUIREMENTS

MPOs must comply with federal requirements associated with the transportation planning process as outlined in the 23 CFR Part 450 for Metropolitan Transportation Planning and Programming. The planning process should address increasing the safety of the transportation system for motorized and non-motorized users. The metropolitan transportation planning process should be consistent with the Strategic Highway Safety Plan, as specified in 23 U.S.C. 148, and other transit safety and security planning and review processes, plans, and programs, as appropriate (10-1).

STATE PLANS

TranPlanMT, Montana's long-range transportation plan, was last amended in 2017 (10-2). This plan cites safety as an overarching goal which is applied in nearly every MDT decision-making process for all projects and programs. The MPO participated in a workshop in October 2016 to review statewide and MPO goals to ensure consistency and foster collaboration. The statewide plan lists the following eight goals to improve transportation system safety.

- Maintain infrastructure condition to provide safe conditions for the traveling public.
- Continue improvements to the safety rest area program to provide safe stopping locations for the traveling public.
- Target safety improvement projects to address crash pattern locations.
- Incorporate technology advancements in project development to improve safety.
- Leverage relationships with education, enforcement, emergency medical services, and engineering partners to foster a culture of safety on Montana roadways.
- Reduce unsafe driving behavior through targeted focus on transportation safety emphasis areas identified in Montana's Comprehensive Highway Safety Plan.
- Enhance crash data integration and analysis to support decision making and data-driven problem identification.
- Provide leadership in air traveler safety through promotion of flight safety, accident prevention, and air search and rescue programs.

Montana's Comprehensive Highway Safety Plan (10-3) was amended in 2015, as required by the 2014 Moving Ahead for Progress in the 21st Century Act (MAP-21) federal legislation. The CHSP is intended to be a living document to help guide the State of Montana to effectively address the state's safety needs. The vision of the plan is "zero fatalities and zero serious injuries" on any public roadway in the State. The goal of the plan is "to reduce fatalities and incapacitating injuries in the State of Montana by half in two decades, from 1,704 in 2007 to 852 by 2030." To accomplish the goal, the State has established three overarching safety strategy areas:

- Improve the accuracy, completeness, integration, timeliness, uniformity, and accessibility of data used in traffic safety analysis;
- Support the essential role of Emergency Medical Services in reducing the severity of injury outcomes and the technologies and systems necessary to advance collaboration with all safety partners; and
- Collaborate across agencies, organizations, and with the public to improve the safety culture and promote the institutionalization of Vision Zero.

In addition, three emphasis areas are identified in the CHSP: roadway departure and intersection crashes, impaired driving crashes, and occupant protection.

LOCAL PLANS

The Billings Community Transportation Safety Plan, shown in Exhibit 10.1 was completed in 2016 (10-4). The plan takes a data-driven approach to identify safety issues, determine areas in need of increased emphasis, and define strategies to reduce roadway fatalities and serious injuries. The goal for the plan is to reduce fatalities and serious injuries in the Billings MPO area by 20% from 70 in 2014 to 56 by 2020 based on a five-year rolling average calculation. The plan defines three emphasis areas: unrestrained occupants, impaired driving, and inattentive driving/speeding. A group of local Billings safety partners representing education, law enforcement, emergency medical services, and engineering organizations met monthly to evaluate crash trends, review existing safety programs and best practices, identify gaps, and develop safety strategies outlining specific methods, implementation partners, resources, and action steps to reduce fatalities and serious injuries in Billings.

Exhibit 10.1 Recent Safety Plan Completed by the MPO

The Yellowstone County and City of Billings 2016 Growth Policy (10-5) is a guide for local officials and community members in making decisions that will affect the future of the community. The plan has several growth guidelines that focus on safety within different elements of the plan. The following three guidelines were listed as essential investments related to safety:

- The **safety** of all users and the connectivity of the transportation system are important criteria to consider in roadway design and transportation plans.
- Planning and construction of **safe** and affordable interconnected sidewalks and trails are important to the economy and livability of Billings.
- Public health, **safety** and emergency service response are critical to the well-being of Billings' residents, businesses, and visitors.

City of Billings Safe Routes to School Study (2011) developed recommendations for 22 elementary schools in Billings (10-6). The goals of the study were to 1) enhance the safety of students traveling to and from school and 2) increase the number of students talking or bicycling to school. Projects from the SRTS study are included in the project lists for pedestrians and bicyclists in Chapter 9.

Lockwood School District Safe Route to School Plan (2009) developed recommendations to enhance the safety of students traveling to and from school in Lockwood School District (10-7). Projects from the plan have been included in the project lists for pedestrians and bicyclists in Chapter 9.

Billings Area Bikeway and Trail Master Plan Update (2017) developed recommendations to provide connectivity and options for bicyclists in the Billings Urban Area (10-8). Two of the eight goals focused on safety: 1) Enforcement: Increase enforcement on City/County streets, trails and bikeways to make interactions between motorists, bicyclists, and pedestrians safety; and 2) Health and Safety: Encourage healthy activities through increased access and safe infrastructure for bicyclists and pedestrians. Projects from the plan have been included in the project lists for pedestrians and bicyclists in Chapter 9.

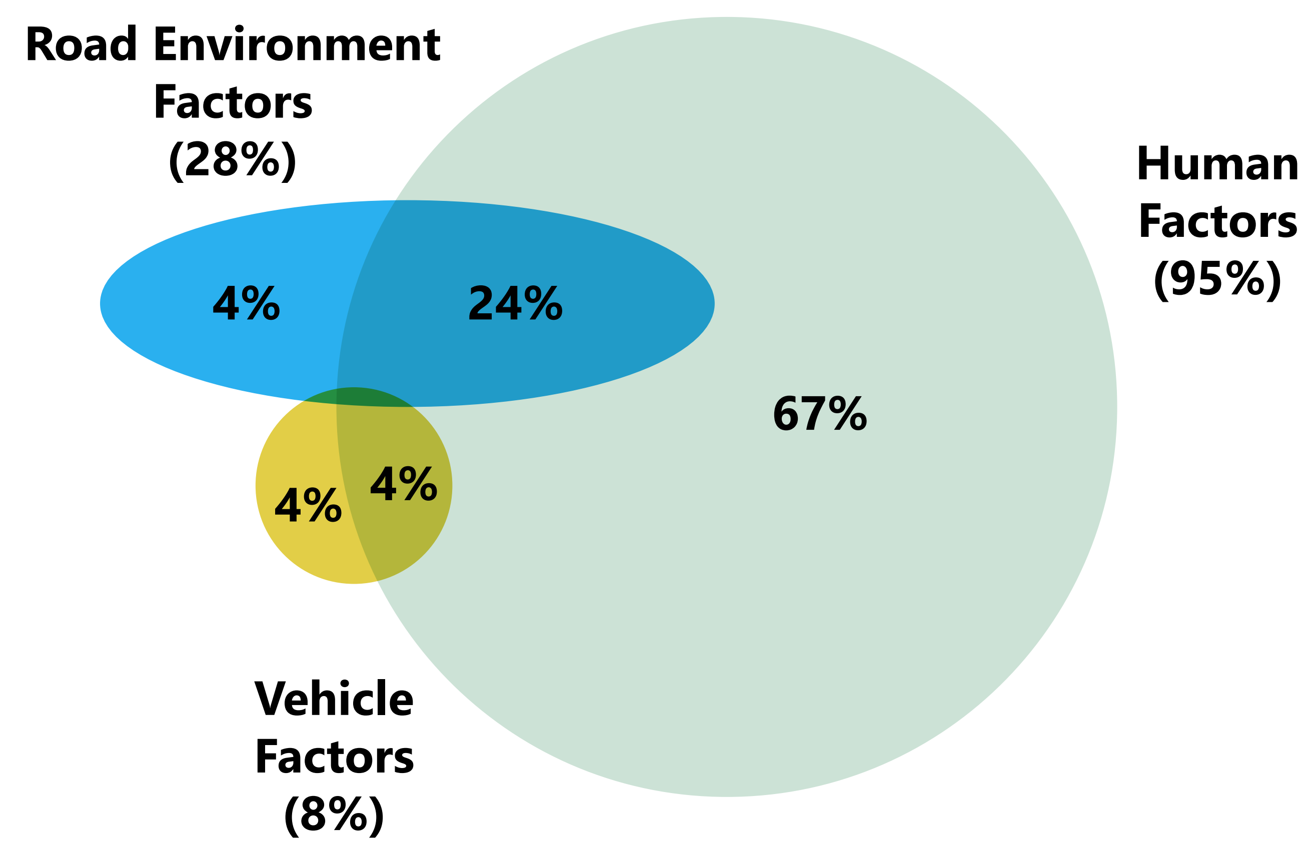
Lockwood Non-Motorized Transportation Plan (2015) seeks to eliminate fatalities and serious injuries caused by vehicular and pedestrian conflicts throughout the Lockwood area (10-9). It identifies a five-year work plan and 20-year desired project list in the areas of education, enforcement, engineering, evaluation, and partnerships and funding to achieve this goal.

SAFETY CONSIDERATIONS

INTRODUCTION TO THE 5 "E" APPROACH TO SAFETY

Motor vehicle crashes generally involve multiple contributing factors, shown in Exhibit 10.2, which may be related to drivers, the roadway, or the vehicles(s) involved, thus making transportation safety a multidisciplinary concern. Human factors are involved in 95% of crashes, while the road environment is a contributing factor in only 28% of crashes (10-10). This means we cannot "engineer" our way to safety, and that education and enforcement must be integrated into a safety culture and implementation strategies. The State of Montana and the Billings Urban Area safety goals cannot be achieved by one agency working alone. Accomplishing the Billings community's safety goals requires a collaborative approach that draws from several key areas associated with traffic safety, as listed below.

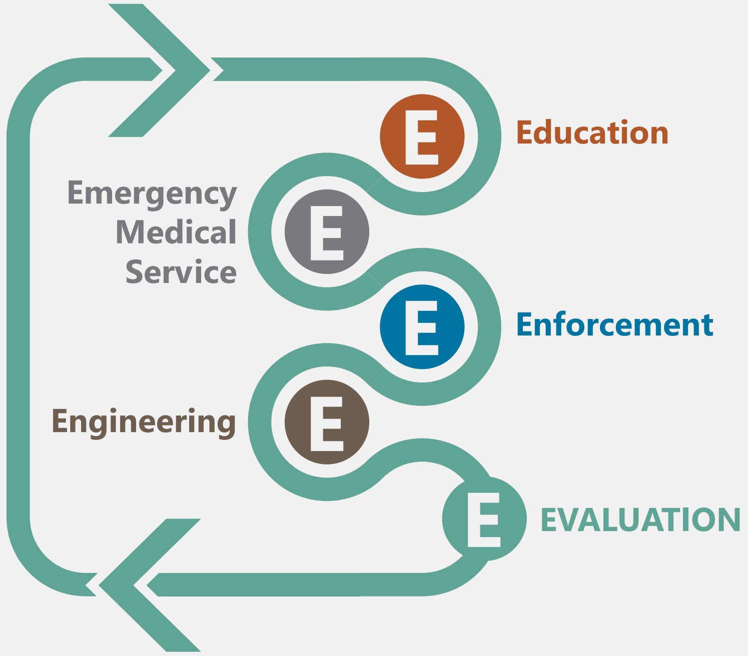
Exhibit10.2 Contributing Factors to Crashes



- **Education** – States and cities incorporating strong educational components report declines in fatality rates (10-11). Effective prevention education programs typically include some combination of knowledge content, social norming, personal commitment, and resistance skill strategies (10-12).
- **Enforcement** – Law enforcement officials can encourage behavior changes of transportation system users through enforcement, education, and incarceration.
- **Emergency Medical Service** (EMS) – EMS provides the last opportunity to improve health outcomes from motor vehicle crashes and other medical emergencies. EMS data is highly reliable and valuable to crash analysis
- **Engineering** – State, county, and city engineers consider safety during planning, design, construction, operation, and maintenance of transportation facilities.
- **Evaluation** – The MPO ties the previous four elements together by measuring the effectiveness of implemented solutions and deploying new solutions to address evolving needs.

The 5 E's of safety, as shown in Exhibit 10.3 define the broad stakeholder communities who are responsible for making the transportation system safe for all users.

Exhibit 10.3. The 5 E's



SAFETY ANALYSIS

CRASH DATA SUMMARY

MDT provided historical crash data for crashes involving various modes over the five-year period from January 1, 2013 to December 31, 2017. A total of 14,577 crashes were reported over the five-year period in the study area. Figure 10-1 illustrates the locations of each crash type.

A total of 4,005 injury crashes occurred (27% of total crashes) which resulted in 5,940 injuries over the five-year period. Of the injury crashes, 243 (6% of injury crashes) resulted in an incapacitating injury.

In addition, 42 fatal crashes (0.3% of total crashes) resulted in 42 fatalities. Tables 10.1 and 10.2 show the breakdown of fatalities by road user type, drug/alcohol involvement, and seatbelt use. Motorcyclists made up 40% of all fatalities, followed by motor vehicle occupants (36%). Impaired driving factored into 40% of the fatal crashes; 60% of motor vehicle occupant fatalities were not wearing a seatbelt.

Table 10.1 Fatal Crash Road User Types (2013-2017)

Road User Type	Motor Vehicle Occupant	Motorcyclist	Pedestrian	Bicyclist	ATV
# Fatalities (Percent of Total)	15 (36%)	17 (40%)	8 (19%)	1 (2%)	1 (2%)

Table 10.2 Fatal Crash Attributing Factors (2013-2017)

Drugs / Alcohol Involved	Yes	No	Unknown
# Fatalities (Percent of Total)	17 (40%)	22 (52%)	3 (7%)
Seatbelt Used (Motor Vehicle Occupants Only)	**Yes**	**No**	**Unknown**
# Fatalities (Percent of Total)	3 of 15 (20%)	9 of 15 (60%)	3 of 15 (20%)

The goal set in the Billings CTSP is to reduce fatalities and serious injuries in the Billings MPO area by 20% from 70 in 2014 to 56 by 2020 (based on a five-year rolling average). As of 2017, there were an average of 65 fatalities and serious injuries in the study area per year, as shown in Exhibit 10.4. This represents a 7% reduction from the average of 70 reported in the CTSP for the 2010-2014 period. An additional 14% reduction will be required to meet the CTSP goal, which is to reduce the average to 56 by year 2020.

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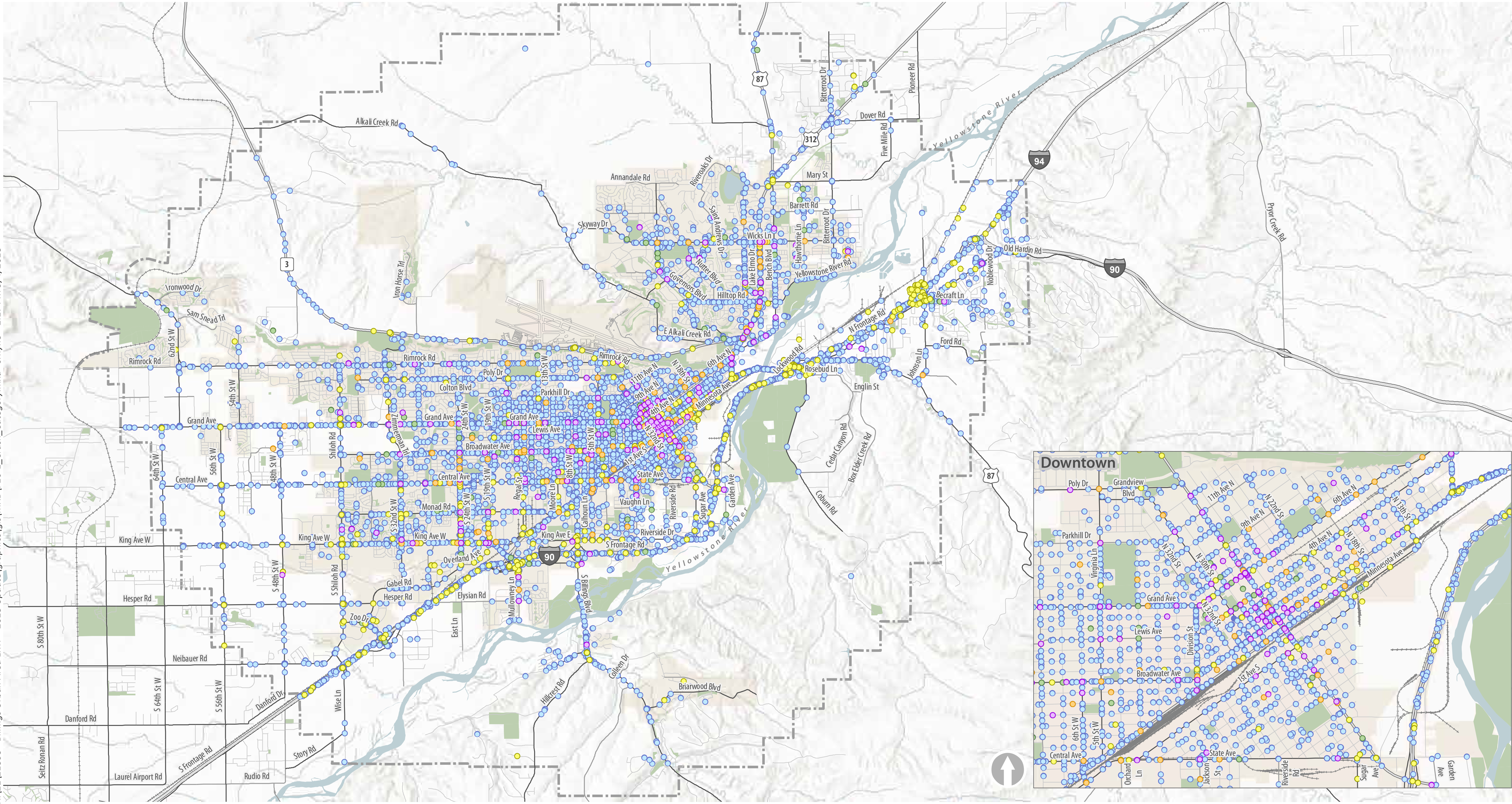

Pedestrian Crash

Bike Crash

Heavy Vehicle Crash

Bus Crash

Vehicle Crash

Study Area

Park

City of Billings

DRAFT

Figure 10-1

Crashes by Category (2013 - 2017)

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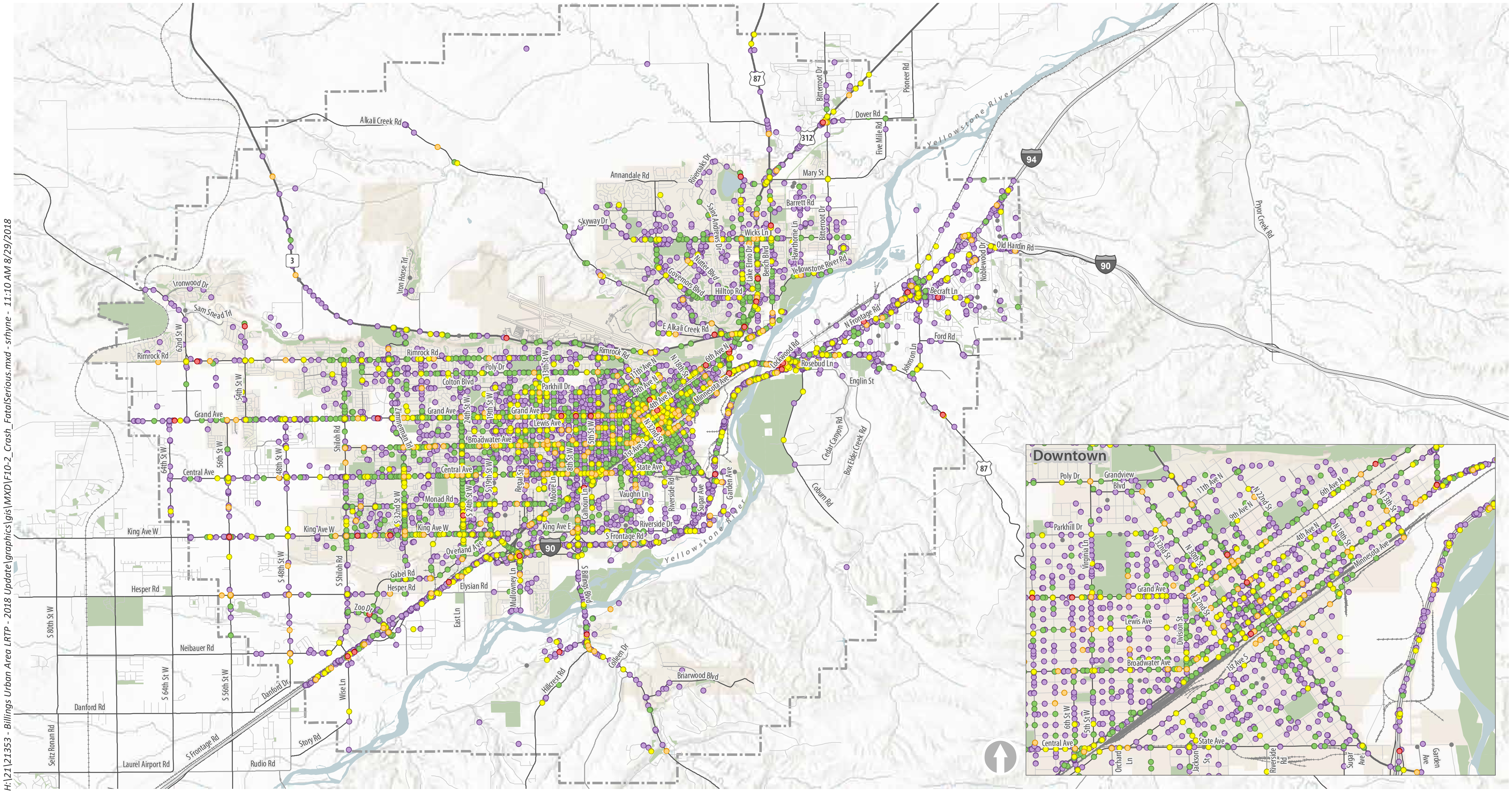

Crash Severity

- Fatal Accident
- Incapacitating Injury Accident
- Non-Incapacitating Evident Injury Accident
- Possible Injury Accident
- Non-Injury Accident (Property- Damage-Only Accident)
- Unknown

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Figure 10-2

Fatal and Serious Injury Crashes (2013 - 2017)

Exhibit 10.4 Fatal and Serious Injury Crashes (Five-Year Rolling Average)

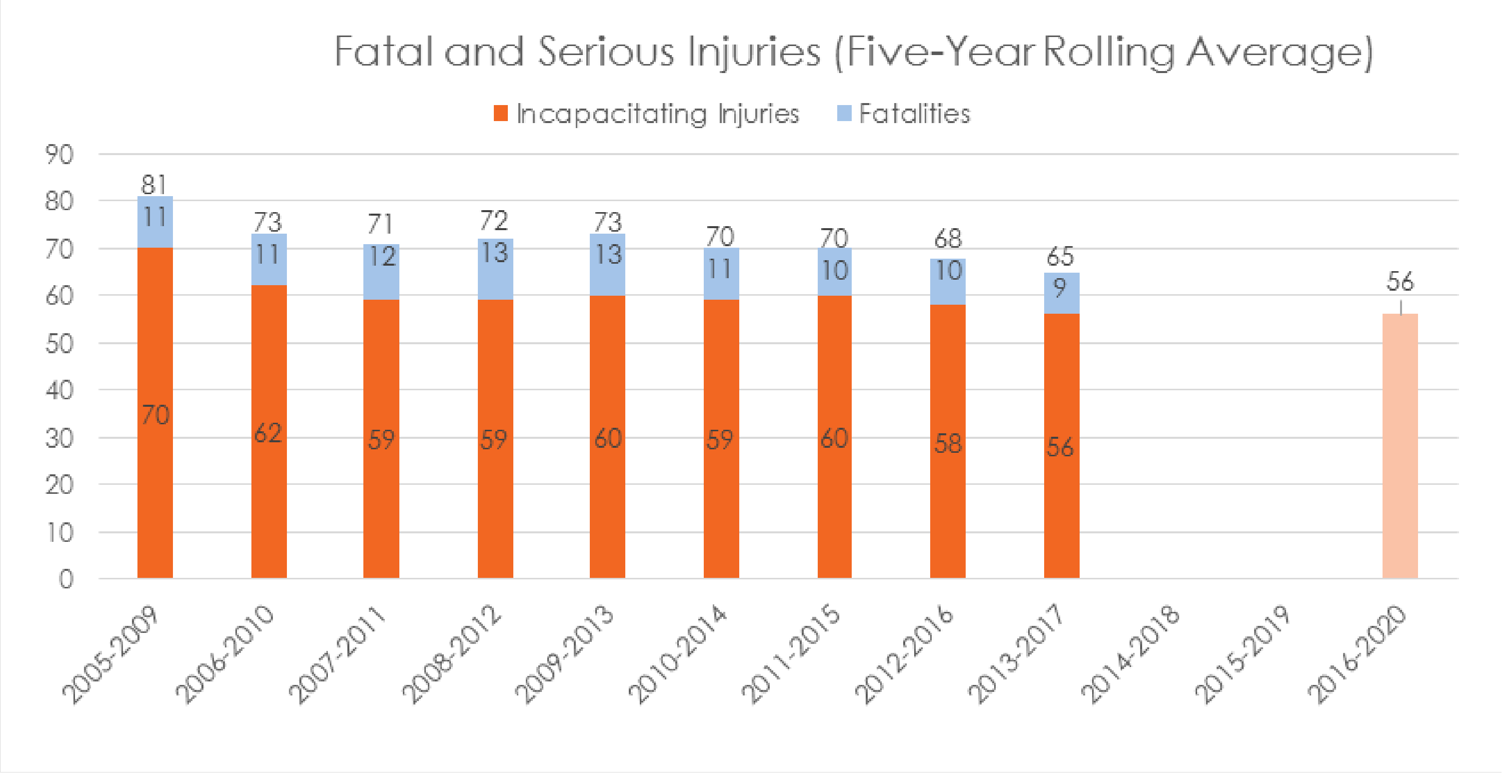


Figure 10-2 shows the location of crashes that resulted in a fatality or an incapacitating injury.

CRASH TYPES

This LRTP is focused on addressing safety for all transportation modes. Table 10.3 summarizes the crash severity for crashes involving a commercial vehicle, bus, at-grade rail crossing, pedestrian, or bicyclist. There were eight fatal pedestrian crashes and one fatal bicycle crash in the five-year period. There were two fatal crashes involving commercial vehicles.

Table 10.3 Commercial, Bus, Rail Pedestrian and Bicycle Crash Summary (2013-2017)

Category	Property Damage Only	Possibly Injury	Non-Incapacitating Injury	Incapacitating Injury	Fatal	Unknown	Total
Crash Involving a Commercial Vehicle (Truck >10,000 pounds)	410	64	25	9	2	3	513
Crash Involving a School Bus	37	12	2	0	0	1	52
Crash Involving MET Bus	1	2	0	0	0	0	3
Crash Involving Other Bus Types (e.g., Charter Bus)	52	11	1	0	0	0	64
Crash Related to At-Grade Rail Crossing	64	16	5	1	0	2	88
Pedestrian	42	84	42	31	8	3	210
Bicycle	28	68	35	8	1	0	140

CRASH RATES

Intersection and roadway segment crash rates are reported for high crash locations within the study area. The crash rate provides more information than crash frequency alone, as it factors in the number of vehicles entering an intersection or roadway segment. This makes the crash rate an effective tool for comparing the relative safety of one intersection or segment to another. Of note, due to different crash reporting methods used in different jurisdictions, the crash rate is best used to compare the relative safety of an intersection compared to similar intersections within the same jurisdiction.

The crash rate equations are provided below. Intersection crash rate is the number of crashes occurring per million entering vehicles, while segment crash rate is the number of crashes per million vehicle miles of travel on the segment. All crash rates were calculated using annual average daily traffic (AADT) volumes from the 2017 Billings Urban Area Traffic Count Map (10-13).

$$\text{Intersection Crash Rate} = \frac{(\text{Total Number of Crashes} \times 1{,}000{,}000 \text{ Vehicles})}{(\text{Vehicles per Day} \times \text{Number of Years} \times 365 \text{ Days per Year})}$$

$$\text{Segment Crash Rate} = \frac{(\text{Total Number of Crashes} \times 1{,}000{,}000 \text{ Vehicles})}{(\text{Vehicles per Day} \times \text{Number of Years} \times 365 \text{ Days per Year} \times \text{Segment Length})}$$

Table 10.4 shows the crash rates for the intersections with the highest number of crashes. Three of the intersections in the top ten are roundabouts located on the Shiloh Road corridor.

Table 10.4 Intersections with High Crash Rates (2013-2017)

Intersection		Control Type	Total Crashes	Crash Rate
1	Shiloh Road & King Avenue W	Roundabout	149	3.57
2	Shiloh Road & Grand Avenue	Roundabout	129	2.67
3	24th Street W & Rosebud Drive	Signal	84	1.62
4	Shiloh Road & Central Avenue	Roundabout	58	1.49
5	Central Avenue & N 15th Street W	Signal	64	1.46
6	Main Street & 1st Avenue N	Signal	92	1.35
7	27th Street & 6th Avenue N	Signal	85	1.35
8	King Avenue W & 24th Street W	Signal	101	1.25
9	Main Street & Lake Elmo Drive	Signal	113	1.17
10	King Avenue W & 32nd Street W	Signal	72	1.15
11	27th Street & 1st Avenue N	Signal	53	1.13
12	Central Avenue & 24th Street W	Signal	81	1.13
13	Grand Avenue & N 17th Street W	Signal	59	1.13
14	King Avenue W & S 20th Street W	Signal	94	1.07
15	Grand Avenue & Zimmerman Trail	Signal	56	1.07
16	Main Street & Wicks Lane	Signal	62	1.02
17	24th Street W & Monad Road	Signal	53	0.85
18	King Avenue W & Interstate-90 Single Point Interchange (SPI)	Signal	68	0.81
19	Main Street & Airport Road	Signal	66	0.71
20	Main Street & 6th Avenue N	Signal	53	0.53

Table 10.5 shows crash rates for the roadway segments with the highest number of crashes. Three of the segments in the top ten are located on South 24th Street West from King Avenue to Broadwater. Additionally, five roadways, King Avenue, 24th Street, Central Avenue, Grand Avenue, and Main Street had multiple segments with the high crash rates in the study area.

Table 10.5 Roadway Segments with High Crash Rates (2013-2017)

Roadway Segment		Extent	ADT	Length (miles)	Total Crashes	Crash Rate
1	N 27th Street	Montana Avenue to 6th Avenue N	16,595	0.4	386	29.5
2	King Avenue W	20th Street to 24th Street	24,100	0.5	310	15.2
3	Montana Avenue	27th Street to Division Street	10,980	0.7	203	14.9
4	S 24th Street W	King Avenue W to Monad Road	24,660	0.5	334	14.6
5	Central Avenue	19th Street to 24th Street	15,640	0.6	224	14.0
6	S 24th Street W	Monad Road to Central Avenue	26,280	0.5	317	13.2
7	Central Avenue	Moore Lane to 15th Street	16,895	0.5	219	12.9
8	Grand Avenue	Zimmerman Trail to Shiloh Road	12,160	0.8	230	12.8
9	24th Street W	Central Avenue to Broadwater Avenue	22,685	0.5	257	12.4
10	Grand Avenue	13th Street to 17th Street	18,810	0.5	214	12.4
11	King Avenue W	32nd Avenue to Shiloh Road	14,290	1.0	294	11.8
12	Central Avenue	24th Street to 32nd Street	13,790	1.0	277	11.1
13	Main Street	1st Avenue N to 6th Avenue N	36,440	0.4	248	10.5
14	N 27th Street	6th Avenue N to Rimrock Road	15,255	0.9	247	9.9
15	King Avenue W	24th Street to 32nd Street	25,660	1.0	368	7.9
16	Main Street	Airport Road to Hilltop Road	44,550	0.7	369	6.5
17	King Avenue W	Midland Road at Mullowney Lane to 20th Street	40,470	0.7	349	6.5
18	Main Street	Hilltop Road to Wicks Lane	27,220	1.0	306	6.1
19	Main Street	Wicks Lane to US 87	16,840	1.1	199	6.0
20	Highway 87E	Interstate 90 to 1st Avenue N	26,040	1.3	347	5.6

USE OF THE HIGHWAY SAFETY MANUAL IN PROJECT DEVELOPMENT

Roadway safety evaluation tools have historically included methods based on current and past data, typically centered on calculations dealing with crash rate, crash frequency, and crash severity. Planners and engineers can use a more comprehensive method available for examining roadway safety. The 1st Edition of the Highway Safety Manual (HSM) outlines methods and procedures to comprehensively manage roadway facilities and guide project decisions (10-14). HSM concepts include an integrated approach to safety-based improvements applicable to all aspects of planning, project development, and operation/maintenance.

Additionally, NCHRP Project 17-71 (10-15) is developing the 2nd Edition of the Highway Safety Manual. The 2nd Edition is expected to contain additional technical content, as well as content aimed at making the manual more user-friendly to practitioners. Technical content will include new research that has been completed, or is currently ongoing, since the 1st Edition was published, including predictive models for roundabouts, one-way streets, six-lane arterials, and other intersection and roadway configurations. The 2nd Edition is also expected to include comprehensive sample problems illustrating real-world scenarios and more content related to pedestrian and bicycle safety.

How can the HSM be used on Projects?

Planning – The HSM can be used to assess the safety performance of different corridor and intersection alternatives, as well as evaluate countermeasure costs and effectiveness.

Design – The HSM can be used to assess the safety performance of design alternatives and design exceptions, such as lane width, shoulder width/type, median width/type, and intersection control.

Implementation and policy projects - The HSM can be used to assess the safety effectiveness of potential countermeasures and to modify policies and design criteria.

The organization of the HSM is shown below in Exhibit 10.5.

Exhibit 10.5 Organization of the Highway Safety Manual

THE HIGHWAY SAFETY MANUAL

PART A – **Introduction, Human Factors, & Fundamentals**
- 1 Introduction and Overview
- 2 Human Factors
- 3 Fundamentals

PART B – **Roadway Safety Management Process**
- 4 Network Screening
- 5 Diagnosis
- 6 Select Contermeasures
- 7 Economic Appraisal
- 8 Prioritize Projects
- 9 Safety Effectiveness Evaluation

PART C – **Predictive Method**
- 10 Rural Two-Lane, Two-Way Roads
- 11 Rural Multilane Highways
- 12 Urban & Suburban Arterials

PART D – **Crash Modification Factors**
- 13 Roadway Segments
- 14 Intersections
- 15 Interchanges
- 16 Special Facilities & Geometric Situations
- 17 Road Networks

RECOMMENDED STRATEGIES

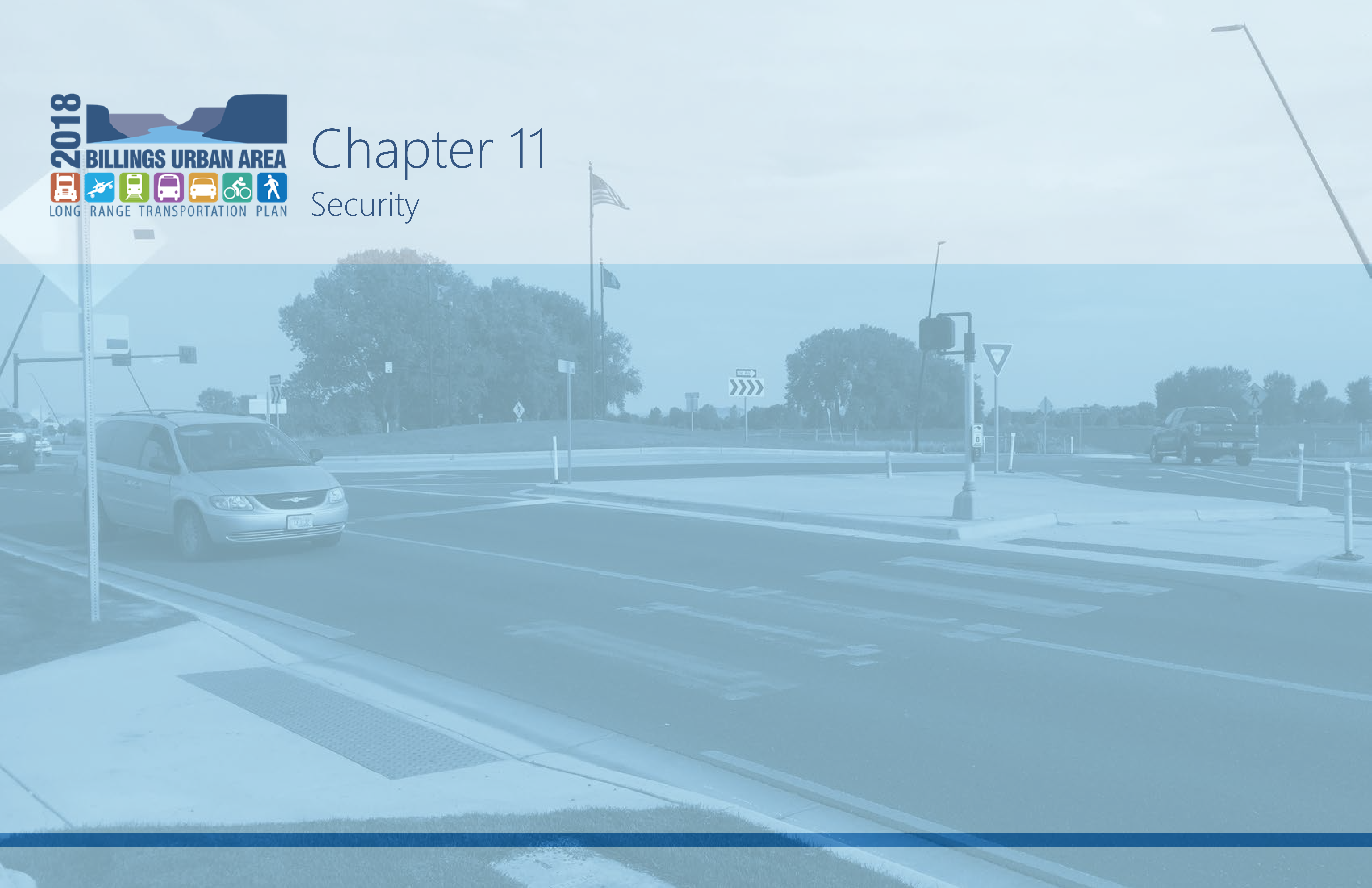
Several recommended strategies are identified for incorporating safety in the transportation planning process and furthering the implementation effort to meet the Billings community's safety goals. These recommended strategies include:

- Continuing to establish partnerships between agencies to incorporate safety elements into existing and future plans,
- Continuing to support implementation of the recommended projects and strategies from the Billings Community Transportation Safety Plan, City of Billings Safe Routes to School Study, and Lockwood School District Safe Routes to School Plan,
- Integrating the Highway Safety Manual methods and procedures into the planning, design, and policy components of the project development process, and
- Evaluating the high crash rate locations in more detail to determine specific countermeasures to address specific crash types.

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 11

Security



SECURITY

This chapter addresses security planning for the Billings Urban Area regional transportation system, including federal requirements; state and local plans; agency coordination; potential hazards; community priorities; and strategies.

Transportation security planning can reduce the negative impacts to the regional transportation system from major natural or manmade events. Some examples of these events are listed below:

- natural disasters, such as tornadoes, flooding, or blizzards;
- attempts to destroy elements of the regional transportation network to cause disruption;
- use of an element of the transportation system as a weapon, such as crashing a truck through a wall to deliver explosive materials; or
- large planned events, such as a state fair or parade.

The impacts of major events are reduced by being prepared; expediting responses; and aiding the recovery to normal services. In addition to preparing against, expediting responses to, and aiding in recovery from major events, transportation security planning helps keep people and goods moving, protects public health and life safety, supports economic productivity, and minimizes impacts of major events on the environment (11-1).

BACKGROUND

FEDERAL REQUIREMENTS

There are several federal requirements associated with MPOs and the transportation planning process included in the 23 CFR Part 450 for Metropolitan Transportation Planning and Programming. The planning process should address increasing the security of the transportation system for motorized and non-motorized users. In carrying out the metropolitan transportation planning process, MPOs, States, and public transportation operators may incorporate or reference applicable emergency relief and disaster preparedness plans and strategies and policies that support homeland security, as appropriate to safeguard the personal security of all motorized and non- motorized users (11-2).

A local mitigation plan (for Yellowstone County, this is the Multijurisdictional Pre-Disaster Mitigation Plan) should be developed and prepared in compliance with federal, state and local hazard mitigation planning requirements published under 44 CFR Part 201 (11-3). The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding (11-3).

The FEMA Disaster Mitigation Act of 2000 provides the legal basis for FEMA mitigation planning requirements for State, local and Indian Tribal governments as a condition of mitigation grant assistance (11-4).

On June 20, 2010, a tornado came through Billings and caused damage to the MetraPark, businesses, homes, and transportation infrastructure in the area. Planning for and developing a transportation system with multiple connections and parallel routes allows the region to actively plan for potential natural or manmade hazards.

STATE PLANS

TranPlanMT (2017)

Originally adopted in 1995 as TranPlan 21 and updated in 2017, TranPlanMT defines MDT's policy direction for operating, preserving, and improving Montana's transportation system over a 20-year period. A transportation system security section was created in the 2007 update and includes transportation security related goals and actions to support the statewide transportation planning process (11-5).

Montana Emergency Response Framework (2017)

Montana Emergency Response Framework (MERF, 2017) presents a structure for utilizing the emergency response and recovery resources of state, local, and other agencies. It describes the activities necessary to prepare for and respond to events stemming from natural, technological, and man-made hazards and the roles and responsibilities of all participants dealing with these events. This plan also provides a comprehensive all- hazards plan designed to provide the basis for an effective and coordinated response to disasters and emergencies that impact our state (11-6).

LOCAL PLANS

Multijurisdictional Pre-Disaster Mitigation Plan (2012)

The Yellowstone County Disaster and Emergency Services prepared a Multijurisdictional Pre- Disaster Mitigation Plan (PDM) in 2012. This PDM is an update to the 2004 plan and consists of a multi-jurisdictional assessment of each identified hazard, and updated recommendations for hazard mitigation planning actions moving forward. The 2012 PDM Update identifies opportunities and suggestive actions, which could reduce the impact of future disasters or emergencies (11-7).

Emergency Operations Plan for Billings, Laurel, & Broadview and Yellowstone County (2011)

The Emergency Operations Plan (EOP) provide s public officials of the City of Billings, City of Laurel, Town of Broadview, and Yellowstone County with a plan for carrying out their responsibilities in case of a disaster that threatens the lives and property of city and county citizens and is beyond the capacity of the appropriate emergency service(s) to control. It provides an organizational framework and response capability from which the cities and county can respond to natural, technological, or war caused emergencies that require comprehensive and integrated responses thus meeting the emergency services legal mandates. This document is currently being updated with an expected publication date of late 2018 (11-8).

SECURITY CONSIDERATIONS

COORDINATION

The Yellowstone County Disaster and Emergency Services is an integrated effort to prevent or minimize the seriousness of emergencies and disasters, and to plan and coordinate the community's response to them should they occur. This effort requires establishing partnerships among professional emergency management personnel to prevent, respond to, and recover from disasters. Coordination is a key factor in establishing an emergency management program, and continual improvement saves lives and reduces losses from disasters. The Yellowstone County Disaster and Emergency Services are responsible for:

- Developing and updating emergency plans,
- Coordinating communications of emergency responders,
- Maintaining a county-wide system of alerting sirens,
- Maintaining the emergency operations center,
- Participating and coordinating exercises with all emergency responders,
- Recommending an emergency declaration or disaster declaration to the policy bodies of city and county government, preparing disaster declaration resolutions, serving as the City and/ or County's authorized agent for FEMA declare disasters (e.g. floods of 1978 and 1997), and managing the authorized emergency levy, and
- Serving as the County Fire Warden and administrator of the rural fire protection program.

In addition to the Yellowstone County Disaster and Emergency Services, there are several agencies and organizations that are involved with planning and implementation of security within the Billings Urban Area. The EOP and Multijurisdictional PDM identify the various agencies involved in these planning and implementation efforts and can be used as future references for agency consultation.

POTENTIAL HAZARDS

The Multijurisdictional PDM reviewed and identified the potential hazards for the Yellowstone County. Table 11.1 presents the potential hazards for the Yellowstone County. The Multijurisdictional PDM presents information on each potential hazard, latest occurrence(s), and summary of vulnerability and impact to Yellowstone County. Below is an overview of the information presented on transportation/mobile incidents in the Multijurisdictional PDM as it relates directly to the regional transportation system.

Table 11.1 Potential Hazards in Yellowstone County

Hazard Type	Event	Data Sources	Location Specific
Water	Flooding	Preliminary Flood Insurance Study 2010	Yes
	Dam Failure	2004 PDM Plan / Montana Department of Natural Resources & Conservation	Yes
Wildfire	Wildfire	Community Wildfire Protection Plan	Yes
Weather	Wind and Hail Storm	Spatial Hazard Events & Losses Database	County
	Tornado	Spatial Hazard Events & Losses Database	County
	Winter Storm	Spatial Hazard Events & Losses Database	County
	Drought / Insect Infestation	Montana Department of Natural Resources & Conservation	County
Geologic	Expansive Soil	Montana Bureau of Mines & Geology	Yes
	Landslide	Montana Bureau of Mines & Geology	Yes
	Earthquake	HAZUS	County
	Volcanic Ash	US Geological Survey	County
Manmade	Urban Fire	2004 PDM Plan	County
	Transportation/ Mobile Incident	US Department of Transportation	County
	Hazardous Materials Incident/Accident-Fixed	US Environmental Protection Agency Triexplor Database	County
	Terrorism/Bio-Terrorism	2004 PDM Plan	County
	Civil Disturbance/ Riot/Labor Unrest	2004 PDM Plan	County
	Enemy Attack	2004 PDM Plan	County

Yellowstone County is identified as a high probability of occurrences of transportation/mobile incidents because of the larger population, industrial base within the County, interstate highways, and major rail lines running through downtown. A transportation/mobile incident is any incident that occurs for which the exact location cannot be predetermined. Any incident involving a mode of transportation including car, truck, rail, pipeline, air, or mass transit is classified as a mobile incident. These can include incidents involving the transport of hazardous materials. Risks will increase as the population of the Billings Urban Area continues to increase. Additionally, damaging impacts to transportation infrastructure by the secondary effects of other potential hazards (storms, flooding, earthquakes, landslides, etc.) could also contribute to increased risks of future transportation/mobile incidents.

With each of the potential hazards, it is critical to provide connectivity and alternate routes and maintain this infrastructure throughout the regional transportation system. For more details on the potential hazards in Yellowstone County, refer to the latest Multijurisdictional PDM.

CRITICAL INFRASTRUCTURE

The entire multimodal transportation system plays a role in providing for local, regional, and national security. Facilities that are considered crucial or vital to security include elements of the system that are perceived or known to be most vulnerable. These tend to be at specific points and on connecting segments of the transportation system. Examples of the specific points on the system are bridges, interchanges, and intermodal facilities. Examples of connecting segments are evacuation routes, state and interstate highways/freeways, transmission lines, and mainline freight and passenger rail lines.

As shown in Exhibit 11-1, critical roadways that are part of the National Highway System (NHS) in the Billings Urban Area include the following (11-9):

- Interstate 90 (NHS, Eisenhower Interstate System)
- Interstate 94 (NH, Eisenhower Interstate System)
- Montana Route 3 (NHS, STRAHNET Route)
- US Route 87 (NHS, Other NHS Route)
- King Avenue (MAP-21 NHS Principal Arterial)
- Zoo Drive (MAP-21 NHS Principal Arterial)
- Laurel Road (MAP-21 NHS Principal Arterial)
- 1st Avenue S (MAP-21 NHS Principal Arterial)
- Montana Avenue (MAP-21 NHS Principal Arterial)
- 1st Avenue N (MAP-21 NHS Principal Arterial)

The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. The NHS includes the following categories within the Billings Urban Area:

- Interstate: The Eisenhower Interstate System of highways retains its separate identity within the NHS.
- Other Principal Arterials: These are highways in rural and urban areas which provide access between an arterial and a major port, airport, public transportation facility, or other intermodal facility.
- Strategic Highway Network (STRAHNET): This is a network of highways which are important to the United States' strategic defense policy and which provide defense access, continuity, and emergency capabilities for defense purposes.

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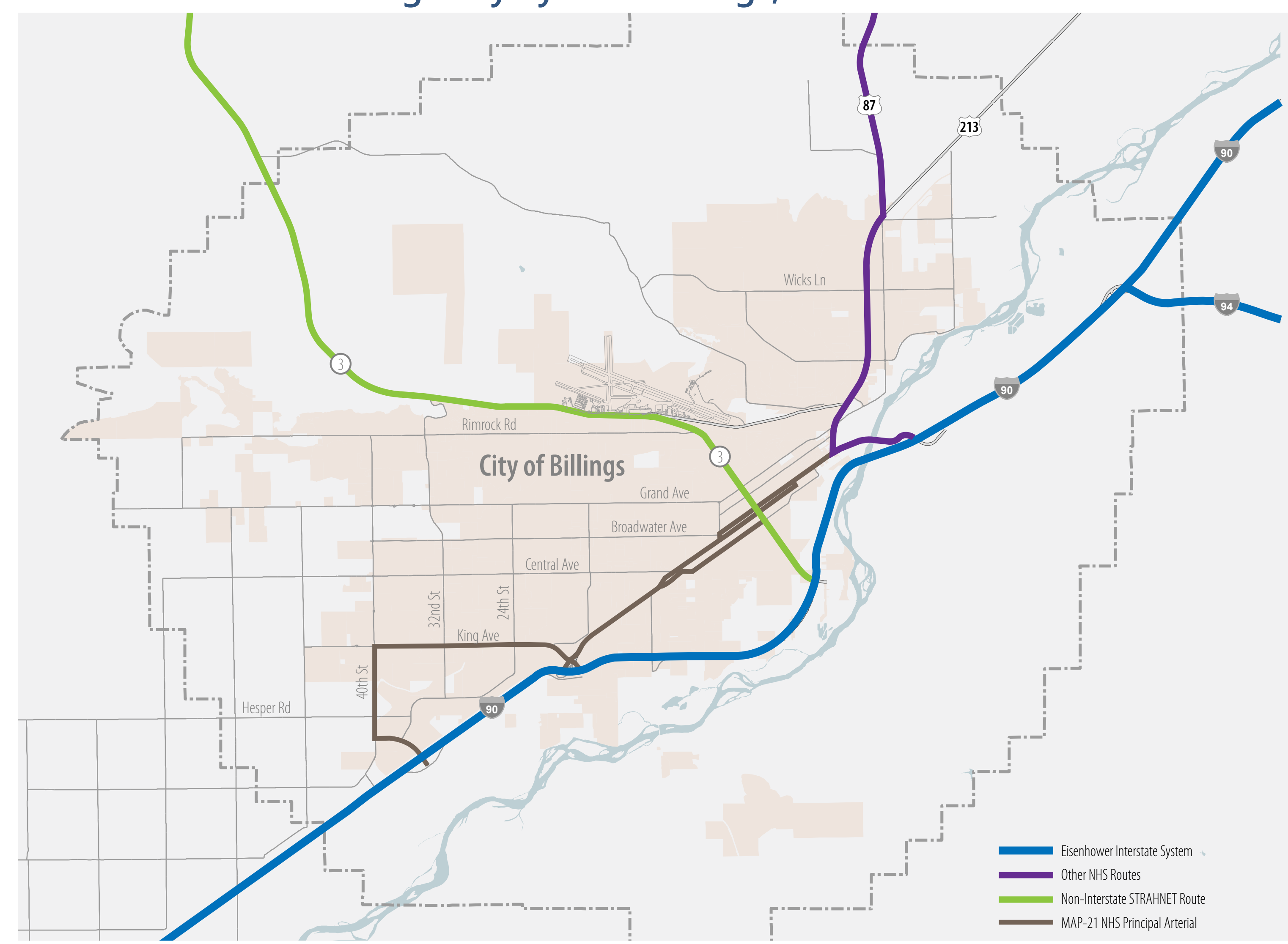
- Strategic Highway Network (STRAHNET): This is a network of highways which are important to the United States' strategic defense policy and which provide defense access, continuity, and emergency capabilities for defense purposes.

Exhibit 11-1. National Highway System: Billings, MT



Significant intermodal facilities within the Billings Urban Area include:

- MET Transfer Centers (Stewart Park and Downtown),
- Billings Logan International Airport,
- Montana Rail Link railroad facilities, and
- Burlington Northern Santa Fe railroad facilities.

COMMUNITY PRIORITIES

As part of the 2004 Multijurisdictional PDM, a community involvement process was conducted to assess the community's ranking of all potential hazards. This ranking was reviewed for the 2012 Multijurisdictional PDM with the rankings staying unchanged. Table 11.2 summarizes the community rankings of potential natural and man-made hazards.

As shown in Table 11.2, the top rankings have a direct relationship with the regional transportation system (i.e., connectivity, providing alternate routes, etc.) in the event one occurred. Therefore, it is critical for the MPO and region to continue to collaborate on security items as part of the transportation planning process and maintenance of the Multijurisdictional PDM.

RECOMMENDED STRATEGIES

Several recommended strategies are identified for incorporating security in the transportation planning process. These recommended strategies include:

- Continue to establish partnerships between agencies to incorporate security elements into existing and future plans.
- Implement the proposed mitigation actions identified in the Yellowstone County Multijurisdictional PDM, in particular the following related transportation projects:
  - Highway 3 Stormwater Controls: Study options for mitigating stormwater runoff from Highway 3 near the Airport.
  - Continued community outreach on floodplain awareness, firewise demonstrations, severe storm education, and school safety.
- Involve identified security stakeholders throughout the transportation planning process, including analysis of transportation system security at the program and project levels associated with both the development of subsequent LRTPs and transportation improvement program (TIP) updates, as well as ongoing corridor and system-wide project evaluations.
- Implement key transportation projects that provide alternate routes and connections within the Billings Urban Area, such as the Billings Bypass Arterial and Inner Belt Loop.
- Implement ITS technologies (i.e., signage, signal systems, wayfinding, etc.) to improve communications, manage the transportation system, and allow for deployment of signal timing contingency plans during potential hazards/events.

Table 11.2. Community Rankings of Natural and Man-made Hazards in Yellowstone County

Hazard	History	Vulnerability	Maximum	Probability	Rank
Natural Hazard Vulnerability Ranking for Yellowstone County					
Flooding	High	High	High	High	1
Wildfire	High	High	High	High	2
Wind and Hail Storms	High	High	High	High	3
Tornado	Moderate	Moderate	Moderate	Moderate	4
Winter Storms	High	Moderate	Moderate	Moderate	5
Drought	High	Low	Moderate	Moderate	6
Insect Infestations	Moderate	Moderate	Moderate	Moderate	7
Urban Fire	Low	Low	Moderate	Low	8
Dam Failure	Low	Moderate	Moderate	Low	9
Expansive Soil	Moderate	Low	Low	Moderate	10
Landslides	Moderate	Low	Low	Low	11
Earthquake	Low	Low	Low	Low	12
Volcanic Ash	Low	Low	Low	Low	13
Manmade Hazard Vulnerability Ranking for Yellowstone County					
Transportation/ Mobile Incident	Moderate	Moderate	High	High	1
Hazardous Materials Incident/ Accident-Fixed	Moderate	Moderate	High	High	2
Terrorism/Bio-Terrorism	Low	Moderate	High	Low	3
Civil Disturbance/ Riot/Labor Unrest	Moderate	Moderate	Moderate	Moderate	4
Enemy Attack	Low	Moderate	High	Low	5

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 12

Recommended Plan

This chapter addresses security planning for the This chapter presents the recommended set of projects that help to ensure the safe and efficient movement of people and goods within and through the Billings Urban Area. These projects were identified from the previous LRTP and recent plans/studies, projects developed through the CIP and TIP process, projects developed through the deficiencies and needs assessment, and projects developed through the LRTP public involvement and interagency process. The LRTP investments provide several benefits to the transportation system:

- Improve transportation options
- Increase road safety, connectivity, and capacity
- Manage the transportation system better
- Maintain the public transportation system
- Improve and expand pedestrian, bicycle, and multiuse trail facilities
- Enhance the signal system with new technologies and updated timings
- Integrate the transportation system with land use and community desires

A TOOLBOX OF TRANSPORTATION STRATEGIES

The Billings Urban Area has significantly invested in streets, highways, intersections, and multiuse trails infrastructure over the past 20 years. With the population and employment growth and current community vision, investment in safety and a transportation system for all modes has become a priority for the Billings Urban Area. Several strategies are presented in this section for consideration in the recommended plan.

CONGESTION MANAGEMENT

Managing traffic signals is one of the most important traffic engineering functions within a city. Few activities have equivalent impact on the public. Optimizing traffic signal timing and coordination has the potential to significantly reduce driver delay and congestion and enhance safety. Simple things—like adjusting the length of the red-green-yellow cycle for different daytime hours, weekdays versus weekends, and seasonally—can reduce traveler delay and enhance the overall travel experience. Approximately 178 intersections have traffic signals in the Billings Urban Area. Getting the timing correct is critical for minimizing delay, improving safety, and protecting non-motorized modes of transportation. The City of Billings and MDT have been working on major upgrades to the signal system and incorporating a signal timing program to analyze and update signal timings at intersections. Exhibits 12.1 and 12.2 illustrate a few of the critical signalized corridors, Main Street and 27th Street in the Billings Urban Area.

Adding road and public transportation capacity cannot be the sole strategy for addressing transportation needs. Management strategies can complement capacity expansion projects and offer other ways to make transportation more efficient, more flexible, and less intrusive. They include optimizing the operating performance of the transportation network, creating more travel options, carefully managing road work schedules to minimize travel disruption, increasing operations efficiency, and managing demand to conserve and influence travel behavior. Events at MetraPark can create large traffic impacts. Event management planning is another strategy that can mitigate community and travel disruption. Exhibits 12.3 and 12.4 illustrate the area around MetraPark. Collectively, these strategies can relieve stress on the available capacity in peak commute hours and can moderate travel impacts.

Exhibit 12.1 Signalized Intersection on Main Street

Exhibit 12.2 Signalized Intersections on 27th Street, Gateway to Downtown Billings

Exhibit 12.3 Rimrock Arena at MetraPark

Exhibit 12.4 Exposition Drive along MetraPark

PUBLIC TRANSPORTATION SYSTEM OPERATIONS

The MET Transit budget is between $6 and $7 million annually to operate the public transit and paratransit system (Exhibits 12.5 and 12.6). This annual budget increases during some years depending on capital purchases and increases in operating expenses. The cost is partially offset by operating revenues from passenger fares and advertising. However, MET Transit's ability to expand and deliver more service is directly tied to the level of operating funding. Funding is the critical issue for MET Transit throughout the LRTP planning horizon. Maintaining the momentum—increases in ridership and continued public interest in the transit system is critical. Momentum cannot be sustained in the absence of committed and stable public funding support. Available funding provides for continuing vehicle replacement over the next twenty years. However, a change in the funding will need to occur to allow MET Transit to begin implementing new routes and increasing frequency on existing routes, which should result in higher ridership and better awareness of the transit system from the public.

Exhibit 12.5 A Key Transportation Option for the Billings Urban Area

Exhibit 12.6 MET Transit Center

CONNECTING PEOPLE

Pedestrians, bicycle, and multiuse trail facilities contribute to the attractiveness and livability of the city, enhance personal health, and help foster a sense of community. These facilities are used by people to travel to and from the public transportation system, jobs, medical facilities, schools, parks, and other destinations. To create a network of facilities, it is critical for the MPO and agency partners to evaluate, design, and implement these connections throughout the Billings Urban Area. The types of connections include improving the on-street bicycle and trails connectivity (east-west and north-south), filling in the missing links of sidewalk, joining key population and employment areas with roadways, and extending public transportation routes to areas that are underserved. Exhibits 12.7 and 12.8 illustrate existing trails within the Billings Urban Area.

Exhibit 12.7 Connecting Neighborhoods with Trails

Exhibit 12.8 Trail Connection at MetraPark

ALTERNATIVE INTERSECTIONS AND INTERCHANGES

Alternative intersections and interchanges offer the potential to improve safety and reduce delay at a lower cost and with fewer impacts than traditional solutions. Some of these forms that may be applicable in the Billings Urban Area include at-grade intersections, such as the Displaced Left Turn (DLT), Median U-Turn (MUT), and Restricted Crossing U-Turn (RCUT), and interchanges, such as a Diverging Diamond Interchange (DDI). At the national level, guidance is being developed based on recent research and practical application of these forms in communities throughout the U.S (12-1).

In the Billings Urban Area, there are some intersections (i.e., King Avenue/24th Street, Grand Avenue/24th Street, and a few intersections on Main Street) and interchanges with high traffic volumes and crash rates that could potentially see an enhancement from these types of intersection forms. These types of intersections and interchanges could be incorporated as alternatives for consideration in future design projects as potential solutions to enhance operations and safety.

Exhibit 12.9 illustrates a MUT in Utah.
Exhibit 12.10 illustrates a DDI in Minnesota. MDT is planning Montana's first DDI at the Johnson Lane/Interstate 90 interchange as part of the Billings Bypass project.

Exhibit 12.9 Median U-Turn intersection in Draper, Utah

Exhibit 12.10 Diverging Diamond Interchange in Minnesota

SAFETY

Along with some of the alternative intersection forms, other strategies to improve the safety performance of our roadways and intersections for all users include the use of medians and pedestrian crossing islands, roundabouts, road diets, pedestrian hybrid beacon, and flashing yellow left-turn arrows at signalized intersections. Many of these applications are already being incorporated in the planning and design efforts by the MPO and partnering agencies. The safety performance is enhanced with these treatments. For instance, the installation of a pedestrian hybrid beacon has been shown to provide the following safety benefits: 1) up to a 69 percent reduction in pedestrian crashes; 2) up to a 29 percent reduction in total roadway crashes; and 3) 15% reduction in serious injury and fatal crashes (12-2). Exhibit 12.11 illustrates the pedestrian hybrid beacon implemented on 4th Avenue in downtown Billings.

Exhibit 12.11 Pedestrian Hybrid Beacon on 4th Avenue

Roundabouts have three basic operational principles: 1) geometry that results in a low- speed environment, creating substantial safety advantages; 2) entering traffic yields to vehicles in the circulatory roadway, leading to excellent operational performance; and 3) channelization at the entrance and deflection around a center island are designed to be effective in reducing conflict. Roundabouts have demonstrated significant reductions in fatal and injury crashes. The Highway Safety Manual (HSM) indicates the following: 1) by converting from a two-way stop control mechanism to a roundabout, a location can experience an 82 percent reduction in severe (injury/fatal) crashes and a 44 percent reduction in overall crashes, and 2) by converting from a signalized intersection to a roundabout, a location can experience a 78 percent reduction in severe (injury/fatal) crashes and a 48 percent reduction in overall crashes (12-3). Exhibit 12.12 illustrates a roundabout on the Shiloh Road Corridor.

Exhibit 12.12 Roundabout on Shiloh Road

To continue enhancing the safety performance of the transportation system, these strategies combined with education and enforcement are recommended for future transportation projects within the Billings Urban Area.

TRANSPORTATION PROJECTS TO ADDRESS THE FUTURE VISION

The transportation projects in the LRTP are broken into committed, recommended, and illustrative types.

- **Committed projects** are projects that are included in the STIP, MPO TIP, or City of Billings CIP. These projects are funded and programmed and planned for completion within the next 10 years.
- **Recommended projects** are projects that are expected to be fully funded by year 2040, but are not currently committed within the STIP, TIP, or CIP. The recommended projects were identified based on the input received during the planning process and projects identified in recent plans.
- **Illustrative projects** are projects not expected to be funded by 2040, because of fiscal constraint. These projects could be included in the adopted LRTP if additional resources beyond those identified in the financial plan become available. The illustrative projects are identified in the project lists for streets and highways, public transit, pedestrians, bicyclists, and multiuse trails in the earlier chapters.

All project costs were converted to year of expenditure (YOE) dollars using a four-percent annual inflation (Source: FHWA). The following references and documents were used in development of this section.

- Montana Department of Transportation (12-4)
- Billings Urban Area Transportation Improvement Program (TIP), FY 2017-2021 (12-5)
- City of Billings FY 2019-2023 Capital Improvement Program (CIP) (12-6)
- City of Billings Proposed Budget FY 2019 (12-7)
- MET Transit

At this time, project priorities were not assigned to the list of projects within the LRTP. However, project prioritization is determined through the MPO's TIP process. Given the current level of funding committed to transportation infrastructure in the Billings Urban Area, most of the recommended projects are not anticipated to occur until after the next plan update. Therefore, it is reasonable that these projects and priorities be reviewed as part of the TIP process and during the next LRTP update.

STREETS AND HIGHWAYS

The streets and highways committed and recommended projects are necessary to provide system connectivity, enhance efficiency, and accommodate expected future traffic demand. Additionally, these projects may include pedestrian and bicycle facilities to assist with development of a multimodal system. The intersection projects address specific capacity and/or safety problems. The congestion management projects include signal system upgrades and signal timing efforts to improve traffic flow and pedestrian timings at signalized intersections. These projects also support the rail and trucking element of the LRTP. Table 12.1 summarizes the committed and recommended projects for streets and highways.

Table 12.1 Street and Highway Projects

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
Committed Projects				
R1	32nd Street West - King Ave West to Gabel Rd	Reconstruct to a 3-lane urban roadway	AFF	$4,100,000.00
R3	Wicks Lane (Main to Hawthorne)	Reconstruct to a 3-lane urban roadway (includes Bitterroot)	AFF	$300,000.00
R4	I-90 Yellowstone River - Billings	Replace bridges	IM	$72,160,000.00
R5	Inner Belt Loop - Alkali Creek Rd to Highway 3	Construction of a new road from Alkali Creek Road to Highway 3	GT, BARSAA, AFF	$7,000,000.00
R10	King Avenue East – Orchard Ln to Sugar Ave	Reconstruct to a 3-lane urban roadway	TIFD	$1,528,586.00
R11	Billings Bypass - Five Mile Road	New roadway and intersection improvements	STPU	$4,500,000.00
	Billings Bypass - Yellowstone River	New roadway and bridge	NH, CMAQ, Bridge, STPU	$52,760,000.00
	Billings Bypass - RR O'pass	New roadway and overpass	NH, CMAQ	$14,400,000.00
	Billings Bypass - Johnson Ln Interchange - RR O'Pass	New roadway and overpass	NH, CMAQ	$8,700,000.00
	Billings Bypass - Five Mile Road to US 87	New roadway and intersection improvements	NH, CMAQ, STPU	$16,000,000.00
	Billings Bypass - Johnson Lane Interchange	New interchange, roadway, and intersection imrovements	IM, NH	$25,800,000.00
R14	27th Street – 1st Ave S to Airport Rd	Signal Optimization, Mill Overlay, ADA Corners, Sidewalks	NH	$15,300,000.00
R15	Main St - Billings	Pavement preservation with ADA work	NH	$5,735,460.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
R16	1st Avenue North - Division St to Main St	Reconstruct existing cross section	NH	$14,500,000.00
R17	Hawthorne Lane Reconstruction	Reconstruct the roadway between Yellowstone River Road and Wicks Lane		$1,000,000.00
R18	Lincoln Lane Reconstruction	Reconstruct the roadway between Bench Boulevard and Conway		$1,000,000.00
R19	Daniel Street Reconstruction	Reconstruct the roadway between Monad Road and King Avenue		$2,800,000.00
R20	Various Projects	Pavement Preservation	IM	misc.
R21	MDT Preventive Maintenance	Pavement Preservation	NH	misc.
R22	Billings - NW	Pavement Preservation	NH	$5,035,360.00
R23	Airport Rd - Zimmerman Trail	Pavement Preservation	NH	$2,303,073.00
R24 - A	PAVER Program	Annual Program responsible for crack sealing, overlay, and chip seals of various streets throughout the City. BARSAA funding will be used in PAVER replacing some of the previously approved gas tax funding. The savings in gas tax funding will be used for the Inner Belt Loop project.	AFF, BARSAA, GT	$14,725,000.00
R25 - A	Travel Corridor Coordination	Engineering will be done within Public Works.	AFF	$400,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
R28 - A	Annual SID Contribution	This project will provide SID funding for Public Work's property that may be included in an SID for a given year.	GT, BARSAA, SID	$6,650,000.00
R29 - A	Snow Melt Facility	Snow melting system to melt some of the snow hauled from the City's streets. Additional funding in FY 2019 will allow development of a storage and melting location in addition to the other sites that will be used.	SMF	$1,200,000.00
R30	Mullowney Lane	Road reconstruction south of Midland Road	AFF	$4,100,000.00
R31	Hallowell Lane Improvements	Reconstruct to urban roadway	TIFD	$1,781,058.00
R32 - A	SBURA Unimproved Streets Improvements		TIFD	$1,500,000.00
R33	King Ave E	Pavement Preservation	NH	$100,000.00
R34	Grand - 24th to Zimmerman	Pavement Preservation	UPP	$1,350,000.00
R35	Hardin Road	Pavement Preservation	UPP	$240,000.00
R36	Shiloh Road	Pavement Preservation	UPP	$60,000.00
R37	Blue Creek Road	Pavement Preservation	UPP	$881,000.00
R38	Billings Blvd	Pavement Preservation	UPP	$60,000.00
R50	South Frontage Road	Pavement Preservation	UPP	$670,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
R51	SF 169 Blgs Area Safety Imprv.	Signage -- RP 1.7 - 2.17 (U-1026, King Ave. E); RP 3.45 - 3.65 (U-1027, Yellowstone River Rd); RP 2.35 - 2.45 (L-56-2389, Lake Elmo Drive); RP 1.9 - 2.1 (X-56395, South Frontage Road); RP 0 - 1.379 (L-56-982, Garden Ave); RP 0 - 0.76 (L-56-23, Nahmis Ave); RP 0.05 - 0.3 (L-56-1665, Story Road)	HSIP	$21,000.00
R52	SF 169 I90 W King Ave Lighting	Roadway Lighting	HSIP	$345,000.00
R57	Various Projects 2017-2021	Pavement Preservation	UPP	$2,500,000.00
I2	Exposition Drive & 1st Ave N Blgs	Intersection Improvement	NH	$1,600,000.00
I3	Monad Rd/Daniel Ln	Improve intersection capacity, operations, and safety		$400,000.00
I4	Central Ave/24th St W	Improve intersection capacity, operations, and safety	AFF	$400,000.00
I5	Airport Rd & Main St - BLGS	Intersection Improvements	NH	$11,700,000.00
I7	Underpass Avenue Improvements	Intersection Improvements	NH	$8,600,000.00
I14	Johnson Lane & Old Hardin Road	Intersection improvements and access management around Johnson Lane Interchange	See R11	See R11
I19	Johnson Ln Interchange	Geometric improvements to improve operations and safety	See R11	See R11
I21	SF 129-RNDABOUT KING 56TH	Construct a roundabout at this intersection	HSIP	$4,246,201.00
I22	SF 139-RNDABOUT CENTRAL/56TH	Construct a roundabout at this intersection	HSIP	$3,500,000.00
I23	Pinehills Intch-Pryor CR Intch	Pavement Preservation	IM	$887,557.00
I24	W Blgs Intch - Pinehills Intch	Mill Fill	IM	$4,462,609.00
I25	27th Street RR Crossing	Railroad crossing study	STPX	$300,000.00
I26	SF-149 HILLCREST RIGHT TURN LN	Intersection Improvement	HSIP	$331,073.00
I27	SF 129 BILLINGS HORIZONTAL CURVE SIGNAGE	Signage	HSIP	$1,126,611.00
I28	SF 169 ROUNDABOUT RIMROCK & 62ND ST. W	Roundabout	HSIP	$3,655,843.00
I29	SF 169 ITS INTERSECTION DETECTION	Intersection Improvement	HSIP	$73,000.00
I30	SF 169 KING AVE E. RUMBLE STRIPS	Rumble Strips	HSIP	$11,000.00
I31	SF 169 YELLOWSTONE RIVER RD CHEVRONS	Signage	HSIP	$6,000.00
I32	SF 169 JOHNSON LANE DELINEATION	Signage	HSIP	$700.00
I33	SF 169 LAKE ELMO DRIVE DELINEATION	Signage	HSIP	$420.00
I34	SF 169 SOUTH FRONTAGE ROAD SIGNAGE	Signage	HSIP	$6,700.00
I35	SF 169 OLD HIGHWAY 312 DELINEATION	Signage	HSIP	$3,500.00
I36	SF 169 GARDEN AVE SIGNAGE	Signage	HSIP	$26,000.00
I37	SF 169 NAHMIS AVE DELINEATION	Signage	HSIP	$7,500.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
I38	SF 169 STORY RD SIGNAGE	Signage	HSIP	$3,000.00
I39	SF 149 - KING INTCH SFTY IMPRV	Safety	HSIP	$14,942.00
I40	Intersection Capacity Improvements	Evaluate and construct improvements to selected intersection trouble areas.	AFF	$2,000,000.00
I41	Monad and 19th/20th St W Intersection Reconstruction		AFF	$3,500,000.00
I42	SF-169 Frontage Rd Wise Ln Intx	Intersection Improvement	HSIP	$97,800.00
I55	Various Safety Projects	Safety	HSIP	$4,500,000.00
CM4	24th St West Signal Improvements	Upgrade of signals from King Avenue to Grand Avenue	AFF	$220,000.00
CM21	Billings Signal Upgrades	Signal Optimization	MACI	$320,869.00
CM22	Lockwood Signals	Signal Optimization	MACI	$18,948.00
CM23	Downtown State Signals BLGS	Signals	MACI	$6,522,824.00
CM24	Zoo Drive Signals	Signals	MACI	$50,000.00
CM25	Johnson Lane Signals	Signals	MACI	$12,970.00
CM26	MDT - MACI	Statewide CMAQ - Various	MACI	$1,000,000.00
CM27	MDT - MACI	Statewide CMAQ - ADA Compliance	MACI	$1,750,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
CM28	Traffic Signal Controller Upgrade		AFF	$3,225,000.00
Total Committed Streets & Highways Project Costs $356,086,604.00				
Recommended Projects				
R12	N 21st Street – Montana Ave to 1st Ave S	Reconstruct railroad underpass	AFF, STPU, MACI/ CMAQ	$3,052,000.00
R13	N 13th Street – 1st Ave N to Minnesota Ave	Reconstruct railroad underpass	AFF, STPU, MACI/ CMAQ	$18,400,000.00
R53	King Avenue - Shiloh to 72nd	Reconstruct to a five lane section	S, HSIP, STPU	$8,000,000.00
R54	I-90 from S Blgs Blvd Inch to 27th St Intch	Add a third travel lane to I-90	IM, MACI/ CMAQ	$4,000,000.00
R55	I-90 from Lockwood Intch to Johnson Lane Intch	Add a third travel lane to I-90	IM, MACI/ CMAQ	$3,000,000.00
R56	Hwy 3 from Airport to Zimmerman Trail	Widen with two-way, left-turn lane	NH, HSIP	$3,200,000.00
I1	Rimrock Rd/N 27th St	Improve intersection capacity, operations, and safety	AFF, HSIP	$4,700,000.00
I6	Rimrock Rd/Virginia Ln	Improve intersection capacity, operations, and safety	AFF	$410,000.00
I8	King Ave/24th St	Evaluate intersection to identify alternative intersection treatment	AFF, HSIP	$1,500,000.00
I9	Grand Ave/24th St	Evaluate intersection to identify alternative intersection treatment	AFF, HSIP	$250,000.00
I10	Division/Grand/6th Ave/N 32nd St	Improve intersection capacity, operations, and safety	AFF, HSIP	$560,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
I11	Division/Broadway/1st Ave N	Improve intersection capacity, operations, and safety	AFF, HSIP	$560,000.00
I12	Lockwood Road & N Frontage Road	Reconfiguration of existing intersection	AFF, HSIP	$495,000.00
I13	US Highway 87 & Old Hardin Road	Upgrade 3-way stop intersection to a roundabout	AFF, NH, HSIP	$630,000.00
I17	27th Street Interchange	Construct additional EB and WB mainline lanes under and through Interchange. Restripe EB off-ramp and improve pedestrian facilities	IM, NH	$1,900,000.00
I18	Lockwood Interchange	Construct additional EB and WB mainline lanes under and through the Lockwood Interchange and improve pedestrian facilities	IM, NH	$1,900,000.00
I45	Neibauer Rd & 56th St West	All-way stop control/ OH Flashing Beacons/ Transverse Rumble Strips	AFF, HSIP	$200,000.00
I46	Neibauer Rd & 48th St West	OH Flashing Beacons/ Transverse Rumble Strips	AFF, HSIP	$200,000.00
I47	Grand Ave & 48th St West	Traffic Signal or Roundabout	AFF, HSIP	$1,500,000.00
I48	Grand Ave & 56th St West	Traffic Signal or Roundabout	AFF, HSIP	$1,500,000.00
I49	King Ave West & 48th St West	Traffic Signal or Roundabout	AFF, HSIP	$1,500,000.00
I50	Central Ave & 48th St West	Traffic Signal or Roundabout	AFF, HSIP	$1,500,000.00
I51	King Ave West & 64th St West	Traffic Signal or Roundabout	AFF, HSIP	$1,500,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
I52	Grand Ave & 62nd St West	Traffic Signal or Roundabout	AFF, HSIP	$1,500,000.00
I53	Hesper Rd & 56th St West	All-Way Stop	AFF, HSIP	$200,000.00
I54	King Ave/20th St	Evaluate intersection to identify alternative intersection treatment	AFF, HSIP	$1,500,000.00
I56	Laurel Road & Moore Lane	Study for capacity improvements	AFF, HSIP, NH	$250,000.00
I57	24th Street W & Overland Avenue	Study for capacity improvements	AFF	$250,000.00
I58	11th Avenue N & N 30th Street	Study for capacity improvements	AFF	$250,000.00
I59	24th Street W & Grant Road	Study for capacity improvements	AFF	$250,000.00
I60	24th Street West and Rosebud Drive/Market Place	Study for safety improvements	AFF	$250,000.00
I61	Blue Creek Rd at Briarwood and Riverfront Park	Add left turn lanes at the two intersections	UPP	$1,000,000.00
I62	Rimrock Rd/N 27th St	Study for safety improvements	AFF, HSIP	$250,000.00
CM1	Grand Avenue – 3rd St W to 24th St W	Update signal timing for 10 signals	AFF	$100,000.00
CM2	Broadwater Avenue – 5th St W to Zimmerman	Update signal timing for 8 signals	AFF	$80,000.00
CM3	Central Avenue – 6th St W to Zimmerman	Update signal timing for 10 signals	AFF	$100,000.00
CM5	27th Street – State Ave to Poly Dr	Update signal timing for 11 signals	MACI	$110,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
CM6	Main Street – 1st Ave N to Permberton Ln	Signals	MACI	$218,000.00
CM7	Division Street – Broadwater Ave to 4th Ave N	Update signal timing for 3 signals	MACI	$30,000.00
CM8	Grand Avenue – 24th St W to Zimmerman	Update signal timing for 3 signals	MACI	$30,000.00
CM9	Rimrock Road – 38th St W to 13th St W	Update signal timing for 5 signals	AFF	$50,000.00
CM10	15th Street West – Central Ave to Grand Ave	Update signal timing for 5 signals	AFF	$50,000.00
CM11	Wicks Lane – Governors Blvd to Bench Blvd	Update signal timing for 5 signals	AFF	$50,000.00
CM12	19th Street West – Monad Rd to Grand Ave	Update signal timing for 5 signals	AFF	$50,000.00
CM13	17th Street West – Grand Ave to Rimrock	Update signal timing for 5 signals	AFF	$50,000.00
CM14	Monad Road – 19th St W to 32nd St W	Update signal timing for 4 signals	AFF	$40,000.00
CM15	Governors Boulevard/Hilltop Road – Wicks Ln to Main St	Update signal timing for 3 signals	AFF	$30,000.00
CM16	ITS Signage and Advanced Warning System	Implement a signage and advanced warning system to inform transportation users of crossing delays due to incoming and stopped trains	AFF, MACI	$500,000.00
CM17	Downtown Billings Signal Upgrades (No 27th Street signals)	Traffic signal controller and signal timing upgrades at 36 signals in the downtown area, excluding 27th Street	AFF, MACI	$305,875.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
CM18	Downtown Billings Signal Upgrades	Traffic signal controller and timing upgrades at 13 signals in downtown	AFF, MACI	$316,091.00
CM19	Downtown Billings Signal Upgrades	Traffic signal controller and timing upgrades in the downtown area	AFF, MACI	$3,160,911.00
CM20	Citywide Signal Timing	Traffic signal controller and timing upgrades at 24 signals within Billings	AFF	$372,000.00
R2	Old Hardin Road - Lockwood Interchange to Johnson Ln	Reconstruct to a 3-lane urban roadway	STPU, HSIP	$5,700,000.00
R6	1st Avenue South-Minnesota Avenue - 21st St to N 13th St	Reconstruct to urban roadway	STPU, HSIP	$1,000,000.00
R7	Pemberton Lane - BBWA to Lake Elmo Dr	Reconstruct to urban roadway	AFF	$2,900,000.00
R8	Broadwater Avenue – BBWA to Shiloh Rd	Reconstruct to urban roadway	AFF	$4,000,000.00
R9	48th Street West – King Ave to Grand Ave	Reconstruct – cross section to be determined	AFF	$5,500,000.00
R39	Highway 3 Widening - Zimmerman to Apache	Widen Highway 3 from Zimmerman Trail to Apache Trail with TWLTL	NH, HSIP	$2,600,000.00
R40	Highway 312 Capacity Improvements - Shoulder Widening	Shoulder Widening	NH, HSIP	$341,000.00
R41	Highway 312 Capacity Improvements - Three-lane Section	Three-lane section, including bridge replacement at seven mile creek	NH, HSIP	$450,000.00
R42	Highway 312 Pavement Preservation	Pavement Preservation	NH, HSIP	$2,000,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Year of Expenditure Cost
R43	Highway 312 Traffic Control Devices and Safety/ Warning Features	Signing	NH, HSIP	misc.
R44	Grand Ave - Shiloh Rd to 62nd St West	Widening/Reconstruction (5-lane section)	AFF	$11,000,000.00
R45	Rimrock Rd - Shiloh Rd to 62nd St West	Widening/Reconstruction (5-lane section/3-lane section)	AFF	$10,300,000.00
R46	King Ave West - MT Sapphire Dr to 64th St West	Widening/Reconstruction (5-lane section/3-lane section)	AFF	$9,300,000.00
R47	54th St West - Grand Ave to Rimrock Rd	Widening/Reconstruction (3-lane section)	AFF	$3,300,000.00
R48	Central Ave - Shiloh Rd to 48th St West	Widening/Reconstruction (3-lane section)	AFF	$3,100,000.00
R49	62nd St West - Rimrock Rd to Western Bluffs Boulevard	Widening/Reconstruction (3-lane section)	AFF	$1,100,000.00
R58	Highway 3 to Molt Road Connection Study	Study the feasibility of constructing a new Roadway connecting Highway 3 to Molt Road		$250,000.00
I15	Shiloh Interchange	Geometric improvements to improve operations and safety	IM, NH	$1,900,000.00
I16	South Billings Blvd Interchange	Additional EB and WB mainline lanes under and through the Interchange	IM, NH	$1,600,000.00
I20A	West Billings Interchange	Update geometry to match C standards, improve landscaping and improve pedestrian facilities	IM, NH	$6,900,000.00
I20B		Construct additional EB and WB mainline lanes through interchange, modify vertical curve, reconstruct bridge segments and restripe WB off-ramp at West Billings Interchange.	IM, NH	$12,600,000.00
I43	Highway 3/Rod & Gun Club Road	Install roundabout at Highway 3/ Rod & Gun Club Road, including single circulating lane, single-lane approaches, and bike and pedestrian accomodations		$1,500,000.00
I44	Highway 312 Intersection Improvements - Intersection Control	Intersection Control	AFF, HSIP	misc.
Total Recommended Streets & Highways Project Costs				**$159,140,877.00**

PEDESTRIAN, BICYCLE, AND MULTIUSE TRAILS

The pedestrian, bicycle, and multiuse trails committed and recommended projects provide for new bike facilities on a few of the east-west and north-south corridors, filling in gaps in the sidewalk system, providing crossing enhancements, and additional connectivity with multiuse trails. Additionally, the City includes a few annual programs that implement striping for bike lanes; curb, gutter, and sidewalk; and ramp replacement for ADA compliance. These programs can be used to implement some of the pedestrian projects associated with the Safe Routes to School program. Table 12.2 summarizes the committed and recommended projects for pedestrians, bicycles, and multiuse trails.

Table 12.2 Pedestrian and Bike Projects

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
Committed Projects					
P8	SRTS - Poly Drive Sidewalk Improvements	Pedestrian Improvements at the Poly Drive and Arvin Road Intersection		2019	$97,147.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P49	Pedestrian Overpass on Main Street	The East End TIFF will determine if adqeuate funding is available for this project in FY 2019	TIFD	2019	$3,500,000.00
MT3	Alkali Creek Trail	Extend trail from Swords Park northeast along Alkali Creek or Swords Lane to Main Street Pedestrian Underpass	RTP, PC, BTN	2020	$350,000.00
MT13	Downtown - Coulson Park Trail Connection	"Extend trail from South 25th Street to 8th Ave. South to South 26th Street to Lillian Avenue and Coulson Park Trail"	TAP, DM, PC	2021	$750,000.00
MT31	Transtech Connector	"Bring McCail trail segment up to standards and complete connection to Transtech Center Trail at 32nd Street West"	TAP, RTP, BTN	2021	$700,000.00
MT34	Riverfront Park	Construct a multi-use trail from Mystic Park Trails to Riverfront Park Trails	TAP, PC, RTP	2020	$1,500,000.00
MT37	Rim Top Shared Use Pathway Phase I (Highway 3) (SKYLINE TRAIL)	Construct a multi-use trail along the rims	HSIP, TAP, BTN	2019	$3,506,065.00
MT38	Downtown BBWA Corridor Trail/On Street Facilities	Complete Trail through MSU-B Campus in alignment with MSU-B Master Plan and trail/ on-street facilities along Poly Dr. through Virginia Lane intersection to 13th/Poly Drive	PC, BTN	2020	$220,000.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
MT105	6th Avenue North Widening	Street widening project for a multi-use path from Main St. to 13th. PAVER funds will be used for the overlay.	AFF	2019	$450,000.00
MT83	Stagecoach Trail (Rimrock Road to Highway 3) - Zimmerman Trail	Construct a multi-use trail from Highway 3 to Rimrock Road	TAP, PC, FA	2020	$3,150,000.00
R27 - A	Annual ADA Replacement	Replace handicapped ramps in accordance with the signed agreement between the City of Billings and the Department of Justice	AFF, GT	2019	$1,250,000.00
R26 - A	Misc. curb, gutter, and sidewalk	Annual replacement and infill program of curb, gutter, and sidewalk	SB, GT, SD	2019	$3,825,000.00
P22	6th Ave Underpass	Pedestrian Improvements to Existing Underpass	See I7	See I7	See I7
P28	1st Ave N/US 87/ Main St (Exposition Dr)	Add pedestrian crossings to existing intersections	See I2	See I2	See I2
P31	1st Ave N/US 87 Sidewalk	Add 0.7 miles of sidewalks to N 10th Street to Yellowstone River	See I2	See I2	See I2
P32	US 87 Sidewalks	Add 0.3 miles of sidewalks to northside of Bridge crossing Yellowstone River	See I2	See I2	See I2
MT42	6th Avenue N	Multi-use Trail from 6th Avenue Bypass to N 19th St	See MT 105	See MT 105	See MT 105
BL67	Highway 3	Bike Lanes from North 27th St to Zimmerman Trail	See MT 37	See MT 37	See MT 37
BL68	Highway 3	Bike Lanes from Zimmerman Trail to Apache Trail	See MT 37	See MT 37	See MT 37

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
Total Committed Pedestrian, Bicycle, and Multiuse Trail Projects					**$19,298,212.00**
P1	SRTS - Beartooth	Install a crosswalk on Barrett Road at Linden Drive and install a new sidewalk or multi-use trail along the south side of Barrett and the west side of the alley; install sidewalk along the east side of Bitterroot Drive from Cherry Creek Estates to Wicks Lane with a school crosswalk at Wicks Lane and the access to Emma Jean Estates Subdivision. Installation of sidewalk will likely require private property easements from adjacent landowners; Sign alley adjacent to school one-way northbound.	TAP, BTN, PC, AFF	>2028	$524,621.00
P2	SRTS - Bench	"Install an east-west sidewalk or trail connection to the north end of school property along Lola Lane. This connection would shorten the walking distance coming from the north on Lake Elmo Drive. Install sidewalks on Rex Lane.	TAP, BTN, PC, AFF	>2028	$102,199.00
P3	SRTS - Bitterroot	"Construct pedestrian path connection and crossing over the Holling Drain from residential area to the east. (Requires local SID for roadwork). Install sidewalk or pedestrian path along Barrett Road. Installation of sidewalk will likely require private property easements from adjacent landowners. Install fluorescent yellow school crossing signs and ladder-style crosswalk at the multi-use trail crossing on Barrett Road.	TAP, BTN, PC, AFF	>2028	$840,585.00
P4	SRTS - Boulder	"Install sidewalks and curb and gutter along Boulder Avenue. Consider installing a flasher on the existing school zone speed limit sign. Install sidewalks on Poly Drive west of 32nd Street West.	TAP, BTN, PC, AFF	>2028	$354,289.00
P5	SRTS - Eagle Cliffs	Construct a trail connection from the intersection of Constitution Avenue and Kootenai Avenue to Marias Drive. Permission must be obtained from DNRC.	TAP, BTN, PC, AFF	>2028	$115,825.00
P6	SRTS - Meadowlark	Install enhanced school crossing with curb extensions or pedestrian refuge island on 32nd Street West near the intersection with St. John's Avenue.	TAP, BTN, PC, AFF	>2028	$144,782.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P7	SRTS - Newman	"Install sidewalks where missing along Calhoun Lane. Install sidewalks where missing along east-west side streets.	TAP, BTN, PC, AFF	>2028	$1,140,880.00
P9	SRTS - Ponderosa	"Improve the landing/ pedestrian storage area on the northeast corner of King Avenue East and Hallowell Lane. Reconfigure intersection of Hallowell, Arlington, and school access to reduce pedestrian conflicts and improve traffic operations. Install trail connection and ditch crossing between Kings Green Subdivision and south end of school property. Construct a pedestrian path along King Avenue East.	TAP, BTN, PC, AFF	>2028	$1,192,320.00
P10	SRTS - Sandstone	Install sidewalks on neighborhood streets southeast of Babcock Boulevard. Install sidewalks on neighborhood streets north of Wicks Lane. Consolidate crosswalks on Nutter Boulevard in front of school to the north location and restripe as a ladder style crosswalk.	TAP, BTN, PC, AFF	>2028	$1,111,816.00
P11	SRTS - Alkali Creek	"Install sidewalk along south side of Alkali Creek Road northwest of school. Install sidewalk along Pinon Drive just west of Alkali Creek Road. Install sidewalk along south side of Indian Trail.	TAP, BTN, PC, AFF	>2028	$472,443.00
P12	SRTS - Big Sky	"Enhance crossing at 32nd Street West and Lampman Drive or move crossing to Granger Avenue and signalize. Perform a signal warrant analysis at 32nd Street West and Granger Avenue. If warranted, move the school crossing from Lampman Drive to Granger and signalize the intersection. Install crosswalk markings on the south leg of the intersection of Monad Road and 36th Street West. Enhance existing crossing on west leg.	TAP, BTN, PC, AFF	>2028	$182,678.00
P13	SRTS - Broadwater	"Install curb extensions at the intersection of 4th Street West and Wyoming Avenue. Improve loading zone through alley by defining entry to separate from local business, improve sight distance around corner, reducing the exit to a single lane and providing physical separation between the walking area and the parking area.	TAP, BTN, PC, AFF	>2028	$398,427.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P14	SRTS - Burlington	"Install curb extensions at the intersection of Lewis Avenue and 22nd Street West. Install signing, striping and curb extensions for midblock crossing on 22nd Street West directly in front of main school entrance and consider requiring students to use this entrance.	TAP, BTN, PC, AFF	>2028	$119,686.00
P15	SRTS - Central Heights	"Widen sidewalks on Lexington Drive, Alamo Drive, and Pueblo Drive, and install curb extensions at mid-block crossings on Alamo Drive and Lexington Drive. Install curb extensions at intersection of Lexington Drive and Eldorado Drive and marked crosswalk on east leg. Install curb extensions or another form of traffic calming at Santa Fe Drive and Eldorado Drive. Install curb extensions for crosswalk at Monad Road/Monterey Drive.	TAP, BTN, PC, AFF	>2028	$444,096.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P16	SRTS - Highland	"Install sidewalks and curb extensions at the intersection of O'Malley Drive and Virginia Lane. Install crosswalks with enhancements to shorten crossing distance at Rimrock Road/Missouri Street and Rimrock Road/Virginia Lane. Install sidewalk and/or a bike lane on Virginia Lane from Rimrock Road to Parkhill Drive.	TAP, BTN, PC, AFF	>2028	$330,710.00
P17	SRTS - McKinley	"Install pedestrian crossings and enhancements at the intersections of Parkhill Drive/North 32nd Street and 11th Avenue North/North 32nd Street. Install curb extensions at 9th Avenue North/North 31st Street. Install curb extensions at 8th Avenue North/North 31st Street. Install curb extensions at 8th Avenue North/North 32nd Street.	TAP, BTN, PC, AFF	>2028	$403,151.00
P18	SRTS - Miles Avenue	Install curb extensions at 16th Street West and Miles Avenue. Install pull-out area along east side of alley to enhance loading zone and move loading away from pedestrian traffic. Sign alley "one-way" northbound, but allow exception for garbage trucks.	TAP, BTN, PC, AFF	>2028	$149,607.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P19	SRTS - Orchard	Install curb extensions and crosswalk enhancements on Jackson Street crossings.	TAP, BTN, PC, AFF	>2028	$129,134.00
P20	SRTS - Rose Park	"Install curb extensions at 19th Street West/ Avenue E; eliminate crosswalk on south leg of this intersection and south leg of Avenue F intersection. Install traffic calming improvements on 19th Street West to slow traffic speeds. Complete curb and sidewalk on Parkhill Drive to provide continuous walking route, including curb extensions at corner; would also prevent most U-turns.	TAP, BTN, PC, AFF	>2028	$305,513.00
P21	S 32nd Street Pedestrian Crossing	Install a midblock crossing on S 32nd Street	TAP, BTN, PC, AFF	>2028	$210,000.00
P29	US 87 Pedestrian Easement	1.0 miles adjacent to Metra Park from Airport Rd to Yellowstone River	TAP, BTN, PC, AFF	>2028	$369,600.00
P30	N 10th St/1st Ave N	Add pedestrian crossings to existing intersection (potential new signal with pedestrian phase)	TAP, BTN, PC, AFF	>2028	$280,000.00
P35	Jackson Street Sidewalks	Construct new 5-foot sidewalk on west side of Jackson/ crossing at Orchard	TAP, BTN, PC, AFF	>2028	$216,500.00
P36	Broadwater Elementary School	Install sidewalk, fencing, and landscaping	TAP, BTN, PC, AFF	>2028	$131,290.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P39	Becraft Lane Sidewalk	Path from Old Hardin Rd to Noblewood Drive; serves as Pedestrian Connection to the commercial area at the Old Hardin Rd/ Johnson Ln intersection and to Harris Park; path to run along north side of Becraft Lane	TAP, BTN, PC, AFF	>2028	$500,000.00
P40	Piccolo Ln	Five foot concrete curb-walk from Old Harding Rd to Highway 87; serving housing along street and create a pedestrian connection to the IGA convenience store on the southwest corner of the Piccolo Ln/Old Hardin Rd intersection; Piccolo Ln has potential to become neighborhood shareway/ greenway or a woonerf	TAP, BTN, PC, AFF	>2028	$250,000.00
P41	Old Hardin Road Sidewalk (Segment 1)	Path from US 87 to Piccolo Lane; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	TAP, BTN, PC, AFF	>2028	$350,000.00
P42	Old Hardin Road Sidewalk (Segment 2)	Path from Piccolo Lane to Greenwood Avenue; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	TAP, BTN, PC, AFF	>2028	$410,000.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
P43	Old Hardin Road Sidewalk (Segment 3)	Path from Greenwood Avenue to Johnson Lane; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	TAP, BTN, PC, AFF	>2028	$250,000.00
P44	Old Hardin Rd Sidewalk (Segment 4)	Path from Johnson Lane to Noblewood Drive; path to run on the south side of Old Hardin Rd; possibility of using irrigation canal as a location for a pedestrian path	TAP, BTN, PC, AFF	>2028	$625,000.00
P45	Johnson Ln	Path from the I-90 Interchange to Ford Rd; pedestrian connection to Lockwood School and connection to Hillner Park; opportunity to use irrigation canal to construct pedestrian path; path would run along the west side of Johnson Ln from Old Hardin Rd to the irrigation canal, run along the north side of the canal from Johnson Lane to Greenwood Ave, run along the south side of Sunrise Ave, and along the east side of Hemlock Dr	TAP, BTN, PC, AFF	>2028	$587,000.00
P46	Billings Bypass Sidewalk	Current 8-foot shoulder planned; letter submitted to the Yellow County Commission indicating desire for a separated facility parallel to the road to provide pedestrian safety	TAP, BTN, PC, AFF	>2028	$600,000.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
BL1	38TH ST W	Bicycle Lane from Rimrock Rd to S of Colin Dr	TAP, BTN, PC, AFF	>2028	$32,330.00
BL2	RIMROCK RD	Bicycle Lane from 50th St W to Zimmerman Trl	TAP, BTN, PC, AFF	>2028	$129,320.00
BL3	IRONWOOD DR	Bicycle Lane from Woodcreek Dr to Molt Rd	TAP, BTN, PC, AFF	>2028	$16,165.00
BL4	N 10TH ST	Bicycle Lane from 6th Ave N to 1st Ave N	TAP, BTN, PC, AFF	>2028	$16,165.00
BL5	1ST AVE N	Bicycle Lane from N 13th St to N 36th St	TAP, BTN, PC, AFF	>2028	$80,825.00
BL6	MONTANA AVE	Bicycle Lane from N 18th St to Division St	TAP, BTN, PC, AFF	>2028	$32,330.00
BL7	11TH AVE N	Bicycle Lane from N 22nd St to 19th St W	TAP, BTN, PC, AFF	>2028	$48,495.00
BL8	54TH ST W	Bicycle Lane from N of Billy Casper Dr to Rimrock Rd	TAP, BTN, PC, AFF	>2028	$48,495.00
BL9	N 30TH ST	Bicycle Lane from 6th Ave N to Montana Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL10	N 24TH ST	Bicycle Lane from 1st Ave N to North of 12th Ave N	TAP, BTN, PC, AFF	>2028	$32,330.00
BL11	N 13TH ST	Bicycle Lane from 6th Ave N to Minnesota Ave	TAP, BTN, PC, AFF	>2028	$145,485.00
BL12	POLY DR	Bicycle Lane from N 27th St to Virginia Ln	TAP, BTN, PC, AFF	>2028	$16,165.00
BL13	17TH ST W	Bicycle Lane from Rimrock Rd to Yellowstone Ave	TAP, BTN, PC, AFF	>2028	$64,660.00
BL14	N 18TH ST	Bicycle Lane from 6th ave N to Montana Ave	TAP, BTN, PC, AFF	>2028	$32,330.00
BL15	COLTON BLVD	Bicycle Lane from 17th St W to Zimmerman Trl	TAP, BTN, PC, AFF	>2028	$96,990.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
BL16	8TH ST W	Bicycle Lane from Azalea Ln to Central Ave	TAP, BTN, PC, AFF	>2028	$64,660.00
BL17	15TH ST W	Bicycle Lane from Parkhill Dr to King Ave W	TAP, BTN, PC, AFF	>2028	$145,485.00
BL18	N 22ND ST	Bicycle Lane from 6th Ave N to 12th Ave N	TAP, BTN, PC, AFF	>2028	$32,330.00
BL19	REHBERG LN	Bicycle Lane from Rimrock Rd to Grand Ave	TAP, BTN, PC, AFF	>2028	$64,660.00
BL20	PARKWAY LN	Bicycle Lane from Laurel Rd to S Billings Blvd	TAP, BTN, PC, AFF	>2028	$16,165.00
BL21	N 25TH ST	Bicycle Lane from 1st Ave N to Montana Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL22	PARKHILL DR	Bicycle Lane from N 22nd St to 19th St W	TAP, BTN, PC, AFF	>2028	$96,990.00
BL23	MONAD RD	Bicycle Lane from S Plainview St to S 32nd St W	TAP, BTN, PC, AFF	>2028	$32,330.00
BL24	2ND AVE N	Bicycle Lane from N 22nd St to Yellowstone Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL25	JELLISON RD	Bicycle Lane from Quanta Ln to Aldonna St	TAP, BTN, PC, AFF	>2028	$48,495.00
BL26	13TH ST W	Bicycle Lane from Rimrock Rd to Lewis Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL27	GRANDVIEW BLVD	Bicycle Lane from N 27th St to Virginia Ln	TAP, BTN, PC, AFF	>2028	$32,330.00
BL28	24TH ST W	Bicycle Lane from Country Club Cir to Colton Blvd	TAP, BTN, PC, AFF	>2028	$16,165.00
BL29	7TH AVE N	Bicycle Lane from 6th Ave N to N 32nd St	TAP, BTN, PC, AFF	>2028	$48,495.00
BL30	ROLLING HILLS RD	Bicycle Lane from Annandale Rd to Uinta Park Dr	TAP, BTN, PC, AFF	>2028	$80,825.00
BL31	32ND ST W	Bicycle Lane from Poly Dr to Boulder Ave	TAP, BTN, PC, AFF	>2028	$32,330.00
BL32	N BROADWAY	Bicycle Lane from 9th Ave N to State Ave	TAP, BTN, PC, AFF	>2028	$48,495.00
BL33	HIGH SIERRA BLVD	Bicycle Lane from Siesta Ave to W Wicks Ln	TAP, BTN, PC, AFF	>2028	$16,165.00
BL34	STATE AVE	Bicycle Lane from Sugar Ave to Hallowell Ln	TAP, BTN, PC, AFF	>2028	$80,825.00
BL35	S 36TH ST W	Bicycle Lane from Broadwater Ave to King Ave W	TAP, BTN, PC, AFF	>2028	$96,990.00
BL36	MONAD RD	Bicycle Lane from S Plainview St to S 32nd St W	TAP, BTN, PC, AFF	>2028	$64,660.00
BL37	GABEL RD	Bicycle Lane from S 24th St W to Hesper Rd	TAP, BTN, PC, AFF	>2028	$113,155.00
BL38	RIMROCK RD	Bicycle Lane from Normal Ave to Virginia Ln	TAP, BTN, PC, AFF	>2028	$16,165.00
BL39	LAKE ELMO DR	Bicycle Lane from Annandale Rd to Uinta Park Dr	TAP, BTN, PC, AFF	>2028	$80,825.00
BL40	SAINT ANDREWS DR	Bicycle Lane from Gleneagles Blvd to Wicks Ln	TAP, BTN, PC, AFF	>2028	$113,155.00
BL41	S 20TH ST W	Bicycle Lane from Rimrock Rd to King Ave W	TAP, BTN, PC, AFF	>2028	$32,330.00
BL42	KING AVE W	Bicycle Lane from S 15th St W to King Ave W	TAP, BTN, PC, AFF	>2028	$16,165.00
BL43	S 29TH ST W	Bicycle Lane from King Ave W to Gabel Rd	TAP, BTN, PC, AFF	>2028	$48,495.00
BL44	S 19TH ST W/ Hoover Avenue	Bicycle Lane from Rimrock Rd to King Ave W	TAP, BTN, PC, AFF	>2028	$32,330.00

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BL45	N 26TH ST	Bicycle Lane from 6th Ave N to 3rd Ave N	TAP, BTN, PC, AFF	>2028	$16,165.00
BL46	6TH AVE S	Bicycle Lane from S 25th St to State Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL47	OVERLAND AVE	Bicycle Lane from S 24th St W to Hesper Rd	TAP, BTN, PC, AFF	>2028	$32,330.00
BL48	GLENEAGLES BLVD	Bicycle Lane from Black Diamond Rd to W Wicks Ln	TAP, BTN, PC, AFF	>2028	$32,330.00
BL49	8TH ST W	Bicycle Lane from Azalea Ln to Central Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL50	S 34TH ST	Bicycle Lane from 1st Ave S to State Ave	TAP, BTN, PC, AFF	>2028	$32,330.00
BL51	11TH AVE S	Bicycle Lane from 9th Ave N to State Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL52	10TH AVE S	Bicycle Lane from S 29th St to S 28th St	TAP, BTN, PC, AFF	>2028	$16,165.00
BL53	N 35TH ST	Bicycle Lane from 2nd Ave N to 1st Ave N	TAP, BTN, PC, AFF	>2028	$16,165.00
BL54	MULLOWNEY LN	Bicycle Lane from Midland Rd to Elysian Rd	TAP, BTN, PC, AFF	>2028	$32,330.00
BL55	HAWTHORNE LN	Bicycle Lane from Hemingway Ave to Yellowstone River Rd	TAP, BTN, PC, AFF	>2028	$16,165.00
BL56	BABCOCK BLVD	Bicycle Lane from Annandale Rd to Governors Blvd	TAP, BTN, PC, AFF	>2028	$64,660.00
BL57	YELLOWSTONE RIVER RD	Bicycle Lane from E of Bench Blvd to West of Hansen Ln	TAP, BTN, PC, AFF	>2028	$16,165.00
BL58	BITTERROOT DR	Bicycle Lane from Elaine St to Wicks Ln	TAP, BTN, PC, AFF	>2028	$16,165.00
BL59	BENCH BLVD	Bicycle Lane from Alexander Rd to Hilltop Rd	TAP, BTN, PC, AFF	>2028	$32,330.00
BL60	MOORE LN	Bicycle Lane from Rimrock Rd to Monad Rd	TAP, BTN, PC, AFF	>2028	$32,330.00
BL61	ROD AND GUN CLUB RD	Bicycle Lane from Iron Horse Trl to High Way 3	TAP, BTN, PC, AFF	>2028	$32,330.00
BL62	HIGHWAY 87 N	Bicycle Lane from Alexander Rd to Hilltop Rd	TAP, BTN, PC, AFF	>2028	$48,495.00
BL63	HIGH SIERRA BLVD	Bicycle Lane from Benjamin Blvd to Matador Ave	TAP, BTN, PC, AFF	>2028	$16,165.00
BL64	S 44TH ST W	Bicycle Lane from Georgina Dr to Hesper Rd	TAP, BTN, PC, AFF	>2028	$32,330.00
BL65	N 13TH ST	Bicycle Lane from 6th Ave N to Minnesota Ave	TAP, BTN, PC, AFF	>2028	$32,330.00
BL66	RIMROCK RD	Bicycle Lane from 50th St W to 70th St W	TAP, BTN, PC, AFF	>2028	$16,165.00
BB20	Lyman Ave/ Avenue D/Avenue C/9th Ave	Bicycle Boulevard from 7th Ave N to West to Meadowood St	TAP, BTN, PC, AFF	>2028	244,000
BB21	24th St W/ Arvin Rd	Bicycle Boulevard from Country Club Cir to Colton Blvd	TAP, BTN, PC, AFF	>2028	$133,000.00
BB22	Terry Ave/Howard Ave/24th St W	Bicycle Boulevard from Montana Ave to 36th St W	TAP, BTN, PC, AFF	>2028	$68,000.00
BB23	Milton/Prince of Wales/Heights Ln/Shawnee Dr/ Arronson/Nutter	Bicycle Boulevard from Heights Ln to West of Prince Charles Dr	TAP, BTN, PC, AFF	>2028	$50,000.00
BB24	Arronson/Uinta Park Dr/Riley/ Cherry Creek Lp	Bicycle Boulevard from Cherry Creek Loop to Governors Blvd	TAP, BTN, PC, AFF	>2028	$44,000.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
BB25	Azalea Ln/10th St W/11th St W/ Missouri St/ Moore Ln	Bicycle Boulevard from Rimrock Rd to Monad Rd	TAP, BTN, PC, AFF	>2028	$75,000.00
BB26	S 41st St/Hallowell Ln/Arlington Dr/ Carlton Ave SW	Bicycle Boulevard from 1st Ave S to Carlton Ave SW	TAP, BTN, PC, AFF	>2028	$20,000.00
BB27	4th Ave S/ Jackson St	Bicycle Boulevard from S 28th St to King Ave E	TAP, BTN, PC, AFF	>2028	$28,000.00
BB28	Avalong Rd/ Vickery Dr/ Vickery Ct	Bicycle Boulevard from Colton Blvd to Vickery Ct	TAP, BTN, PC, AFF	>2028	$11,000.00
BB29	Lampman Dr/ Decathlon Pkwy/S 38th St W	Bicycle Boulevard from S 29th St W to S Shiloh Rd	TAP, BTN, PC, AFF	>2028	$12,000.00
BB30	Normal Ave/ Ash St/Colton Blvd/N 32nd St	Bicycle Boulevard from Rimrock Rd/ South of Avenue B	TAP, BTN, PC, AFF	>2028	$19,000.00
BB31	Pemberton Ln/Crist Dr/ Columbine Dr	Bicycle Boulevard from Mary St/Main St	TAP, BTN, PC, AFF	>2028	$13,000.00
BB32	8th Ave S	Bicycle Boulevard from S 28th to S 34th St	TAP, BTN, PC, AFF	>2028	$7,000.00
BB33	Yellowstone/Clark	Bicycle Boulevard from Division to 10th St W	TAP, BTN, PC, AFF	>2028	$90,000.00
BB34	Constitution/ Kootenai	Bicycle Boulevard from Nutter Blvd to West of Amendment Cir	TAP, BTN, PC, AFF	>2028	$20,000.00
BB35	12st W	Bicycle Boulevard from Avenue C to South of Kalmar Dr	TAP, BTN, PC, AFF	>2028	$24,000.00
BB36	Jerrie Ln/Kyhl Ln/ Elaine/Primrose/ Maurine	Bicycle Boulevard from East of Walter Rd to Lake Elmo Dr	TAP, BTN, PC, AFF	>2028	$162,000.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
BB37	Fantan St	Bicycle Boulevard from Siesta Ave to Wicks Ln	TAP, BTN, PC, AFF	>2028	$7,000.00
BB38	2nd St W	Bicycle Boulevard from Avenue C to Montana Ave	TAP, BTN, PC, AFF	>2028	$13,000.00
BB39	Simpson St/ Moore Ln/ Stone St	Bicycle Boulevard from Carlton Ave SW to Moore Ln	TAP, BTN, PC, AFF	>2028	$19,000.00
BB40	Cherry Hills/ Black Diamond	Bicycle Boulevard from Saint Andrews Dr to Gleneagles Blvd	TAP, BTN, PC, AFF	>2028	$14,000.00
BB41	N 14th St	Bicycle Boulevard from Park Pl to 6th Ave N	TAP, BTN, PC, AFF	>2028	$3,000.00
BB42	Marias Dr	Bicycle Boulevard from Keno St to Kootenai Ave	TAP, BTN, PC, AFF	>2028	$3,000.00
BB43	Piccolo Ln	Bicycle Boulevard from Old Hardin Rd to Highway 87E	TAP, BTN, PC, AFF	>2028	$6,000.00
BB44	Hemlock Dr	Bicycle Boulevard from Clayton St to Hillner Ln	TAP, BTN, PC, AFF	>2028	$8,000.00
BB45	Bobolink St/ Canary Ave	Bicycle Boulevard from Dickie Rd to Old Hardin Rd	TAP, BTN, PC, AFF	>2028	$9,000.00
BB46	Constellation Trl/ Eagle/Southern Hills/Venus	Bicycle Boulevard from Riveroaks Dr to Saint Andrews Dr	TAP, BTN, PC, AFF	>2028	$15,000.00
BB47	Maier Rd	Bicycle Boulevard from Highway 87E Rosebud Ln	TAP, BTN, PC, AFF	>2028	$4,000.00
BB48	Sunrise Ave/ Greenwood Ave	Bicycle Boulevard from Nutter Blvd to West of Amendment Cir	TAP, BTN, PC, AFF	>2028	$9,000.00
BB49	Ironwood Dr/ Ben Hogan Ln	Bicycle Boulevard from Molt Rd to 54th St W	TAP, BTN, PC, AFF	>2028	$32,000.00

2018 Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
BB50	Shamrock Ln	Bicycle Boulevard from North of Killarney St to Emerald Dr	TAP, BTN, PC, AFF	>2028	$3,000.00
BB51	Sam Snead Trl	Bicycle Boulevard from Ben Hogan Ln to Molt Rd	TAP, BTN, PC, AFF	>2028	$14,000.00
BB52	Tampico Dr	Bicycle Boulevard from El Paso St to Baja Pl	TAP, BTN, PC, AFF	>2028	$1,000.00
BB53	El Paso St/ Tampico Dr	Bicycle Boulevard from Guadeloupe Dr to La Paz Dr	TAP, BTN, PC, AFF	>2028	$6,000.00
BB54	Tanglewood Dr/ San Marino Dr/ La Paz Pl/Mitzi Dr	Bicycle Boulevard from N 13th St to N 36th St	TAP, BTN, PC, AFF	>2028	$9,000.00
BB55	Lakewood Ln	Bicycle Boulevard from East of Constellation Trl to Riveroaks Dr	TAP, BTN, PC, AFF	>2028	$125,000.00
BB56	Spotted Jack Loop S/Westgate Dr	Bicycle Boulevard from Spotted Jack Loop E to Trailmaster Dr	TAP, BTN, PC, AFF	>2028	$9,000.00
BB57	Driftwood Ln/ Marie Dr	Bicycle Boulevard from Driftwood Ln to Mitzi Dr	TAP, BTN, PC, AFF	>2028	$12,000.00
BB58	Tanglewood Dr/ San Marino Dr/ La Paz Pl/Mitzi Dr	Bicycle Boulevard from Noblewood Dr to La Paz Dr	TAP, BTN, PC, AFF	>2028	$17,000.00
MT35	25th Street Railroad Bridge	Construct a multi-use trail from Montana Avenue to Minnesota Avenue	TAP, BTN, PC, AFF	>2028	$1,700,000.00
MT39	34th Street Pedestrian Bridge	Construct a multi-use bridge to cross the tracks near 34th Street	TAP, BTN, PC, AFF	>2028	$2,000,000.00
MT40	44th Street West	Construct a multiuse bike/ pedestrian path along 44th Street from Shiloh Conservation Area to King Avenue West	TAP, BTN, PC, AFF	>2028	$102,000.00
MT106	Johnson Lane Multiuse Trail	Connects new trail alignment with Bypass	TAP, BTN, PC, AFF	>2028	$500,000.00
MT107	Lower Lockwood Irrigation Ditch	Placing trails in the Lockwood Irrigation Ditch District; lower ditch trail would run from Maier Rd to Rykken Circle and Old Hardin Rd; parallel to Old Hardin Rd, may be an alternate route until solution for Old Hardin Rd can be obtained	TAP, BTN, PC, AFF	>2028	$200,000.00
P26	Moore Ln & Laurel Rd Pedestrian Crossing	Pedestrian crossing treatment to be determined	TAP, BTN, PC, AFF	>2028	$210,000.00
Total Recommended Pedestrian, Bicycle, and Multiuse Trail Projects					**$21,977,852.00**

PUBLIC TRANSPORTATION

The public transportation committed and recommended projects are focused on the purchase of new vehicles for operating the transit system. Table 12.3 summarizes the committed and recommended projects for public transportation. It is recommended that additional funding be pursued by the MPO and MET Transit to support future expansion of the public transportation system.

Utilizing Performance Measures in Future Planning Efforts

Table 12.3 Public Transit Projects

Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
Committed Projects					
	Transit Operations	Operations for MET Transit	FTA Section 5307 and local funds	2019-2023	$21,429,034.00
	Transit Operations	Operations for MET Transit	TRANSADE	2019-2023	$350,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5310 and local funds	2019-2023	$960,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5339 and local funds	2019-2023	$2,625,000.00
Total Committed Public Transit Project Costs (Operations and Capital) $25,364,034.00					
Recommended Projects					
Transit Operations					
	Transit Operations	Operations for MET Transit	FTA Section 5307 and local funds	2024-2028	$21,429,034.00
	Transit Operations	Operations for MET Transit	FTA Section 5307 and local funds	2029-2033	$21,429,034.00
	Transit Operations	Operations for MET Transit	FTA Section 5307 and local funds	2034-2038	$21,429,034.00
	Transit Operations	Operations for MET Transit	FTA Section 5307 and local funds	2038-2040	$8,571,613.60
	Transit Operations	Operations for MET Transit	TRANSADE	2024-2028	$350,000.00
	Transit Operations	Operations for MET Transit	TRANSADE	2029-2033	$350,000.00
	Transit Operations	Operations for MET Transit	TRANSADE	2034-2038	$350,000.00
	Transit Operations	Operations for MET Transit	TRANSADE	2038-2040	$140,000.00
Total Operations Costs $74,048,715.60					
Transit Capital					
	Transit Capital	Replacement Vehicles	FTA Section 5310 and local funds	2024-2028	$960,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5310 and local funds	2029-2033	$960,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5310 and local funds	2034-2038	$960,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5310 and local funds	2038-2040	$384,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5339 and local funds	2024-2028	$2,625,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5339 and local funds	2029-2033	$2,625,000.00
	Transit Capital	Replacement Vehicles	FTA Section 5339 and local funds	2034-2038	$2,625,000.00

Project ID	Proposed Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
	Transit Capital	Replacement Vehicles	FTA Section 5339 and local funds	2038-2040	$1,050,000.00
Total Capital Costs $12,189,000.00					
Total Recommended Public Transit Project Costs (Operations and Capital) $86,237,715.60					

The 2040 LRTP network consists of a comprehensive transportation network for streets and highways, public transportation, pedestrian, bicycle, and multiuse trails. This network is discussed in the early chapters and further explained in this chapter regarding the specific projects that are committed and recommended for the LRTP. Performance measures are identified as part of this planning process and highlighted in Chapter 3. The performance measures are directly related to the goals and objectives and provide a means to measure progress toward achieving the goals and objectives. The performance measures incorporate all transportation modes, safety, and environmental elements to help with plan implementation and monitoring. These performance measures should be incorporated into the planning process moving forward with the MPO and partnering agencies. As part of the next LRTP update, these performance measures can be reviewed and assessed to better understand any missing data needs and how the MPO is doing related to implementation and performance of the LRTP. Summary of LRTP Recommendations

UTILIZING PERFORMANCE MEASURES IN FUTURE PLANNING EFFORTS

The 2040 LRTP network consists of a comprehensive transportation network for streets and highways, public transportation, pedestrian, bicycle, and multiuse trails. This network is discussed in the early chapters and further explained in this chapter regarding the specific projects that are committed and recommended for the LRTP. Performance measures are identified as part of this planning process and highlighted in Chapter 3. The performance measures are directly related to the goals and objectives and provide a means to measure progress toward achieving the goals and objectives. The performance measures incorporate all transportation modes, safety, and environmental elements to help with plan implementation and monitoring. These performance measures should be incorporated into the planning process moving forward with the MPO and partnering agencies. As part of the next LRTP update, these performance measures can be reviewed and assessed to better understand any missing data needs and how the MPO is doing related to implementation and performance of the LRTP.

SUMMARY OF LRTP RECOMMENDATIONS

The recommended 2040 LRTP provides the framework for the development, operations, and maintenance of the multimodal transportation system to meet the travel needs of the Billings Urban Area through the year 2040. The LRTP meets the requirements set forth by the current federal legislation and regulations, but most importantly incorporates the community's desires into the transportation planning process. Table 12.4 summarizes the capital costs of the committed and recommended LRTP projects by mode.

Table 12.4 Summary of LRTP Projects Cost

Mode	Committed	Recommended	2040 Fiscally Constrained Total	2040 Revenue Projection Total	Difference
Streets and Highways	$314,856,438	$129,140,877	$443,997,315	$613,535,000	$169,537,685
System Operations and Maintenance	$41,230,166	$30,000,000	$71,230,166	$137,420,000	$66,189,834
Pedestrian, Bicycle, and Multiuse Trails	$19,298,212	$21,977,852	$41,276,064	$45,495,000	$4,218,936
Public Transportation (Capital Only)	$3,585,000	$12,189,000	$15,774,000	$16,770,000	$996,000
Public Transportation (Operations)	$21,779,034	$74,048,715	$95,827,749	$101,620,000	$5,792,250
TOTAL	**$400,748,850**	**$267,356,444**	**$668,105,294**	**$914,840,000**	**$246,734,705**

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 13

Financial Plan

FINANCIAL PLAN

This chapter discusses the financial plan for the 2040 LRTP. Federal legislation requires that the LRTP be “financially constrained”; in other words, the cost of implementing and maintaining transportation improvements should be within a funding amount that can reasonably be expected to be available during the life of the plan. Federal regulations establish the requirements for the financial plan in Title 23, Section 450.322(f)(10), of the Code of Federal Regulations. To summarize, the regulations state that the financial plan should include the following:

- Estimates of costs and revenue sources needed to operate and maintain federal-aid highways and public transportation
- Estimates of funds that will be available to support the LRTP implementation and that are agreed upon by the MPO, public transportation operator(s), and the state
- Recommendations on any additional financing strategies to fund projects and programs included in the LRTP
- Revenue and cost estimates that use an inflation rate to reflect “year of expenditure dollars” and that have been developed cooperatively by the MPO, state, and public transportation operator

Funding to implement the LRTP recommendations comes from federal, state, and local sources. This financial element of the LRTP includes estimates of costs that would be required to implement the LRTP as well as estimates of existing and contemplated sources of funds available to pay for these improvements. Different sets of revenue assumptions apply for capital, for operations and maintenance (O&M), and for each mode—non-motorized (pedestrian, bicycle, and trail facilities); public transportation; and streets and highways. The costs to design, construct, operate, and maintain all elements of the committed and recommended projects in the LRTP through 2040 are more than $775 million. Additional funding would be required to address the illustrative projects identified in Chapter 12 of the LRTP. The following references and documents were used to develop this chapter.

- Montana Department of Transportation (13-2)
- Billings Urban Area Transportation Improvement Program (TIP), FY 2017-2021 (13-3)
- City of Billings FY 2019-2023 Capital Improvement Program (CIP) (13-4)
- City of Billings Proposed Budget FY 2019 (13-5)
- MET Transit

The 2040 LRTP will guide more than $665 million in transportation project investments within the Billings Urban Area over the next 20 years.

FUNDING SOURCES

MDT administers a number of programs that are funded from State and Federal sources. Each year, in accordance with 60-2-127, Montana Annotated Code (MCA), the Montana Transportation Commission allocates a portion of available Federal-aid highway funds for construction purposes and for projects located on the various systems in the state as described in this chapter. Additional details of these funding mechanisms are included in the Appendix.

The Billings Urban Area is expected to receive over $17 million for transportation infrastructure from the House Bill 473 legislation.

PLACEHOLDER

PLACEHOLDER

FEDERAL FUNDING SOURCES

In order to receive project funding under these programs, projects must be included in the State Transportation Improvement Program (STIP) and the MPO TIP, where relevant. Table 13.1 summarizes the available federal funding sources.

Table 13.1 Federal Funding Sources

Funding Source	Description	MDT Funding Program
National Highway Performance Program (NHPP)	The NHPP provides funding for the National Highway System, including the Interstate System and National Highways system roads and bridges. NHPP funds are Federally-apportioned to Montana and allocated to Districts by the Mon- tana Transportation Commission.	• National Highway (NH) • Interstate Maintenance (IM) • Bridge
Surface Transportation Program (STP)	STP funds are Federally-apportioned to Montana and allocated by the Montana Transportation Commission to various programs. Project types vary with each program, but can include roadway reconstruction and rehabilitation, to bridge construction and inspection, to highway and transit safety infrastructure, environmental mitigation, operational improvements, carpooling, and bicycle and pedestrian transportation facilities.	• Primary Highway System (STPP) • Secondary Highway System (STPS) • Urban Highway System (STPU) • Bridge Program (STP) • Surface Transportation Program for Other Routes - Off-system (STPX) • Urban Pavement Preservation Program (UPP)
Highway Safety Improvement Program (HSIP)	HSIP funds are apportioned to Montana for allocation to safety improvement projects approved by the Commission and are consistent with the strategic highway safety improvement plan. Projects described in the State strategic highway safety plan must correct or improve a hazardous road location or feature, or address a highway safety problem.	• No other programs are included with this source.
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	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. The Commission allocates funds from the MACI Guaranteed Program directly to Billings and Great Falls to address carbon monoxide issues.	• CMAQ (formula) • Montana Air & Congestion Initiative (MACI)–Guaranteed Program (flexible) • Montana Air & Congestion Initiative (MACI)–Discretionary Program (flexible)
Transportation Alternatives Program (TA)	The TA program requires MDT to obligate 50% of the funds within the state based on population, using a competitive process, while the other 50% may be obligated in any area of the state. The Federal share for these projects is 86.58, with the non-Federal share funded by the project sponsor through the HSSR. Funds may be obligated for projects submitted by: Local governments, transit agencies, natural resource or public land agencies, school district, schools, local education authority, tribal governments, and other local government entities with responsibility for recreation- al trails for eligible use of these funds.	• No other programs are included with this source.
Federal Lands Access Program (FLAP)	The FLAP was created by the MAP-21 to improve access to Federal lands. Western Federal Lands administers the funds, not MDT. However, MDT is an eligible applicant for the funds. The program is directed towards Public Highways, Roads, Bridges, Trails, and Transit systems that are under State, county, town, township, tribal, municipal, or local government jurisdiction or maintenance and provide access to Federal lands.	• No other programs are included with this source.
Congressionally Directed or Discretionary Funds	Congressionally Directed funds may be received through either highway program authorization or annual appropriations processes. These funds are generally described as "demonstration" or "earmark" funds.	• No other programs are included with this source.
Transit Capital & Operating Assistance Funding	The MDT Transit Section provides federal and state funding to eligible recipients through Federal and state programs. Federal funding is provided through the Section 5307, Section 5310, Section 5311, and Section 5339 transit programs and state funding is provided through the TransADE program.	• Urbanized Area Formula Grants (Section 5307) • Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) • Formula Grants for Rural Areas (Section 5311) • Bus and Bus Facilities (Section 5339)

Source: MDT

STATE FUNDING SOURCES

Table 13.2 summarizes the available state funding sources.

Table 13.2 State Funding Sources

Funding Source	Description
State Special Revenue/ State Funded Construction	The State Funded Construction Program, which is funded entirely with state funds from the Highway State Special Revenue Account, provides funding for projects that are not eligible for Federal funds. This program funds projects to preserve the condition and extend the service life of highways.
State Fuel Tax	The State of Montana assesses a tax of $0.2775 per gallon on gasoline and diesel fuel used for transportation purposes. According to State law, each incorporated city, town, and county with- in the State receives an allocation based upon population, street mileage, and land area. All fuel tax funds must be used for the construction, reconstruction, maintenance, and repair of rural roads or city streets and alleys. The funds may also be used for the share that the city or county might otherwise expend for proportionate matching of Federal funds allocated for the construc- tion of roads or streets that are part of the primary, secondary, or urban system.
Rail/Loan Funds	The Montana Rail Freight Loan Program (MRFL) is a revolving loan fund administered by the Montana Department of Transportation to encourage projects for construction, reconstruction, or rehabilitation of railroads and related facilities in the State and implements MCA 60-11-113 to MCA 60-11-115. Loans are targeted to rehabilitation and improvement of railroads and their at- tendant facilities, including sidings, yards, buildings, and intermodal facilities. Rehabilitation and improvement assistance projects require a 30 percent loan-to value match. Facility construction assistance projects require a 50 percent match.

Source: MDT

LOCAL FUNDING SOURCES

Local governments generate revenue from variety of sources that contribute to the funding of transportation projects in the Billings Urban Area. Table 13.3 summarizes the available local funding sources.

Table 13.3 Local Funding Sources

Funding Source	Description
Funding Source	Description
Arterial Street Fees Fund	The Arterial Street Fees Fund is for the construction and reconstruction of arterial street segments within the City.
Bike Paths and Trails Donations	This fund is used to account for the contributions and grants related to the construction of bike and pedestrian pathways.
Community Development Block Grant Program (CDBG)	This federally funding program is uses by local governments to provide decent housing, a suitable living environment, and to expand economic opportunities for local income households and are issued through the US Dept. of Housing and Urban Development (HUD). These funds can be used for construction of public facilities, including transportation.
Developer Contributions	Developers contribute funds to a transportation project.
Gas Tax	This special revenue fund is managed by the Billings Public Works Department and implements the City Council's goals relating to maintaining quality streets and street maintenance. Funding for this activity is derived from the City's share of Gas Tax proceeds and a transfer from the Street Maintenance District Fund for maintenance.
Sidewalk Bonds	These bonds are issued to finance the repair and/or replacement of sidewalks throughout the com- munity.
Special Improvement District (SID) Bonds	A SID is a group of properties that become a legal entity in order to construct public improvements. Some improvements that can be constructed through an SID include street paving, curb and gutter, water main, sewer main, and storm drain. Improvement costs are carried by property owners within the SID boundaries.
Street Maintenance Fees	The street maintenance special assessment districts provide funding to maintain quality streets and street maintenance for the safety of residents and visitors and to continue to improve the city's street network. Street Maintenance District #1 is comprised of the central downtown area and Street Maintenance District #2 is the remainder of the city. This program includes the City's Street-Traffic Division operations, PAVER Program, and Street Light Maintenance.
Tax Increment Financing (TIF)	Tax Increment Financing (TIF) is a mechanism that allows a local government or redevelopment authority to generate revenues for a group of blighted properties targeted for improvement, known as a TIF district. As improvements are made within the district, and as property values increase, the incremental increases in property tax revenue are captured in a fund that is used for public improvements within the district. The funds generated from a new TIF district could be used to finance projects such as street and parking improvements, tree planting, installation of new bike racks, trash containers and benches, and other streetscape beautification projects within the designated area. Billings currently has three active TIF districts: Downtown TIFD, East Billings TIFD, and South Billings TIFD.

Source: City of Billings Capital Improvement Program

SPENDING AND REVENUE PLAN

MDT Statewide and Urban Planning Section provided a current allocation (2018) of available transportation funding for the Billing Urban Area. The current allocation (2018) was projected to year 2023 (5-year), year 2028 (10-year), and year 2040. Table 13.4 summarizes the current and projected funding (estimated) for the Billings Urban Area.

The projects in the LRTP are broken into committed, recommended, and illustrative types.

- **Committed projects** are those projects that are included in the STIP, MPO TIP, or City of Billings CIP.
- **Recommended projects** are projects that are expected to be fully funded by year 2040, but are not currently committed within the STIP, TIP, or CIP.
- Projects that are not expected to be funded by 2040, because of fiscal constraint, are considered **illustrative**, meaning that they could be included in the adopted LRTP if additional resources beyond those identified in the financial plan become available.

The committed and recommended projects for streets and highways; pedestrians, bicyclists, and multiuse trails; and public transit are included in Chapter 12. All project costs were converted to year of expenditure (YOE) dollars using a four-percent annual inflation (Source: FHWA).

Table 13.4 Project Funding (Estimated) by Funding Source

Funding Source	Current Annual Allocation 2018	Projected Annual Allocation Per Year	Revenue Projection 2023	Revenue Projection 2028	Revenue Projection 2040
NHPP – NH	$3,043,525	$8,170,000	$65,000,000	$130,000,000	$179,640,000
NHPP – IM	$3,388,406	$4,770,000	$45,120,000	$62,740,000	$105,030,000
HSIP Safety	$1,397,065	$1,770,000	$14,260,000	$21,530,000	$38,960,000
STPU – Urban	$2,489,770	$2,590,000	$12,950,000	$25,890,000	$56,970,000
STPS – Secondary*	$0	$0	$0	$0	$0
STP – Bridge*	$2,977,177	$1,500,000	$15,480,000	$33,000,000	$33,000,000
UPP – Preservation*	$877,085	$910,000	$4,560,000	$9,120,000	$20,070,000
TA	$250,000	$350,000	$3,300,000	$4,600,000	$7,720,000
Earmark	$3,584,158	$0	$0	$0	$0
MACI - CMAQ	$2,101,542	$2,190,000	$10,930,000	$21,860,000	$48,080,000
Operations & Maintenance (State)	$1,415,692	$1,470,000	$7,360,000	$14,720,000	$32,390,000
Local CMAQ Funding	$1,539,717	$1,600,000	$8,010,000	$16,010,000	$35,230,000
State Fuel Tax (City)	$1,762,119	$1,830,000	$9,160,000	$18,330,000	$40,320,000
State Fuel Tax (County)	$305,512	$320,000	$1,590,000	$3,180,000	$6,990,000
Gas Tax City HB473	$655,684	$680,000	$3,410,000	$6,820,000	$15,000,000
Gas Tax County HB473	$112,345	$120,000	$580,000	$1,170,000	$2,570,000
FTA Sec. 5307	$1,751,140	$1,820,000	$9,110,000	$18,210,000	$40,070,000
FTA Sec. 5310	$160,000	$170,000	$830,000	$1,660,000	$3,660,000
FTA Sec. 5311	$70,000	$70,000	$360,000	$730,000	$1,600,000
FTA Sec. 5339	$420,000	$440,000	$2,180,000	$4,370,000	$9,610,000
Other (Private, Bonds, TIF, CBDG, etc.)	$3,301,929	$3,430,000	$17,170,000	$34,340,000	$75,550,000
Local Transit Mill Levy	$2,054,164	$2,140,000	$10,680,000	$21,360,000	$47,000,000
Fares	$565,923	$590,000	$2,940,000	$5,890,000	$12,950,000
Other (Transit)	$152,982	$160,000	$800,000	$1,590,000	$3,500,000
Arterial Fee Fund	$2,670,000	$4,324,000	$22,480,000	$44,970,000	$98,930,000
TOTAL	**$37,045,936**	**$41,414,000**	**$268,260,000**	**$502,090,000**	**$914,840,000**

MAJOR COMMITTED PROJECT - BILLINGS BYPASS

The Billings Bypass project proposes to construct a new principal arterial connecting Interstate 90 east of Billings with Old Highway 312. The purpose of the proposed project is to improve access and connectivity between I-90 and Old Hwy 312 and to improve mobility in the eastern area of Billings. Through the metropolitan planning process, the Billings Bypass is the number one priority for federal and state funds provided through the Surface Transportation Program – Urban and MACI funding programs. Additional sources identified to complete the funding package for the Billings Bypass include local funds, congressionally directed earmarks, Interstate Maintenance funding, national highway system funding, and bridge programs.

The total cost of the preferred alternative for the Billings Bypass is $166 million* in year of expenditure dollars. This project is funded through the following sources.

Billings Bypass

	$24,000,000 (secured earmarks)
	$111,000,000 (NH, IM, Bridge)
	$31,000,000 (Urban**, CMAQ**, Local funding)
Total	$166,000,000*

Costs have been revised from the EIS to reflect PE/ RW/IC + IDC and inflation

***$2.5 million annual urban allocation (STPU), $1.5 million annual CMAQ allocation—local commitment of funding $31,000,000 or until completion of project*

At this time, project priorities were not assigned to the list of projects within the LRTP, as project prioritization is determined through the MPO's Transportation Improvement Program (TIP) process. Given the current level of funding committed to transportation infrastructure in the Billings Urban Area, most of the recommended projects are not anticipated to occur until after the next plan update. Therefore, it is reasonable that these projects and priorities be reviewed as part of the TIP process and during the next LRTP update. Table 13.5 summarizes the fiscal constraint of this plan, including the committed and recommended projects by category and funding source and the remaining revenue available.

As identified in Chapter 12, the illustrative projects do not have a funding source within the 22-year timeframe of this plan. Therefore, these projects are not included in this summary of costs and the fiscal constraint of the LRTP.

As shown in Tables 13.5, the estimated available revenue ($915 million) is greater than the estimated total costs ($668 million) to implement the committed and recommended projects for this LRTP. Therefore, this plan is fiscally responsible and meets the fiscally constrained requirement.

Table 13.5 Committed and Recommended Projects by Category and Funding Source

	2019-2028			2029-2040		
Funding Source	Projected Funding	Expenditures	Difference	Projected Funding + Carryover	Expenditures	Difference
FEDERAL						
National Highway Perfomance Program	$258,620,000	$241,529,142	17,090,858	$77,344,858	$47,041,000	$30,303,858
National Highway (NH)	$130,000,000	$122,738,533	$7,261,467	$25,225,467	$13,241,000	$11,984,467
Interstate Maintenance (IM)	$62,740,000	$52,910,609	$9,829,391	$52,119,391	$33,800,000	$18,319,391
National Highway Primary Bridge (NHPB)	$33,000,000	$33,000,000	$-	$-	$-	$-
National Highway Freight Program (NHFP)	$32,880,000	$32,880,000	$-	$-	$-	$-
Highway Safety Improvement Program (HSIP)	$21,530,000	$19,908,244	$1,621,756	$19,051,756	$17,935,000	$1,116,756
Surface Transportation Improvement Program	$39,610,000	$30,095,611	$9,514,389	54,639,000	$46,734,301	$7,904,699

	2019-2028			2029-2040		
Funding Source	Projected Funding	Expenditures	Difference	Projected Funding + Carryover	Expenditures	Difference
Surface Transportation Program Urban Highways (STPU)	$25,890,000	$19,660,000	$6,230,000	$37,310,000	$36,152,000	$1,158,000
Urban Pavement Preservation Program (UPP)	$9,120,000	$5,861,000	$3,259,000	$14,209,000	$8,500,000	$5,709,000
Transportation Alternatives (TA)	$4,600,000	$4,574,611	$25,389	$3,120,000	$2,082,301	$1,037,699
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	$37,870,000	$28,393,611	$9,476,389	$54,916,389	$12,920,877	$41,995,512
Montana Air and Congestion Initiative (MACI) - Guaranteed Program	$21,860,000	$16,893,611	$4,966,389	$31,186,389	$-	$31,186,389
Montana Air and Congestion Initiative (MACI) - Discretionary Program	$16,010,000	$11,500,000	$4,510,000	$23,730,000	$12,920,877	$10,809,123
Federal Transit Authority (FTA) Funds	$24,240,000	$23,817,028	$422,972	$29,522,972	$29,100,000	$422,972

	2019-2028			2029-2040		
Funding Source	Projected Funding	Expenditures	Difference	Projected Funding + Carryover	Expenditures	Difference
STATE AND LOCAL						
TransADE	$730,000	$700,000	$30,000	$900,000	$870,000	$30,000
Operations and Maintenance (State)	$14,720,000	$14,720,000	$-	$17,670,000	$17,670,000	$-
State Fuel Tax	$21,510,000	$17,005,684	$4,504,316	$30,304,316	$23,196,000	$7,108,316
City	$18,330,000	$17,005,684	$1,324,316	$23,314,316	$23,196,000	$118,316
County	$3,180,000	$-	$3,180,000	$6,990,000	$-	$6,990,000
HB473 Gas Tax Funds (BaRSAA)	$7,990,000	$6,344,316	$1,645,684	$11,225,684	$8,404,000	$2,821,684
City	$6,820,000	$6,344,316	$475,684	$8,655,684	$8,404,000	$251,684
County	$1,170,000	$-	$1,170,000	$2,570,000	$-	$2,570,000
Other (Private, Bonds, TIF, CDBG, etc.)	$34,340,000	$22,954,144	$11,385,856	$52,595,856	$40,574,737	$12,021,119
Local Transit Mill Levy	$21,360,000	$21,360,000	$-	$25,640,000	$25,640,000	$-
Transit Fares	$5,890,000	$5,890,000	$-	$7,060,000	$7,060,000	$-
Other (Transit)	$1,590,000	$1,590,000	$-	$1,910,000	$1,910,000	$-
Arterial Fee Fund	$44,970,000	$20,970,000	24,000,000	$53,960,000	$53,882,814	$77,186
Total	**$534,970,000**	**$455,277,780**	**$79,692,220**	**$436,740,831**	**$312,365,877**	**$156,324,954**

2018 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Chapter 14

Conformity Analysis/Determination

CONFORMITY ANALYSIS/ DETERMINATION

On November 15, 1990, the Clean Air Act Amendments (CAAA) of 1990 was signed into law. The CAAA is an extremely detailed and complex law that has had a major impact on the programs of the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). The Act requires substantial emission 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, transportation improvement plan (TIP), or any revisions to its plan will not adversely affect air quality (14-1).

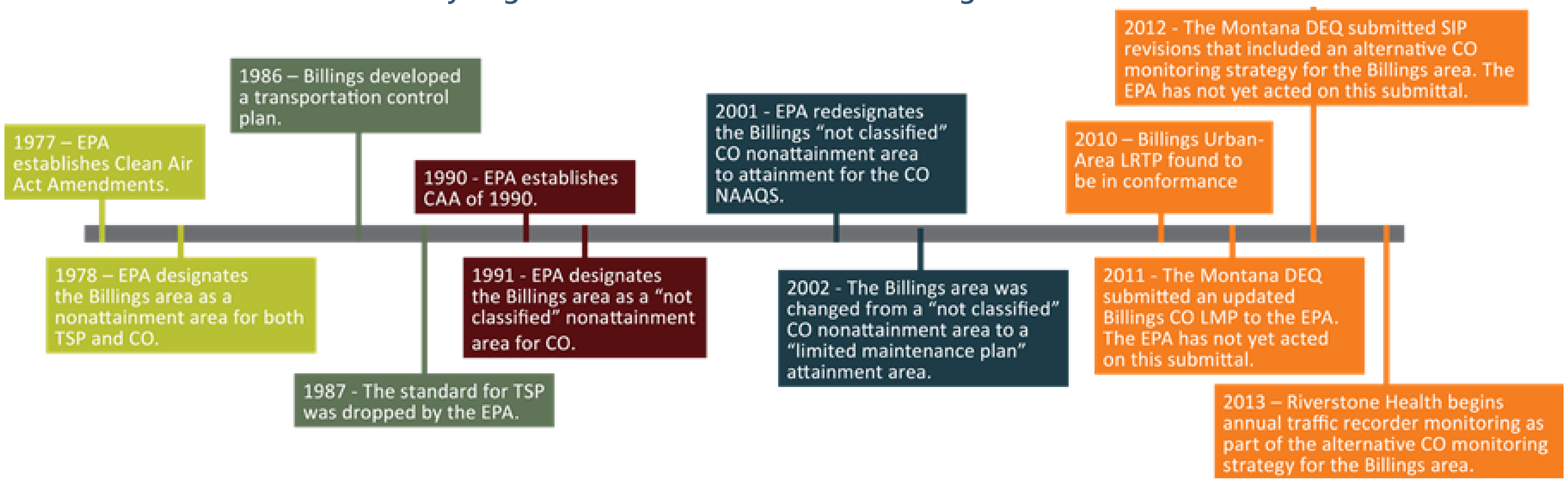
The conformity analysis and determination was developed based on the applicable federal, state, and local requirements; input from the MPO; 2017-2021 Billings Transportation Improvement Program (14-2); and information presented in Chapter 13, Conformity Analysis/Determination of the adopted Billings Urban Area LRTP 2014 (14-3).

BACKGROUND

TIMELINE OF CONFORMITY REGULATIONS AND ACTIONS

Over the last 30 years, several regulations have passed and actions have occurred within the State of Montana and Billings area that have changed certain requirements for determining conformity of a LRTP. Exhibit 14.1 illustrates a timeline of the different regulations and actions for conformity.

Exhibit 14.1 Timeline of Conformity Regulations and Actions for the Billings Area



DETAILS

Billings was designated as a nonattainment area by the Environmental Protection Agency (EPA) for both Total Suspended Particulates (TSP) and Carbon Monoxide (CO) in a Federal Register (FR) notice on March 3, 1978 (43 FR 8962) as a result of the Clean Air Act Amendments (CAAA) of 1977. The NAAQS for CO is 9.0 parts per million (ppm) for an 8-hour average concentration, not to be exceeded more than once per calendar year.

At that time, a transportation control plan (TCP) was developed to bring Billings back into compliance following the nonattainment designation. The CO violation was attributed primarily to motor vehicle emissions. The initial CO TCP concentrated on an intersection reconstruction at Exposition Drive and 1st Avenue N. The final CO TCP incorporated computer modeling with the intersection reconstruction and was approved in the Federal Register on January 16, 1986 (51 FR 2397). Additionally, in 1987 the standard for TSP was dropped, and a new standard for particulate matter under 10 microns in size (PM - 10) was adopted (52 FR 24854). The EPA has also adopted the PM 2.5 standard and Billings is considered to be in compliance with both of these new standards. Billings was reevaluated in September 1990, based on the 1990 CAAA and the lack of exceedances in the CO monitoring data for 1988 and 1989. In a November 6, 1991 Federal Register notice (56 FR 56799), Billings was listed as a "not classified" nonattainment area for CO.

The Montana Department of Environmental Quality (DEQ) developed this redesignation request with guidance from the 1990 CAAA and a September 4, 1992 EPA memo from John Calcagni to the EPA Regional Air Directors. Section 107(d)(3)(E) of the CAAA defines the five required criteria of a redesignation request. The criteria are as follows:

- Criterion 1: Attainment of the Applicable NAAQS
- Criterion 2: State Implementation Plan Approval
- Criterion 3: Permanent and Enforceable Improvements in Air Quality
- Criterion 4: Fulfillment of CAAA Section 110 and Part D Requirements
- Criterion 5: Fully Approved Maintenance Plan under CAAA Section 175A

Each of these criteria were accomplished and demonstrated in the CO redesignation request submitted in 2001. On February 9, 2001, the Governor of Montana submitted a request to redesignate the Billings "not classified" carbon monoxide (CO) nonattainment area to attainment for the CO NAAQS. The Governor also submitted a CO maintenance plan with this request. In this action, the EPA approved the Billings CO designation request and the 10-year maintenance plan effective on April 22, 2002. With this action, the Billings area legal designation was changed from "not classified" nonattainment for CO to a "limited maintenance plan" attainment area.

With the redesignation to attainment, the Billings area was required to comply with the provisions of the 2002 Carbon Monoxide Limited Maintenance Plan (2001 LMP Submittal) and submit a CAA section 175A(b) required revised maintenance plan in 2010 that provided for maintenance of the CO standards for an additional ten years. The Billings area can request full attainment status if the Billings area does not have any further CO NAAQS violations during the maintenance period.

The Montana DEQ submitted an updated Billings Carbon Monoxide Limited Maintenance Plan (2011 LMP Submittal) on July 13, 2011, as required by 42 USC 7505(A). The 2011 LMP submittal documents the first ten years of CO monitoring under the 2002 LMP, and details strategies for maintaining CO standards for the subsequent ten years. As such, the 2011 LMP document fulfills the criteria established in 40 CFR Part 51, Appendix V. However, the EPA has not yet acted on this submittal.

On June 22, 2012, the Montana DEQ submitted SIP revisions that included an alternative CO monitoring strategy due to the Billings area monitoring consistently low levels of CO for over a decade. The DEQ determined that using the resource-intensive CO analyzers to confirm CO levels was not justifiable.

The alternative CO monitoring strategy includes the following:

- reviewing the traffic volumes annually in each of the CO maintenance areas using the data from the MDT's permanent automatic traffic recorders (ATR) in Billings,
- comparing the latest 3-year monthly average of the average daily traffic (ADT) volumes during the traditional CO concentration season of November through February against baseline 2008-2010 ADT average for those months, and
- implementing a contingency plan, so that if the most recent, consecutive 3-year period ADT in the CO maintenance area increases by greater than 25% from the baseline 2008-2010 period (The contingency plan includes reinstituting the gaseous monitoring at the 2008-2010 monitoring location or at a site expected to read greater CO than that site.). (14-4).

Since the EPA has not acted on the July 13, 2011 or the June 22, 2012 submittals, the 2002 LMP is the controlling document for this air quality conformity determination. However, the ATR monitoring is included in the discussion as a reference for future updates to the LRTP.

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

CONFORMITY DETERMINATION

INTERAGENCY CONSULTATION

The consultation guidance contained in the State of Montana Air Quality Rules on Conformity (ARM Chapter 17 Chapter 8 Subchapter 13) was used in the preparation of this conformity determination and emissions analysis. 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 the MDT, Montana DEQ, and Yellowstone County Planning Board.

The Montana DEQ and MDT coordinate regarding air quality and transportation conformity on behalf of MPOs such as the City of Billings-Yellowstone County MPO. Coordination is conducted in accordance with applicable Federal code (40 CFR 93) and state administrative rules (ARM Chapter 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 Billings Urban Area transportation planning process. As such, air quality has received specific attention during development of the numerous plans, programs, and projects over the last 30 years. The actions and activities of the 2018 Billings Urban Area LRTP and process closely parallel those of the SIP and support its intentions of achieving and maintaining the NAAQS.

PUBLIC, STAKEHOLDER, AND INTERAGENCY INVOLVEMENT

The City of Billings-Yellowstone County MPO conducts ongoing public, stakeholder, and interagency outreach for all transportation planning activities in the Billings urban area. Guidance for the outreach is included in the Yellowstone County Planning Board Public Participation Plan (14-5), which was updated by the MPO and adopted by the PCC in September 2018. The plan is reviewed and updated periodically by the MPO.

For this LRTP, a public involvement plan was established at the beginning of the project and used to guide the public, stakeholder, and interagency involvement (14-6). Chapter 2 of this LRTP summarizes the process and outreach activities incorporated for development of this plan.

LATEST PLANNING ASSUMPTIONS AND REGIONAL EMISSIONS ANALYSIS

An October 6, 1995 EPA policy memorandum for LMPs in non-classifiable CO nonattainment areas included a discussion of the applicability of the conformity rule requirements in these areas. According to this policy, a LMP 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. The design value must continue to be at or below 7.65 ppm. The CO average design value for the Billings area is 5.5 ppm, which is well below the requirement. Therefore, the Billings area adequately demonstrates maintenance.

Under a CO LMP, the following elements are applicable regarding the regional emissions analysis:

- No regional emissions analysis is required for applicable pollutants/precursors and analysis years.
- Transportation plan, TIP, and project conformity determinations are still required.
- For applicable projects, hot-spot analyses are still required. 40 CFR Section 93.109(e).

The Transportation Improvement Program (TIP) is a required planning program for federally assisted highway and transit improvements for the Billings metropolitan planning area and the MDT over a five-year period. The TIP is prepared every five years and amended as needed, and is in conformance with 23 CFR, Part 450 324-330.

Therefore, conformity demonstration using regional emissions analysis is not required for the LRTP.

Incorporation of the 2012 LMP Alternative CO Monitoring Strategy

As identified in the 2012 LMP, an alternative CO monitoring strategy was identified that included monitoring traffic volumes annually in each of the CO maintenance areas using the data from the MDT's permanent automatic traffic recorders (ATR) in Billings. The ATR location is Site A-050 (US 87, Main Street, between Milton and Hansen) in Billings (14-9). Table 14.1 summarizes the rolling three year monthly average daily traffic (ADT) comparison between the 2008-2010 base year and the most recent 2015-2017 year time-period.

Table 14.1 Rolling Three Year Monthly Average Daily Traffic (ADT) Comparison

Year	Monthly Average Nov-Feb ADT
2015-2017	29,522
2008-2010	33,952
% Difference	-13.0%

Source: MDT's Monthly Automatic Traffic Recorder Comparison (14-8)

As shown in Table 14.1, the most recent rolling three-year monthly ADT is 13.0 percent lower than the baseline ADT. Therefore, the alternative CO monitoring strategy meets the requirements and is in conformance with the 2012 LMP.

TIMELY IMPLEMENTATION OF SIP TRANSPORTATION CONTROL MEASURES

Specific TCMs have not been proposed for Billings. There are no TCM's in the SIP and no specific TCM's are recommended for implementation in this LRTP. 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 23CFR450.322(b) (11). For LMP areas such as Billings, this fiscal constraint requirement must be met before a conformity determination is approved. Chapter 13 of this LRTP 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 LRTP meets that fiscal constraint requirement.

CONCLUSION

In addition to the above conditions and requirements, it is concluded that the 2018 Billings Urban Area Long Range Transportation Plan 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 Billings Carbon Monoxide Limited Maintenance Plan element of State Implementation Plan for the State of Montana.

2018 BILLINGS URBAN AREA
LONG RANGE TRANSPORTATION PLAN

Chapter X

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