2014 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

FINAL

August 2014

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

DOWL HKM

BILLINGS - YELLOWSTONE COUNTY
MPO
METROPOLITAN PLANNING ORGANIZATION

2014 Billings Urban Area Long Range Transportation Plan

Billings, Montana

Prepared for:

City of Billings / Yellowstone County Metropolitan Planning Organization

Prepared by:

Kittelson & Associates, Inc.

DOWL HKM, Inc.

August 2014 – FINAL

Acknowledgments

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We also want to thank any person, individual, group, agency, or participating member of the public that provided information, comments, suggestions, and/or their valuable time to the planning process and development of this plan. Thank you for your commitment to the community!

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Table of Contents

1. Introduction 1
- Historical Context 3
- Transportation Plan Implementation Since 2009 4
- Plan Requirements and Process 4
- Goals and SMART Objectives 6

2. Interagency and Public Involvement Program 9
- Building Awareness of the Plan 10
- Utilizing Various Outreach Methods 10
- Facilitating Plan Review and Approval 13

3. Land Use 15
- Land Use Analysis 16
- Existing Characteristics and Demographics 16
- Forecast Demographics 22
- Potential Effects of Growth on Transportation System 24

4. Streets and Highways 27
- Functional Classification 27
- Existing Conditions 28
- Future Conditions 34
- Needs and Deficiencies 34

5. Public Transit and Transportation 47
- Existing Public Transit Services 48
- Existing Airport Facilities/Access 52
- Needs and Deficiencies 53
- Project List for Public Transportation 55
- Public Transportation Strategies 55

6. Truck Services and Facilities 57
- Existing Conditions 57
- Future Truck Demand 61
- Needs and Deficiencies 61
- Project List Related to Freight Facilities for Trucks 63

7. Rail Facilities 65
- Literature Review 65
- Existing Conditions 67
- Existing and Future Rail Demand 69
- Needs and Deficiencies 71
- Freight Projects Related to Rail Traffic 72

8. Pedestrian and Bicycle Facilities 75
- Literature Review 75
- Existing Conditions 76
- Deficiencies and Needs 83
- Project List Related to Pedestrian and Bicycle Facilities 83

9. Safety 95
- Background 95
- Safety Considerations 96
- Recommended Strategies 100

10. Security 101
- Background 101
- Security Considerations 102
- Recommended Strategies 104

11. Recommended Plan 105
- A Toolbox of Transportation Strategies 105
- Transportation Projects to Address the Future Vision 107
- Utilizing Performance Measures in Future Planning Efforts 115
- Summary of LRTP Recommendations 115

12. Financial Plan 117
- Funding Sources 118
- Spending and Revenue Plan 120

13. Conformity Analysis/Determination 123
- Background 123
- Conformity Determination 125
- Conclusion 125

References 126

List of Figures

1. Introduction 1

Figure 1-1 Location and Regional Importance of the Billings Urban Area 1
Figure 1-2 Study Area 2
Figure 1-3 Past Transportation Plans 3
Figure 1-4 Elements of Past Transportation Plans 3
Figure 1-5 Past and Present Growth 4
Figure 1-6 Projects Completed Since 2009 LRTP 5
Figure 1-7 Plan Development Process 6

2. Interagency and Public Involvement Program 9

3. Land Use 15

Figure 3-1 Neighborhood and TAZ Boundaries 17
Figure 3-2 Existing Zoning Map 18
Figure 3-3 2010 Population 19
Figure 3-4 2010 Housing 20
Figure 3-5 2010 Employment 21
Figure 3-6 Population Growth (2010-2035) 23
Figure 3-7 Employment Growth (2010-2035) 25

4. Streets and Highways 27

Figure 4-1 Existing Streets and Highways 29
Figure 4-2 Functional Classification Map 30
Figure 4-3 Total Reported Crashes (2010 -2012) 32
Figure 4-4 Intersection and Corridor Crash Rates 33
Figure 4-5 Existing (Year 2013) Daily Traffic Volumes 35
Figure 4-6 Existing Roadway Segment Level of Service 36
Figure 4-7 Year 2035 Traffic Volumes 37
Figure 4-8 Existing Roadway Segment Level of Service 38
Figure 4-9 Roadway Projects 40
Figure 4-10 Intersection Projects 41

5. Public Transit and Transportation 47

Figure 5-1 Existing Weekday Transit Routes 49
Figure 5-2 Existing Saturday Transit Routes 50
Figure 5-3 Public Comments on Public Transportation Needs 54
Figure 5-4 Transit Projects 56

6. Truck Services and Facilities 57

Figure 6-1 Highways & Interstates in Montana 58
Figure 6-2 Existing Truck Routes 60
Figure 6-3 Commercial Vehicle Related Crashes (2010 – 2012) 62
Figure 6-4 Projects Related to Freight Facilities for Trucks 64

7. Rail Facilities 65

Figure 7-1 Montana Rail System 66
Figure 7-2 Existing Railroad Facilities 68
Figure 7-3 Rail Crossing Related Crashes (2010-2012) 70
Figure 7-4 Rail Projects 73

8. Pedestrian and Bicycle Facilities 75

Figure 8-1 Existing Pedestrian and Trail Facilities 78
Figure 8-2 Existing Bikeway and Trail Facilities 79
Figure 8-3 Pedestrian and Bicycle Related Crashes (2010-2012) 82
Figure 8-4 Pedestrian Projects 88
Figure 8-5 Bicycle Projects 92

9. Safety 95

Figure 9-1 Contributing Factors to Crashes 96
Figure 9-2 The 5 “E’s” 96
Figure 9-3 Location of the Crashes by Category (auto, commercial, pedestrian, bicycle) 98
Figure 9-4 Crash Severity 99
Figure 9-5 Organization of the Highway Safety Manual 100

10. Security 101

11. Recommended Plan 105

12. Financial Plan 117

13. Conformity Analysis/Determination 123

Figure 13-1 Timeline of Conformity Regulations and Actions for the Billings Area 124

List of Exhibits

1. Introduction 1

2. Interagency and Public Involvement Program 9

Exhibit 2.1 Homepage of the 2014 Billings Urban Area LRTP Project Website 11
Exhibit 2.2 Screenshot of Weekly Email Update #21 11
Exhibit 2.3 Screenshot of Web Map Comments (December 2013) 11
Exhibit 2.4 Screenshot of Web Map Comments (June 2014) 11
Exhibit 2.5 Transit Flyer, General Flyer, and Billings Gazette Article Notifications for the PIMs 11
Exhibit 2.6 PIM #1 Display Boards and Public Open House 12
Exhibit 2.7 Consultant team working with attendees at PIM #1 12
Exhibit 2.8 PIM #2 Display Boards and Public Open House 12
Exhibit 2.9 PIM #2 presentation about the plan update 12

3. Land Use 15

Exhibit 3.1 Population Trends and Projections 22

4. Streets and Highways 27

Exhibit 4.1 Main Street, Principal Arterial 28
Exhibit 4.2 Laurel Road, Principal Arterial 28
Exhibit 4.3 Rimrock Road, Principal Arterial 28
Exhibit 4.4 Monad Road, Minor Arterial 28
Exhibit 4.5 Lewis Avenue, Collector 28
Exhibit 4.6 Future Roadway Network Identified in 1964 28
Exhibit 4.7 Covers of These Studies 39

5. Public Transit and Transportation 47

Exhibit 5.1 Downtown Transfer Center (Source: MET) 48
Exhibit 5.2 Typical MET Bus (Source: MET) 48
Exhibit 5.3 Bicycle on a MET Bus (Source: MET) 48
Exhibit 5.4 Typical MET Bus Shelter (Source: MET) 51
Exhibit 5.5 MET Annul Ridership Trends 51
Exhibit 5.6 MET Ridership (Source: 2009 MET Transit Business Plan) 51
Exhibit 5.7 MET FY 2012 Revenue Sources (Source: 2009 MET Transit Business Plan) 51
Exhibit 5.8 Bicycle on a MET Bus (Source: MET) 52
Exhibit 5.9 MST Annual Ridership Trends 52
Exhibit 5.10 National and Regional Direct Flights from BIL 53

6. Truck Services and Facilities 57

Exhibit 6.1 Truck Activity Center near Johnson Lane Interchange 59
Exhibit 6.2 Turning Trucks at the Johnson Lane and Frontage Road Intersection 61
Exhibit 6.3 Single Truck at the Johnson Lane and Frontage Road Intersection 61
Exhibit 6.4 Truck Activity at the Pilot/Conoco Truck Center 61
Exhibit 6.5 Montana Freight Tonnage Moved by Truck (2011) 61
Exhibit 6.6 Montana Freight Tonnage Moved by Truck (2040) 61

7. Rail Facilities 65

Exhibit 7.1 Rail and Pedestrian Crossing at 27th Street 67
Exhibit 7.2 Rail Crossing at 13th Street 69
Exhibit 7.3 Rail Crossing at 21st Street 69
Exhibit 7.4 MRL Train near Intermodal Facility Downtown 69
Exhibit 7.5 Montana Freight Tonnage Moved by Rail (2011) 71
Exhibit 7.6 Montana Freight Tonnage Moved by Rail (2040) 71

8. Pedestrian and Bicycle Facilities 75

Exhibit 8.1 Weekday and Weekend Pedestrian Counts 76
Exhibit 8.2 Weekday and Weekend Bicycle Counts 76
Exhibit 8.3 Sidewalks and Pedestrian Buffer Zone in Downtown Billings 77
Exhibit 8.4 Pedestrian Hybrid Beacon (HAWK) at 4th Avenue in Downtown Billings 77
Exhibit 8.5 Rectangular Rapid Flashing Beacon (RRFB) on King Avenue 77
Exhibit 8.6 Bike Rack in Downtown Billings 80
Exhibit 8.7 Bikes Lanes on Rimrock Road 80
Exhibit 8.8 Bikes Lanes on Monad Road 80
Exhibit 8.9 Jim Dutcher Trail by MetraPark Arena 80
Exhibit 8.10 Swords Park Trail Near the Airport 80

9. Safety 95

10. Security 101

11. Recommended Plan 105

Exhibit 11.1 Connecting the Billings Urban Area 105
Exhibit 11.2 Signalized Intersection on Main Street 106
Exhibit 11.3 Signalized Intersections on 27th Street, Gateway to Downtown Billings 106
Exhibit 11.4 Rimrock Arena at MetraPark 106
Exhibit 11.5 Exposition Drive along MetraPark 106
Exhibit 11.6 A Key Transportation Option for the Billings Urban Area 106

Exhibit 11.7 Connecting Neighborhoods with Trails..... 106
Exhibit 11.8 Trail Connection at MetraPark 106
Exhibit 11.9 Median U-Turn intersection in Draper, Utah 107
Exhibit 11.10 Diverging Diamond Interchange in Minnesota 107
Exhibit 11.11 Pedestrian Hybrid Beacon on 4th Avenue 107
Exhibit 11.12 Roundabout at Airport Road and 27th Street..... 107

12. Financial Plan.....117

13. Conformity Analysis/Determination.....123

List of Tables

1. Introduction 1
Table 1.1 2014 LRTP Goals, SMART Objectives, and Performance Measures 7
Table 1.2 LRTP Goals Address Required Planning Factors and Performance Goals 8

2. Interagency and Public Involvement Program 9
Table 2.1 Total Comments Received During the Public Involvement Process 12
Table 2.2 PIM #1 Comments and General Themes Related to LRTP Elements 13
Table 2.3 PIM #2 Comments and General Themes Related to LRTP Elements 13

3. Land Use 15
Table 3.1 Existing Zoning Designations 16
Table 3.2 2010 Billing Urban Area Employment 16
Table 3.3 Year 2011 Mode Share in the City of Billings 22
Table 3.4 Population Trends and Projections 22
Table 3.5 Billings Urban Area Population Trends and Projections 22
Table 3.6 Billings Urban Area Employment Growth 2010-2035 24

4. Streets and Highways 27
Table 4.1 Roadway Characteristics of Interstate and Principal Arterials 31
Table 4.2 Intersections with High Crash Rates (2010-2012) 31
Table 4.3 Roadway Segments with High Crash Rates (2010-2012) 34
Table 4.4 Roadway Projects 42
Table 4.5 Intersection Projects 44
Table 4.6 Congestion Management Projects 45

5. Public Transit and Transportation 47
Table 5.1 MET Transit Fleet 48
Table 5.2 MET Transit Service Hours 48
Table 5.3 MET Expenditures FY 2012 to FY 2016 51
Table 5.4 MST Service Hours 52
Table 5.5 MST Service Hours 52
Table 5.6 Airline Services 53
Table 5.7 Project List for Public Transportation 55

6. Truck Services and Facilities 57
Table 6.1 Truck Route Roadway Characteristics 59
Table 6.2 Commercial Vehicle Related Crash Summary (2010-2012) 61
Table 6.3 Year 2011 and 2040 Total Freight Moved by Truck Conditions 61
Table 6.4 Projects Related to Freight Facilities for Trucks 63

7. Rail Facilities 65
Table 7.1 Major Rail Crossing Characteristics – Montana Rail Link 67
Table 7.2 Major Rail Crossing Characteristics – Burlington Northern Santa Fe 67
Table 7.3 Major Rail Crossing Daily Activity – Montana Rail Link 69
Table 7.4 Rail Crossing Related Crash Summary (2010-2012) 69
Table 7.5 Year 2011 and 2040 Total Freight Moved by Rail Conditions 71
Table 7.6 Freight Projects Related to Rail Traffic 72

8. Pedestrian and Bicycle Facilities 75
Table 8.1 Year 2011 Mode Share in the City of Billings 76
Table 8.2 Mode Share Percentages for Kindergarten - Sixth Grade Students 77
Table 8.3 Types and Length of Bikeways in the Billings Urban Area 80
Table 8.4 Type and Length of Existing Trails in the Billings Urban Area 80
Table 8.5 Average Daily Trail Usage in the City of Billings, 2007-2012 81
Table 8.6 Pedestrian and Bicycle Crash Summary (2010-2012) 81
Table 8.7 Bicycle and Pedestrian Related Crashes at Intersections with High Crash Rates 81
Table 8.8 Recommended Pedestrian Projects 84
Table 8.9 Bicycle Projects 89
Table 8.10 Multi-Use Trail Projects 93

9. Safety 95
Table 9.1 Commercial Vehicles, Rail Related, Pedestrian, and Bicycle Crash Summary (2010-2012) 97
Table 9.2 Intersections with High Crash Rates (2010-2012) 97
Table 9.3 Roadway Segments with High Crash Rates (2010-2012) 97

10. Security 101
Table 10.1 Potential Hazards in Yellowst one County 102
Table 10.2 Community Rankings of Natural and Man-made Hazards in Yellowstone County 103

11. Recommended Plan 105
Table 11.1 Committed and Recommended Projects - Streets and Highways 109
Table 11.2 Illustrative Projects - Streets and Highways (Not funded in LRTP—after 2035) 111
Table 11.3 Committed and Recommended Projects – Pedestrian, Bicycle, and Multiuse Trails 113
Table 11.4 Committed and Recommended Projects – Public Transit 114

Table 11.5 Summary of LRTP Projects Cost 115

12. Financial Plan.....117

Table 12.1 Federal Funding Sources..... 118

Table 12.2 State Funding Sources 119

Table 12.3 Local Funding Sources 119

Table 12.4 Project Funding (Estimated) by Funding Source 120

Table 12.5 Committed and Recommended Projects by Category and Funding Source 122

13. Conformity Analysis/Determination.....123

Table 13.1 Rolling Three Year Monthly Average Daily Traffic (ADT) Comparison..... 125

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CHAPTER 1

Introduction

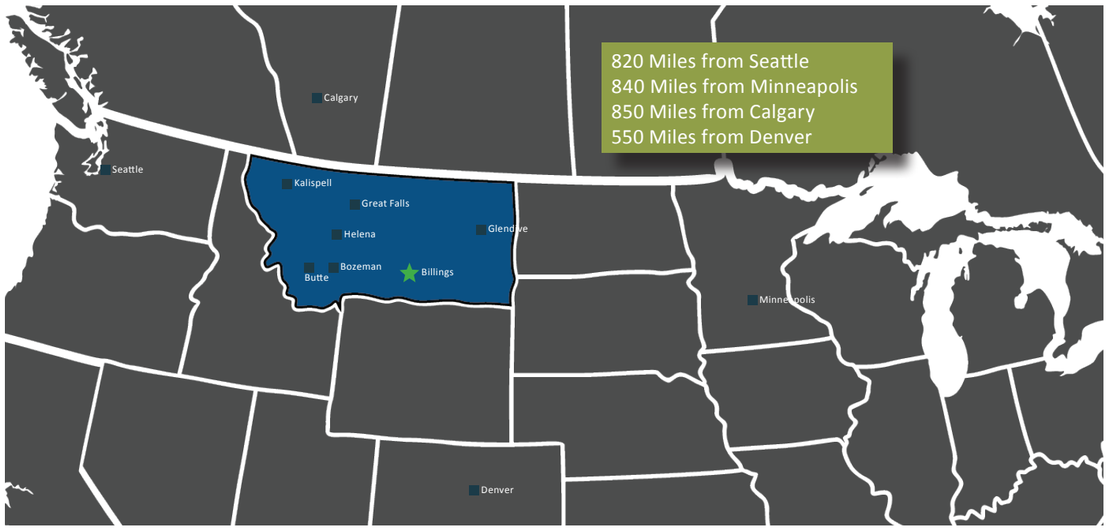
The Billings Urban Area Long Range Transportation Plan (LRTP) is a framework to guide the development and implementation of multimodal transportation system projects for the Billings Urban Area. The LRTP is updated every four years, and looks at today's land use and transportation conditions and plans for the future through year 2035.

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. Figure 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, and air. The region's transportation infrastructure is robust and includes streets, highways, freeways, rail, transit, sidewalks, bicycle lanes and routes, 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 1-2 illustrates the study area.

Figure 1-1 Location and Regional Importance of the Billings Urban Area



N

Yellowstone River

ALEXANDER RD

ALKALI CREEK RD

MARY ST

WICKS LN

HILLTOP RD

MAIN ST

BENCH BLVD

BITTERROOT DR

JOHNSON LN

Alkali Creek

MOLT RD

AIRPORT RD

RIMROCK RD

62ND ST W

ZIMMERMAN TRL

GRAND AVE

SHILOH RD

24TH ST W

15TH ST W

BROADWATER AVE

CENTRAL AVE

STATE ST

1ST AVE S

1ST AVE N

4TH AVE N

6TH AVE N

BBWA Canal

Big Ditch

KING AVE W

KING AVE E

S 62ND ST W

S 24TH ST W

S BILLINGS BLVD

48TH ST W

GABEL RD

Canyon Creek

HESPER RD

S 60TH ST W

S 64TH ST W

56TH ST W

NEIBAUER RD

ZOO DR

S 72ND ST W

WISE LN

DANFORD RD

STORY RD

LAUREL AIRPORT RD

SEITZ ROMAN RD

BLUE CREEK RD

Blue Creek

Lockwood

City of Laurel

3

87

312

94

90

0 1.5 3 Miles

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Interstate

Principal Arterial

Minor Arterial

Collector

Local Streets

Railroads

Creek

Canal/Ditch

YellowstoneRiver

Billings

Study Area

Study Area

2014 Billings Urban Area Long Range Transportation Plan

MPO Metropolitan Planning Organization

Billings - Yellowstone County

DOWL HKM

Figure 1-2

Source: City of Billings GIS Database

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Development of this plan was guided by a Project Oversight Committee (POC), which consisted of representatives from the following agencies: City of Billings Planning, City of Billings Public Works, Billings City Council, Billings/Yellowstone County MPO, Montana Department of Transportation (MDT), Billings Metropolitan Transit, Lockwood Steering Committee, Yellowstone County Commission, and Yellowstone County Public Works. Additional input was received from the Billings Technical Advisory Committee, Yellowstone Board of County Commissioners, Policy Coordinating Committee, Billings City/Yellowstone County Planning Board, Billings City Council, Federal Highway Administration, neighborhood groups, members of the public, and other consultation efforts conducted through the 13-month planning process.

What topics are addressed in the LRTP?

- Goals and objectives
- Public and interagency involvement
- Forecasts of population, households, and employment anticipated in 2035
- Inventory of needs and opportunities for transportation elements:
  - Streets and highways
  - Public transit and transportation (bus, paratransit, air)
  - Freight (truck and rail)
  - Pedestrians
  - Bicyclists
  - Trails
- Funding sources and projected revenue
- Project recommendations and implementation

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, and 2009) have been completed since 1961. Figure 1-3 illustrates some of the transportation plan covers from past efforts.

Figure 1-3 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. Figure 1-4 illustrates roadway and bicycles element from past transportation plans.

Figure 1-4 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 to ensure preservation, supportive infrastructure, and maintenance are addressed for the community's transportation system. Figure 1-5 illustrates the past and present growth adjacent to Rocky Mountain College.

Figure 1-5 Past and Present Growth

Transportation Plan Implementation Since 2009

The previous LRTP, completed in 2010 (1-1) included several key elements:

- Extended previous planning horizon to year 2035
- Confirmed study area boundaries and plan goals
- Assessed existing and future transportation and land use conditions
- Conducted new consultant efforts
- Reviewed non-motorized, environmental, safety, and security elements
- Prepared a short and long range project list and financial plan

Since the 2009 plan adoption, several transportation projects and studies have been completed that play a role in the overall transportation system. Figure 1-6 illustrates the completed projects, studies, and plans since 2009. Over 25 major projects and 15 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 the Figure, but have been completed and are important to 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 year 2035. 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

According to provisions contained in Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation, the MPO of urban areas with a central city of 50,000 or more population is responsible for "…plans and programs which lead to the development and operation of an integrated, intermodal transportation system that facilitates the efficient, economic movement of people and goods" (1-2). MAP-21 was signed into law on July 6, 2012 and replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (1-3). MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. MAP-21 includes the following performance goals:

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

Collectively, these items represent national goals for transportation as described in MAP-21. SAFETEA-LU provided consideration of projects and strategies in the transportation planning process and identified eight planning factors, which remain unchanged as part of MAP-21.

- **Economic Vitality -** Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
- **Safety -** Increase the safety of the transportation system for motorized and non-motorized users
- **Security -** Increase the security of the transportation system for motorized and non-motorized users
- **Accessibility/Mobility -** Increase the accessibility and mobility options available to people and for freight
- **Environment, Community, Economic Development -** Protect and enhance the environment, promote energy conservation, and improve quality of life; and promote consistency between transportation improvements and state and local planned growth and economic development patterns

Key Studies Completed Since the 2009 LRTP

- Billings Logan International Airport Master Plan
- Billings Area Bikeway and Trail Master Plan
- Trail Asset Management Plan
- Billings Safe Routes to School Study
- Multi-Jurisdictional Pre-Disaster Mitigation Plan, Update
- Billings Downtown Circulator Study
- Billings Bypass EIS Project
- Montana Freight Assessment
- Hospitality Road Corridor Study
- Billings Complete Streets Benchmark Report
- Yellowstone-Riverfront Trail Feasibility Study
- I-90 Corridor Planning Study
- Montana's Comprehensive Highway Safety Plan
- Montana's State Rail Plan
- Billings Exposition Gateway Concept Plan

Transit: Bus benches have been installed along some routes.

Intersections: Various signal upgrades in the downtown area and on King Avenue.

Signal Timing/Coordination on Main Street from Airport Road to Wicks Lane

Geometric Improvements

Signal Removed

N

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Roadways
- Completed or Under Construction
- Design or Construction Planned for 2014

Pedestrian & Bicycle
- New Multi-use Trails

Intersections
- Capacity Improvement (completed/under construction)
- Roundabout (under construction)
- HAWK Installation
- Other

Transit
- New Transit Routes
- Removed Transit Routes
- New Bus Shelters
- Billings
- Interstate

- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads

Projects Completed Since 2009 LRTP

Figure 1-6

Source: City of Billings GIS Database

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- **Integration/Connectivity** - Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
- **Efficient Operation** - Promote efficient system management and operation
- **System Preservation** - Emphasize the preservation of the existing transportation system

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 the above federal requirements, as well as update the LRTP every four years.

STATE PLANNING REQUIREMENTS

The Montana Comprehensive Highway Safety Plan (CHSP) is just one of many statewide planning level documents that provides guidance and sets policies regarding a multitude of transportation related issues. A goal of the CHSP 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.

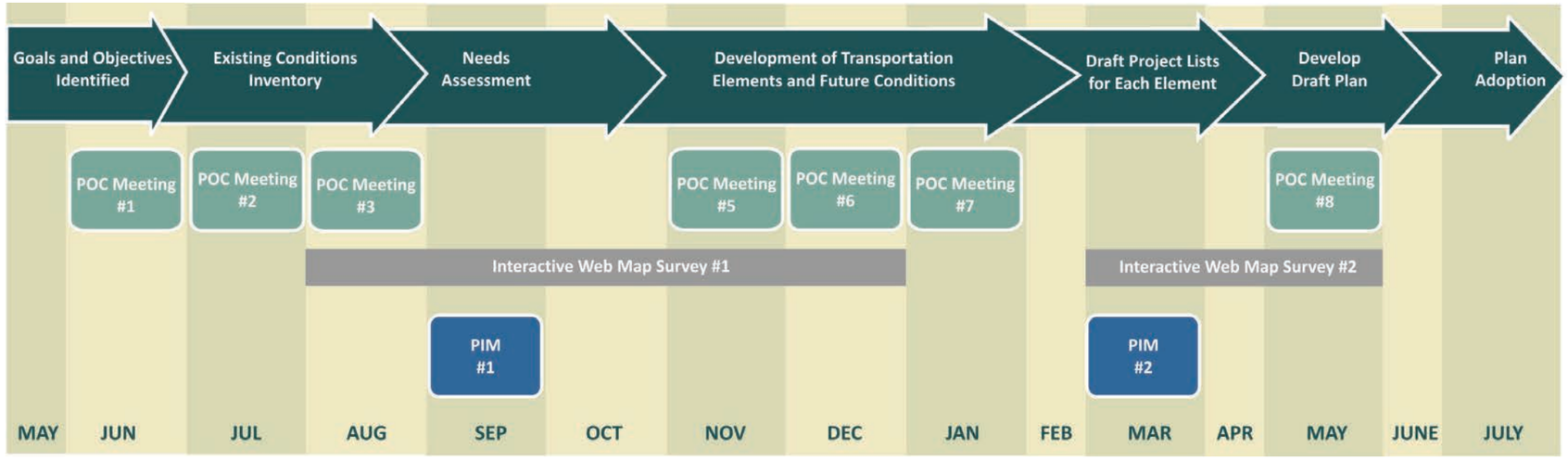
LOCAL PLANNING REQUIREMENTS

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 Growth Policy, the Yellowstone County Board of Planning Public Participation Plan, the 2009 Billings Urban Area Long Range Transportation Plan, and past transportation and land use plans/studies/policies highlighted in the text box.

PLAN DEVELOPMENT PROCESS

The plan effort was initiated in May 2013, and completed with consideration for plan adoption in July 2014. Figure 1-7 illustrates the plan development process, which is described in more detail throughout this document.

Figure 1-7 Plan Development Process



Goals and SMART Objectives

Goals and objectives describe the desired end result of a transportation plan once it is implemented. They also provide direction on how to get there. In addition, goals and objectives permit identification of performance measures that track how effectively implementation of the plan achieves those goals and objectives.

The LRTP goals are intended to provide (1) a goal that addresses each planning factor and performance goal set forth by SAFETEA-LU and MAP-21, and (2) a goal that matches the community's desires for addressing the local transportation system. The following steps were taken to develop the 2014 LRTP goals:

- The 2009 LRTP goals were matched with the related planning factor to identify any areas of overlap and/or planning factors that were not clearly covered by a goal.
- MAP-21 performance goals were matched with the planning factors and 2009 LRTP goals.

Transportation Plans/Studies

- Railroad Crossing Feasibility Study-City of Billings (2004)
- Lockwood Transportation Study (2008)
- Blue Creek Transportation Study (2009)
- MET Transit Business Plan (2009)
- Billings Logan International Airport Business Plan (2009)
- Billings Urban Area Long-Range Transportation Plan (2009)
- Billings Logan International Airport Master Plan (2010)
- Billings Area Bikeway and Trail Master Plan (2011)
- Trail Asset Management Plan (2011)
- Billings Safe Routes to School Study, Phases I and II (2011)
- Multi-Jurisdictional Pre-Disaster Mitigation Plan, Update (2012)
- Traffic Count Map (2012)
- Billings Downtown Circulation Study (2012)
- Billings Bypass Environmental Impact Statement Project (2014)
- I-90 Corridor Planning Study Report (2012)
- Billings Airport CIP FY13-FY17 (2012)
- Yellowstone Riverfront Trail Feasibility Study (2012)
- Metra Egress Study Final Report (2013)
- 6th Avenue N/Bench Corridor Study Presentation (2013)
- Lockwood School District Safe Routes to School Plan Billings Complete Streets Benchmark Report (2013)
- Billings Hospitality Road Corridor Study (2013)

Land Use Plans/Policies

- North Elevation Neighborhood Plan (1994)
- Downtown Billings Framework Plan (1997)
- Central-Terry Park Neighborhood Plan (1999)
- West Billings Plan (2001)
- Northwest Shiloh Area Plan (2005)
- Billings Heights Neighborhood Plan (2006)
- Gateway Triangle Plan (2006)
- South Billings Urban Renewal Area (2008)
- Yellowstone County and City of Billings Growth Policy Update (2008)
- East Billings Urban Renewal District (EBURD) Master Plan (2009)
- Billings Exposition Gateway Concept Plan (2013)
- Highland Neighborhood Plan (2008)
- North Park Neighborhood Plan (2008)
- South Side Neighborhood Plan (2008)

- Recommended changes were identified by the project team, public, and POC to retain, modify, combine, or remove each goal statement to create a draft set of 2014 LRTP goals.

Table 1.1 summarizes the 2014 LRTP goals, SMART objectives, performance measures, and data source/related plan, when applicable.

The 2014 LRTP goals are:

- **Goal 1: Safe, Efficient, Effective - To develop a transportation system that is safe, efficient, and effective**
- **Goal 2: Functional Integrity - To optimize, preserve, and enhance the existing transportation system**
- **Goal 3: Prioritized Improvements - To identify and prioritize projects that mitigate deficiencies, maximize the use of existing facilities, and balance anticipated needs with available funding**
- **Goal 4: Environmental - To develop a transportation system that protects the natural environment and promotes a healthy, sustainable community**
- **Goal 5: Multimodal - To create a transportation system that supports the practical and efficient use of all modes of transportation**
- **Goal 6: Economic Vitality - To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce**

Table 1.1 2014 LRTP Goals, SMART Objectives, and Performance Measures

2014 LRTP Goals	SMART Objectives	Performance Measures	Data Source	Supportive Plan/Policy
Goal 1: Save, Efficient, Effective – To develop a transportation system that is safe, efficient, and effective	Reduce the rate of fatal and injury crashes by 2% by the year 2020	# of fatal crashes per 100 million VMT, # of injury crashes per 100 million VMT	MDT / City of Billings	MDT CHSP, Growth Policy Update
	Reduce the rate of crashes on high-crash corridors by 2% by the year 2020	# of total crashes per million VMT	MDT / City of Billings	MDT CHSP, Growth Policy Update
	Reduce the number of major intersectiowns operating at LOS D or worse during the peak hour by 2% by the year 2020	Average control delay (peak hour), Number of intersection projects	City of Billings / Yellowstone County	City/County/MDT standards, Growth Policy Update
	Reduce weekday peak hour vehicular travel time on principal arterial corridors by 2% by the year 2020	Peak hour travel time, Daily travel time	City of Billings / Yellowstone County / MDT	Growth Policy Update
	Reduce vehicle delay at railroad crossings by 2% by year 2020	Average control delay (peak hour)	City of Billings / Yellowstone County	MDT Rail Plan, Growth Policy Update
Goal 2 : Functional Integrity – To optimize, preserve, and enhance the existing transportation system	Provide connectivity through eliminating gaps in the transportation system	Gap analysis, Connected nodes ratio	City of Billings / Yellowstone County / MDT	City/County/MDT standards, Complete Streets Policy and Benchmark Study
	Maintain access management standards for streets consistent with City, County and State requirements	# of access deviations	City of Billings / Yellowstone County / MDT	City/County/MDT standards, Growth Policy Update
	Incorporate bicycle and pedestrian facilities on 50% of projects by year 2020	# of bicycle or pedestrian facilities per project	City of Billings / Yellowstone County	Complete Streets Policy and Benchmark Study, Growth Policy Update
Goal 3: Prioritized Improvements – To identify and prioritize projects that mitigate deficiencies, maximize the use of existing facilities, and balance anticipated needs with available funding	Identify funded projects that address specific needs of all modes	# and type of projects	City of Billings / Yellowstone County / MDT	Annual Report, Growth Policy Update
		Mode and purpose of trip	City of Billings / Yellowstone County	Bikeways and Trails Master Plan, Growth Policy Update
Goal 4: Environment – To develop a transportation system that protects the natural environment and promotes a healthy sustainable community	Mitigate negative transportation corridor impacts to cultural resources	Incorporate environmental element on projects	City of Billings/ Yellowstone County / MDT	Growth Policy Update
	Increase bicycle and pedestrian activity by 20% by year 2020	# of bicyclists, # of pedestrians	City of Billings/ Yellowstone County	Bikeways and Trails Master Plan, Complete Streets Policy and Benchmark Study
Goal 5: Multimodal – To create a transportation system that supports the practical and efficient use of all modes of transportation	Increase annual ridership by year 2020	Annual ridership	MET Transit	Complete Streets Policy and Benchmark Study, Growth Policy Update
	Maintain current level of transit service for the next 5 years	# of routes, # of service hours	MET Transit	Complete Streets Policy and Benchmark Study, Growth Policy Update
	Maintain current replacement of buses for the next 5 years	# of buses	MET Transit	Complete Streets Policy and Benchmark Study, Growth Policy Update
	Increase bicycle lane miles by 20% by year 2020	# of bicycle lane miles	City of Billings/ Yellowstone County	Bikeways and Trails Master Plan
	Increase multi-use trail miles by 15% by year 2020	# of multi-use trails miles	City of Billings/ Yellowstone County	Bikeways and Trails Master Plan
Goal 6: Economic Vitality – To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce	Identify transportation projects that support new developments	# of approved developments	City of Billings/ Yellowstone County	Growth Policy Update
	Reduce travel time on freight corridors	Peak hour travel time, Daily travel time on freight corridors	City of Billings/ Yellowstone County / MDT	MDT Rail Plan
	Increase bicycle and pedestrian activity by 10% by the year 2020	# of bicyclists, # of pedestrians	City of Billings/ Yellowstone County	Bikeways and Trails Master Plan, Complete Streets Policy and Benchmark Study, Growth Policy Update

The use of an objectives-driven, performance-based approach to long-range transportation planning is promoted by the FHWA. Such publications, as FHWA's Advancing Metropolitan Planning for Operations (1-4) discuss the development of operations objectives for planning projects. The objectives should have five characteristics, defined below, that clearly define what is to be accomplished, how it will be achieved, how to measure progress, and when the outcome is expected. The characteristics include:

- **Specific** - provides sufficient detail (e.g. decrease travel time delay, reduce pedestrian delay) about what is being accomplished to formulate viable approaches to achieving the objective without dictating the approach
- **Measurable** - facilitates quantitative evaluation (e.g. by 10 percent), saying how many or how much should be accomplished
- **Agreed to** – inclusion of the objective reflects a commitment by all agencies to contribute toward its attainment
- **Realistic** – the target to be achieved is achievable and measurable based on available data, resources, and other demands
- **Time bound** - identifies a timeframe within which the objective will be achieved (e.g. within 5 years)

Associating SMART objectives with the LRTP goals provides direction, specific milestones of achievement, and a timeframe for measuring progress. SMART objectives and potential performance measures were identified for each 2014 LRTP goal to support the region's planning process and implementation of this LRTP. These SMART Objectives were developed by the POC as a starting point for connecting the LRTP implementation to performance measures. The performance measures included in Table 1.1 should be monitored, reviewed, and updated (as needed) with the next LRTP update to better understand any missing data needs and if the performance measures identified are appropriate for the region.

Meeting Regulatory Requirements

The plan requirements and process section outlined eight planning factors and seven performance goals from SAFETEA-LU and MAP-21, respectively that must be addressed by the LRTP process. To ensure they are appropriately addressed in the LRTP process, these factors and performance goals must be reflected in the goals. To help identify whether goals speak to a planning factor or performance goal, the theme or themes of each factor and performance goal have been identified. The 2014 LRTP goals were compared to these factors and performance goal themes to determine whether they have been addressed. Table 1.2 illustrates that every planning factor and performance goal are reflected in at least one goal of the 2014 LRTP.

Table 1.2 LRTP Goals Address Required Planning Factors and Performance Goals

2014 LRTP Goals	SAFETEA-LU Planning Factors								MAP-21 Performance Goals						
	Economic Vitality	Safety	Security	Accessibility/Mobility	Environment, Community, Economic Development	Integration/Connectivity	Efficient Operation	System Preservation	Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement and Economic Vitality	Enhanced Performance and Environmental Sustainability	Reduced Project Delivery Delays
Goal 1: Safe, Efficient, Effective - To develop a transportation system that is safe, efficient, and effective		✓					✓	✓	✓		✓	✓			
Goal 2: Functional Integrity - To optimize, preserve, and enhance the existing transportation system				✓		✓	✓				✓	✓	✓		
Goal 3: Prioritized Improvements - To identify and prioritize projects that mitigate deficiencies, maximize the use of existing facilities, and balance anticipated needs with available funding		✓	✓	✓		✓	✓		✓	✓	✓	✓			✓
Goal 4: Environmental - To develop a transportation system that protects the natural environment and promotes a healthy, sustainable community					✓									✓	
Goal 5: Multimodal - To create a transportation system that supports the practical and efficient use of all modes of transportation				✓		✓	✓					✓	✓		
Goal 6: Economic Vitality - To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce	✓												✓		

CHAPTER 2

Interagency and Public Involvement Program

Agency coordination and public involvement during the development of the 2014 Billings Urban Area Long Range Transportation Plan (LRTP) was a critical component for plan development, acceptance and adoption by the Yellowstone County Planning Board (YCPB), Federal Highway Administration (FHWA), Montana Department of Transportation (MDT), and City of Billings. Agency coordination and public involvement is a continuous process that builds upon past outreach conducted with previous LRTP efforts and recent studies.

Did you know? Over 600 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 through plan development and was consistent with the public involvement elements of the YCBP Participation Plan (2-1) and MDT's Public Involvement Process (2-2). 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 by the project team.
- Proactively informs and encourages the participation of the community.
- Builds widespread community understanding of opportunities, constraints, findings, and decisions.
- Implements a process that drives ownership, validity, and commitment to the development of an adopted, community-driven plan.

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

Building Awareness of the Plan

- Formation of the Project Oversight Committee
- Stakeholder Interviews
- Neighborhood Meetings
- Commissions and Councils

Utilizing Various Outreach Methods

- Project Website
- Weekly Email Updates
- Interactive Web Map
- Public Informational Meetings
- Other Outreach Tools

Facilitating Plan Review and Approval

Building Awareness of the Plan

Prior to kicking off the project, the MPO formed a Project Oversight Committee (POC) 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.

FORMATION OF THE PROJECT OVERSIGHT COMMITTEE

The Project Oversight Committee (POC) served as the primary sounding board for the development of the plan. The POC's responsibilities included reviewing technical memorandums and other project deliverables, as well as, providing guidance to consultant team throughout plan development. The POC included staff from:

- City of Billings Public Works
- City of Billings Planning
- Montana Department of Transportation (MDT)
- MET Transit
- Lockwood Steering Committee
- City of Billings City Council
- Yellowstone County Commission
- Yellowstone County Planning Board (YCPB) acting as the metropolitan planning organization (MPO)

The consultant team, with assistance from the MPO, scheduled and led eight meetings with the POC throughout the duration of the project. The goal of the POC 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 POC, prior to the meeting, for review and comment. All meeting agendas and minutes are included in the Appendix.

STAKEHOLDER INTERVIEWS

Prior to the first Public Involvement Meeting in September, the MPO sent a letter to resource agencies and stakeholders in the Billings 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 2014 LRTP, changes in federal requirements through MAP-21, consistency with other plans, opportunities and constraints, ideas for implementation, and any questions they had about the project.

- Billings Area Chamber of Commerce
- Billings Association of Realtors
- Billings BikeNet
- Billings Emergency Services/Yellowstone County EMS
- Billings Fire Department
- Billings Police Department
- Billings School District 2
- City of Billings Bicycle and Pedestrian Advisory Committee
- City of Billings Traffic Control Board
- City of Billings Community Development Board
- City of Billings Board of Adjustment
- City of Billings Zoning Commission
- City of Billings Aviation and Transit Board
- City of Billings Parking Advisory Board
- Downtown Billings Partnership, Inc.
- Housing Authority of Billings
- Big Sky Economic Development Authority
- Yellowstone County Sheriff's Office
- Yellowstone County Superintendent of Schools
- Montana Department of Environmental Quality
- Montana Department of Fish, Wildlife, and Parks
- Montana Department of Natural Resources & Conservation
- Bureau of Indian Affairs
- Riverstone County Health Department
- U.S. Bureau of Land Management
- U.S. Bureau of Reclamation

Several agencies, listed below participated in stakeholder interviews to learn more about the project and contribute to the development of the plan.

- Billings Pedestrian Advisory Committee (BPAC)
- Billings Association of Realtors
- Billings School District
- BikeNet
- Department of Natural Resources and Conservation (DNRC)
- Living Independently for Today & Tomorrow (LIFTT)
- Montana Rail Link
- Riverstone Health
- Weave Management Group, Inc.

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 TECHNICAL ADVISORY COMMITTEE

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 County Planning Board
- Policy Coordinating Committee
- Yellowstone Board of County Commissioners
- Technical Advisory Committee

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.

PROJECT WEBSITE

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 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 2014 Billings Urban Area LRTP Project Website

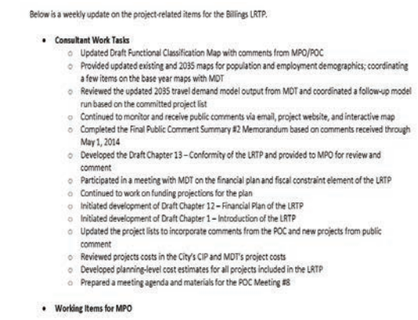
WEEEKLY EMAIL UPDATES

The consultant team provided twenty three (23) weekly email updates to the MPO, which summarized the following:

- Consultant Work Tasks - Included a summary of completed and on-going work tasks of the consultant's responsibility
- Working 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 weekly updates was to keep a consistent line of communication between the MPO and the consultant team throughout the LRTP process. Additionally, the weekly email updates were forwarded on to other agencies, committees, and elected officials to keep them apprised of the LRTP schedule. Weekly email updates were not sent on weeks when other meetings (POC, PIM, etc.) were scheduled. Exhibit 2.2 shows a screenshot of weekly email update #21 sent by the consultant team to the MPO.

Exhibit 2.2 Screenshot of Weekly Email Update #21



Below is a weekly update on the project-related items for the Billings LRTP.

- **Consultant Work Tasks**
  - Updated Draft Functional Classification Map with comments from MPO/POC
  - Provided updated existing and 2035 maps for population and employment demographics; coordinating a few items on the base year maps with MDT
  - Reviewed the updated 2035 travel demand model output from MDT and coordinated a follow-up model run based on the committed project list
  - Continued to monitor and receive public comments via email, project website, and interactive map
  - Completed the Final Public Comment Summary #2 Memorandum based on comments received through May 1, 2014
  - Developed the Draft Chapter 13 – Conformity of the LRTP and provided to MPO for review and comment
  - Participated in a meeting with MDT on the financial plan and fiscal constraint element of the LRTP
  - Continued to work on funding projections for the plan
  - Initiated development of Draft Chapter 12 – Financial Plan of the LRTP
  - Initiated development of Draft Chapter 1 – Introduction of the LRTP
  - Updated the project lists to incorporate comments from the POC and new projects from public comment
  - Reviewed projects costs in the City's CIP and MDT's project costs
  - Developed planning-level cost estimates for all projects included in the LRTP
  - Prepared a meeting agenda and materials for the POC Meeting #8
- **Working Items for MPO**

INTERACTIVE WEB MAP SURVEY

Two interactive web map surveys were used during plan development to collect feedback and comments from the public. The public used the interactive web map in two ways: 1) to identify specific areas of interest and deficiencies on the regional transportation system, and 2) to identify specific projects for each of the transportation elements. Screenshots of the interactive web map survey were taken in December 2013 and June 2014. Exhibit 2.3 and Exhibit 2.4 show the interactive web map with posted comments.

Exhibit 2.3 Screenshot of Web Map Comments (December 2013)

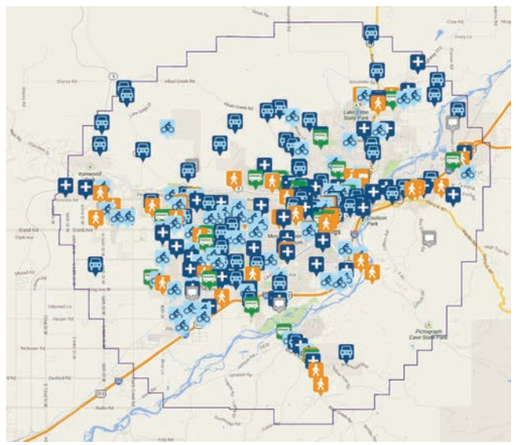
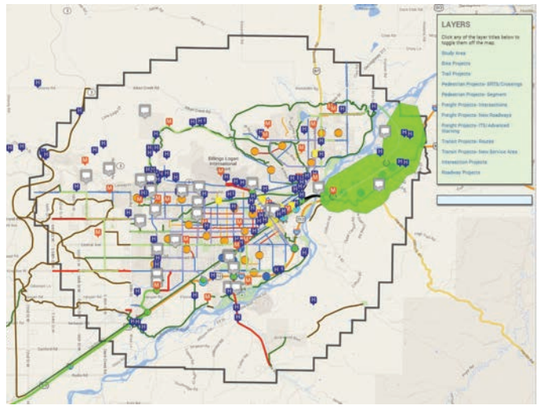


Exhibit 2.4 Screenshot of Web Map Comments (June 2014)

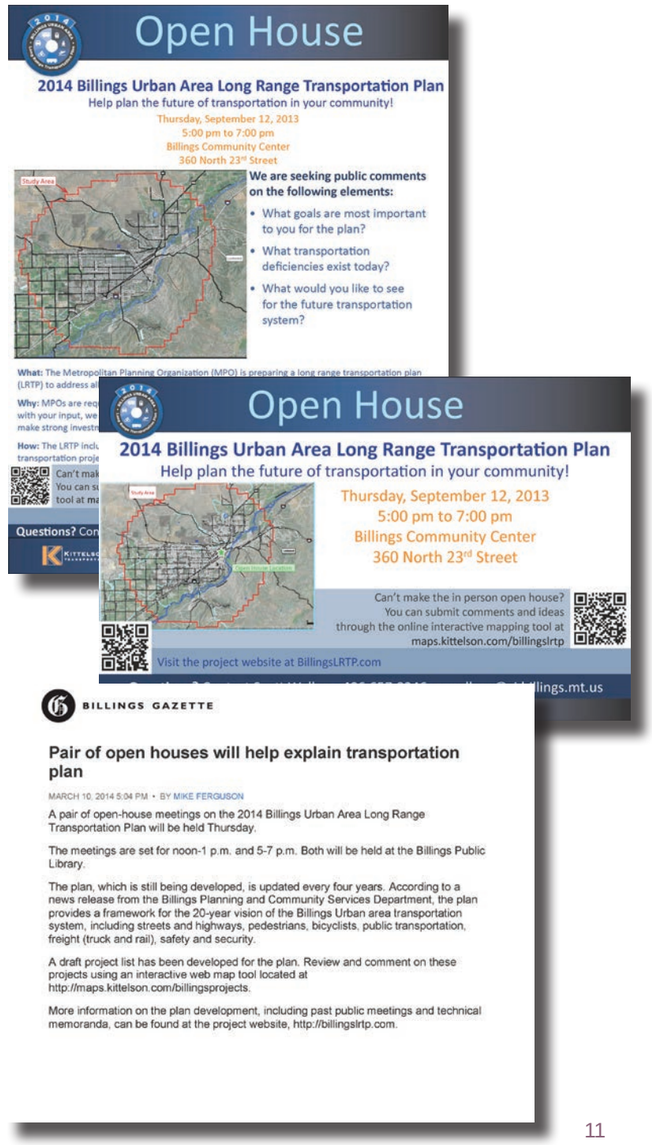


OTHER OUTREACH TOOLS

In addition to posting meeting information to the project website, residents and other project stakeholders were notified about the PIMs in the following ways:

- E-mail Notification: An email was sent to those included on the "Notify Me" list, maintained by the City of Billings, and to all the project stakeholders.
- Resource Agency Notification: An email and letter attachment was sent to the resource agencies about the PIM #1 and #2, and scheduling future meetings with the consultant team.
- Transit Flyers: Flyers announcing the meeting date, time, and location were created and posted on MET buses one week prior to the PIM #1 and #2 (Exhibit 2.5).
- General Flyers: Flyers announcing the meeting date, time, and location were created and provided to the MPO for sending out to groups one week prior to the PIM #1 and #2.
- Billings Gazette Article (prior to PIM #2 only): Two announcements about the upcoming open house were posted in the newspaper (Exhibit 2.5).
- News Station: Following the second PIM the consultant team was interviewed by KULR 8 news to summarize the plan update process and encourage the public to use the interactive web map survey.

Exhibit 2.5 Transit Flyer, General Flyer, and Billings Gazette Article Notifications for the PIMs



PUBLIC INFORMATIONAL MEETINGS

The first of the two PIMs, held on September 12, 2013, provided the public an opportunity to review and provide input of the following three items:

1. What transportation goals are most important to you?
2. What transportation deficiencies exist today?
3. What would you like to see for the future transportation system?

Twenty-four (24) people attended PIM #2. Using the information collected from the first PIM, and information obtained by review of past plans/ studies in the study area, the project team was able to develop the existing conditions for each element of the LRTP and identify the needs and deficiencies of each element. Exhibit 2.6 shows the attendees viewing display boards at the first PIM. Exhibit 2.7 shows the consultant team working with attendees at the first PIM.

Exhibit 2.6 PIM #1 Display Boards and Public Open House

Exhibit 2.7 Consultant team working with attendees at PIM #1

Following the first PIM, the project team developed a draft list of projects and presented this information at PIM #2, held on March 13, 2014. A presentation was delivered by the project team followed by the open house. Forty (40) people attended PIM #2. The public had an opportunity to review and provide input on the following two items:

1. Preferred allocation of available funds between the different elements
2. Project prioritization within each element

The second PIM gave the public a chance to review feedback and comments received from PIM #1, as well as, analysis and assessment of findings since PIM #1. Number of comments collected from both PIMs is summarized in Table 2.1 below.

Exhibit 2.8 shows attendees at PIM #2 discussing the plan and viewing display boards. Exhibit 2.9 shows attendees at PIM #2 viewing the presentation about the plan update.

Exhibit 2.8 PIM #2 Display Boards and Public Open House

Exhibit 2.9 PIM #2 presentation about the plan update

Summary of Comments from PIM #1 and #2

Public feedback collected at the PIM #1 and through the interactive webmap tool helped the project team identify the most important elements of the LRTP and deficiencies and needs related to those elements. The most important elements for this LRTP identified by the public (92 comments) included:

- Pedestrians (18%)
- Bicycles (17%)
- Bus Transit (16%)
- Safety (14%)
- Intersections (14%)
- Roadways (9%)
- Railroad (8%)
- Security (3%)
- Trucks (0%)
- Airport (0%)

Table 2.1 Total Comments Received During the Public Involvement Process

	Comments Received via				
	Comment Sheet	E-mail	Interactive WebMap	Project Website	Total
PIM #1 (July 17 - December 31, 2013)	12	17	259	0	288
PIM #2 (March 13 - May 1, 2014)	9 (36)[1]	3 (12)[1]	148	16	212
Totals	21 (48)	20 (29)	407	16	500

[1]Comment sheets provided at PIM#2 allowed for multiple comments per sheet. ##(##)=comment sheets collected (number of comments counted)

Feedback identified elements related to pedestrians, bicycles, transit, safety, and intersections to be among the most important, receiving 80% of the votes. Table 2.2 summarizes the number of comments and general themes related to each element.

Public feedback collected at the PIM #2 and through the interactive webmap tool helped the project team gather input on the draft project lists and most important elements of the LRTP. Table 2.3 summarizes the number of comments and general themes related to each element. Additionally, thirty-three (33) new or modifications to existing projects were identified from the public for the plan development.

For more information about the activities and feedback collected at each PIM, the Public Comment Summary #1 and #2 are included in the Appendix.

Table 2.2 PIM #1 Comments and General Themes Related to LRTP Elements

Categories	# of Comments	General Themes
Bicycle	77 (30%)	■ Improve bike connectivity in downtown ■ Complete the trail system ■ Provide bike lanes on 6th Ave. North
Streets and Highways	66 (26%)	■ Provide better connectivity between the west end, downtown, and the north part of Billings ■ Pave several existing streets around town (e.g. Alkali Creek Road and 5 Mile Road) ■ Recommendations for roundabouts or signal timing/turn lanes/phasing modifications ■ Access control along several corridors (e.g. Grand Avenue & section of King Avenue) ■ Note: Several comments were identified for bike, pedestrian, and truck elements as they relate to roadways
Safety	51 (20%)	■ Provide intersection control upgrades in several locations (left turn phasing, roundabouts, etc.) ■ Identifies areas with sidewalk gaps
Pedestrian	42 (16%)	■ Identifies areas with sidewalk gaps
Public Transit	20 (8%)	■ Add more covered bus stops and benches ■ Provide service to Lockwood and the airport ■ Promote ridership with colleges, hospitals, and downtown businesses
Truck/Freight	1 (<1%)	■ Truck traffic at Main Street and Airport Road
Airport	1 (<1%)	■ Provide alternatives for traveling to the airport other than car, taxi or hotel shuttle (walking path, bus, tram, etc.)
No Category	1 (<1%)	■ The planning area excludes a significant portion of Lockwood (Pine Hills and Emerald Hills) while including vast areas of undeveloped land.
Total	**259 (100%)**	

Table 2.3 PIM #2 Comments and General Themes Related to LRTP Elements

Categories	# of Comments	General Themes
Bike	32 (15%)	■ Positive feedback on incorporating more bike lanes ■ Improve bike safety ■ Improve connectivity from one side of town to the next
Trail	35 (17%)	Improve connectivity
Corridor	1 (<1%)	Incorporate ITS with MET Transit
Freight	4 (<1%)	Access management
Intersection	13 (6%)	Improve congestion management
Pedestrian	25 (12%)	Improve safety
Transit	21 (10%)	Improve safety
Roadway	50 (24%)	Improve connectivity
General	31 (14%)	Improve connectivity – Especially between Billings and the Lockwood and Laurel areas
Total	**212 (100%)**	

Facilitating Plan Review and Approval

The final phase of the plan update is completion and adoption of the Long Range Transportation Plan (LRTP). In June, the POC reviewed the Draft LRTP and provided comments to the consultant team for incorporating in the final plan. Additionally, the Technical Advisory Committee (TAC) met twice in June 2014 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 Policy Coordinating Committee (PCC). The draft plan was also available to the public for review and comment in June and July 2014. Much like the development of the plan, continued awareness and review of the draft plan are important steps toward plan adoption.

In late June and early July, 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 July 15, 2014. The consultant team assisted the MPO throughout the adoption process by providing materials and information for these review and recommendation meetings.

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CHAPTER 3

Land Use

This chapter summarizes the land use patterns under existing and future year 2035 forecast conditions in the study area. Knowing the locations of both existing and future 2035 population and employment patterns is critical for development of the base year 2010 and 2035 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, 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:

- North Elevation Neighborhood Plan (1994)
- Downtown Billings Framework Plan (1997)
- Central-Terry Park Neighborhood Plan (1999)
- West Billings Plan (2001)
- Northwest Shiloh Area Plan (2005)
- Gateway Triangle Plan (2006)
- Billings Heights Neighborhood Plan (2006)
- South Billings Urban Renewal Area (2008)
- Yellowstone County and City of Billings Growth Policy Update (2008)
- Highland Neighborhood Plan (2008)
- North Park Neighborhood Plan (2008)
- South Side Neighborhood Plan (2008)
- East Billings Urban Renewal District Master Plan (2009)
- Billings Urban-Area Long Range Transportation Plan (2009)
- Billings Exposition Gateway Concept Plan (2013)

Did you know? The Billings Urban Area is expected to increase from a population of 126,564 to approximately 181,600 by 2035. Having an interconnected, multimodal transportation system is an important part to providing for this growth and creating a livable community.

Land Use Analysis

The 2009 Billings Urban Area LRTP analyzed the growth patterns based on neighborhood boundaries within the urban area (3-1). The neighborhood boundaries were aggregations of various census tracts that represented areas of the community that was consistent with the neighborhood planning areas (e.g. Heights East/West, Billings Central, South Hills, etc.). There were a total of 13 neighborhood boundaries. Since the 2000 census, census tracts in the Billings Urban Area have changed borders and divided into smaller areas called census blocks. As a result, the "neighborhood" level of analysis had become obsolete if trying to correspond directly with the census reporting. To address this issue, the land use analysis has been refined to utilize census blocks in reporting population and employment data.

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 regional travel demand model is developed by the MDT with traffic analysis zones (TAZs) that represent a population and employment density. For the Billings regional travel demand model, the TAZs were developed to match the census blocks. An individual TAZ is typically assumed to have uniform (or relatively similar) land use where trips are attracted and produced. 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. Physical barriers (such as, hillsides and rivers) are also typical borders because traffic cannot traverse these without the roadway network. The TAZs aggregated the latest census blocks from the 2010 census. Figure 3-1 shows the TAZs used for the analysis and how the TAZs compare to the previously used neighborhood boundaries.

Table 3.1 Existing Zoning Designations

Zoned Land Use	Total Urban Area		City Limits Only	
	Square miles	Percent of Total	Square Miles	Percent of Total
Public[1]	9.2	6.3%	6.5	15.3%
Residential[2]	42.0	28.9%	26.8	63.2%
Commercial[3]	5.4	3.7%	4.3	10.0%
Industrial[4]	8.4	5.8%	4.0	9.3%
Medical Corridor[5]	0.2	0.1%	0.2	0.4%
South 27th Street[6]	0.1	0.1%	0.1	0.3%
Agricultural[7]	79.0	54.2%	0.1	0.2%
Entryway[8]	1.4	0.9%	0.5	1.2%
Total Square Miles	**145.7**	**100%**	42.3	100%

[1]Public Zoning includes zoning codes: P
[2]Residential Zoning includes zoning codes: PUD, R50, R60, R60R, R70, R70R, R80, R96, R150, RMF, RLMF, RMFR, RMH, RP, RS
[3]Commercial Zoning includes zoning codes: NC, CC, HC, CBD, as well as the East Billings Urban Renewal District
[4]Industrial Zoning includes zoning codes: CI, HI, LI
[5]Medical Corridor Zoning includes zoning codes: MCPZD
[6]South 27th Street Zoning includes zoning codes: PZD
[7]Argicultural Zoning includes zoning codes: A1, AS
[8]Entryway Zoning includes zoning codes: EGC, ELC, ELI, EMU
Source: City of Billings. Article 27-300. Zoning Districts and Official Map (3-2)

The existing population and employment data was derived from the 2010 census. In order to anticipate projections in population and employment to year 2035, 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 dataset with anticipated projections was then transferred to MDT to incorporate into the regional travel demand model.

Existing Characteristics and Demographics

The Billings Urban Area currently encompasses approximately 145 square miles and includes all of the City of Billings (40.4 square miles) and Lockwood, as well as a planning area extending 4½ miles outside of the city limits and into Yellowstone County. Figure 3-2 shows the existing zoning map and key destinations within the study area. Table 3.1 summarizes the total area per zoning designation within the urban 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 3-3 and 3-4 show the 2010 population and housing concentrations, respectively in the study area. The 2010 total population is 126,564 in the study area. The 2010 total housing units is 57,071 in the study area.

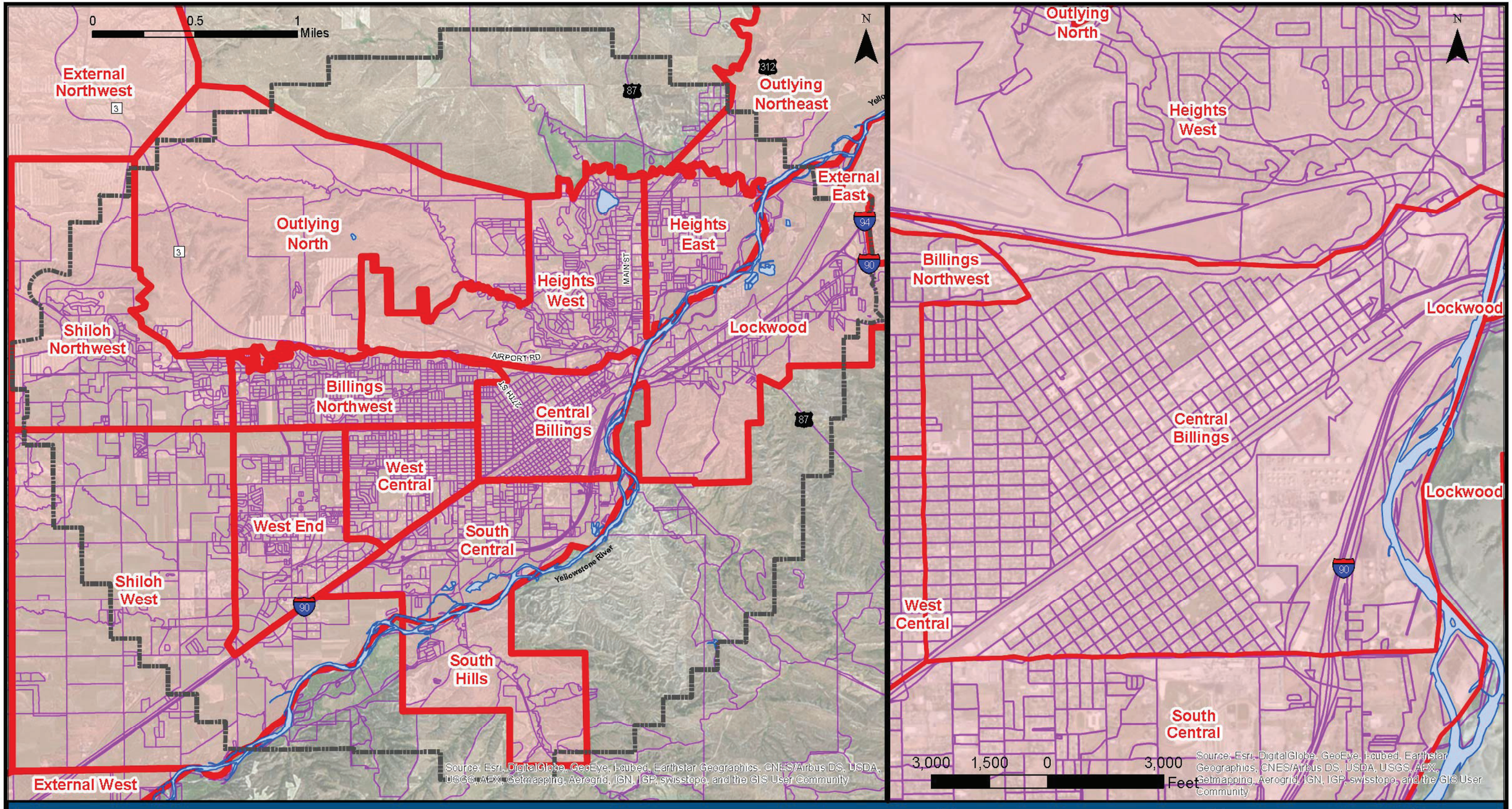
Employment is typically broken up into two primary components: retail and non-retail employment. These uses are differentiated because they typically exhibit different travel patterns in terms of mode choice, the time-of-day trips utilize the network, etc. Table 3.2 summarizes the 2010 employment within the study area. Figure 3-5 shows the current geographic concentrations of employment centers in the study area.

Figure 3-5 shows employment concentrations are greatest around the major employment centers including Billings Airport, Downtown Billings, Saint Vincent Hospital, Rimrock Mall, and industrial facilities to the south of the Exit 446 Interchange on Interstate 90.

Table 3.2 2010 Billing Urban Area Employment

Zoned Land Use	Percent of Total
Retail	19,468
Non-retail	70,150
TOTAL	**89,618**

Source: City/County Planning Division



Neighborhood

TAZ

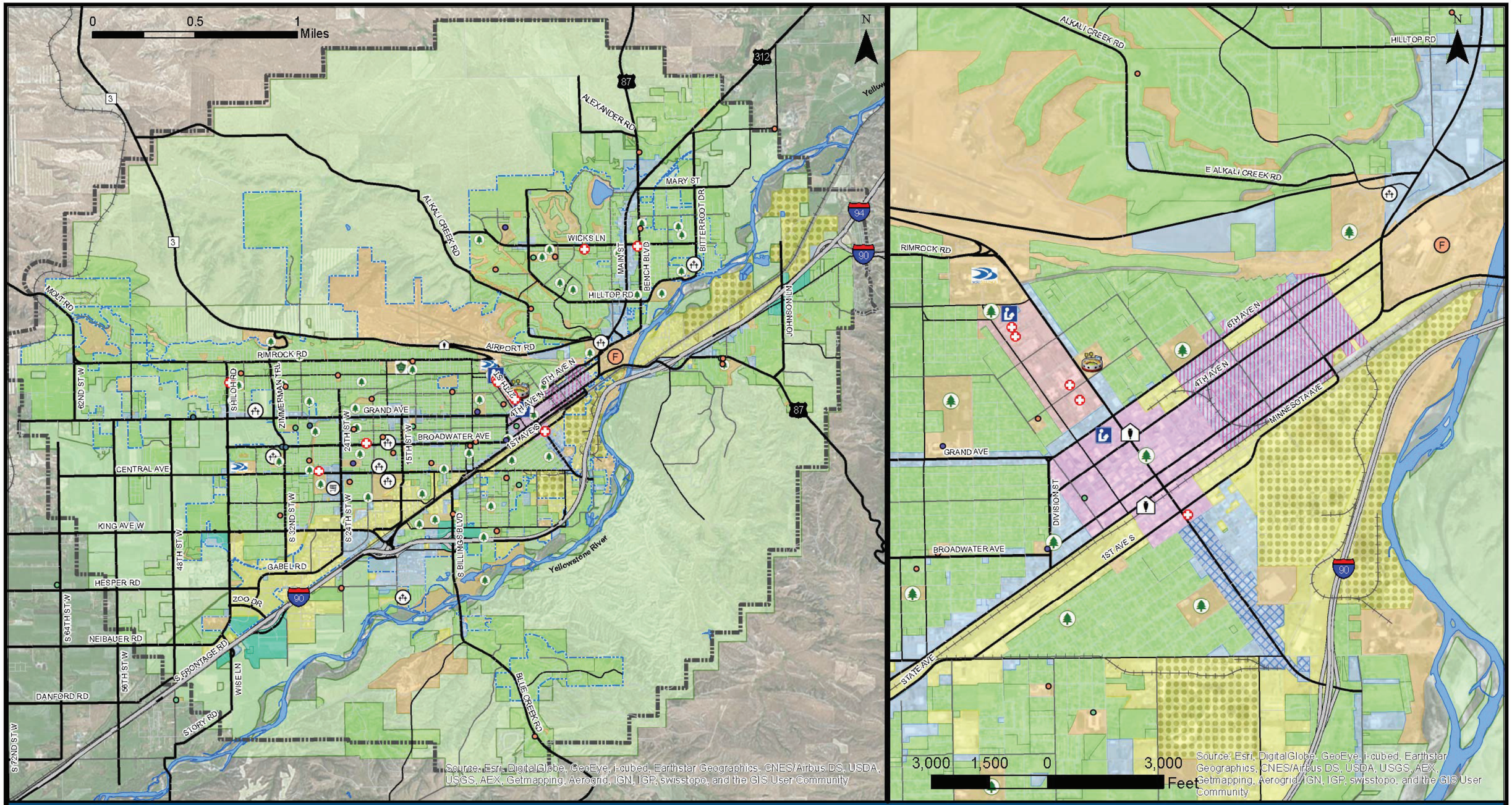
Study Area

Neighborhood and TAZ Boundaries

Figure 3-1

H:\projfile\13291 - Billings Long Range Transportation Plan\gis\Task 4_Land Use\13291_FIG3-1_TAZ-neighborhood.mxd - lnuxoll - 10:18 AM 8/20/2014

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations



Residential
Public
Commercial
Commercial/Industrial
Light Industrial
Heavy Industrial
Medical Corridor Permit
South 27th Street Corridor
Agricultural
Entryway
Central Business District
East Billing Urban Renewal District
High School
Middle School
Grade School
Mixed K-12
Hospital
Billings City Limits
Shopping Mall
Museum
Stadium
Library
Rocky Mountain College
Montana State University
Fairgrounds
Park
Cemetary
Study Area
Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets
Railroads

Existing Zoning Map

Figure **3-2**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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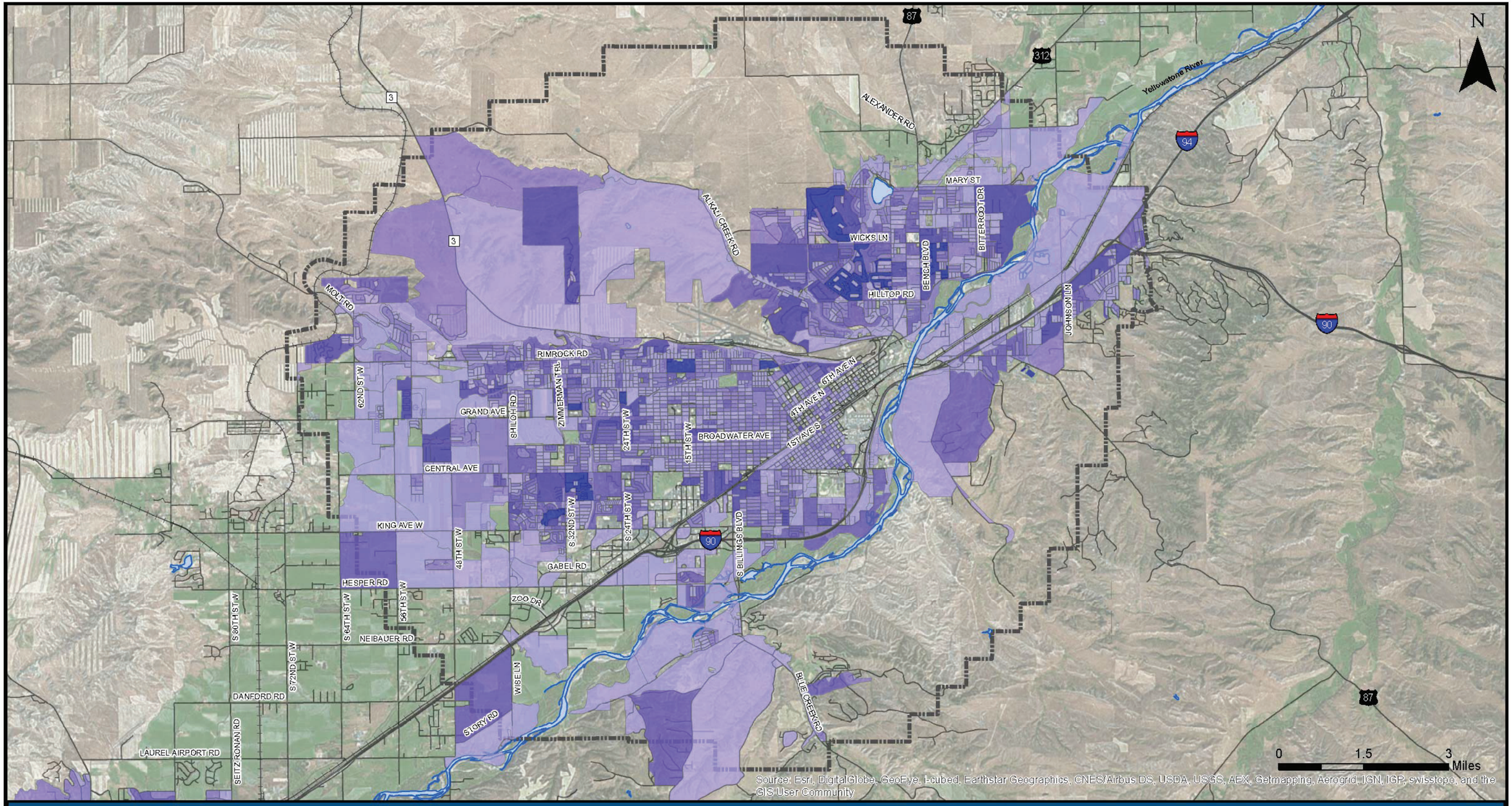


TAZ Population (2010)

- 0
- 1 - 49
- 50 - 99
- 100 - 199
- 200 - 400
- > 400

- Study Area
- Roadway/Highway
- Railroads

Total Population (2010) = 126,564
Represents population within MPO

Regions that extend outside of study area are a result of traffic analysis zone delineation, and do not represent locations of population.

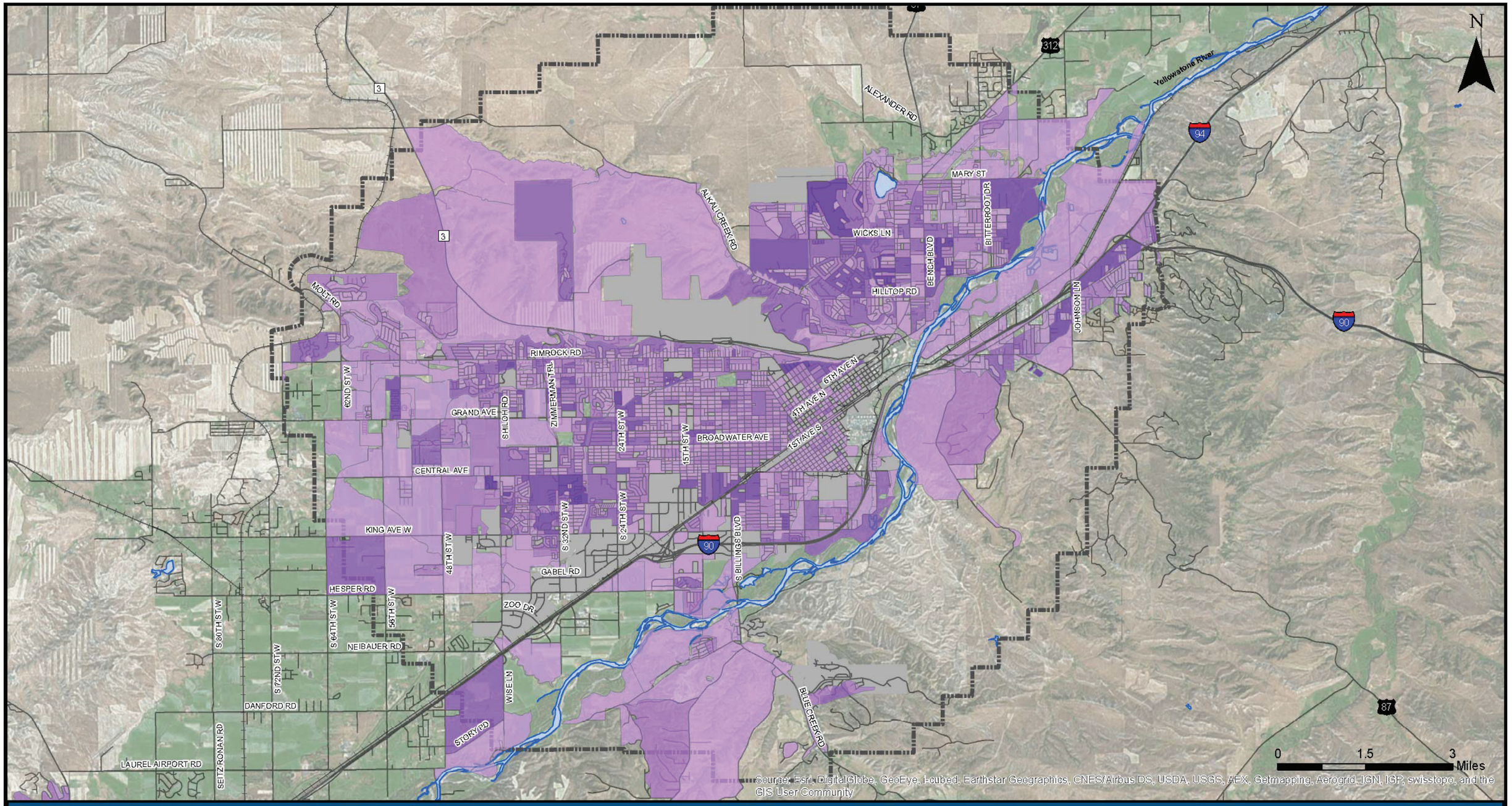
2010 Population

2014 Billings Urban Area Long Range Transportation Plan
MPO Billings - Yellowstone County Metropolitan Planning Organization
DOWL HKM

Figure **3-3**

H:\projfile\13291 - Billings Long Range Transportation Plan\gis\Task 4_Land Use\13291_FIG3-3_pop2010.mxd · lnuxoll · 10:18 AM 8/20/2014

Source: City of Billings GIS Database, City of Billings, Census 2010



TAZ Housing (2010)

- 0
- 1 - 24
- 25 - 49
- 50 - 99
- 100 - 200
- > 200

- Study Area
- Roadway/Highway
- Railroads
- Billings City Limits

Total Housing Units (2010) = 57,071
Represents total within MPO

Regions that extend outside of study area are a result of traffic analysis zone delineation, and do not represent locations of housing.

2010 Housing

Figure **3-4**

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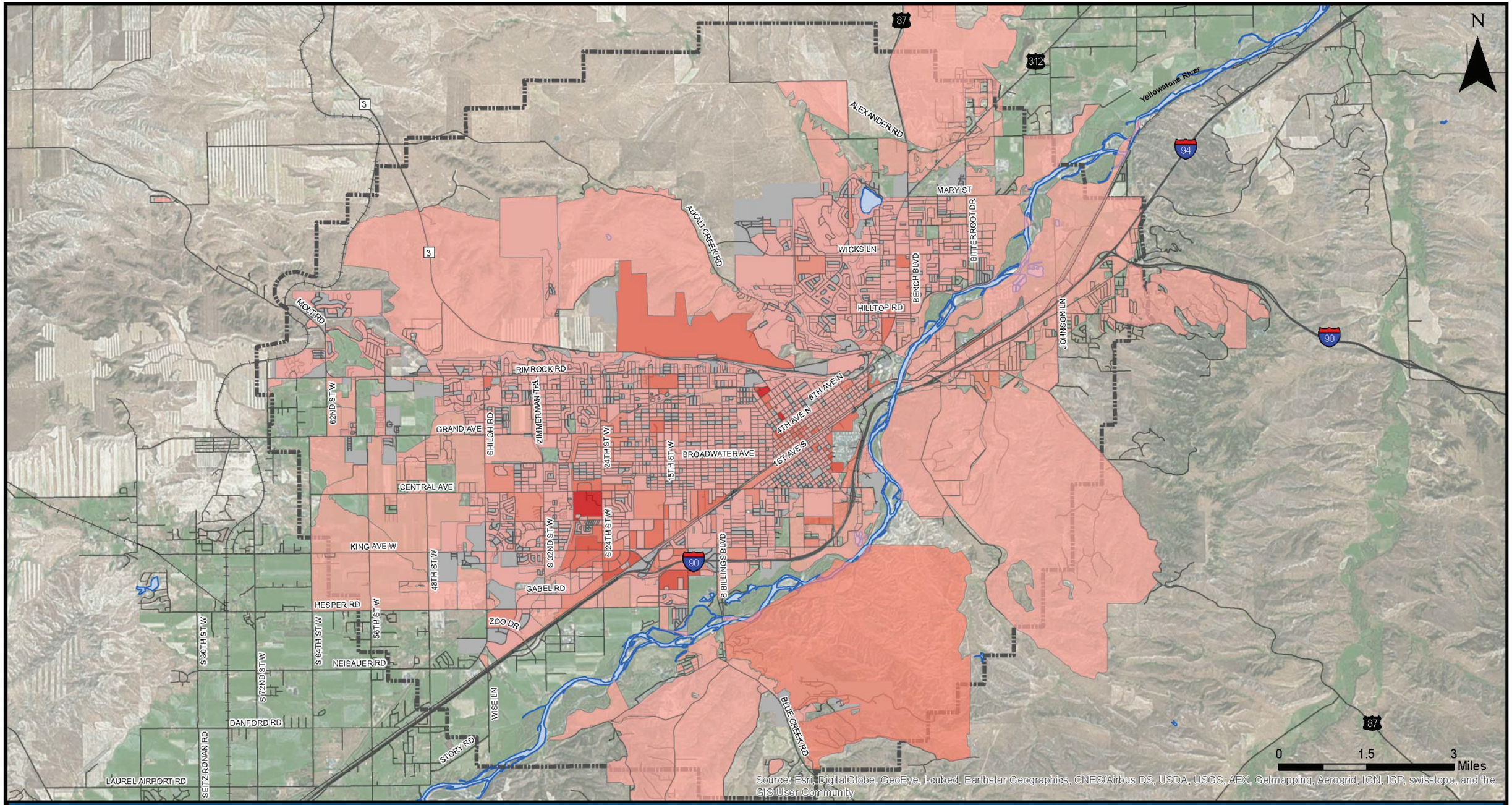
Source: City of Billings GIS Database



TAZ
Total Employment
(2010)

- 0
- 1 - 149
- 150 - 299
- 300 - 649
- 650 - 1500
- > 1500

- Study Area
- Roadway/Highway
- Railroads
- Billings City Limits

Total Employment (2010) = 89,618
Represents total employment within study area

Regions that extend outside of study area are a result of traffic analysis zone delineation, and do not represent locations of employment.

2010 Employment

2014 BILLINGS URBAN AREA Long Range Transportation Plan

MPO BILLINGS - YELLOWSTONE COUNTY METROPOLITAN PLANNING ORGANIZATION

DOWL HKM

Figure
3-5

Source: City of Billings GIS Database

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TRAVEL PATTERNS

In 2011, American Community Survey compiled mode share statistics for the City of Billings. Table 3.3 summarizes the mode share data.

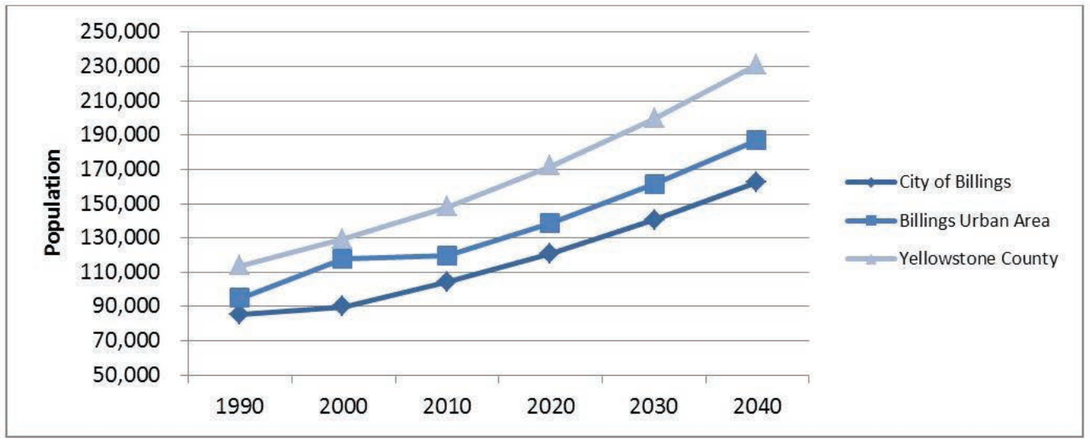
Work trips comprise the majority of peak period travel, which has the highest impact on the transportation system. As shown, the predominant motorized mode is the single occupant vehicle and walking is the predominant non-motorized mode. Over 80 percent of work trips in Billings are made by single occupancy vehicles (persons driving alone to work). A significant percent of work trips in the city (approximately 9.3 percent), are made by carpool. Currently, bicycling represents the smallest portion of the mode share in Billings. Chapter 8 provides further discussion on mode share for bicyclists and pedestrians.

Table 3.3 Year 2011 Mode Share in the City of Billings

Transportation Mode	Number of Commuters	Percent of Total
Drive Alone	42,117	81.3%
Carpool (2 people)	3,821	7.4%
Carpool (3+ people)	965	1.9%
Public Transportation	821	1.6%
Bicycle	348	0.7%
Walk	1,651	3.2%
Other	460	0.9%
Worked from Home	1,643	3.2%
Total	**51,826**	**100.0%**

Source: United States Census Bureau 2011 American Community Survey

Exhibit 3.1 Population Trends and Projections



Forecast Demographics

Using historical growth patterns and discussions with the MPO and MDT, future population/housing and employment concentrations were developed for the horizon year 2035 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 Yellowstone County from 2010 to 2030 are anticipated to increase by 51,327 persons, for an average increase of 2,566 persons per year. Table 3.4 and Exhibit 3-1 show the population and projected population for the City of Billings, Billings Urban Area, and Yellowstone County from 1990 to 2040.

Table 3.4 Population Trends and Projections

	1990	2000	2010	2020	2030	2040
City of Billings	85,073	89,847	104,170	120,894	140,303	162,828
Billings Urban Area	94,724	117,549	119,688	138,902	161,202	187,081
Yellowstone County	113,419	129,352	147,972	171,728	199,299	231,295
Billings Percent of County	75.0%	69.5%	70.4%	70.4%	70.4%	70.4%
Billings 10-Year Percent Growth	8.5%	5.6%	15.9%	16.1%	16.1%	16.1%
County 10-Year Percent Growth	23.7%	14.0%	14.4%	16.1%	16.1%	16.1%

Source: U.S. Census Bureau (American FactFinder) and City/County Planning Division.

Yellowstone County has seen gradual urbanization since 1980 when only 61.8 percent of the population lived within the city limits. By 1990, the Billings population represented 75 percent of the population of the Yellowstone County population. That percentage decreased to 69.5 percent by 2000 but has steadily risen to 70.4 percent by 2010. It is anticipated that as the population around the City of Billings increases, development occurs outside the city limits, and with urban infill, that Yellowstone County's urban population will remain relatively constant over the next 20 years.

As depicted in Figures 3-3 and 3-4, 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

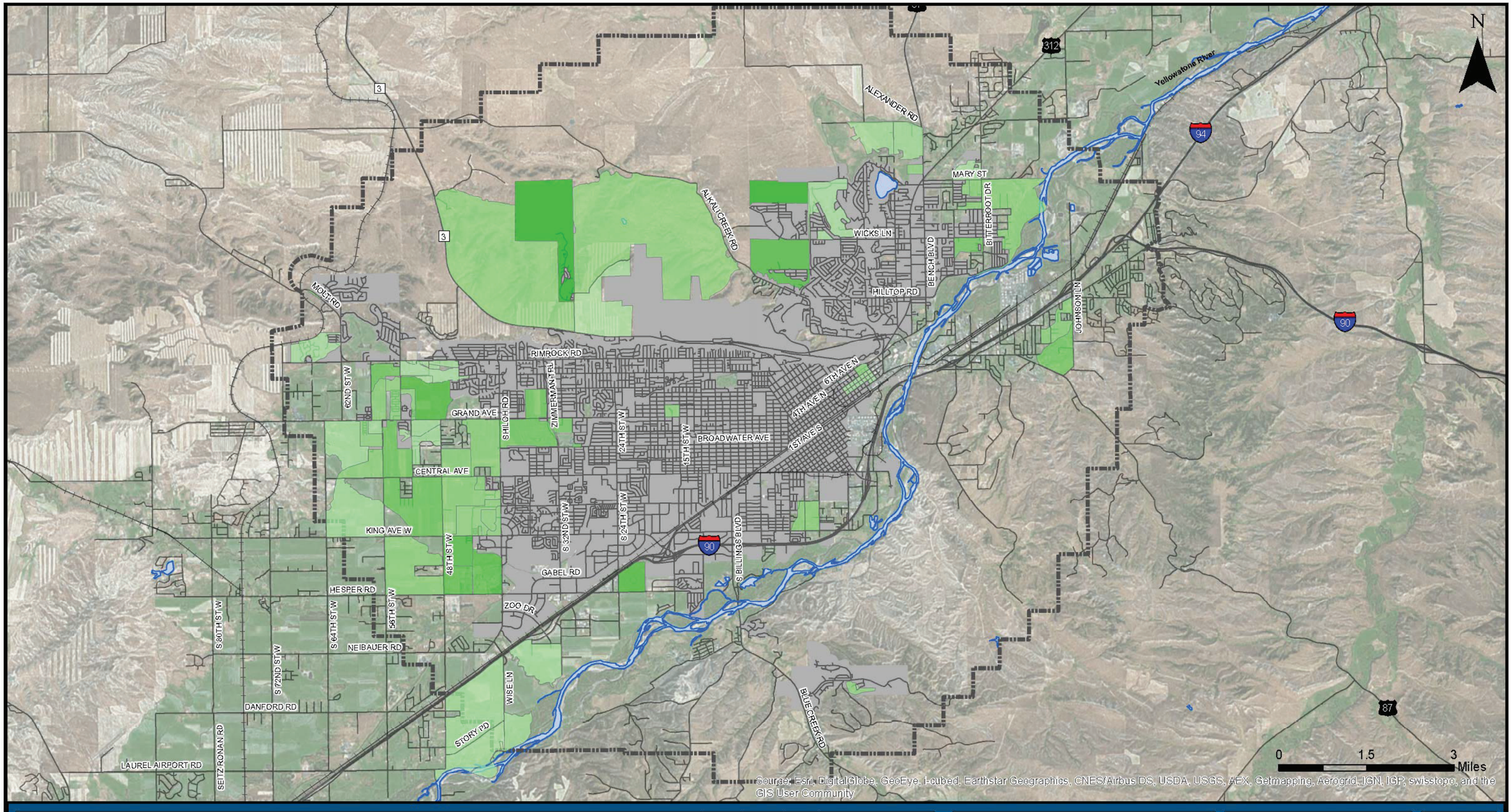
In 2010, the Billings Urban Area population was approximately 126,500 persons residing in 57,070 dwelling units. By 2035, the population is expected to grow to approximately 181,600 persons in 79,200 dwelling units. The growth in population and housing between 2010 and 2035 within the Urban Area boundary is summarized in Table 3.5.

Table 3.5 Billings Urban Area Population Trends and Projections

Demographic	2010	2035	Change	Percent Change
Population	126,564	181,657	+55,093	+43.5%
Housing (Dwelling Units)	57,071	79,206	+22,135	+38.8%

Source: City/County Planning Division.

Figure 3-6 shows the population growth between 2010 and 2035. As depicted in both figures, 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 US 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. In-fill is projected to occur in the southern areas within the city limits, Lockwood, and the Heights neighborhoods.



TAZ Population Growth

- No Growth
- +1 to +499
- +500 to +999
- +1000 to +1499
- +1500 to +2500
- > +2500

- Study Area
- Roadway/Highway
- Railroads
- Billings City Limits

Total Population (2035) = 181,657
Total Growth (2010-2035) = +55,093
Represents population within MPO

Regions that extend outside of study area are a result of traffic analysis zone delineation, and do not represent locations of population.

Population Growth (2010 - 2035)

Figure **3-6**

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Source: City of Billings GIS Database

FUTURE EMPLOYMENT

With growth in population, the employment sector within the study area is also expected to grow. As of 2010, the estimated total employment in the Urban Area was approximately 89,618 jobs. By 2035, employment is projected to add another 39,678 jobs to result in an approximate 129,296 jobs in the Billings Urban Area. Table 3.6 summarizes the projected employment growth from 2010 to 2035.

Table 3.6 Billings Urban Area Employment Growth 2010-2035

Demographic	2010	2035	Change	Percent Change
Employment (Retail)	19,468	28,146	+8,678	+44.6%
Employment (Non-retail)	70,150	101,150	+31,000	+44.2%
Total Employment	89,618	129,296	+39,678	+44.3.0%

Source: City/County Planning Division.

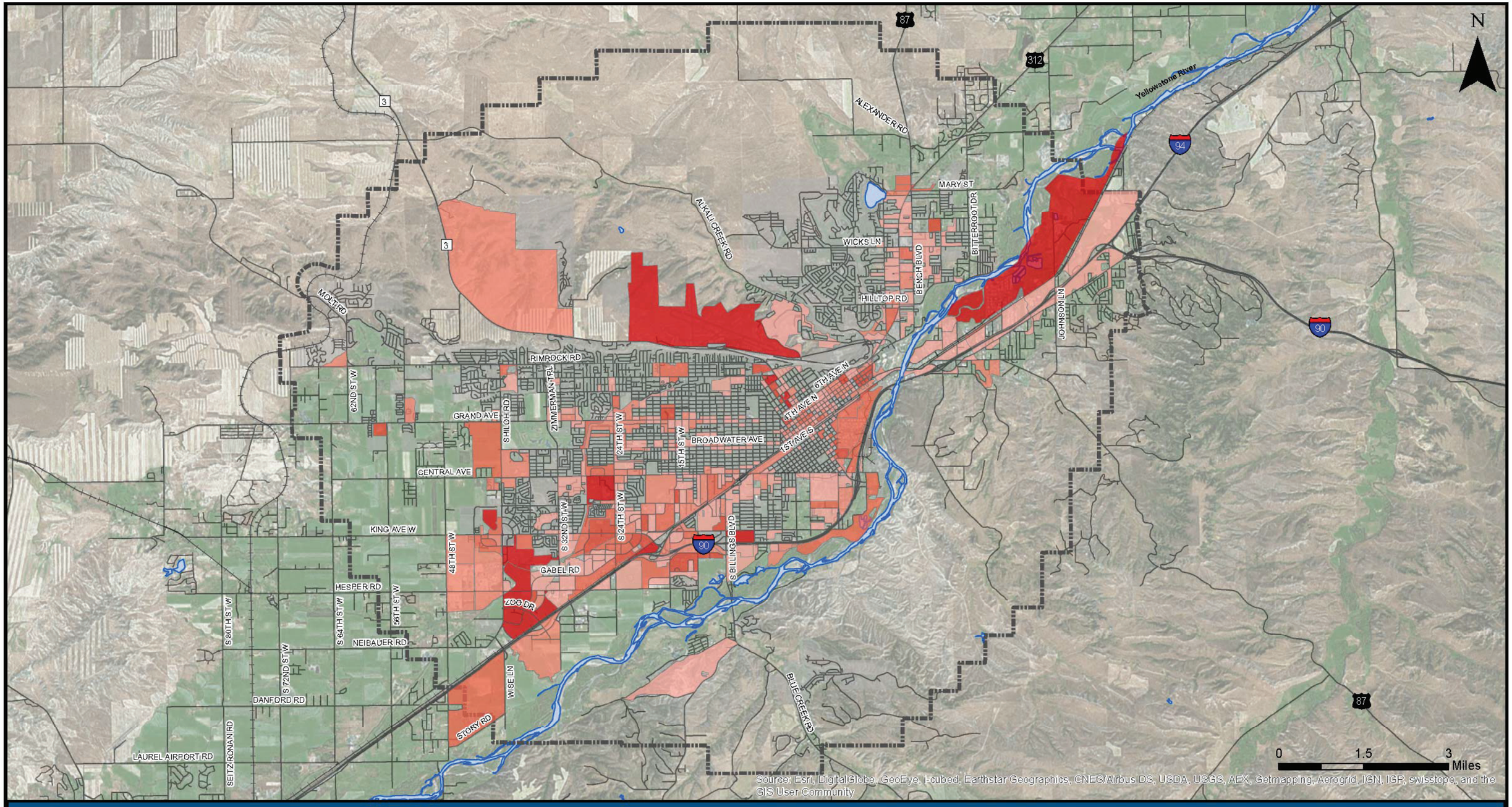
Figure 3-7 shows the comparison between 2010 and 2035 employment distributions. Employment growth within the Billings Urban Area is expected to expand generally within current commercial areas and to "densify" current employment locations. These commercial areas include S. 24th Street, Shiloh Road, the 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, (refer to Chapter 5: Public Transit and Transportation), there is currently no existing transit service west of Shiloh Road to provide this option.

Generally, the residential population is projected to continue to spread out within the study area. However, employment is expected to mostly increase in density around the following areas Shiloh Road (south of Grand Avenue); Downtown Billings; and near the Exit 446, Exit 447, and Exit 450 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 County's Growth Policy and the City's Complete Streets Policy. 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.



Change in TAZ Total Employment

- < +10
- +10 - +49
- +50 - +99
- +100 - +199
- +200 - +450
- > +450

- Study Area
- Roadway/Highway
- Railroads
- Billing City Limits

Total Employment (2035) = 129,296
Total Growth (2010-2035) = +39,678
Represents total employment within study area

Regions that extend outside of study area are a result of traffic analysis zone delineation, and do not represent locations of employment.

Employment Growth (2010 - 2035)

2014 Billings Urban Area Long Range Transportation Plan

MPO Billings - Yellowstone County Metropolitan Planning Organization

DOWL HKM

Figure **3-7**

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Source: City of Billings GIS Database

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CHAPTER 4

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.

All of the 2014 LRTP goals correspond to the streets and highways element:

- **Goal 1: Safe, Efficient, Effective –** To develop a transportation system that is safe, efficient, and effective
- **Goal 2: Functional Integrity –** To optimize, preserve, and enhance the existing transportation system
- **Goal 5: Multimodal –** To create a transportation system that supports the practical and efficient use of all modes of transportation
- **Goal 6: Economic Vitality –** To develop a transportation system that supports the existing local economy and connects 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 cutthrough vehicular traffic.

In addition to the above roadway 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 4.1). Ultimately, FHWA makes the final functional class determination. Figure 4-1 illustrates the existing Billings Urban Area roadway classifications. Exhibits 4.1 through 4.5 show a few different roadway types in the Billings Urban Area.

Exhibit 4.1 Main Street, Principal Arterial

Exhibit 4.2 Laurel Road, Principal Arterial

Exhibit 4.3 Rimrock Road, Principal Arterial

Exhibit 4.4 Monad Road, Minor Arterial

Exhibit 4.5 Lewis Avenue, Collector

As shown in the Exhibits, each of the classified roadways has some similar design characteristics, but there is some flexibility in the cross-section, 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. Figure 4-2 illustrates the updated functional classification map for plan adoption.

As shown in Figure 4-2, the future connections provide additional connectivity throughout the Billings Urban Area. The major proposed connections, listed in order of functional classification and in parentheses if a study was completed, 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
- **Billings Arterial** – provides a connection from Highway 312 to Interstate 90 at Johnson Lane (Billings Bypass Environmental Impact Statement, 2014)
- **Alkali Creek Road to Highway 3 Arterial** – provides a connection from Alkali Creek Road to Highway 3, north and west of the airport (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)

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

Exhibit 4.6 Future Roadway Network Identified in 1964

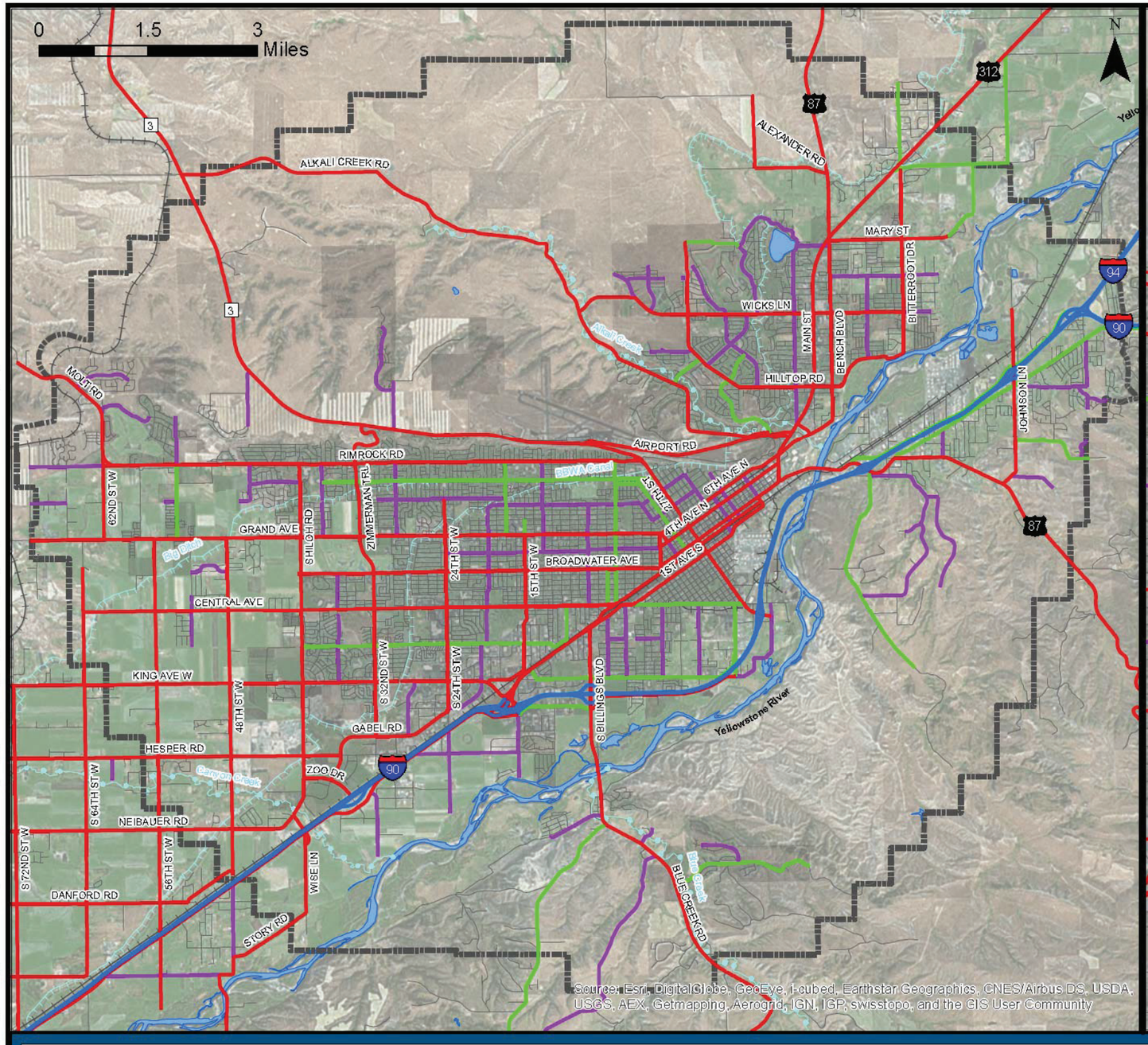
Existing Conditions

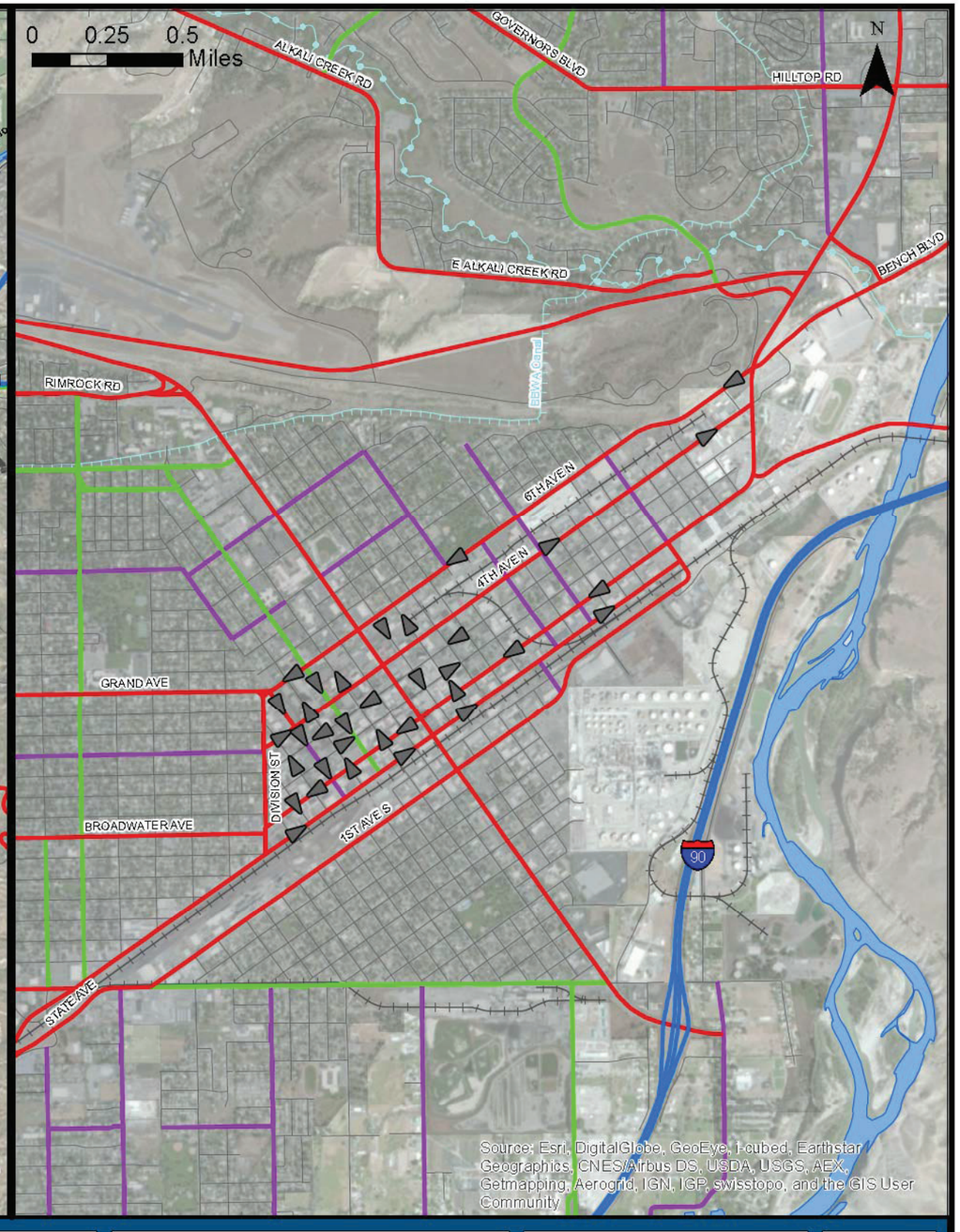
This section summarizes the existing roadway facilities, traffic volumes, and operations within the study area.

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, United States, and Mexico.

As shown in Figure 4-1 Interstate 90, Montana Highway 3, and US Route 87 are the three major roadways that converge near downtown Billings.





Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets
One-Way Travel
Railroads
Study Area
Billings

Existing Streets and Highways

2014 BILLINGS URBAN AREA Long Range Transportation Plan

BILLINGS - YELLOWSTONE COUNTY MPO METROPOLITAN PLANNING ORGANIZATION

DOWL HKM

Figure **4-1**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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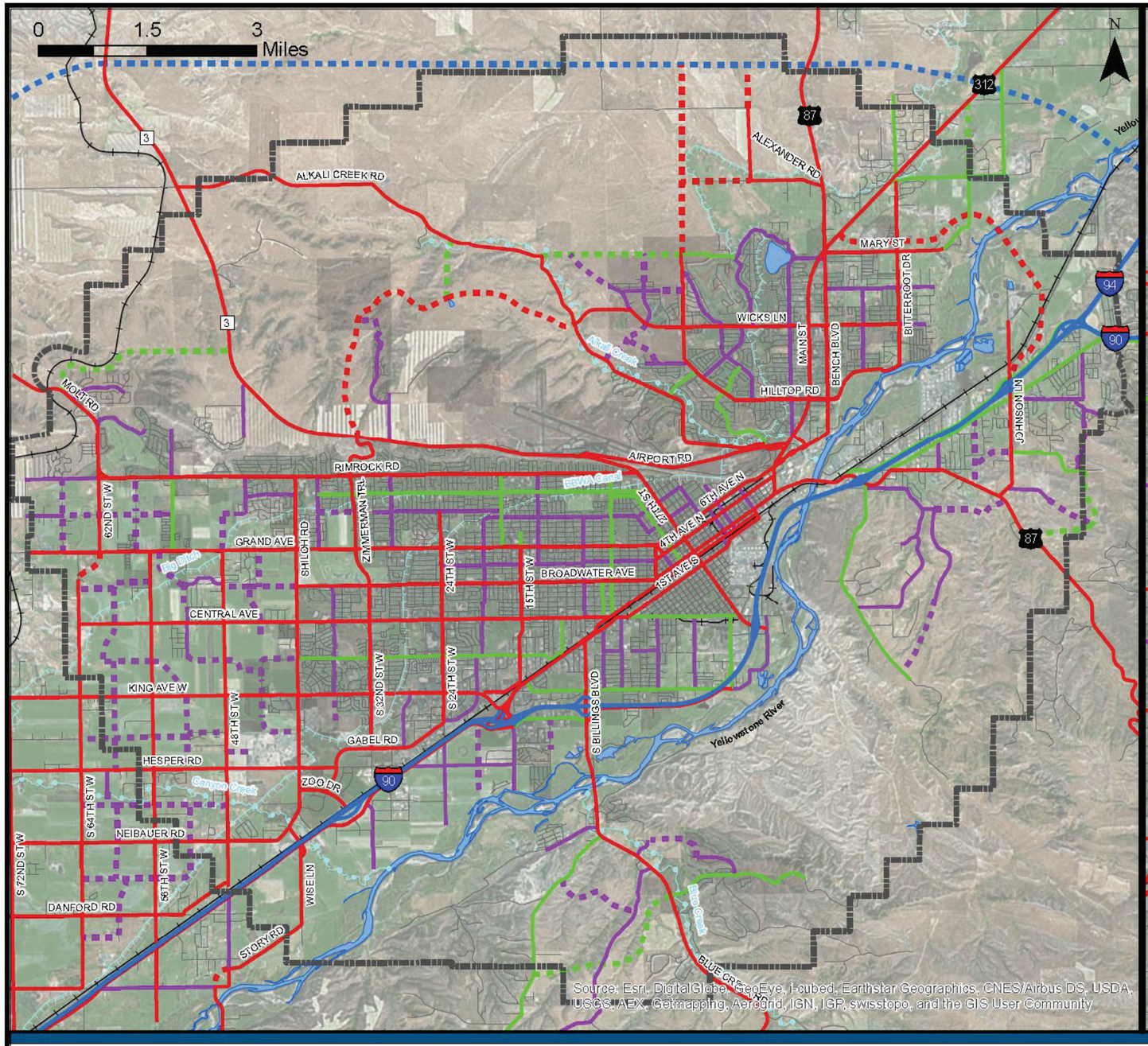
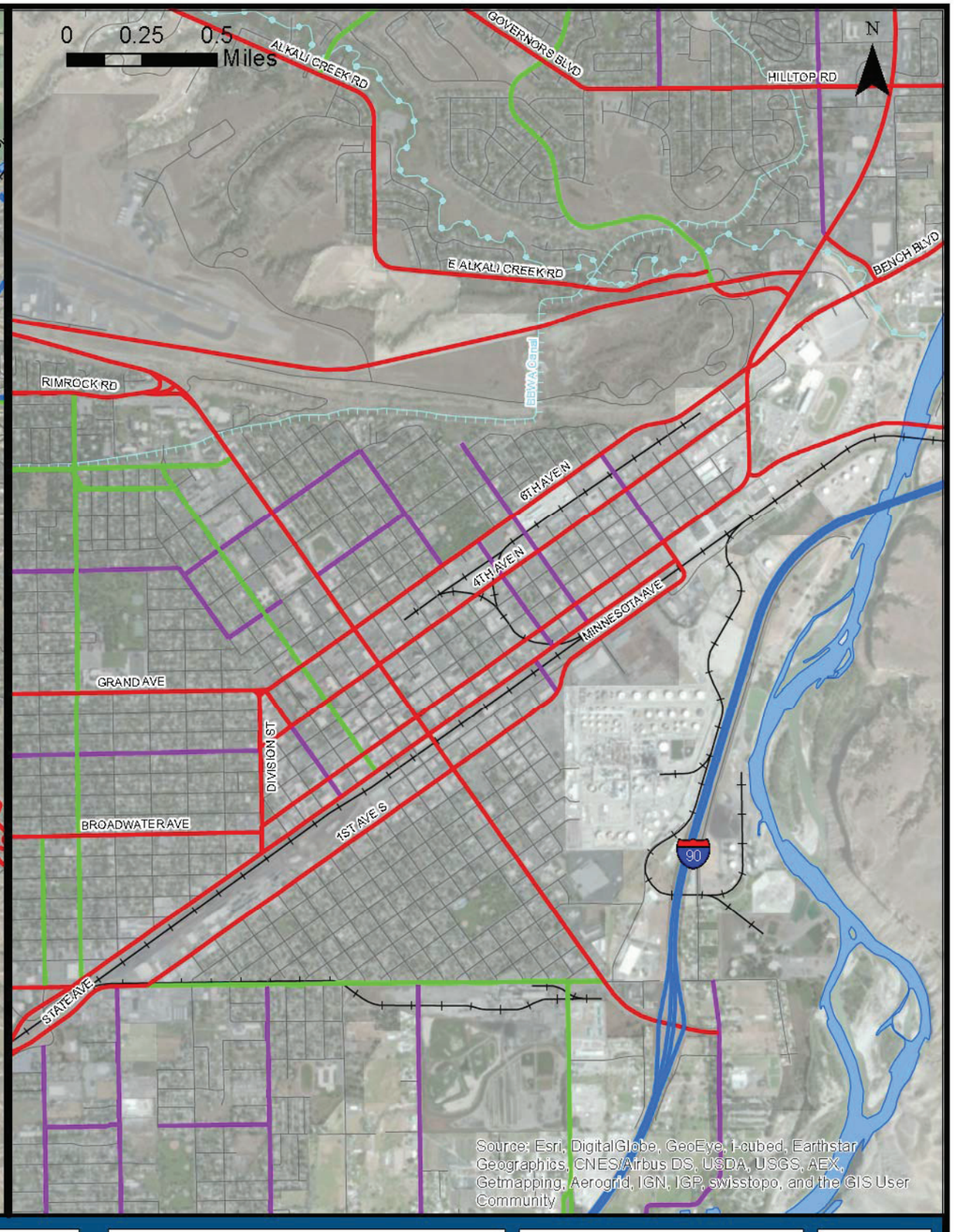




Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets
Proposed Freeway Controlled Access
Proposed Principal Arterial
Proposed Minor Arterial
Proposed Collector
Railroads
Billings

Note: Functional Classification System for local transportation planning purposes, this map may not be consistent with the Federally approved functional classification network.
Updated on June 24th, 2014

Functional Classification Map

2014 BILLINGS URBAN AREA Long Range Transportation Plan
BILLINGS - YELLOWSTONE COUNTY MPO METROPOLITAN PLANNING ORGANIZATION
DOWL HKM

Figure **4-2**

H:\projfile\13291 - Billings Long Range Transportation Plan\gis\Task 5_Streets\final figures\13291_4-2_Functional_Classification.mxd - lnuxoll - 10:25 AM 8/20/2014

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

With the Yellowstone River running through the Urban Area, it is critical to have multiple roadway crossings of the river. Currently, only Interstate 90, South Billings Boulevard, and US Route 87 have bridge crossings over the Yellowstone River. Table 4.1 summarizes the roadway characteristics of the Interstate and Principal Arterials within the study area.

Table 4.1 Roadway Characteristics of Interstate and Principal Arterials

Roadway	Functional Classification[1]	National Highway System Designation	Access Type	# of Lanes	AADT[4, 5]
Alkali Creek Road	Principal Arterial	-	Limited Access	2 Lanes	230 – 6,100
Bench Boulevard	Principal Arterial	-	Signalized / Round-abouts	2 Lanes	1,800 – 6,500
Blue Creek Road	Principal Arterial	-	Limited Access	2 Lanes	3,500
Broadwater Avenue	Principal Arterial	-	Signalized	5 Lanes	2,800 – 18,000
Central Avenue	Principal Arterial	-	Signalized	4/5 Lanes	3,900 – 16,300
Gabel Road	Principal Arterial	-	Signalized	3/5 Lanes	4,700 – 5,700
Governor's Boulevard	Principal Arterial	-	Signalized	2/3 Lanes	3,400 – 5,000
Grand Avenue	Principal Arterial	-	Signalized	4/5 Lanes	8,000 – 20,000
Hesper Road	Principal Arterial	-	Signalized	2 Lanes	2,300 – 2,600
Hilltop Road	Principal Arterial	-	Signalized	5 Lanes	6,200 – 11,700
Interstate 90	Interstate	Interstate System	Grade Separated	4 Lanes	9,000 – 27,500
Interstate 94	Interstate	Interstate System	Grade Separated	4 Lanes	2,000 – 4,000
King Avenue	Principal Arterial	MAP-21 NHS Principal Arterial	Signalized	4/5 Lanes	6,000 -36,000
Johnson Lane	Principal Arterial	-	Limited Access	2 Lanes	1,000 - 2,500
Laurel Road	Principal Arterial	MAP-21 NHS Principal Arterial	Limited Access / Signalized	5 Lanes	23,700
Main Street	Principal Arterial	Other NHS Route	Signalized	6/7 Lanes	32,000 - 42,600
Mary Street	Principal Arterial	-		2 Lanes	120 – 1,670
Molt Road	Principal Arterial	-	Limited Access	2 Lanes	1,200 – 2,500
Montana Avenue	Principal Arterial	MAP-21 NHS Principal Arterial	Signalized	3 Lanes	9,000 – 11,000
Montana Highway 3	Principal Arterial	Non-Interstate STRAHNET Route	Limited Access	2 Lanes	4,000 - 9,000
Neibauer Road	Principal Arterial	-	Stop-Controlled	2 Lanes	1,100
Old Hardin Road	Principal Arterial	-	Unsignalized	2 Lanes	2,700 - 6,800
Regal Street	Principal Arterial	-	Signalized	2 Lanes	5,400 – 5,800
Rimrock Road	Principal Arterial	-	Signalized	3 Lanes	5,200 – 11,600
Shiloh Road	Principal Arterial	-	Roundabout	4/5 Lanes	7,000 -13,000
S. Billings Blvd	Principal Arterial	-	Signalized	2 Lanes	3,500 - 9,500
US Route 87	Principal Arterial	Other NHS Route	Limited Access	2 Lanes	3,000 - 5,500
Old Highway 312	Principal Arterial	-	Limited Access	2 Lanes	11,000
Wicks Lane	Principal Arterial	-	Signalized	2/5 Lanes	2,300 – 6,900
Zoo Drive	Principal Arterial	MAP-21 NHS Principal Arterial	Signalized	4/5 Lanes	9,000
Zimmerman Trail	Principal Arterial	-	Signalized	2 Lanes	7,000 - 8,000
1st Avenue North	Principal Arterial	MAP-21 NHS Principal Arterial	Signalized	3 Lanes	11,900 - 13,400
1st Avenue South	Principal Arterial	MAP-21 NHS Principal Arterial	Signalized	2/4 Lanes	8,800 - 10,200
4th Avenue North	Principal Arterial	-	Signalized	4 Lanes	12,300 – 13,800
6th Avenue North	Principal Arterial	-	Signalized	4 Lanes	15,200 - 17,400
15th Street West	Principal Arterial	-	Signalized	3 Lanes	5,500 – 8,200
24th Street West	Principal Arterial	-	Signalized	5 Lanes	6,300 – 24,300
N/S 27th Street	Principal Arterial	-	Signalized	5 Lanes	11,800 – 20,800
32nd Street West	Principal Arterial	-	Signalized	3 Lanes	1,800 – 11,300
48th Street West	Principal Arterial	-	Stop-Controlled	2 Lanes	1,000 – 2,000
56th Street West	Principal Arterial	-	Stop-Controlled	2 Lanes	1,000 – 2,000
62nd Street West	Principal Arterial	-	Limited Access	2 Lanes	2,500 – 3,500
64th Street West	Principal Arterial	-	Stop-Controlled	2 Lanes	1,000 – 2,000

[1]Billings Urban Area Functional Classification Map (4-1)
[2]GIS data provided by the City of Billings
[3]mph – miles per hour
[4]Interstate 90 values from I-90 Corridor Planning Study, Interstate 94 from travel demand model, All other from 2012 Traffic Count Map (4-2o) - range provide if multiple AADT values were given.
[5]AADT – Average Annual Daily Traffic

SAFETY

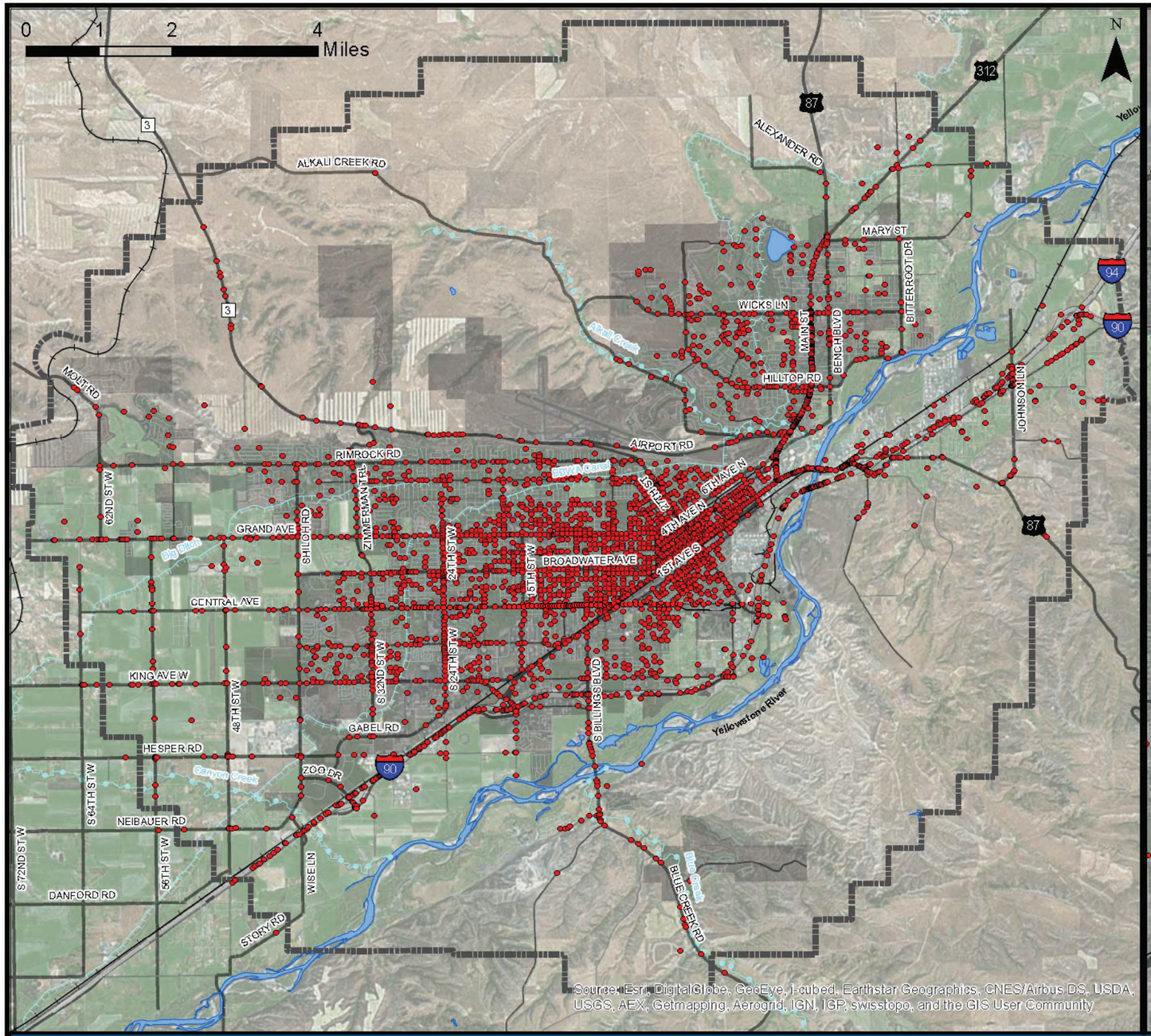
Consideration of highway accident data and safety issues is a critical element in the planning and design of any transportation system. A review of 2010-2012 highway accident data for the arterial and collector roadways within the study area was completed to identify roadways that had significantly higher crash rates than would be expected based on the statewide average rates for similar type roadways. A total of 8,792 reported crashes occurred in the Billings Urban Area during this three-year period. Figure 4-3 shows all reported crashes over this three-year time period.

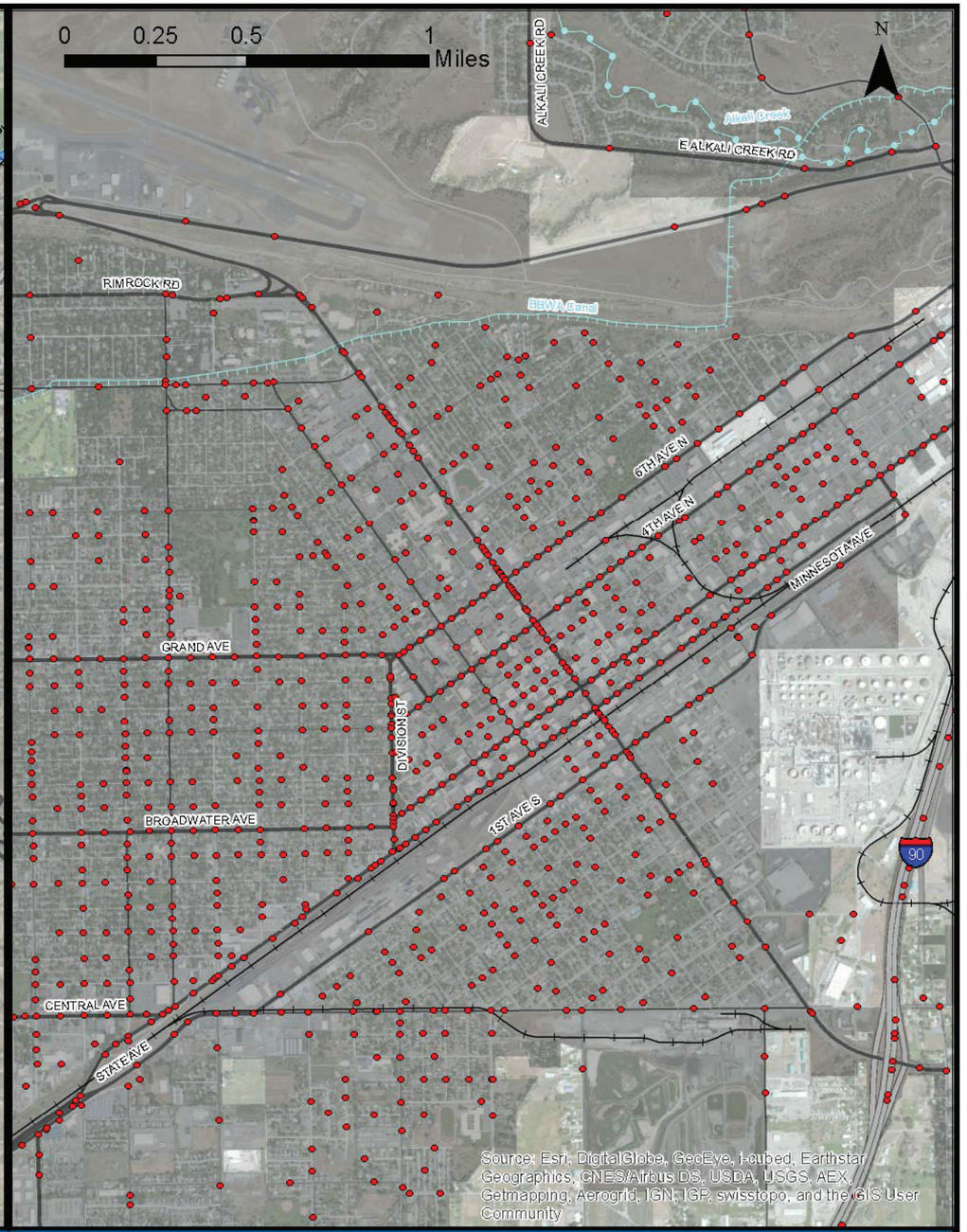
Tables 4.2 and 4.3 identify the top ten intersections and roadway segments with high crash rates in the study area. Figure 4-4 illustrates the location of the intersections and roadway segments.

Table 4.2 Intersections with High Crash Rates (2010-2012)

	Intersections	Total Crashes	Crash Rate
1	Rosebud Drive and 24th Street West	85	4.20
2	Central Avenue and 24th Street West	124	2.58
3	King Avenue West and 24th Street West	103	2.39
4	Grand Avenue and 17th Street West	92	2.27
5	Monad Road and 24th Street West	58	1.98
6	Grand Avenue and 19th Street West	56	1.90
7	Broadwater and 24th Street West	63	1.76
8	King Avenue West and 20th Street West / Overland Avenue	63	1.44
9	Wicks Lane and Main Street	81	1.41
10	Broadwater Avenue and Division Street	42	1.30

Source: MDT Crash Data (2010 - 2012)
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.





- Reported Crash
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Total Reported Crashes (2010-2012)

Figure **4-3**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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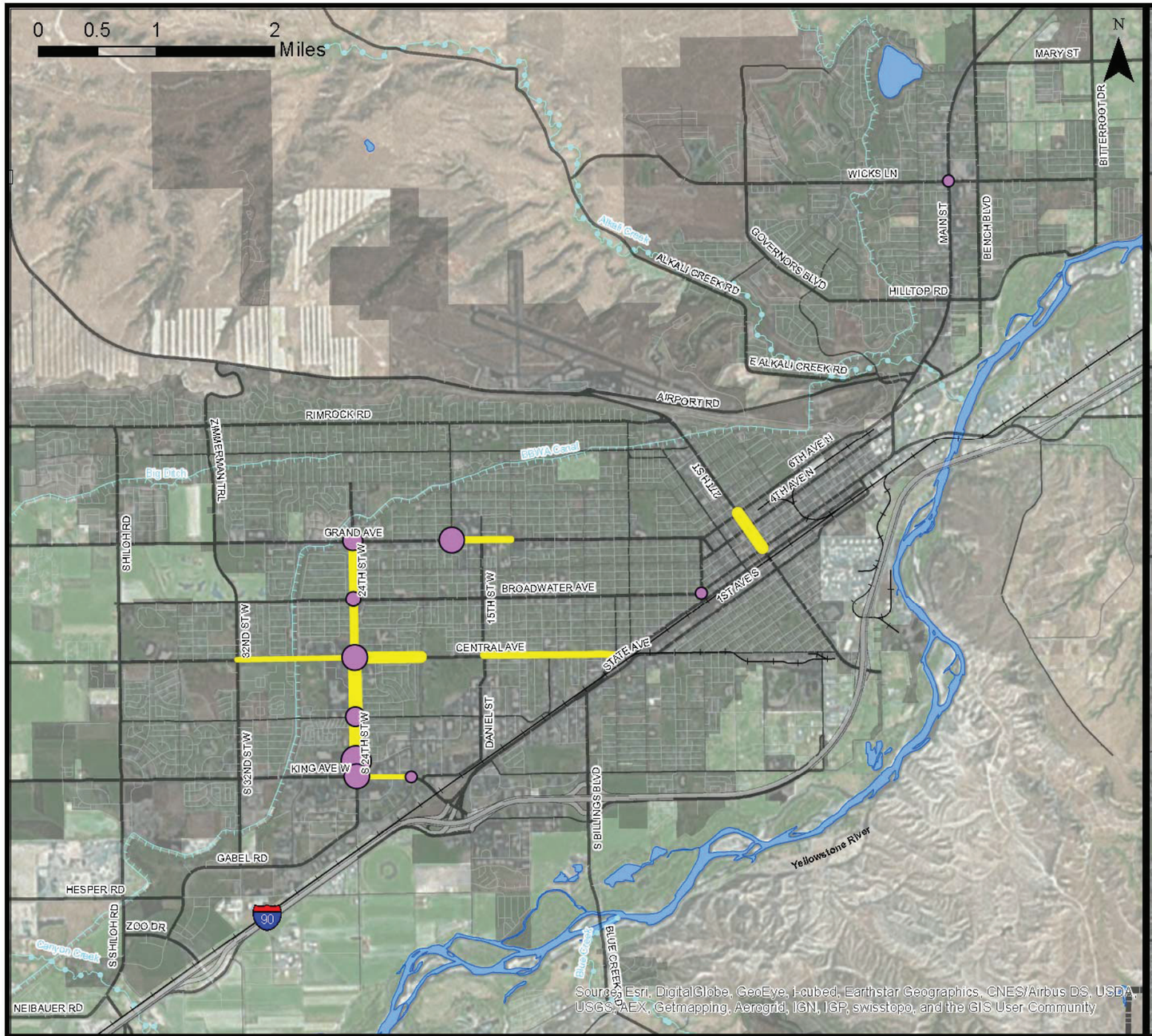

Corridor Crash Rate
- 12.9 - 13.16
- 13.16 - 15.45
- 15.45 - 18.22
- 18.22 - 19.61
- 19.61 - 27.45

Intersection Crash Rate
- <1.44
- 1.44 - 1.76
- 1.76 - 1.98
- 1.98 - 2.58
- 2.58 - 4.20

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Intersection and Corridor Crash Rates

2014 Billings Urban Area Long Range Transportation Plan

MPO Metropolitan Planning Organization

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Figure **4-4**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

As shown in Table 4.2, 24th Street West (5 locations) and Grand Avenue (2 locations) have many of the high crash rate intersections.

Table 4.3 Roadway Segments with High Crash Rates (2010-2012)

	Intersections	Total Crashes	Crash Rate
1	24th Street West: King Avenue West to Monad Road	206	27.45
2	24th Street West: Monad Road to Central Avenue	208	23.63
3	27th Street: 6th Avenue North to 1st Avenue North	195	19.61
4	24th Street West: Central Avenue to Broadwater Avenue	110	19.29
5	Central Avenue: 24th Street West to 19th Street West	174	18.22
6	24th Street West: Broadwater Avenue to Grand Avenue	140	18.02
7	Central Avenue: 15th Street West to 6th Street West	166	15.45
8	Grand Avenue: 17th Street West to 13th Street West	190	14.32
9	Central Avenue: 32nd Street Southwest to 24th Street West	171	13.16
10	King Avenue West: 32nd Street West to 24th Street West	135	12.9

Source: MDT Crash Data (2010 - 2012)
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

MDT provided 2010 Average Daily Traffic (ADT) information for roadways in Billings Urban Area. A 2-percent annual growth rate was applied to the 2010 traffic volumes to obtain year 2013 traffic conditions. Figure 4-5 illustrates the year 2013 existing daily traffic volumes on key roadway segments.

The existing conditions evaluation examined the operational characteristics of the major roadway corridors in the study area, based on standard engineering procedures defined as Level of Service (LOS). Level of Service considers the design characteristics and capacity of a given roadway and its ability to handle traffic based on the average daily traffic volumes and typical peak hour traffic volumes. LOS "A & B" are generally very good, LOS "C & D" are generally good to fair, while LOS "E & F" indicates much higher levels of congestion. Figure 4-6 illustrates the existing roadway segment level of service based on daily service volumes.

Did you know? In 1964, Grand Avenue and 6th Avenue North had daily traffic volumes between 1,000 and 12,400 and 3,200 and 8,800, respectively. Today, these roadways carry between 15,200 and 17,400, and 8,000 and 20,000 daily vehicles, respectively.

Generally, most roadways operate at LOS D or better throughout the urban area under the existing conditions. Some exceptions that operate at LOS E or F include:

- Main Street, between 4th Avenue to Hilltop Road
- Bench Boulevard, between Main Street and Lin coln Lane
- Wicks Lane, between Lake Elmo Drive and Twin Oaks Drive
- King Avenue West, between 20th Street and West Laurel Road
- Interstate 90 westbound lanes between, King Avenue west to the western boundary of study area

In addition to the roadway segments, there are likely some intersections that operate at LOS E or F during the peak hours of the day. As part of this LRTP, a detailed intersection analysis was not included for the study area intersections. Operational results from past studies were used to inform the project team of intersection operations.

Future Conditions

This section summarizes the year 2035 traffic volumes and traffic operations within the study area.

TRAFFIC OPERATIONS

MDT maintains the regional travel demand model for the Billings Urban Area. The 2035 regional travel demand model was updated with completed and major committed projects for the study area. The major committed projects include:

- Inner Belt Loop – Full connection, 2-lane roadway, from Wicks to Zimmerman Trail.
- Grand Avenue (Zimmerman Trail to Shiloh Road) – 5 lane urban section
- Grand Avenue (Shiloh Road to 54th Street West) – 5 lane urban section
- Central Avenue (32nd Street West to Shiloh Road) – 5 lane urban section
- S 36th Street West – finish the connection across Central Avenue, connecting to 36th north of Central.
- 32nd Street West (King Avenue to Gabel Road) – 3 lane urban section
- Interstate 90 (S 27th Street Interchange to Lockwood Interchange) – 6 lanes (3 lanes each direction)
- Wicks Lane (Bench to Hawthorne Lane) – 3 lane urban section
- Bypass Arterial – 3-lane rural section from Johnson Lane interchange to Old Highway 312 and Highway 87
- Five Mile Road (Bypass to Old Highway 312) – This will add the missing link from Dover Road to Old Highway 312

Based on the above information included in the year 2035 travel demand model, MDT provided 2035 average daily traffic (ADT) volumes for the study roadways in the Billings Urban Area. Figure 4-7 illustrates the expected year 2035 daily traffic volumes on key roadway segments.

Figure 4-8 illustrates the year 2035 expected roadway segment level of service. Generally, most roadways operate at LOS D or better throughout the urban area under year 2035 traffic conditions. Some exceptions that operate at LOS E or F include:

- 1st Avenue N, between 10th Street and Exposition Drive
- Main Street, between 3rd Avenue and Hilltop Road

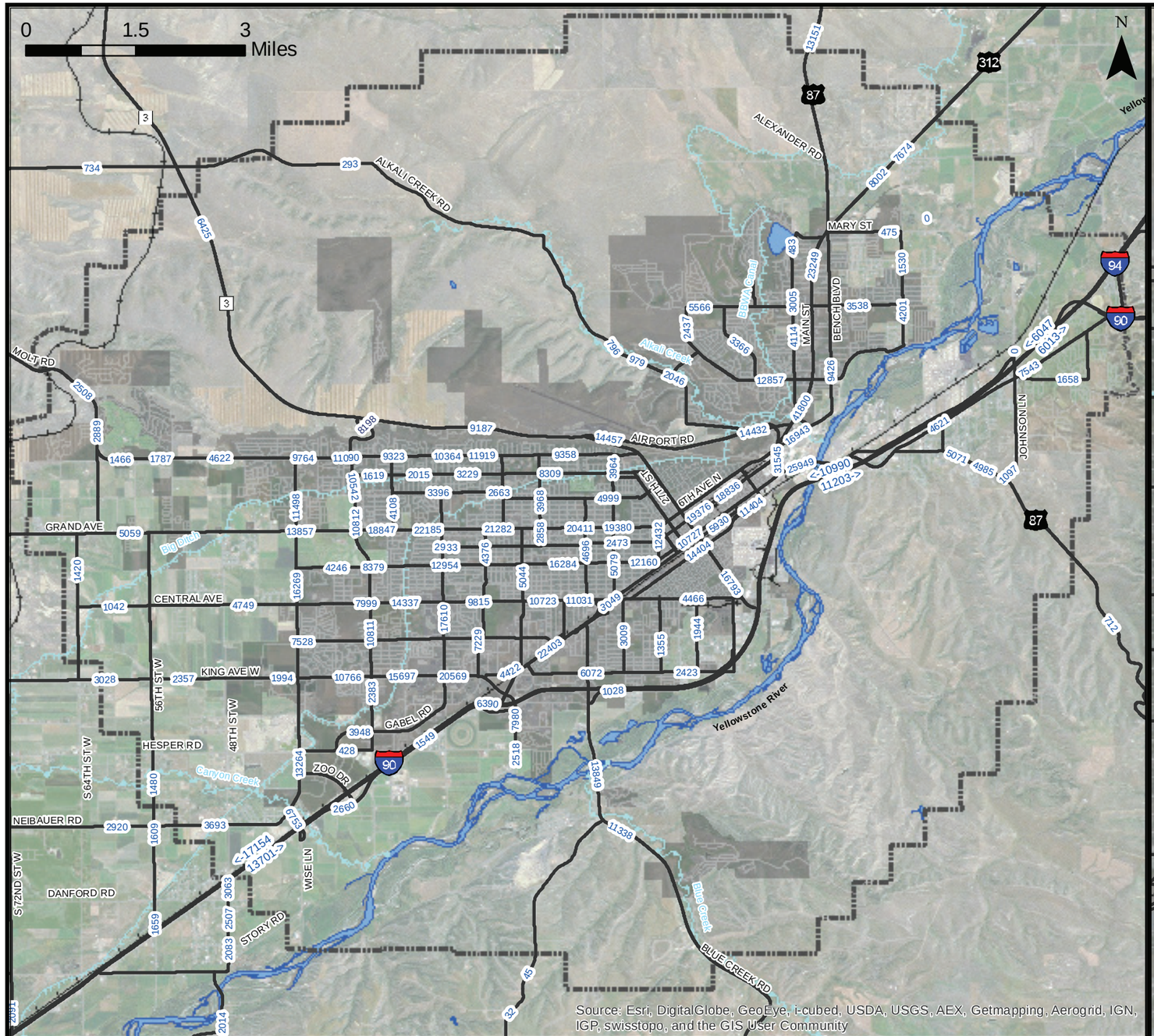
Needs and Deficiencies

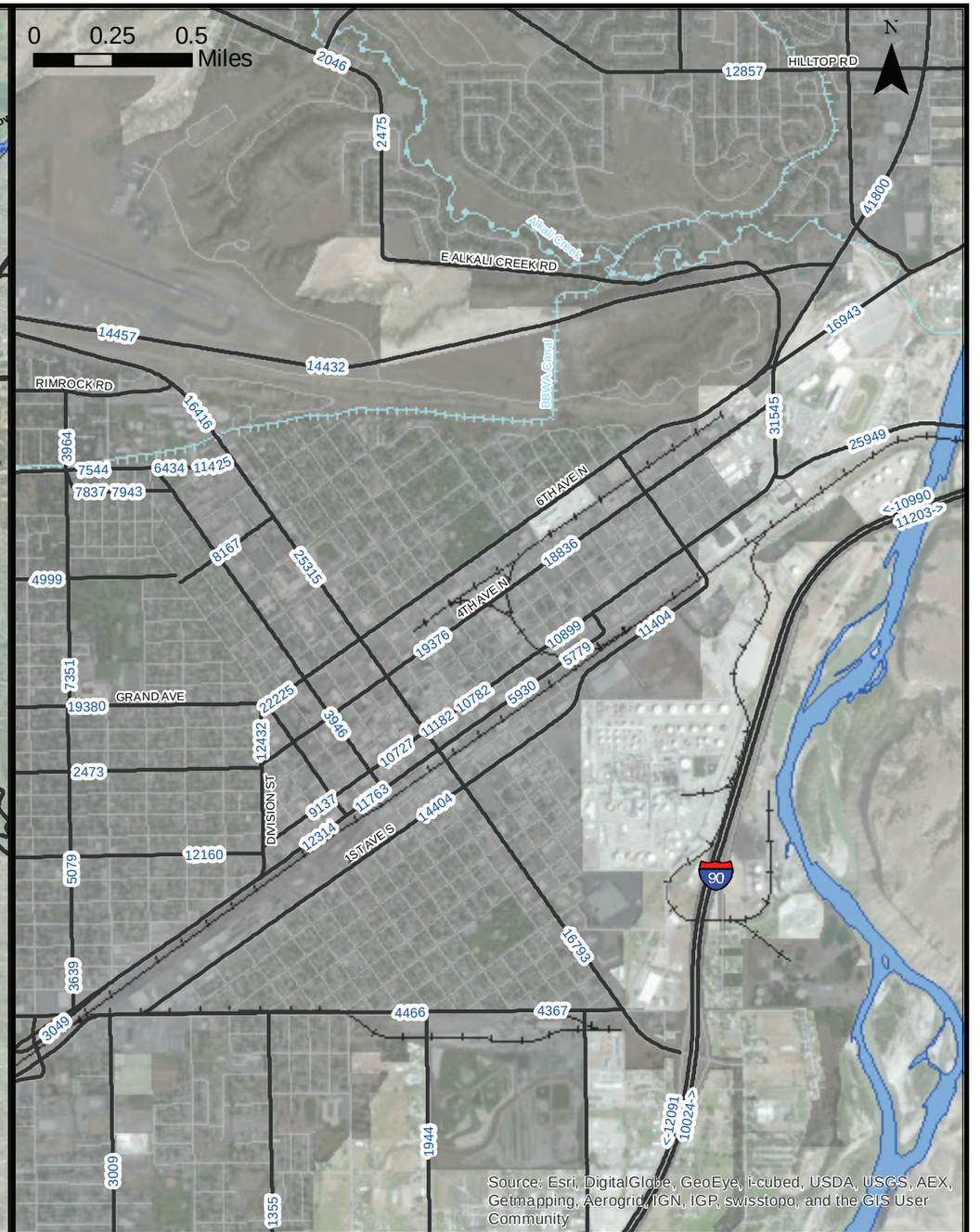
In order to guide identification of short and long-range projects, deficiencies and needs were collected from the general public, the POC, and through a review of past plans/studies.

PUBLIC AND POC FEEDBACK

Twenty-six percent of the public comments corresponded to streets and highways deficiencies and needs in the study area. Review of the public comment feedback and POC comments suggested the following themes:

- Provide better connectivity between the west end, downtown, and the north part of Billings
- Maintain a well-developed street network as the community grows to the west and in other directions
- Provide Inner Belt Loop and Outer Belt Loop connections
- Connect a new roadway between Highway 3 and Molt Road
- Provide access to Interstate 90 from Exposition Drive/Main Street





ADT

Railroads

Study Area

Billings

Note; Year 2013 traffic volumes derived from regional travel demand model 2010 traffic volumes and grown by 2% annually.
Source: Montana Department of Transportation

Existing (Year 2013) Average Daily Traffic (ADT)

2014 Billings Urban Area Long Range Transportation Plan

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Figure **4-5**

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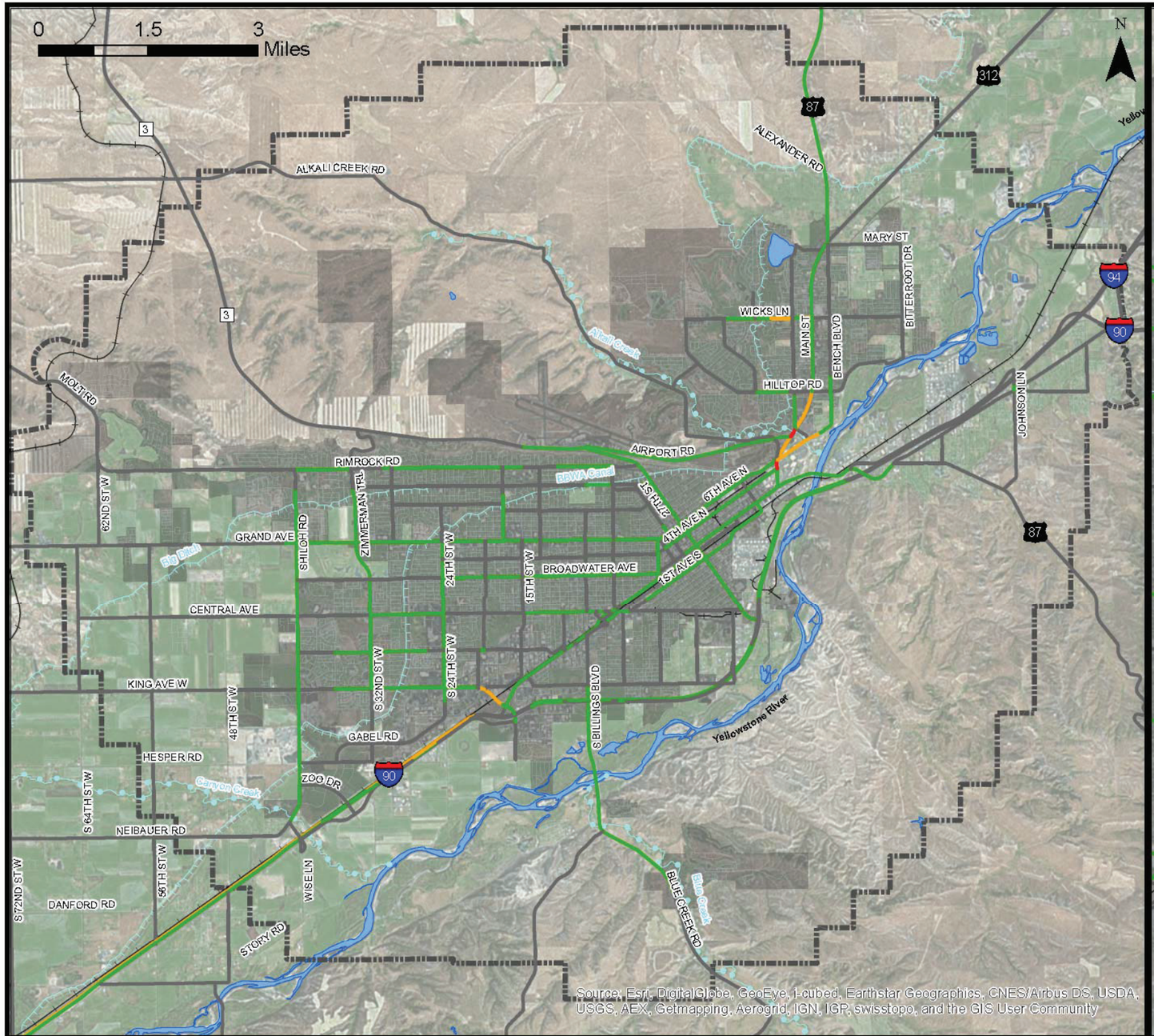
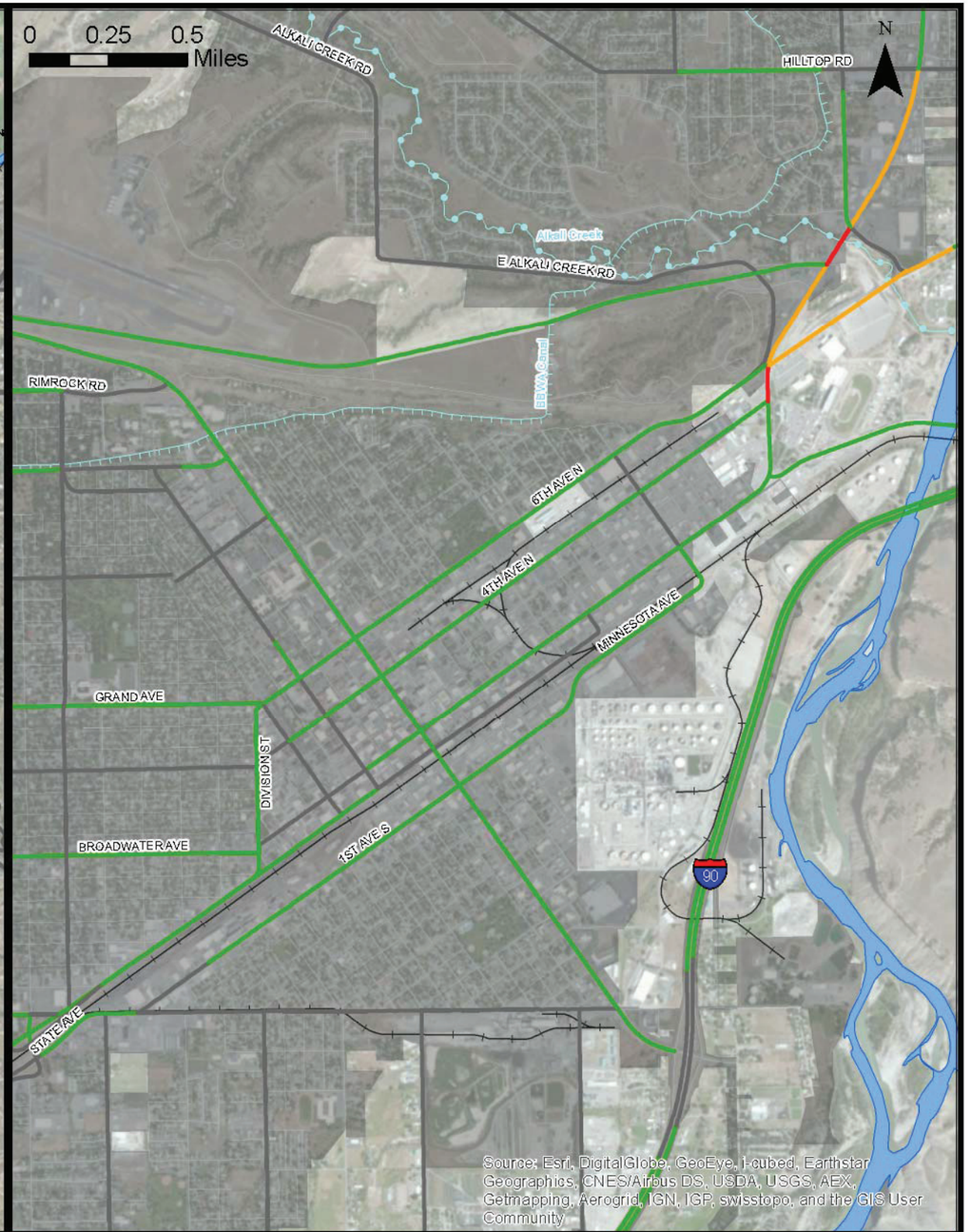
Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations





Level-of-Service by Daily Service Volume

- C
- D
- E
- F

- Railroads
- Study Area
- Billings

Note: Operational analysis is based on year 2013 daily traffic volumes.

Existing (Year 2013) Roadway Segment Level-of-Service

2014 Billings Urban Area Long Range Transportation Plan

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Figure **4-6**

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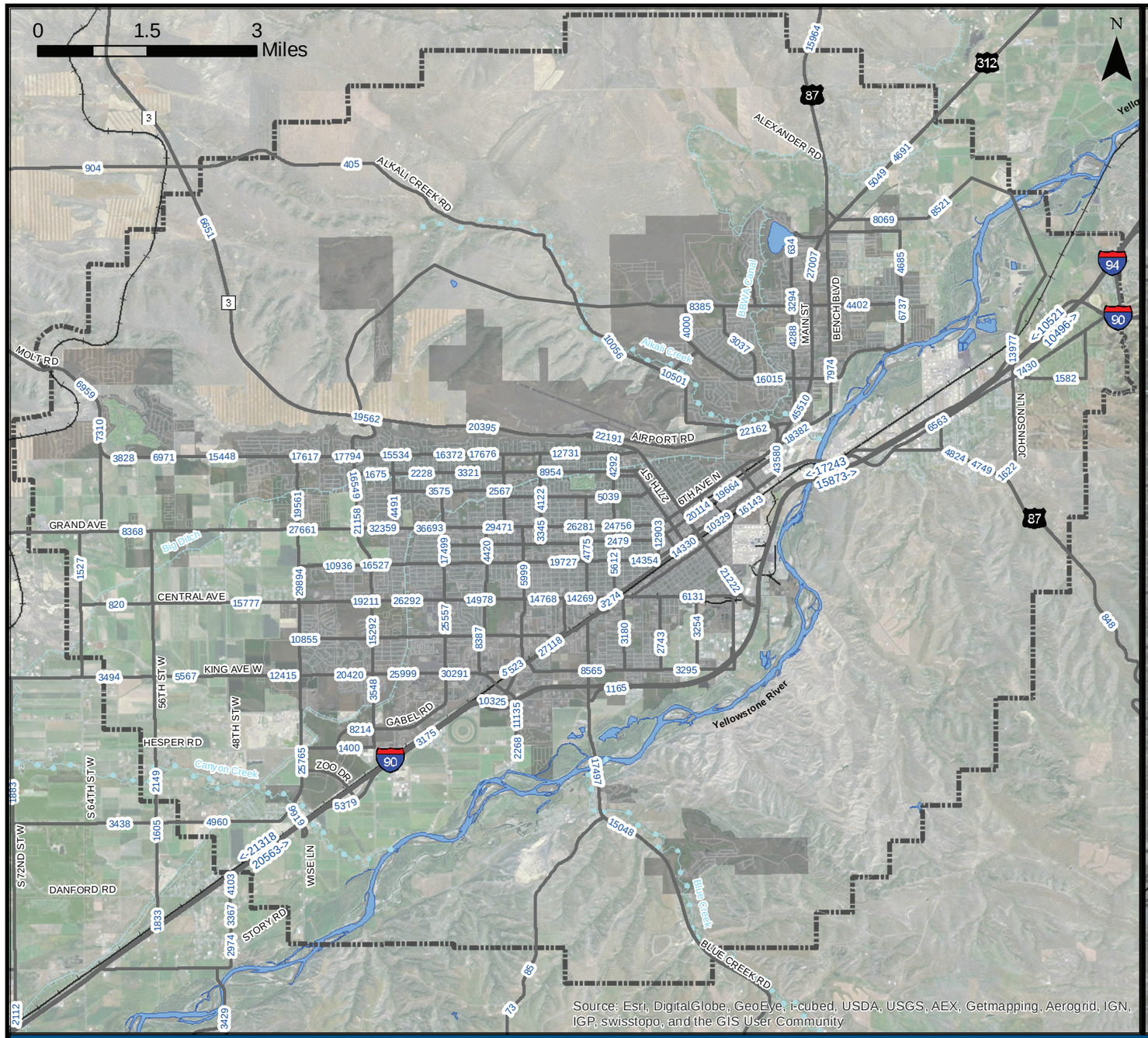
Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations



ADT

Railroads

Study Area

Billings

Note: Year 2035 traffic volumes derived from regional travel demand model
Source: Montana Department of Transportation

Future (Year 2035) Average Daily Traffic (ADT)

Figure **4-7**

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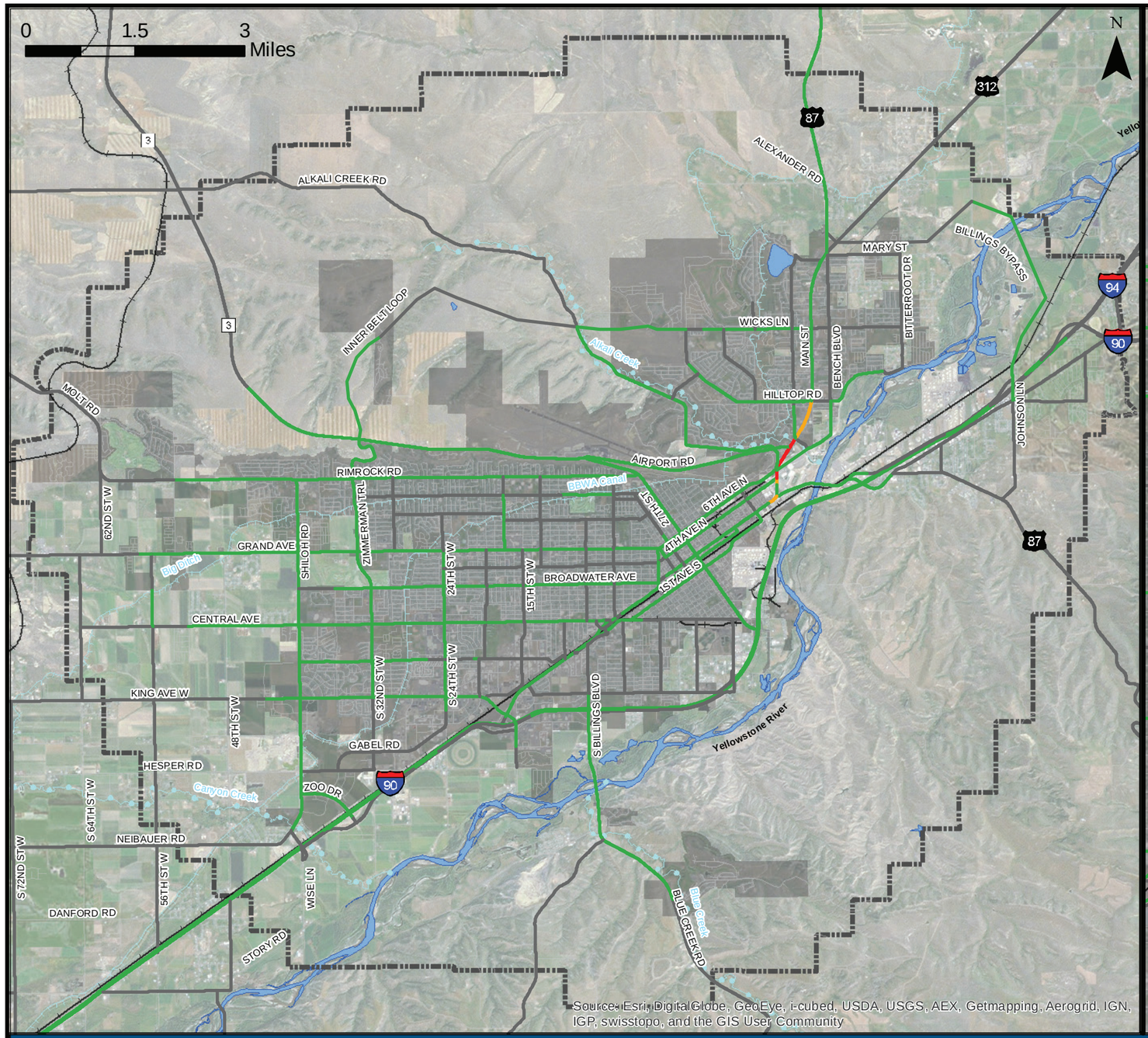
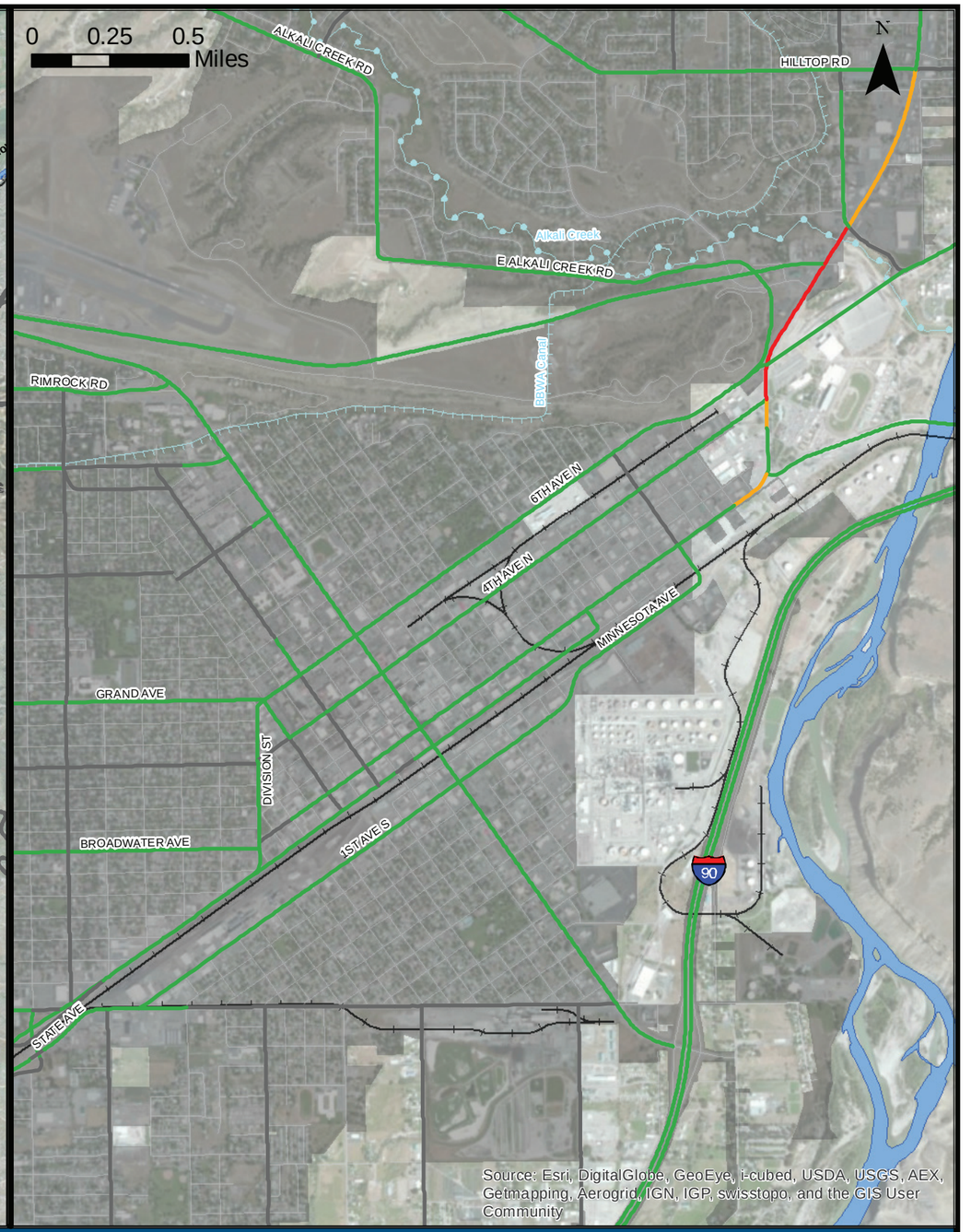
Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations





Level-of-Service by Daily Service Volume

- C
- D
- E
- F

- Railroads
- Study Area
- Billings

Note: Operational analysis is based on year 2035 daily traffic volumes and includes committed projects through year 2035.

Future (Year 2035) Roadway Segment Level-of-Service

Figure **4-8**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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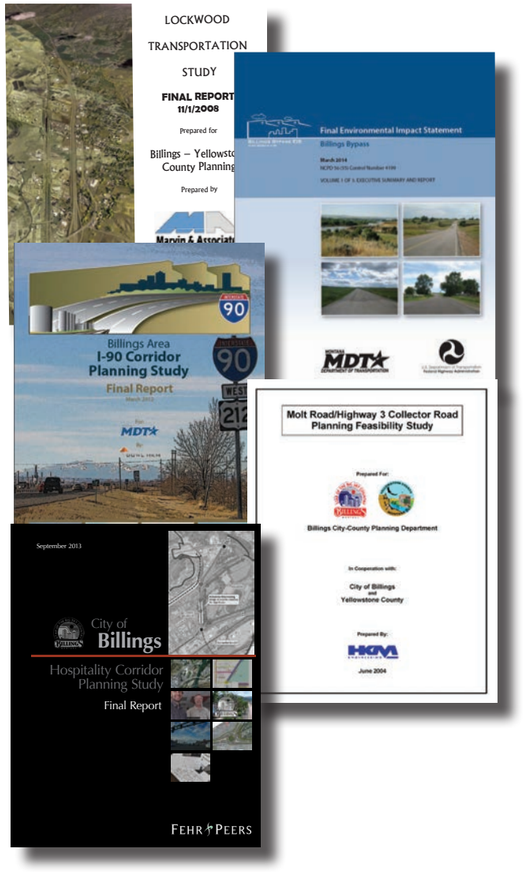
- Pave several existing streets around town (e.g. Alkali Creek Road and 5 Mile Road)
- Recommend roundabouts at the 32nd Street/ Gabel Road, 1st Avenue/US 87, and 19th/20th/ Monad intersections
- Improve Old Hardin Road and Johnson Lane interchange area
- Improve the Monad Road/Moore Lane/Laurel Road intersection
- Improve the Division Street and Broadwater Avenue intersection
- Improve signal timing/turn lanes/phasing modifications
- Improve the signal timing on 32nd Street
- Improve Zimmerman Trail
- Improve Grand Avenue roadway segment with five lanes
- Enhance the signal system with updated signal timing and coordination with train activity
- Improve intersection of Roundup Road/Old Highway 312/Main Street
- Access control along several corridors (e.g. Grand Avenue and a section of King Avenue)
- Reduce the cross-section of 6th Avenue North, as there is excess capacity
- Increase capacity of underpasses at 6th, 13th, 20th, and 22nd

NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

There have been several city-wide studies/plans, highlighted in Exhibit 4.7 that focus on streets and highway facilities in the City of Billings. Below is a list of these studies/plans and some of the key needs and findings from them.

- **Lockwood Transportation Study (2008):** This study identifies a set of short and long-term improvements at intersections and roadways within in the Lockwood area (4-2).
- **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 (4-4).
- **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 (4-4).
- **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 (4-5).
- **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 (4-6).
- **Billings Urban Area Long-Range Transportation Plan (2009):** This plan summarizes several streets and highways projects in the Urban Area (4-7).

Exhibit 4.7 Covers of These Studies



Project List

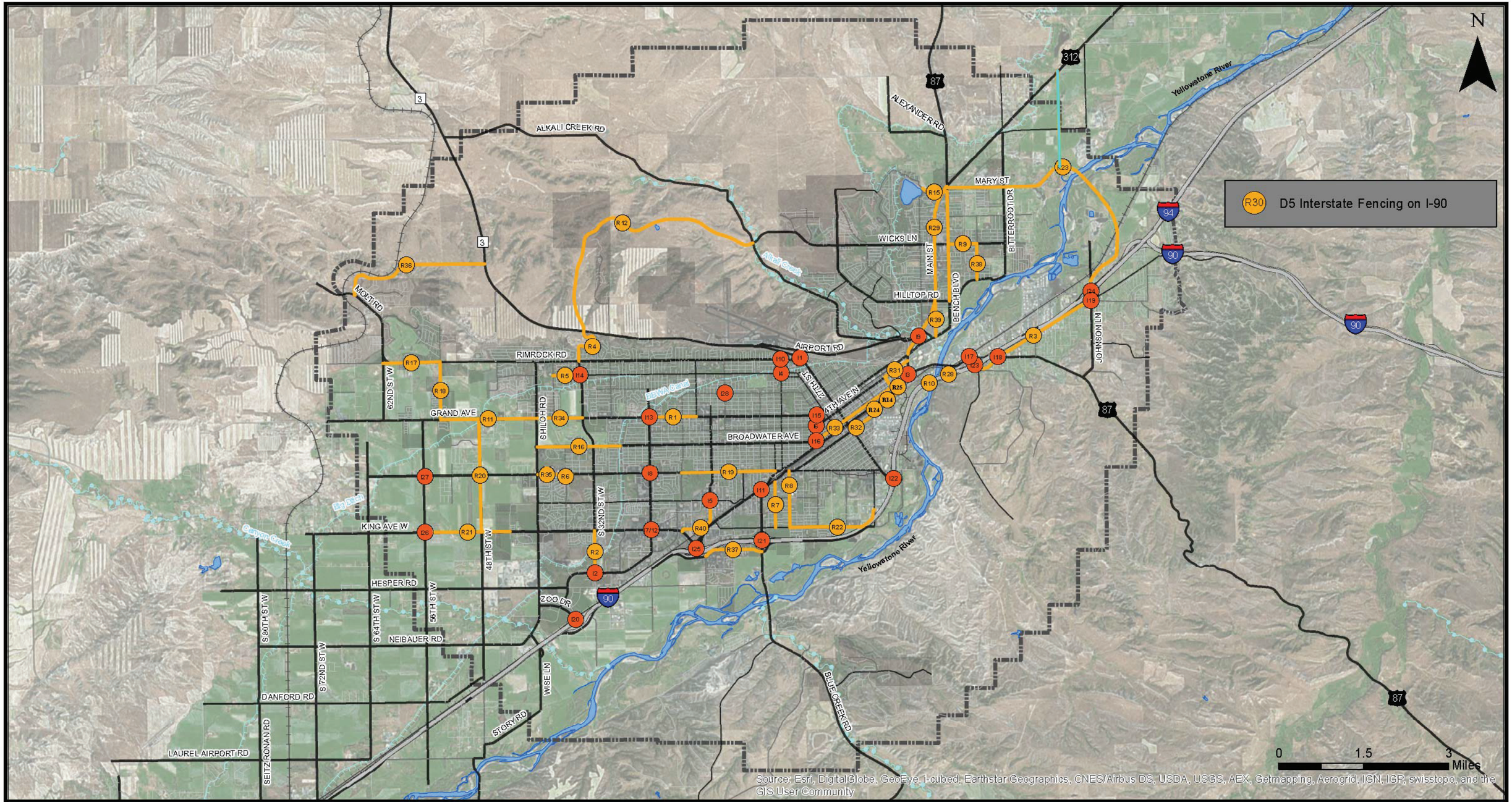
Roadway, intersection, and congestion management projects were identified from the needs and deficiencies assessment and committed projects in the City of Billings Capital Improvement Program, FY 2015 – 2019 (4-9). The LRTP identifies a total of 36 roadway projects, 25 intersection projects, and 25 congestion 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 City of Billings Capital Improvement Program, FY 2015 – 2019.

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 4.4 summarizes the roadway projects. Figure 4-9 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 4.5 summarizes the intersection projects. Figure 4-9 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 4.6 summarizes the congestion management projects. Figure 4-10 shows the approximate location of each project.



Projects

- Roadway Projects
- Intersection Projects

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Roadway and Intersection Projects

Figure **4-9**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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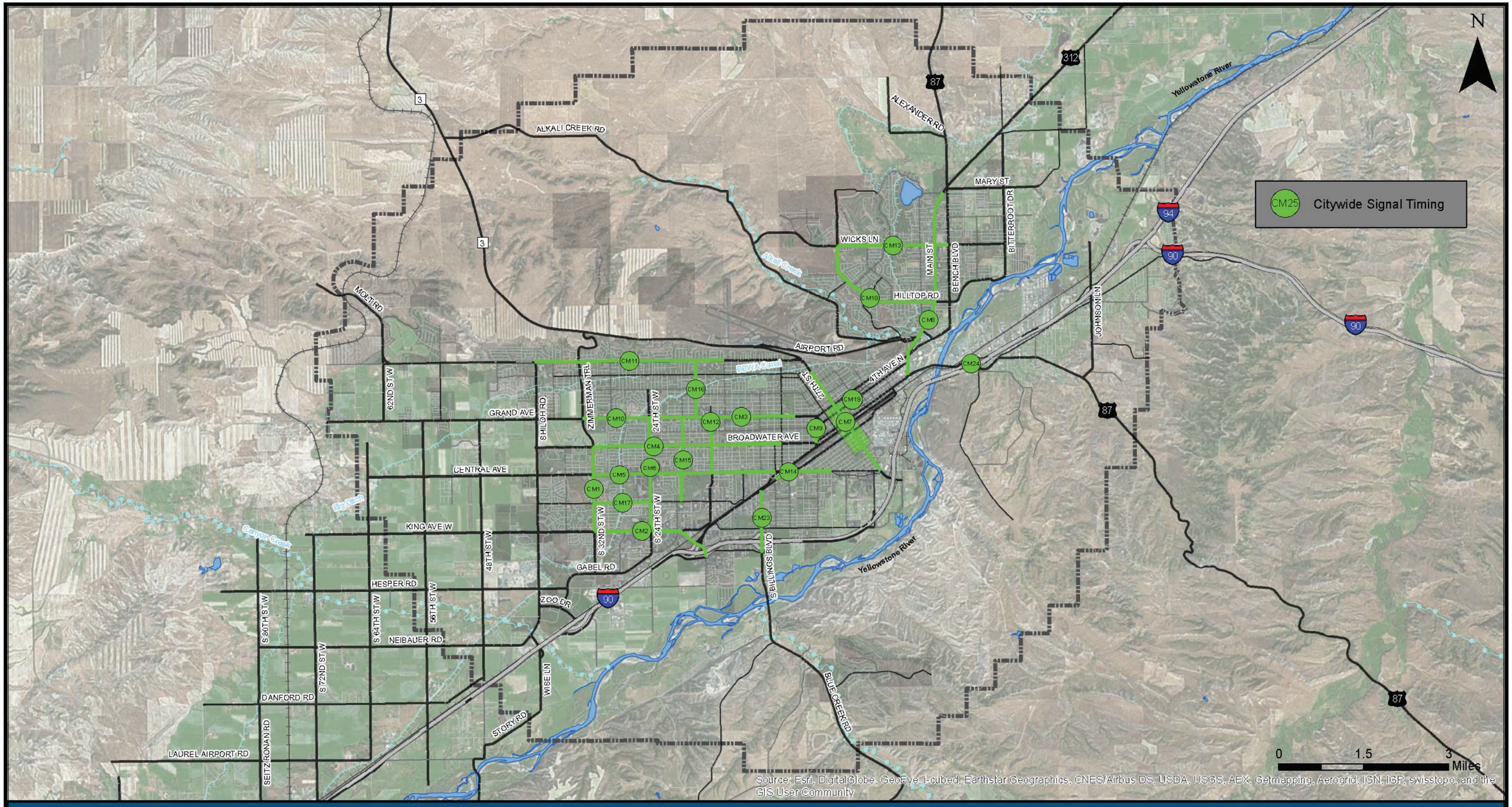

Projects

- Signal Timing
- ITS/Advanced Warning System

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Congestion Management Projects

Figure **4-10**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

Table 4.4 Roadway Projects

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost[1]	Cost Reference[2]
R1	Grand Avenue - 17th St W to 24th St	0.8	Reconstruct to a 5-lane urban roadway	Primary	$10,200,000	A
R2	32nd Street West - King Ave to Gabel Rd	0.8	Reconstruct to a 3-lane urban roadway	Primary	$4,100,000	B
R3	Old Hardin Road - Lockwood Interchange to Johnson Ln	2.4	Reconstruct to a 3-lane urban roadway	Primary	$5,700,000	A
R4	Zimmerman Trail - Rimrock Rd to Highway 3	1	Reconstruct to improve roadway geometry	Secondary	$8,600,000	B
R5	Poly Drive - 32nd St W to 38th St W	0.5	Reconstruct to urban roadway	Secondary	$2,325,000	B
R6	36th Street West - Mt. Rushmore to Central Ave	0.1	New roadway to connect 36th St to Central Ave	Local	Part of R35	B
R7	Calhoun Street - King Ave E to Underpass Ave	0.8	Reconstruct to urban roadway	Local	$2,172,000	B
R8	Orchard Lane - King Ave E to State Ave	1	Reconstruct to urban roadway	Local	$2,917,000	B
R9	Wicks Lane - Bench Blvd to Hawthorne Ln	0.5	Reconstruct to urban roadway	Secondary	$2,880,000	B
R10	I-90 Bridge Crossing	0.2	Reconstruct section of bridge crossing Yellowstone River	Interstate	$35,200,000	A
R11	Grand Avenue - Shiloh Rd to 54th St W	1.7	Reconstruct to 5-lane urban roadway	Primary	$800,000	B
R12	Inner Belt Loop - Alkali Creek Rd to Highway 3	5	New roadway connecting Wicks Ln to Zimmerman Trail	Primary	$12,500,000	A
R13	Bench Boulevard – Phase II - Hilltop Rd to Highway 312	1.9	Reconstruct roadway	Secondary	$15,200,000	B
R14	1st Avenue South-Minnesota Avenue - 21st St to N 13th St	0.6	Reconstruct to urban roadway	Secondary	$1,000,000	A
R15	Pemberton Lane - BBWA to Lake Elmo Dr	0.5	Reconstruct to urban roadway	Local	$2,900,000	A
R16	Broadwater Avenue – BBWA to Shiloh Rd	1.5	Reconstruct to urban roadway	Primary	$4,000,000	A
R17	Rimrock Road – 56th to 62nd	1	Reconstruct – cross section to be determined	Secondary	$3,000,000	A
R18	54th Street West – Grand Ave to Rimrock Rd	1	Reconstruct – cross section to be determined	Secondary	$3,000,000	A
R19	Central Avenue – 19th Ave to 6th Ave	4.3	Road diet to 3 Lanes	Secondary	$1,000,000	A
R20	48th Street West – King Ave to Grand Ave	2	Reconstruct – cross section to be determined	Secondary	$5,500,000	A
R21	King Avenue West – 44th St to 56th St	1.5	Reconstruct – cross section to be determined	Primary	$4,200,000	A
R22	King Avenue East – Orchard Ln to Sugar Ave	1.7	Reconstruct to a 3-lane urban roadway	Primary	$3,200,000	A
R23	Billings Bypass	5.2	New roadway connecting Interstate at Johnson Ln to Hwy 87/Hwy312	Primary	$120,500,000	C
R24	N 21st Street – Montana Ave to 1st Ave S	0.1	Reconstruct railroad underpass	Secondary	$3,052,000	A
R25	N 13th Street – 1st Ave N to Minnesota Ave	0.1	Reconstruct railroad underpass	Secondary	$2,632,000	A
R26	Barrett Road – Hawthorne to Bitterroot Dr	0.5	Reconstruct – 3-lane cross section	Local	$350,000	B
R27	27th Street – 1st Ave S to Airport Rd	2.7	Mill/overlay with updated traffic signals, ADA work, and luminaires	Primary	$12,415,446	C

Project ID	Proposed Name	Length (miles)	Project Description	System	Estimated Planning-Level Cost[1]	Cost Reference[2]
R28	Yellowstone Bridge Crossing – Flood Repair	0.1	Scour protection around one pier of Yellowstone River bridge/east bridge	Primary	$599,000	C
R29	Main Street – limits to be determined	3.7	Pavement preservation with ADA work	Primary	$1,593,465	C
R30	D5 Interstate Fencing	11	Replace existing deteriorated fence on I-90	Interstate	$650,000	C
R31	4th Avenue North – N 13th St to Main St	0.5	Pavement preservation with ADA work	Primary	$501,978	C
R32	1st Ave S/Minnesota Ave/13th – 27th St to 4th Ave N	1.5	Pavement preservation with ADA work	Primary	$1,018,758	C
R33	1st Avenue North - Division St to Main St	2.0	Reconstruct existing cross section	Primary	$7,000,000	A
R34	Grand Avenue – 32nd St to Shiloh Rd	0.8	Reconstruct – cross section to be determined	Primary	$2,800,000	B
R35	Central Avenue – 35th St to Shiloh Rd	0.6	Reconstruct – cross section to be determined	Secondary	$3,070,000	B
R36	Highway 3 to Molt Road Connection	2.6	Construct a new Roadway connecting Highway 3 to Molt Road	Primary	$11,605,115	A
R37	Midland Road Reconstruction	1.0	Reconstruct the roadway between South Billings Blvd. and Mulowney Lane	Primary	$2,800,000	B
R38	Hawthorne Lane Reconstruction	0.6	Reconstruct the roadway between Yellowstone River Road and Wicks Lane	Local	$1,000,000	B
R39	Lincoln Lane Reconstruction	0.6	Reconstruct the roadway between Bench Boulevard and Conway	Local	$1,000,000	B
R40	Daniel Street Reconstruction	1.0	Reconstruct the roadway between Monad Road and King Avenue	Secondary	$2,800,000	B

[1] Cost estimates based on recent plans/studies/bid items with adjustments for inflation to current year dollars
[2] Document Reference: A – Proposed by Consultant Team B – City of Billings Capital Improvement Program, FY 2015 – FY 2019 C - Montana Department of Transportation

Table 4.5 Intersection Projects

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
I1	Rimrock Rd/N 27th St	Improve intersection capacity, operations, and safety	$4,700,000	A
I2	32nd St W/Gabel Rd	Consider a traffic signal or roundabout alternative (cost estimate for signal installation)	$300,000	B
I3	1st Ave/US 87 Roundabout	Install roundabout to improve operations and safety	$6,000,000	D
I4	Poly Dr/Virginia Ln	Improve intersection capacity, operations, and safety	$410,000	B
I5	Monad Rd/Daniel Ln	Improve intersection capacity, operations, and safety	$400,000	B
I6	4th Ave N/Division St	Improve intersection capacity, operations, and safety	$320,000	B
I7	24th St W/King Ave	Improve intersection capacity, operations, and safety	$200,000	B
I8	Central Ave/24th St W	Improve intersection capacity, operations, and safety	$400,000	B
I9	Airport Rd/Main St	Improve intersection capacity, operations, and safety	$4,500,000	A
I10	Rimrock Rd/Virginia Ln	Improve intersection capacity, operations, and safety	$410,000	A
I11	Underpass Avenue Improvements	Study to determine the appropriate treatment for reconstruction of the intersection at Underpass Ave/State Ave	$202,740	C
I12	King Ave/24th St	Evaluate intersection to identify alternative intersection treatment (i.e. displaced left turn, median u-turn, etc.)	$250,000	A
I13	Grand Ave/24th St	Evaluate intersection to identify alternative intersection treatment (i.e. displaced left turn, median u-turn, etc.)	$250,000	A
I14	Poly Drive/Zimmerman	Install traffic signal to improve capacity and safety	Included with R5	B
I15	Division/Grand/6th Ave/N32nd St	Improve intersection capacity, operations, and safety	$560,000	A
I16	Division/Broadway/1st Ave N	Improve intersection capacity, operations, and safety	$560,000	A
I17	Lockwood Road & N Frontage Road	Reconfiguration of existing intersection	$495,000	A
I18	US Highway 87 & Old Hardin Road	Upgrade 3-way stop intersection to a roundabout	$630,000	A
I19	Johnson Lane & Old Hardin Road	Intersection improvements and access management around Johnson Lane Interchange	Included with R23	C
I20	Shiloh Interchange	Geometric improvements to improve operations and safety	$1,900,000	B
I21	South Billings Blvd Interchange	Additional EB and WB mainline lanes under and through the Interchange	$1,600,000	B
I22	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	B
I23	Lockwood Interchange	Construct additional EB and WB mainline lanes under and through the Lockwood Interchange and improve pedestrian facilities	$1,900,000	B
I24	Johnson Ln Interchange	Geometric improvements to improve operations and safety	Included with R23	C
I25A	West Billings Interchange	Update geometry to match C standards, improve landscaping and improve pedestrian facilities	$6,900,000	B
I25B		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	B
I26	King Avenue West & 56th Street	SF - Construct a roundabout at this intersection	$2,876,625	G
I27	Central Avenue & 56th Street	SF - Construct a roundabout at this intersection	$2,410,000	G
I28	13th Street & Parkhill Road	SF - Construct a traffic signal at this intersection	$397,000	G

[1] Cost estimates based on recent plans/studies with adjustments for inflation to current year dollars

[2] Document Reference: A – Proposed by Consultant Team B - City of Billings Capital Improvements Project, FY 2015 – FY 2019 C – Montana Department of Transportation D - Billings Long Range Transportation Plan, 2009
E - Billings Area I-90 Corridor Planning Study, 2012 F – Hospitality Road Corridor Study, 2013 G - Billings Urban Area Transportation Improvement Program, FY 2012-2016

Table 4.6 Congestion Management Projects

Project ID	Proposed Name	Length (miles)	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
CM1	32nd Street West – King Ave to Zimmerman	3.1	Update signal timing for 4 signals	$40,000	A
CM2	King Avenue West – Frontage Rd to 32nd St W	1.9	Update signal timing for 10 signals	$184,419	D
CM3	Grand Avenue – 3rd St W to 24th St W	2.6	Update signal timing for 10 signals	$100,000	A
CM4	Broadwater Avenue – 5th St W to Zimmerman	3.3	Update signal timing for 8 signals	$80,000	A
CM5	Central Avenue – 6th St W to Zimmerman	3.2	Update signal timing for 10 signals	$100,000	A
CM6	24th Street West – King Ave to Grand Ave	2	Update signal timing for 11 signals	$220,000	B
CM7	27th Street – State Ave to Poly Dr	2.1	Update signal timing for 11 signals	$110,000	A
CM8	Main Street – 1st Ave N to Permberton Ln	3.4	Update signal timing for 10 signals	$100,000	A
CM9	Division Street – Broadwater Ave to 4th Ave N	0.3	Update signal timing for 3 signals	$30,000	A
CM10	Grand Avenue – 24th St W to Zimmerman	1.2	Update signal timing for 3 signals	$30,000	A
CM11	Rimrock Road – 38th St W to 13th St W	2.6	Update signal timing for 5 signals	$50,000	A
CM12	15th Street West – Central Ave to Grand Ave	1	Update signal timing for 5 signals	$50,000	A
CM13	Wicks Lane – Governors Blvd to Bench Blvd	2	Update signal timing for 5 signals	$50,000	A
CM14	State Avenue – 6th St Underpass to Washington St	1	Update signal timing for 5 signals	$50,000	A
CM15	19th Street West – Monad Rd to Grand Ave	1.5	Update signal timing for 5 signals	$50,000	A
CM16	17th Street West – Grand Ave to Rimrock	1	Update signal timing for 5 signals	$50,000	A
CM17	Monad Road – 19th St W to 32nd St W	1	Update signal timing for 4 signals	$40,000	A
CM18	Governors Boulevard/Hilltop Road – Wicks Ln to Main St	2.4	Update signal timing for 3 signals	$30,000	A
CM19	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	A
CM20	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	C
CM21	Downtown Billings Signal Upgrades	N/A	Traffic signal controller and timing upgrades at 13 signals in downtown	$316,091	C
CM22	Downtown Billings Signal Upgrades	N/A	Traffic signal controller and timing upgrades in the downtown area	$3,160,911	C
CM23	S. Billings Boulevard Signal Timing	N/A	Traffic signal controller and timing upgrades at 6 signals on S Billings Blvd.	$93,000	C
CM24	Lockwood Interchange Signal Timing	N/A	Traffic signal controller and timing upgrades at 3 signals	$46,500	C
CM25	Citywide Signal Timing	N/A	Traffic signal controller and timing upgrades at 24 signals within Billings	$372,000	C

[1] Cost estimates based on recent plans/studies with adjustments for inflation to current year dollars
[2] Document Reference: A – Proposed by Consultant Team B - City of Billings Capital Improvements Project, FY 2015 – FY 2019 C – Montana Department of Transportation D – Cost of Existing Project

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CHAPTER 5

Public Transit and Transportation

Like most public transportation systems, MET has been effective in developing a transit system with the limited funding resources available. Marginal revenue growth and rising operational costs have prevented any noticeable service expansion for the last 25 years. For public transit service to be expanded in the region, an increase in the operations funding would need to occur through an increase in the mill levy, other local funding source, and additional federal funds. Through this LRTP process, the community continued to identify projects and support for the public transportation system.

Did you know? MET Transit started in 1973 with five fixed routes in the Billings Urban Area. MET currently operates 17 routes with flag service and bus stops, transfer centers, and other amenities.

Looking ahead, it might be time to bring the funding element to the region and determine a future plan to fund the expansion of public transit in the Billings Urban Area. Public transportation continues to be a priority of the community. As such, the 2014 LRTP outlines several goals related to public transportation:

- **Goal 1: Safe, Efficient, Effective –** To develop a transportation system that is safe, efficient, and effective
- **Goal 2: Functional Integrity –** To optimize, preserve, and enhance the existing transportation system
- **Goal 5: Multimodal –** To create a transportation system that supports the practical and efficient use of all modes of transportation
- **Goal 6: Economic Vitality –** To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce

Existing Public Transit Services

PUBLIC FIXED ROUTE

MET Transit (herein, referred to as MET) serves as the City of Billings fixed-route public transit service provider. Established in 1973 with only five routes, MET currently operates with seventeen 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 and 2000 provides a centrally located facility for MET operations that includes administration, dispatch, vehicle maintenance and 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 5.1) 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 busses arrive and depart from the transfer center simultaneously.

Fleet

MET operates a fleet of 41 vehicles and is detailed in Table 5.1. Exhibit 5.2 shows an example of a typical bus in the MET fleet. Exhibit 5.3 shows a bicycle on the bus.

Exhibit 5.1 Downtown Transfer Center (Source: MET)

Exhibit 5.2 Typical MET Bus (Source: MET)

Exhibit 5.3 Bicycle on a MET Bus (Source: MET)

Service

MET currently provides seventeen fixed routes within the Billings city limits. These seventeen fixed routes include:

- seven all-day routes;
- nine peak-hour routes, and;
- one midday-only route.

On August 1, 2013, MET updated the bus routes and schedules. Eight routes operate on Saturdays. No service is provided on Sunday. Figures 5-1 and 5-2 show the weekday and Saturday routes, respectively. Routes shown in Figures 5-1 and 5-2 reflect the updated route changes that took place in August 2013. MET also provides six tripper routes to and from middle and senior high schools in the area. Current service hours are shown in Table 5.2.

Did you know? The downtown transfer center opened in 2009 and is one of the only transit centers in the U.S. that is Leadership in Energy and Environmental Design (LEED) certified Platinum.

Table 5.2 MET Transit Service Hours

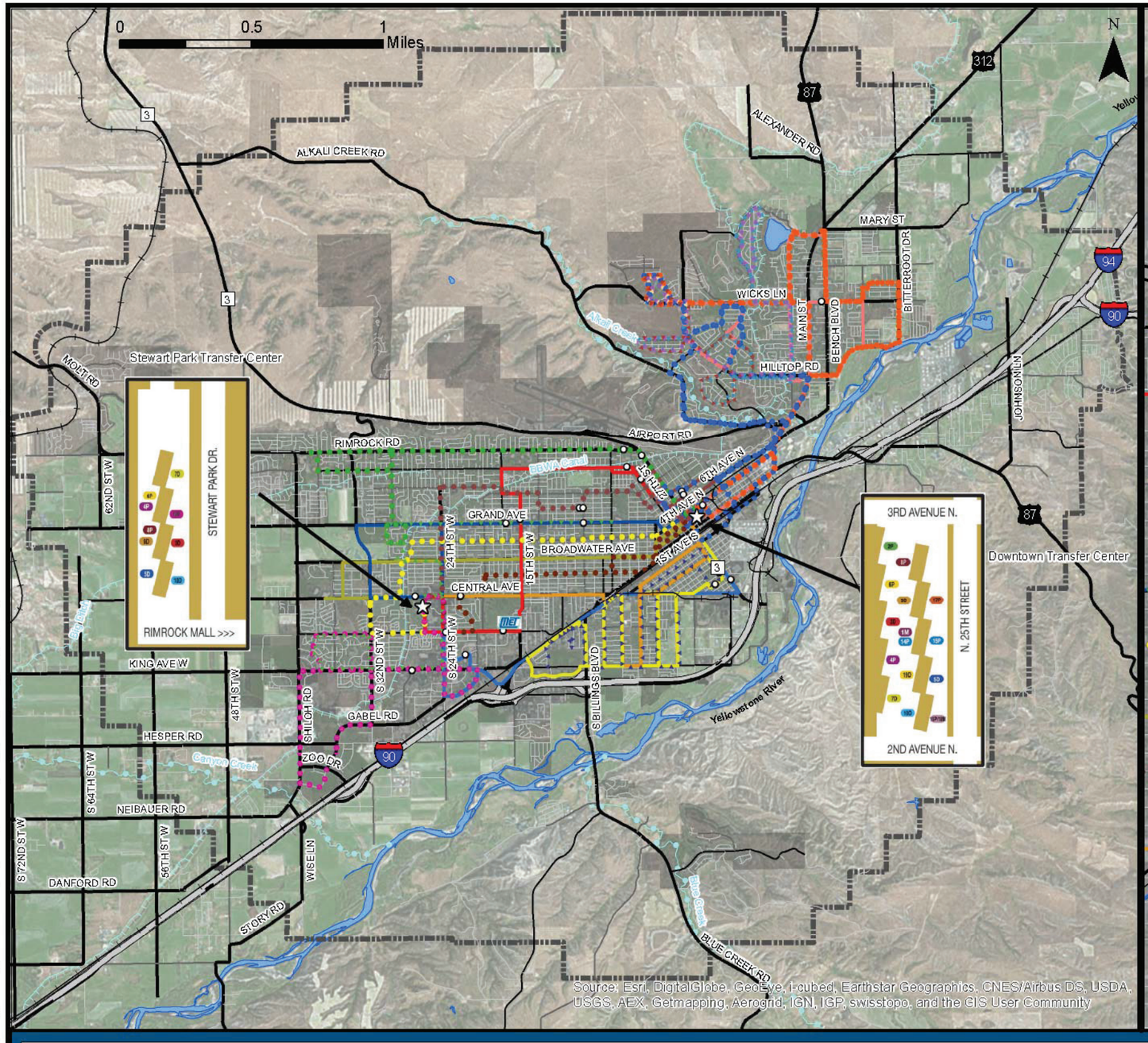
Day(s)	Time Service is Available
Monday through Friday	5:50 AM – 6:40 PM
Saturday	8:10 AM – 5:45 PM
Sunday	No Service Available

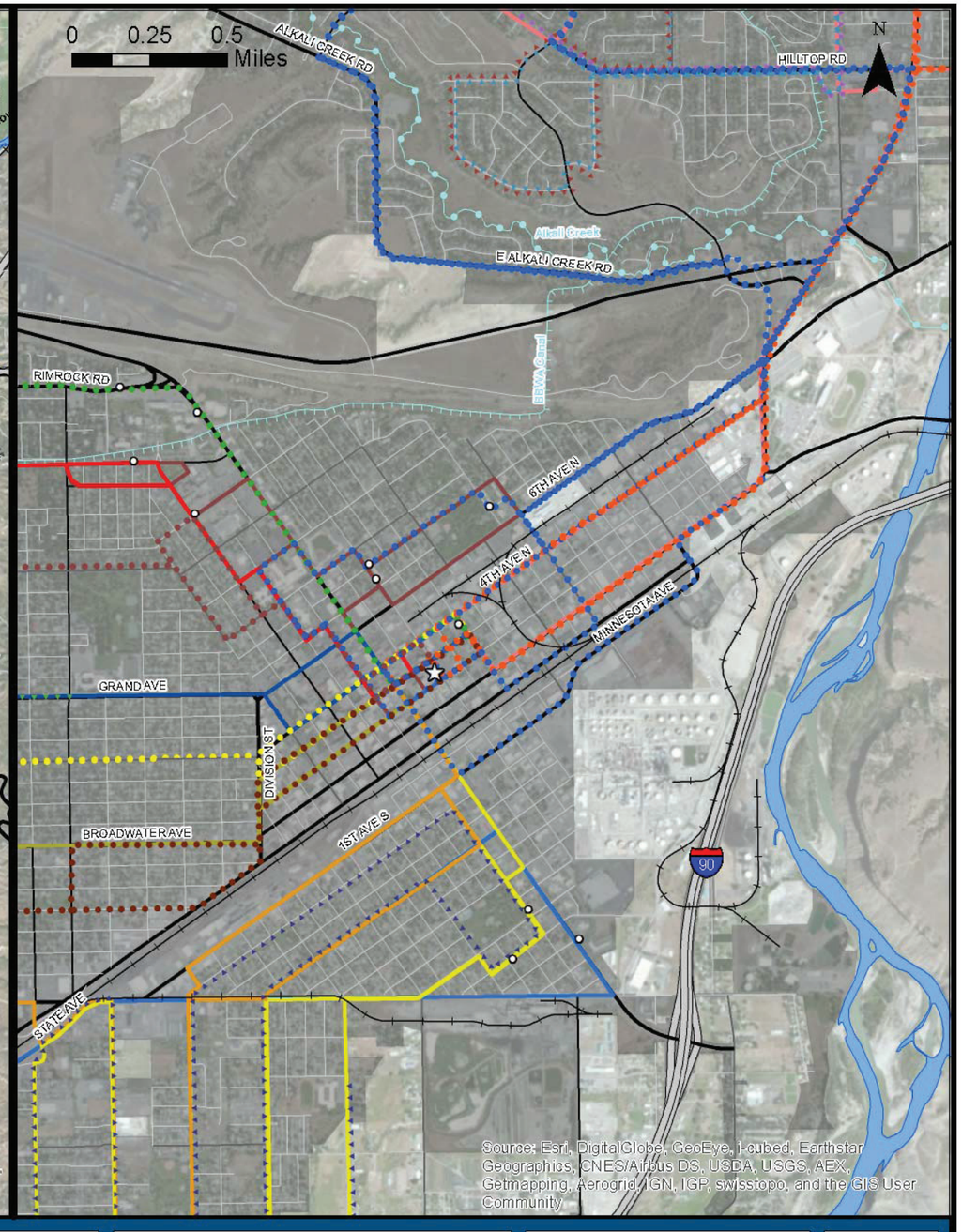
Source: MET Transit website (http://ci.billings.mt.us/index.aspx?NID=336)

Table 5.1 MET Transit Fleet

Manufacturer	Description	Number of Vehicles	Equipment
Transportation Manufacturing Corporation (TMC)	35' standard floor type	1	Wheelchair lifts/ramps, front bumper two-slot bicycle racks
Gillig LLC	35' standard floor type	17	Wheelchair lifts/ramps, front bumper two-slot bicycle racks
Nova Bus	35' standard floor type	6	Wheelchair lifts/ramps, front bumper two-slot bicycle racks
ElDorado National	30' low floor type	2	Wheelchair lifts/ramps, front bumper two-slot bicycle racks
Gasoline Powered Van	25', 13 passenger van	15	Wheelchair lifts and tie down areas
	Total	41 Vehicles	

Source: Freight Analysis Framework by Federal Highway Administration (FHWA)- Freight Management and Operations (7-10)





Peak Routes
- 2P Rimrock
- 4P Parkhill
- 6P Lewis
- 8P Miles
- 13P Southwest
- 14P Alkali
- 15P Hilltop
- 16PMain
- 17P Bench

All-Day Routes
- 3D Crosstown
- 5D Grand
- 7D Broadwater
- 9D Central
- 10D Southside
- 19D S.S. Loop

Midday Routes
- 18M Heights
- 1M Metlink
- Office
- Transfer Center
- Bus Shelters

School Routes
- Grand Kicker
- T1-A Heights Tripper
- T1-B Heights Tripper
- T1-Castlerock/Skyview
- T1-Skyview
- T2 Riverside Tripper

- Railroads
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets

- Study Area
- Billings

Existing Weekday Transit Routes

2014 Billings Urban Area Long Range Transportation Plan

MPO Billings - Yellowstone County Metropolitan Planning Organization

DOWL HKM

Figure **5-1**

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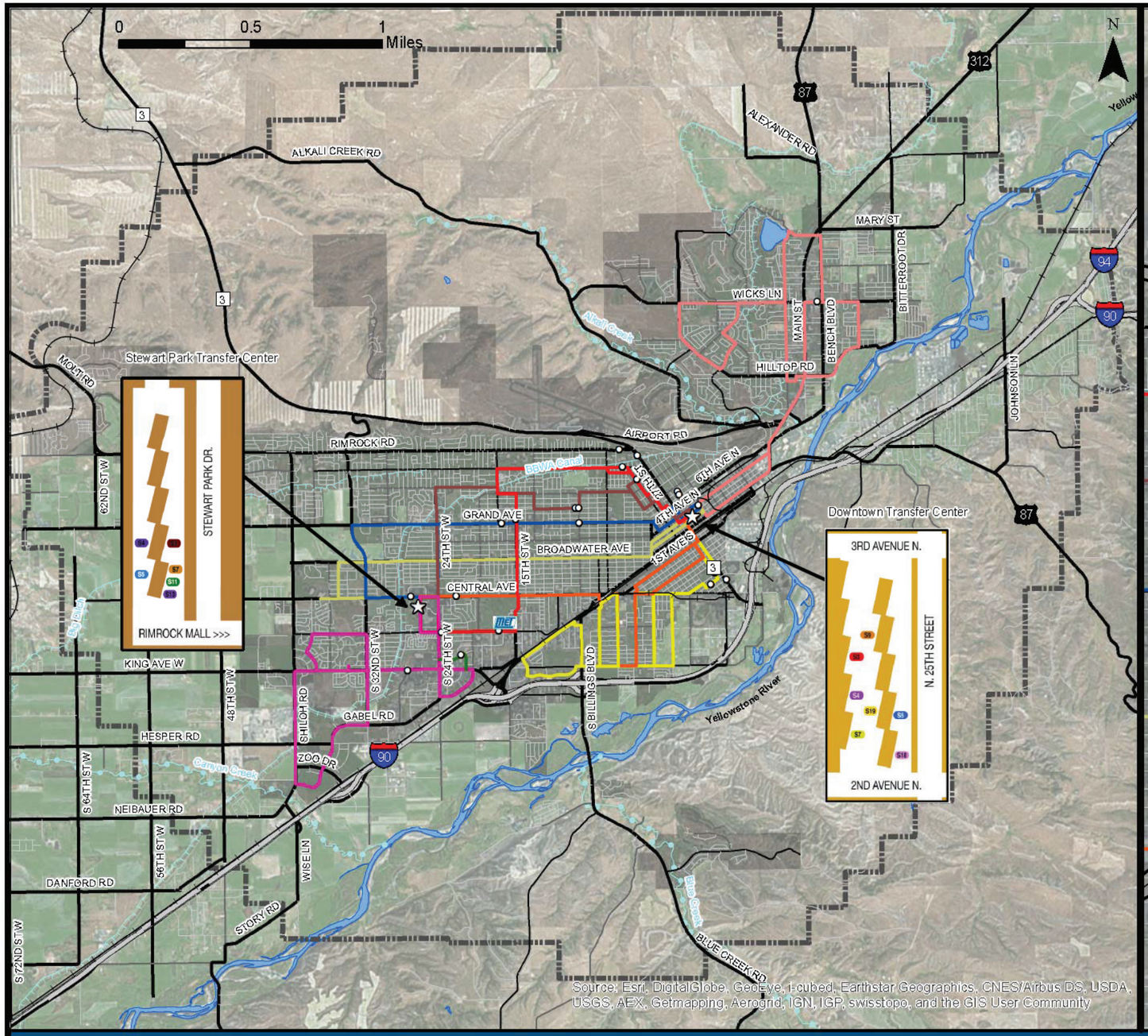
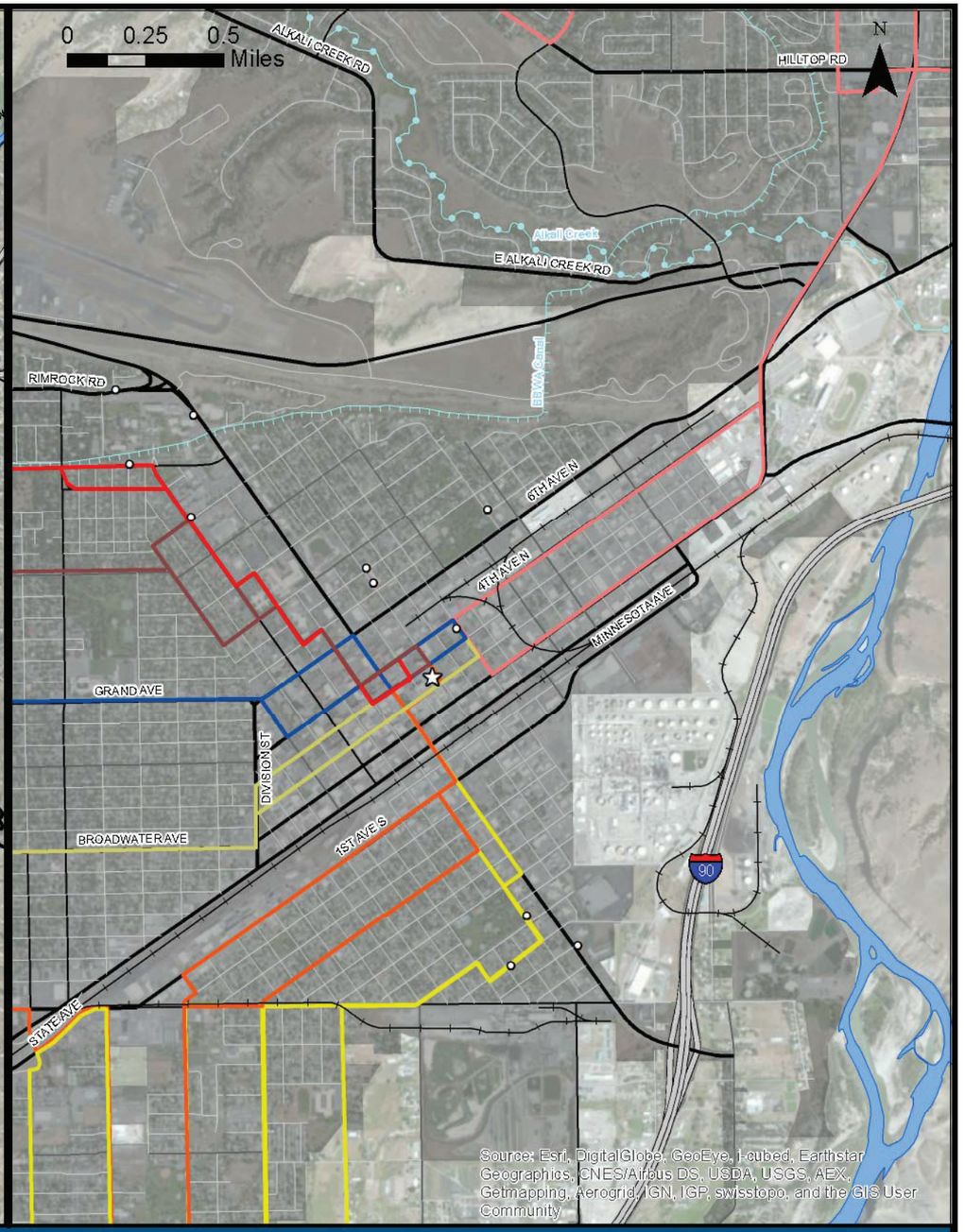
Source: City of Billings GIS Database, MET Transit





Saturday Routes

- S3 Crosstown
- S4 Parkhill
- S5 Grand
- S7 Broadwater
- S9 Central
- S11 24th Street West
- S13 Southwest
- S18 Heights
- S19 S.S. Loop
- Office
- Transfer Center
- Bus Shelters
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Billings
- Study Area
- Railroads

Existing Saturday Transit Routes

2014 BILLINGS URBAN AREA Long Range Transportation Plan

MPO Billings - Yellowstone County Metropolitan Planning Organization

DOWL HKM

Figure **5-2**

Source: City of Billings GIS Database, MET Transit

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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: 1M route operates on 30-minute headways and the 18M route operates on 60- to 135-minute headways.

MET operates a fixed route system with 24 bus shelters in addition to signed stops along the routes. MET riders can also flag down the bus at an intersection. Shelters are mostly concentrated along the peak routes to provide the most heavily used stops with protection from weather. Exhibit 5.4 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.

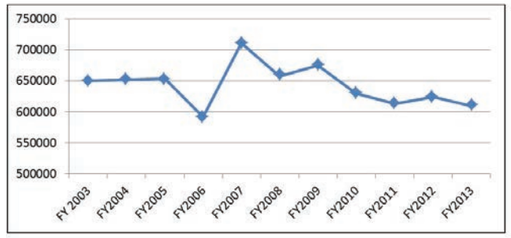
The current extent of service reaches most every geographic location within the city limits. Transit service is not provided in the newer residential areas west of Shiloh Road or to the airport within the City of Billings. Within the Urban Area, transit service is not provided to Lockwood. Lockwood is located outside of MET's service area, since MET only serves the City of Billings.

Exhibit 5.4 Typical MET Bus Shelter (Source: MET)

Ridership

Exhibit 5.5 shows the annual ridership trends on the fixed route service between 2003 and 2013.

Exhibit 5.5 MET Annul Ridership Trends (FY 2003- FY 2013) (Source: MET)



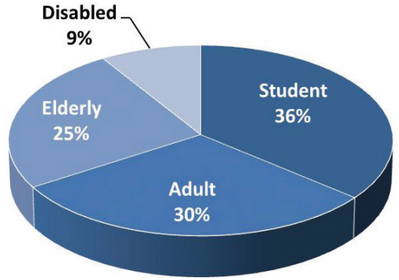
As shown in Exhibit 5.5, ridership has been steadily declining since 2007 after a spike in ridership the previous year. The initial 2007 drop in ridership had been attributed to an arbitration ruling to put 15-minute breaks for the drivers in the bus schedules. Since the ruling, ridership has not recovered and continued to steadily decline to about 620,000 riders in 2012.

Based on conversations with MET Transit staff, the most productive routes are Grand Route, MET Link, Crosstown, Southside, and West End. Additionally, the Tripper routes are productive routes during the school year (Source: Conference Call with MET, July 17, 2013)

The demographic composition of MET ridership is shown in Exhibit 5.6 (5-1). The largest demographic of MET riders is students who make repeated use of the school tripper routes.

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

Exhibit 5.6 MET Ridership (Source: 2009 MET Transit Business Plan)

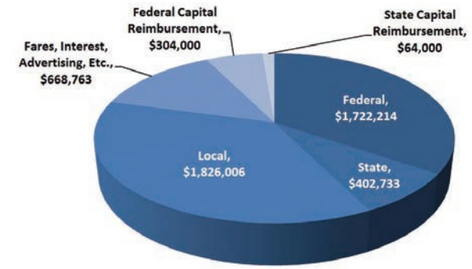


Finances

MET Transit completed the MET Transit Business Plan in 2009 (5-1) examining MET's financial and operational condition to assist planning efforts of the City's public transportation system. The plan outlines a five-year financial forecast (2010 through 2014). In 2012, MET released an update to this plan.

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 Authority (FTA) grants. In 2012, the property tax supported about 37.9% of the total annual operating cost (see Table 5.3) whereas the farebox revenue only supports approximately 13.9% of the total operating cost. Exhibit 5.7 shows the breakdown of funding sources according to the 2012 business plan update.

Exhibit 5.7 MET FY 2012 Revenue Sources (Source: 2009 MET Transit Business Plan)



The breakdown of METs expenditures between the 2012 fiscal year and 2016 fiscal year is shown in Table 5.3.

From a cost/revenue perspective, cost per MET transit passenger has risen from $4.69 to $5.89 and revenues per passenger have risen from $4.38 to $4.76. So while revenues per passenger have risen $0.38, operating costs have outpaced this by rising $1.20 per passenger.

Table 5.3 MET Expenditures FY 2012 to FY 2016

Expenditures	Assumed Annual Growth	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Operating Expenditures						
Personnel Services	5.0%	$ 3,358,185	$ 3,526,094	$ 3,702,399	$ 3,887,519	$ 4,081,895
Operations & Maintenance	3.0%	$ 853,097	$ 878,690	$ 905,051	$ 932,203	$ 960,169
Fuel	10.0%	$ 600,477	$ 660,525	$ 726,578	$ 799,236	$ 879,160
Total Operating		$ 4,811,759	$ 5,065,309	$ 5,334,028	$ 5,618,958	$ 5,921,224
Capital Expenditures						
Federal Capital	-	$ 304,000	$ 208,980	$ 3,146,276	-	$ 1,944,126
Local Capital	-	$ 156,000	$ 249,532	$ 917,809	$ 124,307	$ 486,030
Total Capital		$ 460,000	$ 458,512	$ 4,064,085	$ 124,307	$ 2,430,156
Total Expenditures		$ 5,271,759	$ 5,523,821	$ 9,398,113	$ 5,743,265	$ 8,351,380

Source: MET Transit Business Plan, 2012 Update

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 5.8 shows an example of a typical MST bus.

MET completed the MET Special Transit Paratransit Study in August 2009 (5-2). This study included the following key elements: a review of the existing system in terms of operations and efficiency, examined specific costs of providing transit service, and identified performance measures for cost-effectiveness.

Exhibit 5.8 Bicycle on a MET 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 5.4.

Table 5.4 MST Service Hours

Day(s)	Time Service is Available
Monday through Friday	6:00AM – 6:00PM
Saturday	8:15AM – 5:15PM
Sunday	No Service Available

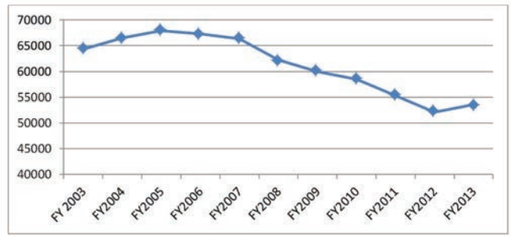
Source: MET Transit website (http://ci.billings.mt.us/index.aspx?NID=336)

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 5.9. Originating from data summarized in the 2009 study, paratransit ridership decreased from 68,000 rides in 2005 to about 52,000 rides in 2012. This trend continued through 2012 which served 52,000 rides. As of FY 2013, MST has shown a slight uptick in ridership, serving just over 53,500 riders.

Exhibit 5.9 MST Annual Ridership Trends (FY 2003 - FY 2013)



Finances

The current rate for paratransit passengers is $2.50 per trip. The average cost per paratransit customer is $27.02 (up from $23.27 in 2009). Revenue per passenger has also risen, from $31.08 to $31.94. Despite an increase in revenue per passenger, MST still 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. Greyhound Lines connects Billings with Missoula and Superior. Jefferson Lines provides the most extensive service connecting to Bozeman, Butte, Glendive, Livingston, Miles City, Missoula, and Sidney. Table 5.5 shows the private bus operators and their primary connections.

Billings also has several private taxi services available:

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

Table 5.5 MST Service Hours

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). Since the 2009 LRTP update, the Billings Logan International Airport Master Plan was completed in March 2010 (5-3). This Master Plan documents planned expansions and improvements for the airport over the next twenty years.

AIRPORT SERVICE

Currently, the airport serves as a regional hub for air traffic (shown in Exhibit 5.10) with nonstop service to six cities in Montana and ten U.S. cities outside of Montana:

- Atlanta (seasonal)
- Chicago (seasonal)
- Denver
- Las Vegas
- Los Angeles
- Minneapolis
- Portland
- Salt Lake City
- Seattle
- Phoenix
- Six cities in Montana

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

The airport's importance to the region and State has been growing with passenger enplanements of 227,600 in FY 2013.

The airport has cargo and mail operations with over 200,000 tons passing through in FY 2013. 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 5.6.

Table 5.6 Airline Services

Airline	Direct Service	Daily Departures from BIL
Frontier	Denver	3
Horizon	Portland, Seattle	3
Delta	Salt Lake City, Minneapolis	8
United	Denver	2
Allegiant	Phoenix, Las Vegas, Los Angeles	3
Silver Airways	Glasgow, Glendive, Havre, Lewistown, Sidney, Wolfpoint	10

Needs and Deficiencies

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

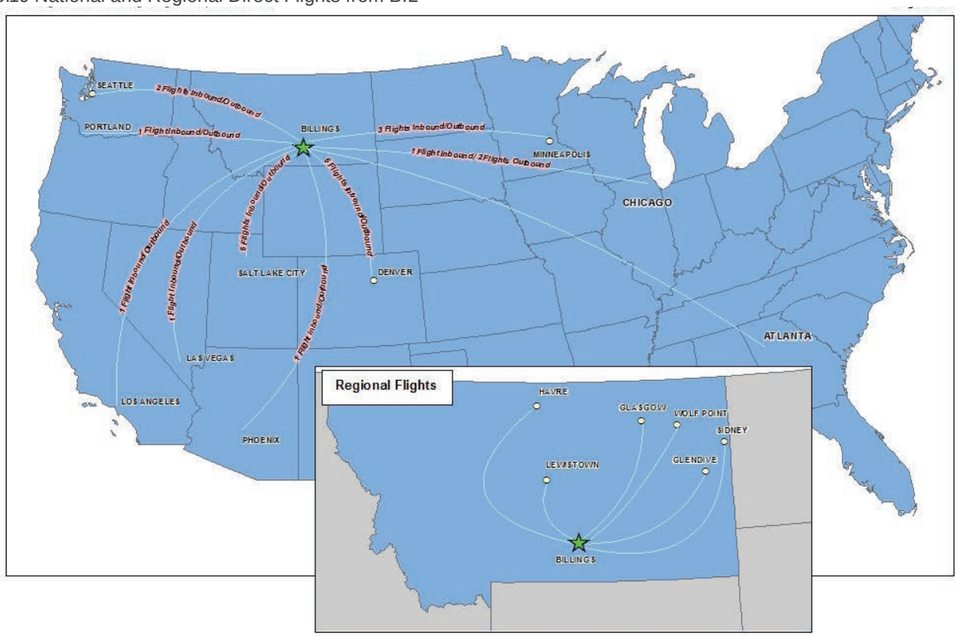
PUBLIC AND POC FEEDBACK

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

- Providing more covered bus shelters for passengers.
- Increasing bus frequency:
  - City College/MSUB
  - Hospital district
- Expanding bus services to:
  - Lockwood
  - Airport
  - Along Grand Avenue west of Shiloh Road
  - Along King Avenue and Shiloh
  - Along Mary Street
  - Blue Creek
  - Swords Rimrock Park Trail
- Developing additional transit options such as:
  - Create a 5th Street corridor with transit (e.g. tram, streetcar, or bus) to help draw tourists, alleviate parking issues, connect to park-n-ride lots, and aid the development of East Billings and the Metra area.
  - Develop a downtown circulator connecting MSUB, downtown, the hospitals, and Metra.
  - Develop a tram or gondola between the college and airport to provide the connection and offer an area attraction for visitors.
- Sustainable funding for transit operations
- Inability to expand service with current funding
- Operate more buses on the major routes during the peak periods
- Expand the service area
  - Extend the operating hours to later in the evening

Figure 5-3 visually displays the primary themes of expanding service to existing and new areas around Billings.

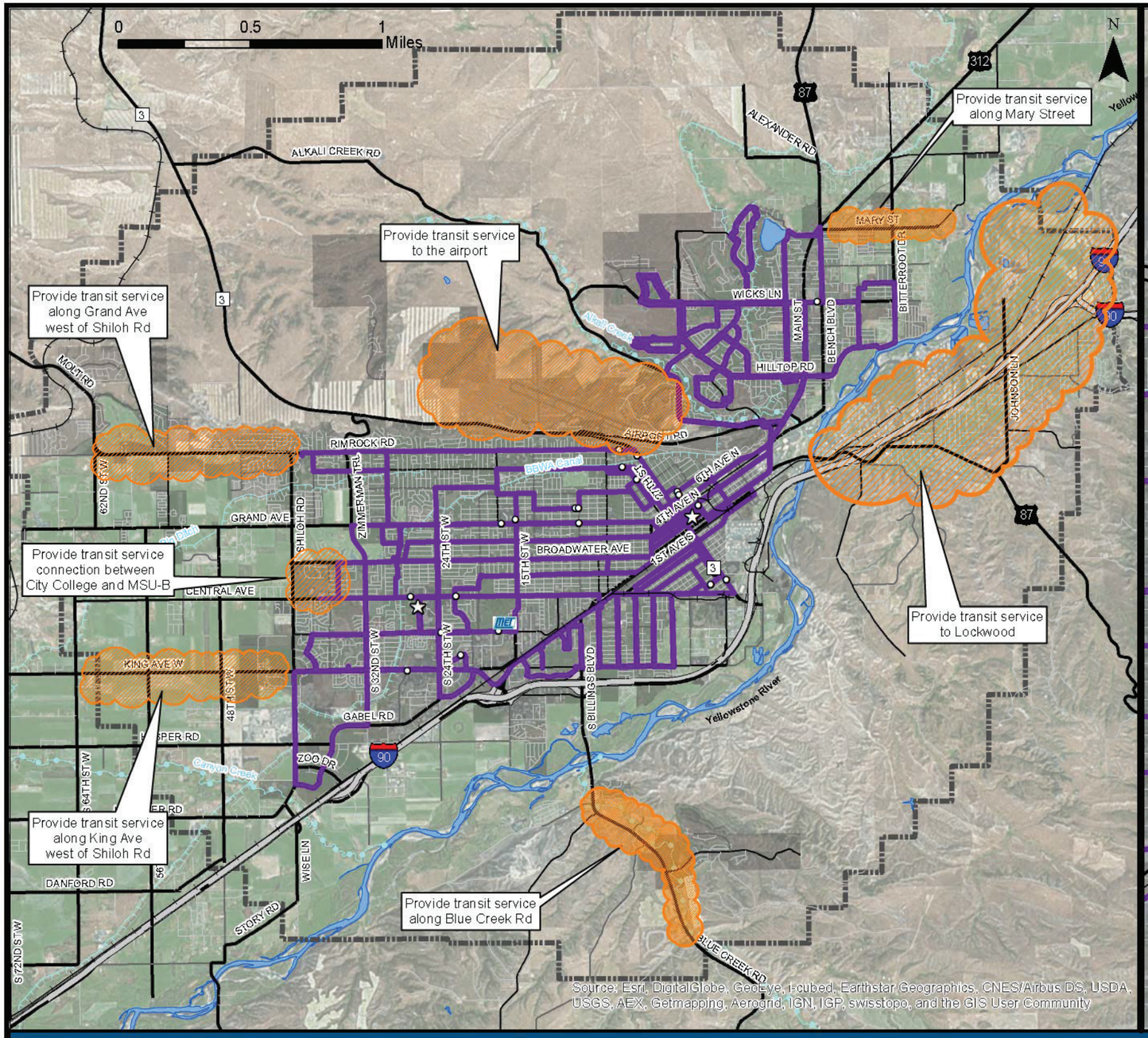
Exhibit 5.10 National and Regional Direct Flights from BIL

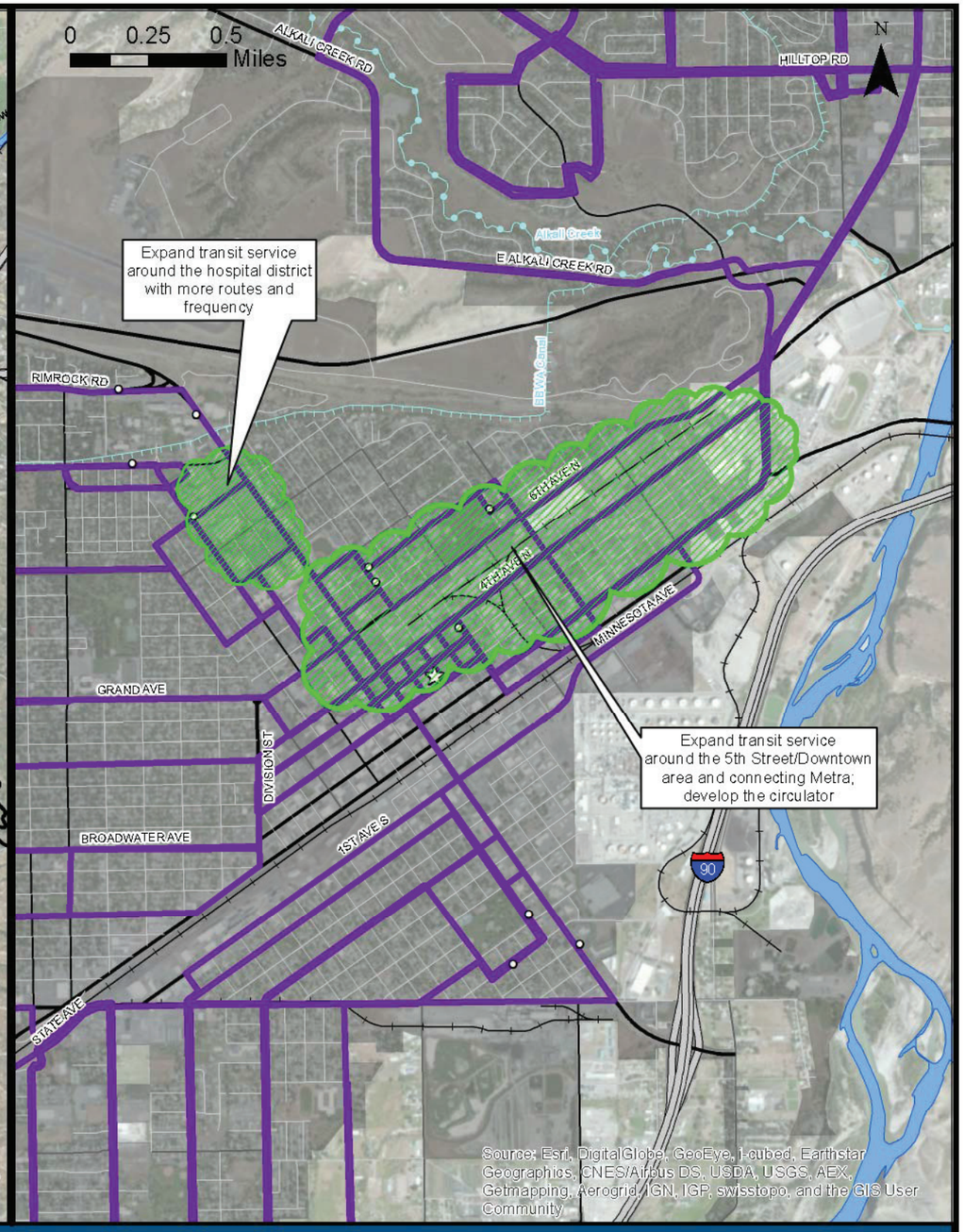


NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

Several recent city-wide studies/plans identified several transit needs in the study area. Key needs from these studies/plans include:

- **Billings Urban Area Long-Range Transportation Plan (5-4):** Prioritized projects related to public transit included:
  - Targeting Congestion Mitigation and Air Quality Improvement Program (CMAQ) funding
  - Contracting with Lockwood to provide service outside the city limits
  - Continuing to attract "choice riders" (i.e. riders who could choose other modes)
  - Continuing to install benches and shelters at bus stops for riders
- **MET Special Transit Paratransit Study (5-5):** Improvements to the MST system have been suggested as:
  - Reducing service during the week for off-peak times
  - Training MET staff to generate reports from RouteMatch scheduling and dispatch software
  - Generating monthly and quarterly reports to monitor service performance
- **MET Service Analysis (5-6):** Improvements to the transit services included:
  - Reduction in service for off-peak hours
  - Utilize smaller vehicles on routes with smaller demand to improve costs savings, environmental impacts, and allow for visible ridership (i.e. minimizing the "empty bus" perception from larger buses with low demand)
  - Examining the pursuit of a more uniform vehicle fleet
- **Billings Downtown Circulator Study (5-7):** The study provides guidance for proposed operations of a circulator transit in downtown Billings, noting the purpose would be aimed at moving residents, employees, and visitors throughout the downtown area. The circulator was proposed to connect several downtown landmarks including the hospital district, Montana State University Billings, the county courthouse, library, and several downtown restaurants. Three specific





Existing Bus Routes
Office
Transfer Center
Bus Shelters
Railroads
Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets
Study Area
Billings
Existing Service Expansion
New Service Expansion

Public Needs Identified
Public Transit Facilities

2014 Billings Urban Area Long Range Transportation Plan
Billings - Yellowstone County MPO
Metropolitan Planning Organization
DOWL HKM

Figure 5-3

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Source: City of Billings GIS Database, MET Transit

routes were proposed to reach these locations and provide more service during the lunch peak hour. In terms of management and operation, MET has been identified as a potential operator as well as Rodney Wilson, LLC and Rimrock Stages. Additionally recommendations are provided for marketing and performance monitoring.

- **Lockwood Transit Service Options (5-8):** The study is an analysis of the transit needs, alternatives, and potential implementation steps to provide transit services to Lockwood, Montana. While not offering recommendations for or against service, the study suggests that there is a minor need in Lockwood and that the potential to expand service does exist for both fixed-route and paratransit.

Project List for Public Transportation

Public transportation projects were identified from the needs and deficiencies assessment. The LRTP identifies a total of 15 public transportation projects. Investing in these types of projects supports the plan's goals and the region's desire to implement a comprehensive transit 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 and engineer's estimates made by the consultant team. Table 5.7 summarizes the public transportation projects. The public transportation projects, shown on Figure 5-4, provide for service expansion of new service.

Public Transportation Strategies

At this time, MET Transit 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 in the region, an increase in the operations funding would need to occur through an increase in the 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 Transit 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.

At a planning level, there are some other public transportation projects that could be considered as the public transportation expands. These projects include investments in technology for transit, such as transit signal priority, automated vehicle location (AVL), real-time passenger information systems, web-based traveler information, web-based trip planning, automated stop announcers, and smart card technology for fare collection. Additionally, a MET Transit ITS Strategic Plan could be developed to identify the technology needed to enhance the transit system. Technology investments on buses; at transit stops, shelters, and transfer centers; and on websites and smartphones can enhance the experience for the user through travel time reliability and real-time information. The ITS plan and technology are not currently funded, but should be considered as part of future investments to the region's public transportation system.

Table 5.7 Project List for Public Transportation

Project ID	Project Name	Length (miles)	Project Description	Estimated ANNUAL Planning-Level Cost[1]	Cost Reference[2]
T1A	New Service Expansion – Lockwood	6.0	Downtown Transfer Center to Lockwood (low frequency)	$298,089	B, D
T1B	New Service Expansion – Lockwood	6.0	Downtown Transfer Center to Lockwood (high frequency)	$996,630	B, D
T2	New Service Expansion – Grand Ave	3.0	Shiloh Rd to 64th St	$312,000	A
T3	New Service Expansion – King Ave	3.0	Shiloh Rd to 64th St	$312,000	E
T4	New Service Expansion – Blue Creek	4.5	I-90 to Vandaveer Rd	$312,000	E
T5	New Service Expansion – Airport	1.0	Rimrock Rd to Airport	$175,479	B
T6	New Service Expansion – Mary St	1.0	Main St to Bitterroot Dr	$156,000	E
T7	Existing Service Expansion – Hospital District	N/A	Increase route frequency	$100,000	E
T8	Existing Service Expansion – Downtown Circulator	N/A	Downtown to Metra	$792,001	C
T9	Existing Service Expansion – Evening Service	N/A	Routes 3D, 4P, 5D, 9D, 10D, and 19D	$440,947	B
T10	Existing Service Expansion – Increased Frequency	N/A	Routes 3D, 5D, and 19D	$472,443	B
T11	New Service Expansion – Expand Saturday Service	N/A	MET Transit Service area	$283,466	B
T12	Existing Service Expansion – Sunday Service	N/A	MET Transit Service area	$651,296	B
T13	Existing Service Expansion – Heights Evening Service	N/A	Routes 16P, 17P, and 18M	$95,613	B
T14	Commuter Service from Laurel	14.2	Stewart Park Transfer Center to downtown Laurel	$73,116	B
T15	Demand Response Evening Service	N/A	MET Transit Service area	$350,958	B

[1] Cost estimates based on recent plans/studies with adjustments for inflation to current year dollars
[2] Document Reference: A – 2009 Billings Urban Area LRTP B – 2011 MET Service Analysis C – 2012 Billings Downtown Circulator Study D – 2007 Lockwood Transit Service Options Study E – Consultant Team

Expansion of Existing Service Routes		
Project	**Service**	**Routes/Location**
T7	Hospital District	Hospital District
T9	Evening Service	Routes 3D, 4P, 5D, 9D, 10D, and 19D
T10	Increased Frequency	Routes 3D, 5D, and 19D
T11	Expand Saturday Service	Routes to be determined
T12	Sunday Service	Routes to be determined
T13	Heights Evening Service	Routes 16P, 17P, and 18M

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Office
Transfer Center
Bus Shelters

Projects
Circulator
Commuter Service
New Service
Expand Existing Service

Railroads
Existing Bus Routes
Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets

Study Area
Billings

New Service Expansion

Transit Projects

Figure **5-4**

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Source: City of Billings GIS Database, MET Transit

CHAPTER 6

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. As noted in Chapter 1, Billings is located between Minneapolis and Seattle (east to west) and Calgary to Denver (north to south) and is one of the largest cities between these major cities.

Figure 6-1 shows the major highways and interstates that connect Billings to other cities throughout the state and adjacent state lines. As shown in Figure 6-1, there are several major roadways connecting Billings to other major cities, including Interstate 90, Interstate 94, Montana Route 3, and US Route 87. 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. Several of the 2014 LRTP goals correspond to the movement of goods and services:

- **Goal 1: Safe, Efficient, Effective –** To develop a transportation system that is safe, efficient, and effective
- **Goal 2: Functional Integrity –** To optimize, preserve, and enhance the existing transportation system
- **Goal 5: Multimodal –** To create a transportation system that supports the practical and efficient use of all modes of transportation
- **Goal 6: Economic Vitality –** To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce

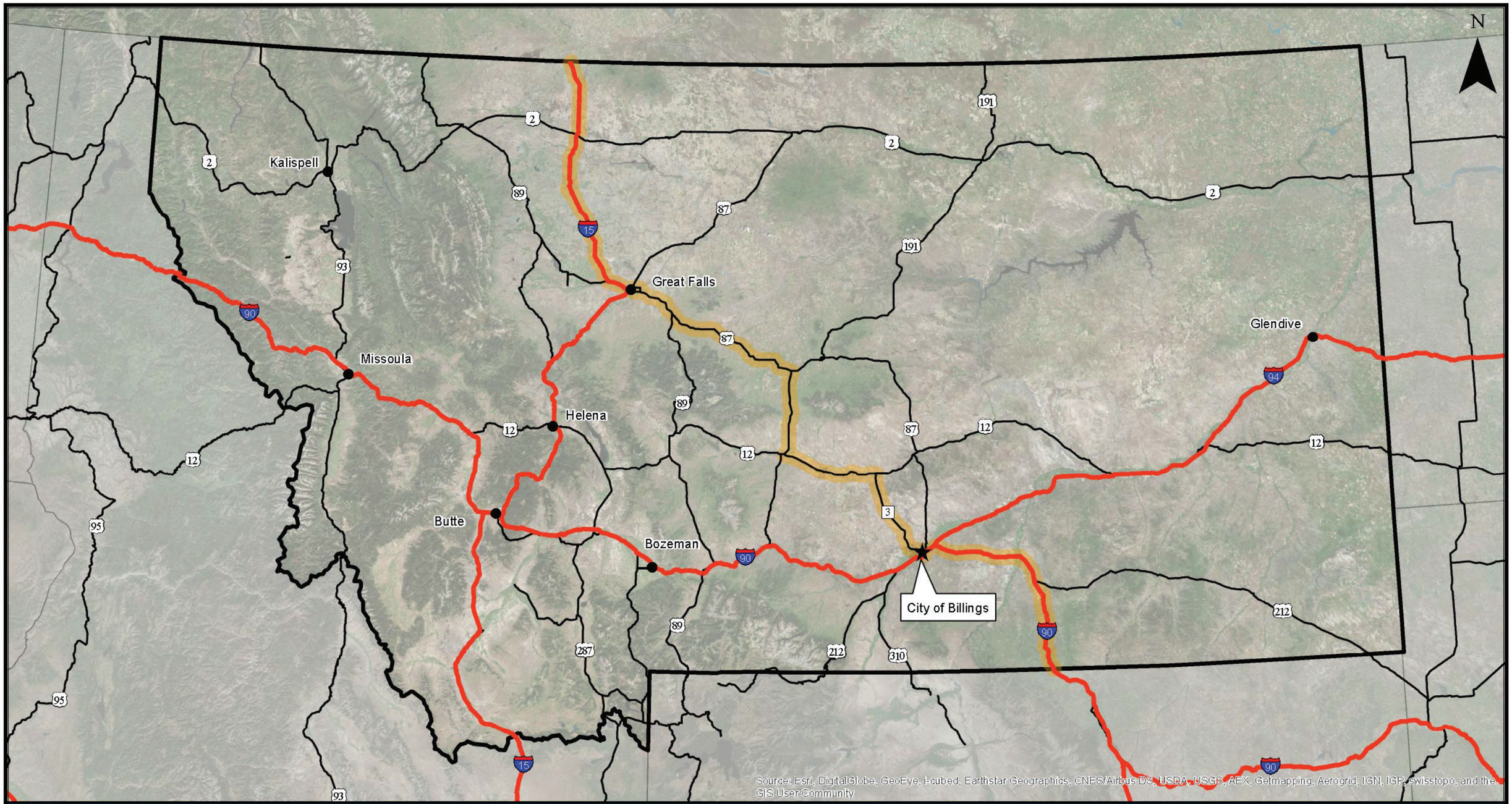
Existing Conditions

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

As shown in Figure 6-1, the study area is served by Interstate 90, Interstate 94, US Route 87, US Route 312, and Montana Route 3. Figure 6-2 shows the existing truck routes and freight activity centers within the study area. Table 6.1 summarizes the roadway characteristics for the existing truck routes within the study area.

As shown in Table 6.1 and Figure 6-2, the area is connected by a number of major highway and



Interstate
Highways
Billings
Major Cities
Montana
Other States
Camino Real Corridor

Highways & Interstates in Montana

2014 BILLINGS URBAN AREA Long Range Transportation Plan

BILLINGS - YELLOWSTONE COUNTY MPO METROPOLITAN PLANNING ORGANIZATION

DOWL HKM

Figure 6-1

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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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. Key characteristics of the truck routes are identified in Table 6.1, such as signalized corridors along Main Street and King Avenue, and a roundabout corridor along Shiloh Road. Signal timing along Main Street was recently updated, and signal timing along King Avenue is being updated by MDT.

Some of the existing facilities present steep grade challenges, such as Zimmerman Trail and Airport Road. High percentages of commercial vehicles are reported on Interstate 90 (22%), Interstate 94 (15%), and Johnson Lane (12%-16%). The City of Billings does not have designated truck routes within the city limits but does have some restricted use roadways. In November 2007, the Yellowstone County Board of County Commissioners enacted Ordinance No. 07-107 (6-4). The ordinance restricts truck activity along several county roads, shown in Figure 6-2, with the intent to reduce deterioration of the roads. The ordinance encourages truck traffic in the area to use 72nd Street West and 56th Street West. Trucks are allowed to use the restricted roadways for local deliveries and specific truck restrictions have not yet been applied by the City of Billings. However, preferred and common truck routes are shown in Figure 6-2.

MAJOR TRUCK ACTIVITY CENTERS

Figure 6-2 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 6-2, 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.

Table 6.1 Truck Route Roadway Characteristics

Roadway	Functional Classification[1]	Route Designation[2]	Access Type	# of Lanes	Posted Speed (mph[3])	AADT [4, 5]	Truck %[6]
Interstate 90	Interstate	Highway	Grade Separated	4 Lanes	75	9,000 – 27,500	22%
Interstate 94	Interstate	Highway	Grade Separated	4 Lanes	75	2,000 – 4,000	15%
US Route 87	Principal Arterial	Highway	Limited Access	2 Lanes	70	3,000 - 5,500	5%
US Route 312	Principal Arterial	Highway	Limited Access	2 Lanes	60	11,000	N/A
Montana Route 3	Principal Arterial	Highway	Limited Access	2 Lanes	60	4,000 - 9,000	N/A
Main Street	Principal Arterial	Highway	Signalized	6/7 Lanes	45	32,000 - 42,600	1%
Shiloh Road	Principal Arterial	Arterial	Roundabout	4/5 Lanes	45	7,000 -13,000	N/A
Zoo Drive	Principal Arterial	Arterial	Signalized	4/5 Lanes	35	9,000	N/A
King Avenue	Principal Arterial	Arterial	Signalized	4/5 Lanes	35	6,000 -36,000	N/A
Zimmerman Trail	Principal Arterial	Arterial	Signalized	2 Lanes	25	7,000 - 8,000	N/A
S. Billings Blvd	Principal Arterial	Highway/ Arterial	Signalized	2 Lanes	35	3,500 - 9,500	N/A
1st Avenue South	Principal Arterial	Arterial	Signalized	2 Lanes & 4 Lanes	25	10,000	N/A
Old Hardin Road	Principal Arterial	Arterial	Unsignalized	2 Lanes	45	2,700 - 6,800	N/A
Johnson Lane	Principal Arterial	Arterial	Limited Access	2 Lanes	45	1,000 - 2,500	12%-16%

[1]Billings Urban Area Functional Classification Map (6-1)
[2]GIS data provided by the City of Billings
[3]mph – miles per hour
[4]Interstate 90 values from I-90 Corridor Planning Study, Interstate 94 from travel demand model, All other from 2012 Traffic Count Map (6-2) - range provide if multiple AADT values were given
[5]AADT – Average Annual Daily Traffic
[6]Truck percentages taken from Billings Bypass EIS, when available (6-3)

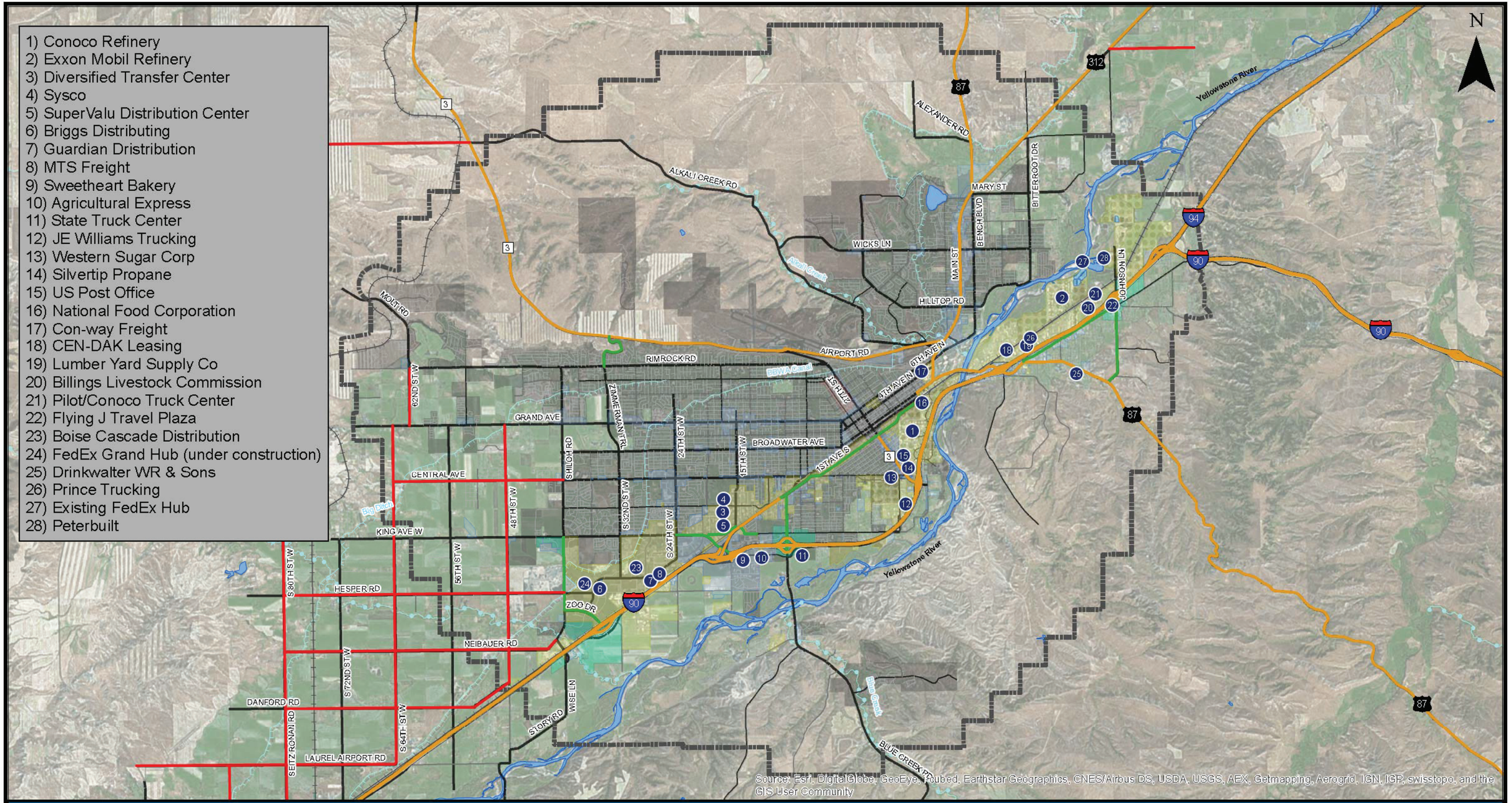
Did you know? The Johnson Lane/Interstate 90 interchange area experiences a large proportion of daily truck activity. Improvements to this area will enhance truck mobility and the movement of goods to and from Billings.

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. Additionally, Main Street, the other north-south route, includes several signalized intersections and a few congested intersections during the 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 6.1 shows a truck activity center near the Johnson Lane interchange in Lockwood. As shown in Exhibit 6.1, 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 6.2, 6.3, and 6.4.

Exhibit 6.1 Truck Activity Center near Johnson Lane Interchange

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



Major Truck Activity
Restricted Truck Use
Study Area
Highway Truck Route
Arterial Truck Route

Commercial
Commercial/Industrial
Light Industrial
Heavy Industrial

Medical Corridor Permit
South 27th Street Corridor
Entryway

Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets

Railroads
Study Area
Billings

Existing Truck Routes

2014 BILLINGS URBAN AREA Long Range Transportation Plan
BILLINGS - YELLOWSTONE COUNTY MPO METROPOLITAN PLANNING ORGANIZATION
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Figure 6-2

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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Exhibit 6.2 Turning Trucks at the Johnson Lane and Frontage Road Intersection

Exhibit 6.3 Single Truck at the Johnson Lane and Frontage Road Intersection

Exhibit 6.4 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 three-year period from 2010 to 2012. Table 6.2 summarizes the commercial vehicle related crashes.

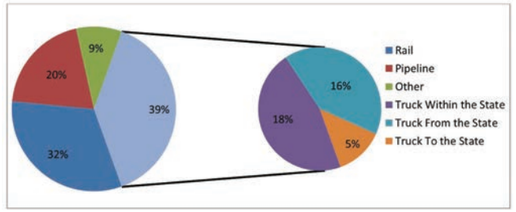
As shown in Table 6.2, there have been 194 reported crashes involving a commercial vehicle over the three year time period. Of the crashes, 83% were property damage only crashes. Of the 34 crashes that did result in a type of injury, one of them was a fatal crash. Figure 6-3 shows the location and severity of commercial vehicle related crashes within the study area.

Future Truck Demand

To aid in the identification of truck facility needs, the existing (year 2011) and future (year 2040) truck demand for Montana was summarized based on data provided in the Freight Analysis Framework by Federal Highway Administration (FHWA) (6-5). As of year 2011, approximately 39% of freight tonnage was moved by truck. Of the 39%, nearly equal amounts were moved within and from the state. Exhibit 6-5 shows the percent breakdown of mode choice for moving freight, and a breakdown of freight moved within, from, and to the state by truck. Exhibit 6-6 shows the percent breakdown of mode choice for moving freight in year 2040, and a breakdown of freight moved within, from, and to the state.

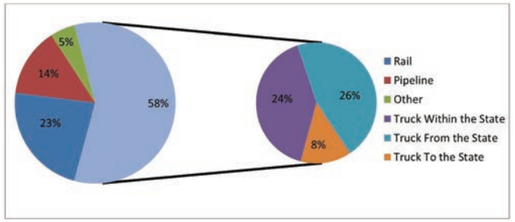
Billings serves as a central location for trucking traffic in the state and the region. The area projects to continue serving in this capacity based on the future freight tonnage moved by truck within Montana. Total freight moved by truck is expected to increase from 39% to 58% by year 2040. Truck moved within and from the state continues to make up a majority of the freight moved by truck, 24% and 26% respectively. Table 6.3 compares the year 2011 and projected year 2040 truck demand.

Exhibit 6.5 Montana Freight Tonnage Moved by Truck (2011)



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

Exhibit 6.6 Montana Freight Tonnage Moved by Truck (2040)



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

As shown in Table 6.3, truck traffic is projected to continue to be a vital part of the City's economy. Total tonnage of freight moved by truck within the state is projected to increase by 21.8 million tons, a 68% increase, by year 2040. Total tonnage moved from and to the state is also projected to increase by 104% and 98%, respectively. Similar increases are projected for the value of freight moved by truck as well.

Needs and Deficiencies

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

PUBLIC AND POC FEEDBACK

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

- Provide access to Interstate 90 from Exposition Drive/Main Street
- Construct a new roadway connecting Montana Route 3, US Route 87, and Interstate 90 to bypass the city

Table 6.2 Commercial Vehicle Related Crash Summary (2010-2012)

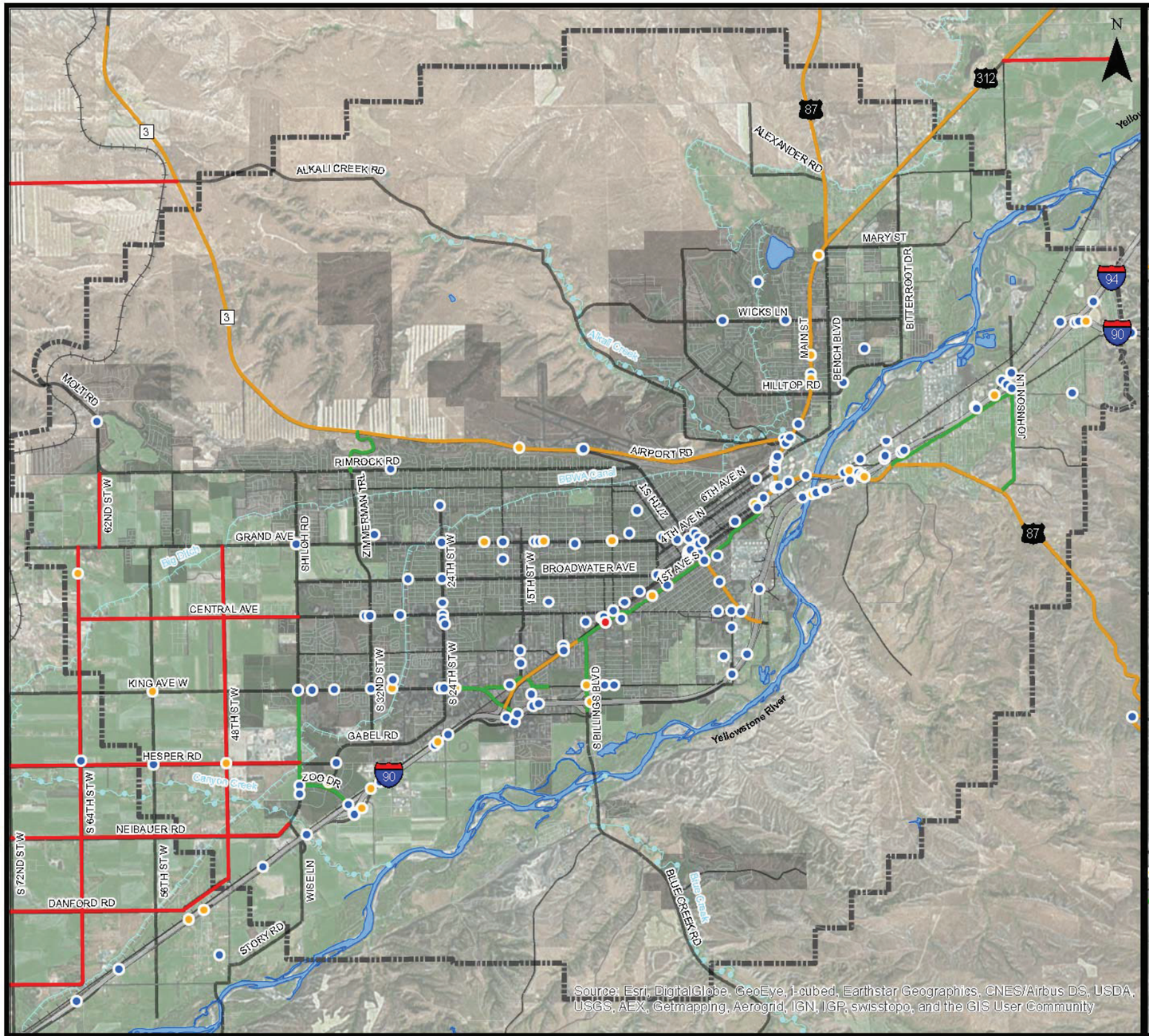
Category	Possible Injury	Non-incapacitating (Injury Evident)	Incapacitating Injury	Property Damage Only	Fatal	Total
Commercial Truck	17(8%)	11(6%)	5(3%)	160(83%)	1(<1%)	194

Source: MDT Crash Data (2010 - 2012)

Table 6.3 Year 2011 and 2040 Total Freight Moved by Truck Conditions

Category	Within State			From State			To State		
	2011	2040	% change	2011	2040	% change	2011	2040	% change
In Millions of Tons (% moved by Truck)	32.2 (18%)	54.0 (24%)	68%	27.4 (16%)	59.0 (27%)	104%	8.9 (5%)	17.6 (8%)	98%
In Millions of Dollars (% moved by Truck)	$18,497 (24%)	$31,940 (24%)	73%	$9,394 (12%)	$15,338 (11%)	63%	$14,134 (18%)	$32,442 (24%)	130%

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



Commercial Vehicle Crashes

- Fatal Crash
- Injury Crash
- Property Damage Only

- Restricted Truck Use
- Highway Truck Route
- Arterial Truck Route
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Commercial Vehicle Related Crashes (2010 - 2012)

Figure **6-3**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations, MDT Crash Data (2010-2012)

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- Rebuild the underpass at North 21st Street to accommodate large trucks
- Improve the intersection of Airport Road and Main Street to better accommodate truck traffic
- Improve intersection of Roundup Road/Old Highway 312/Main Street
- Improve the operations for trucks at the Lockwood intersections near the I-90 interchange
- 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 City of Billings. Key needs from these studies/plans include:

- **Lockwood Transportation Study:** The Lockwood area intersections and roadways should improve to accommodate heavy commercial trucking vehicles (6-6).
- **Billings Bypass EIS Project:** The project is needed to improve truck/commercial vehicle access to and through Billings; improve connectivity between Lockwood and Billings; improve mobility to and from Billings Heights; and reduce physical barrier impacts to the transportation system (6-7).
- **Yellowstone County and City of Billings Growth Policy Update:** The number of north-south truck routes is limited in the study area. No 4-lane highways exist leaving the city to the north or south (6-7).
- **East Billings Urban Renewal District (EBURD) Master Plan:** Roadway facilities need to be developed that maintain access and circulation for large trucks (6-8).
- **I-90 Corridor Planning Study:** The study identified the following needs related to the ranking of interchange projects
  - Accommodate existing and future demand by maintaining level-of-service (LOS) B or better for rural and urban mainline segments and interchange ramps (This includes the six interchanges within the LRTP study area).To the extent practical, provide a facility that safely accommodates interstate travel by meeting current MDT design standards (6-10).

Project List Related to Freight Facilities for Trucks

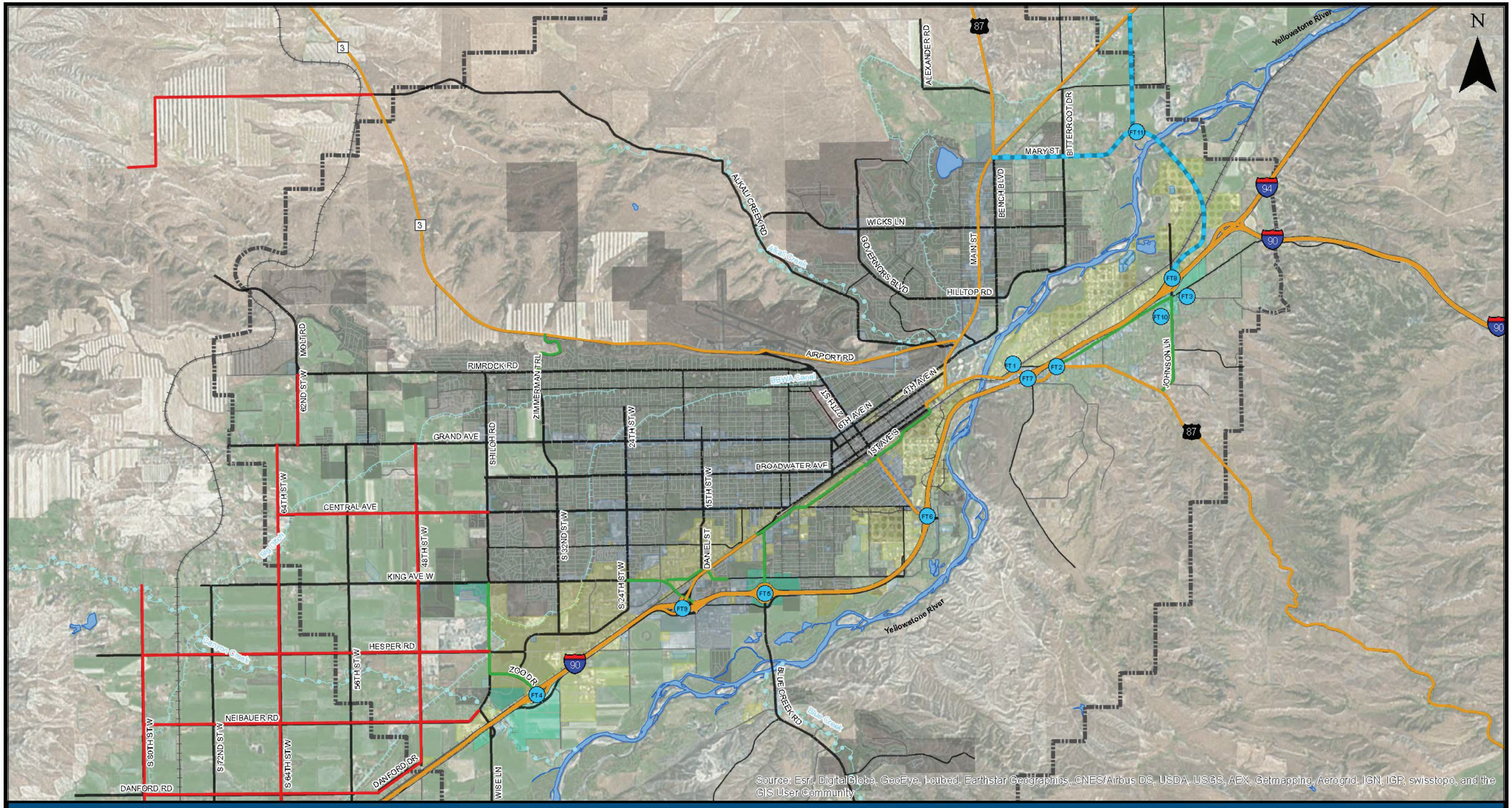
Projects related to freight facilities for trucks were identified from the needs and deficiencies assessment. A project description and planning-level cost estimate was developed for each project. The planning-level cost estimates were developed from cost estimates included in past plans/studies, engineer's estimates made by the consultant team, or City of Billings Capital Improvement Program, FY 2015 - 2019(6-11). Table 6.4 summarizes the recommended freight projects related to truck traffic. Figure 6-4 shows the approximate location of each project.

Table 6.4 Projects Related to Freight Facilities for Trucks

Project ID	Project Name	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
FT1	Lockwood Road & N Frontage Road	Reconfiguration of existing intersection	$495,000	B
FT2	US Highway 87 & Old Hardin Road	Upgrade 3-way stop intersection to a roundabout	$630,000	B
FT3	Johnson Lane & Old Hardin Road	Intersection improvements and access management around Johnson Lane Interchange	Included with FT11	C
FT4	Shiloh Interchange	Geometric improvements to improve operations and safety	$1,900,000	C
FT5	S. Billings Boulevard Interchange	Additional EB and WB mainline lanes under and through the Interchange	$1,600,000	C
FT6	South 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	C
FT7	Lockwood Interchange	Construct additional EB and WB mainline lanes under and through the Lockwood Interchange and improve pedestrian facilities	$1,900,000	C
FT8	Johnson Lane Interchange	Geometric improvements to improve operations and safety	Included with FT11	C
FT9A	West Billings Interchange	Update geometry to match C standards, improve landscaping and improve pedestrian facilities	$6,900,000	C
FT9B		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	C
FT10	Flying J Truck Stop Access	Improve access to the Flying J along Old Hardin Road	$927,338	A
FT11	Billings Bypass	New roadway connecting Interstate at Johnson Ln to Hwy 87/Hwy312	$120,500,000	D

[1]Cost estimates are from recent studies with adjustments for inflation to current year dollars

[2]Document References: A - Lockwood Transportation Study, 2008
B – Cost Estimate by Consultant Team, Based on Engineers Estimate
C - City of Billings Capital Improvement Program, FY 2015 – FY 2019
D - Montana Department of Transportation



Freight-Truck Projects

- Truck Projects
- Billings Bypass

- Restricted Truck Use
- Highway Truck Route
- Arterial Truck Route
- Commercial
- Commercial/Industrial
- Light Industrial
- Heavy Industrial
- Medical Corridor Permit
- South 27th Street Corridor
- Entryway
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Freight Projects Related to Truck Traffic

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Figure **6-4**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

CHAPTER 7

Rail Facilities

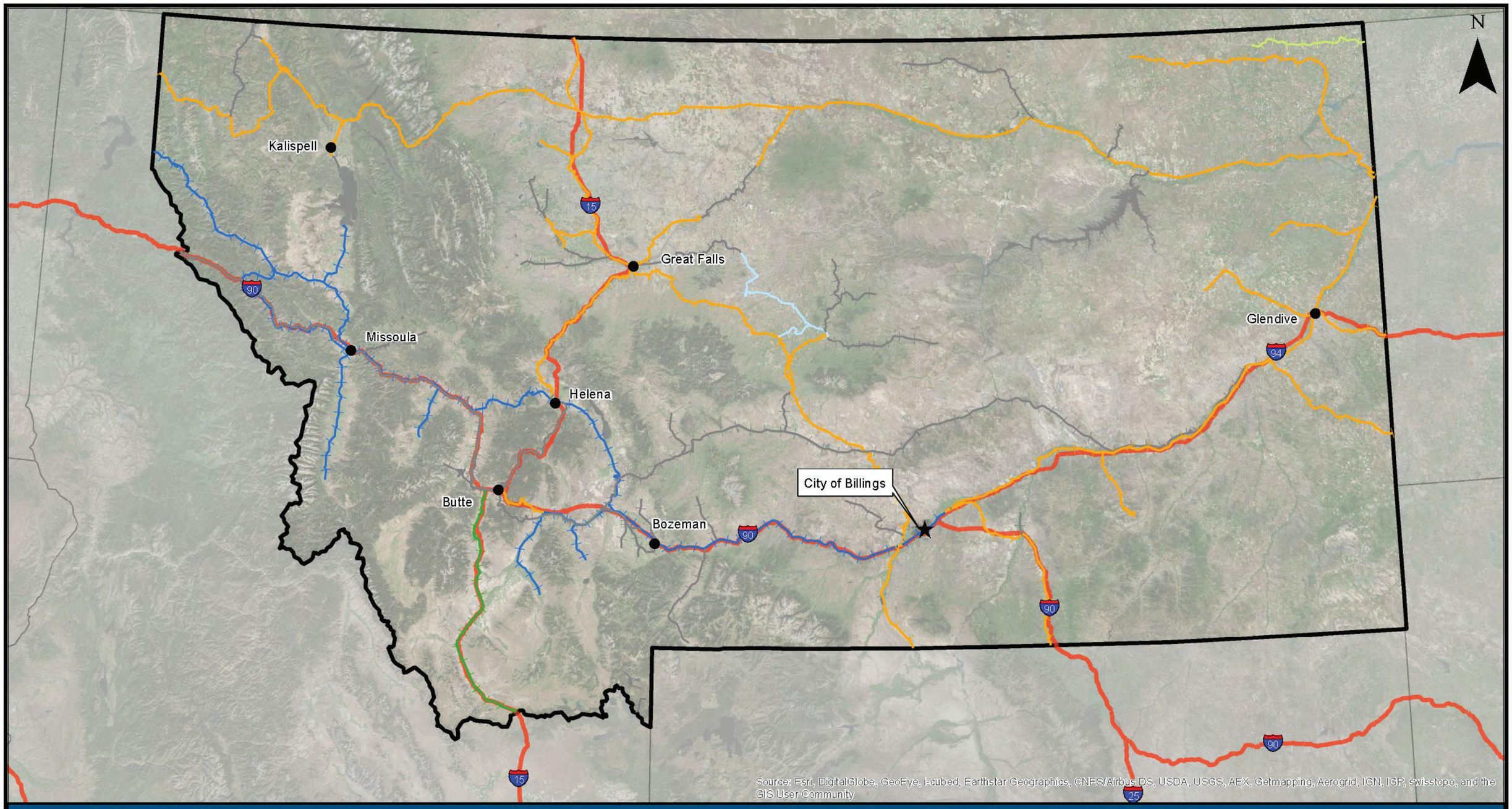
Billings serves as a regional hub for freight rail traffic due to the geographic location and rail system that runs through the City and connects with adjacent states. Billings is located in Yellowstone County and serves as the destination for more than 750,000 tons of freight commodities moved by rail in the state (7-1). Figure 7-1 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 2014 LRTP outlines several goals related to the rail elements:

- **Goal 1: Safe, Efficient, Effective –** To develop a transportation system that is safe, efficient, and effective
- **Goal 2: Functional Integrity –** To optimize, preserve, and enhance the existing transportation system
- **Goal 5: Multimodal –** To create a transportation system that supports the practical and efficient use of all modes of transportation
- **Goal 6: Economic Vitality –** To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce

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:

- **Yellowstone County and City of Billings Growth Policy Update (7-2):** This policy summarizes rail facilities and operators in Billings and discusses the lack of grade separated rail crossings in downtown.
- **Montana State Rail Plan (7-1):** This plan summarizes statewide rail trends and facilities, feasibility of passenger rail service, and estimates rail trends for year 2035.
- **Billings Bypass EIS (7-3):** This study summarizes railroad facilities in the study area and identifies the lack of grade separated rail crossings in the City.
- **Railroad Crossing Feasibility Study-City of Billings (7-4):** This study summarizes existing conditions of the railroad crossings in downtown Billings and identifies possible alternatives. Costs and potential impacts are identified for each alternative.
- **Montana Freight Assessment: Trends and Opportunities to Improve Access and Create Freight Efficiencies for Montana Companies (7-5):** This study summarizes the potential for improving Montana's freight infrastructure to benefit producers and manufacturers.



Burlington Northern Santa Fe
Union Pacific
Montana Rail Link
Dakota, Missouri Valley & Western
Central Montana Rail
Other
Billings
Major Cities
Interstate
Montana
Other States

Montana Rail System

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Figure 7-1

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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 accidents 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 7-2 shows the existing rail facilities and crossings in the study area.

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

RAIL CROSSINGS

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 mostly outside of the MPO boundary, traverse north-south west of Billings and follows Highway 3 to the north. The Manual for Uniform Traffic Control Devices (MUTCD) (7-6), 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.

Table 7.1 Major Rail Crossing Characteristics – Montana Rail Link

Location of Railroad Crossing	Type	Active or Passive	Roadway AADT[1]	Pedestrian Crossing Treatment
72nd Street	At-Grade	Active	2,000	No
56th Street	At-Grade	Active	2,000	No
Shiloh Road	Grade Separated	N/A	7,000 – 13,000	N/A
Zoo Drive	Grade Separated	N/A	9,000	N/A
King Avenue W (Access Road)	Grade Separated	N/A	37,000	No
Moore Lane	At-Grade	Active	5,000	No
Montana Avenue	Grade Separated	N/A	10,000	N/A
6th Street	Grade Separated	N/A	7,000 – 12,000	N/A
29th Street	At-Grade	Active	2,500 - 4,200	Yes
28th Street	At-Grade	Active	3,100 - 4,100	Yes
27th Street	At-Grade	Active	15,000 – 20,000	Yes
N 21st Street	Grade Separated (underpass)	N/A	Not Available	N/A
N 13th Street	Grade Separated (underpass)	N/A	2,000 – 4,000	N/A
US 87	Grade Separated	N/A	9,200	N/A
Steffes Road	At-Grade	Active	Not Available	No
Brickyard Lane	At-Grade	Active	Not Available	No
Exxon Refinery Road	At-Grade	Active	Not Available	No
Johnson Lane	At-Grade	Active (no gates)	1,000 – 2,500	No
Gravel Pit Road	At-Grade	Active	Not Available	No
Local Road	At-Grade	Passive	Not Available	No

[1]AADT values taken from 2012 Traffic Count Map (7-7) when available, otherwise taken from travel demand model output.

There are 27 grade crossings of the BNSF and MRL lines, as shown in Figure 7-2. Tables 7.1 and 7.2 summarize the characteristics of the rail crossings for the BNSF and MRL lines, respectively, in the study area.

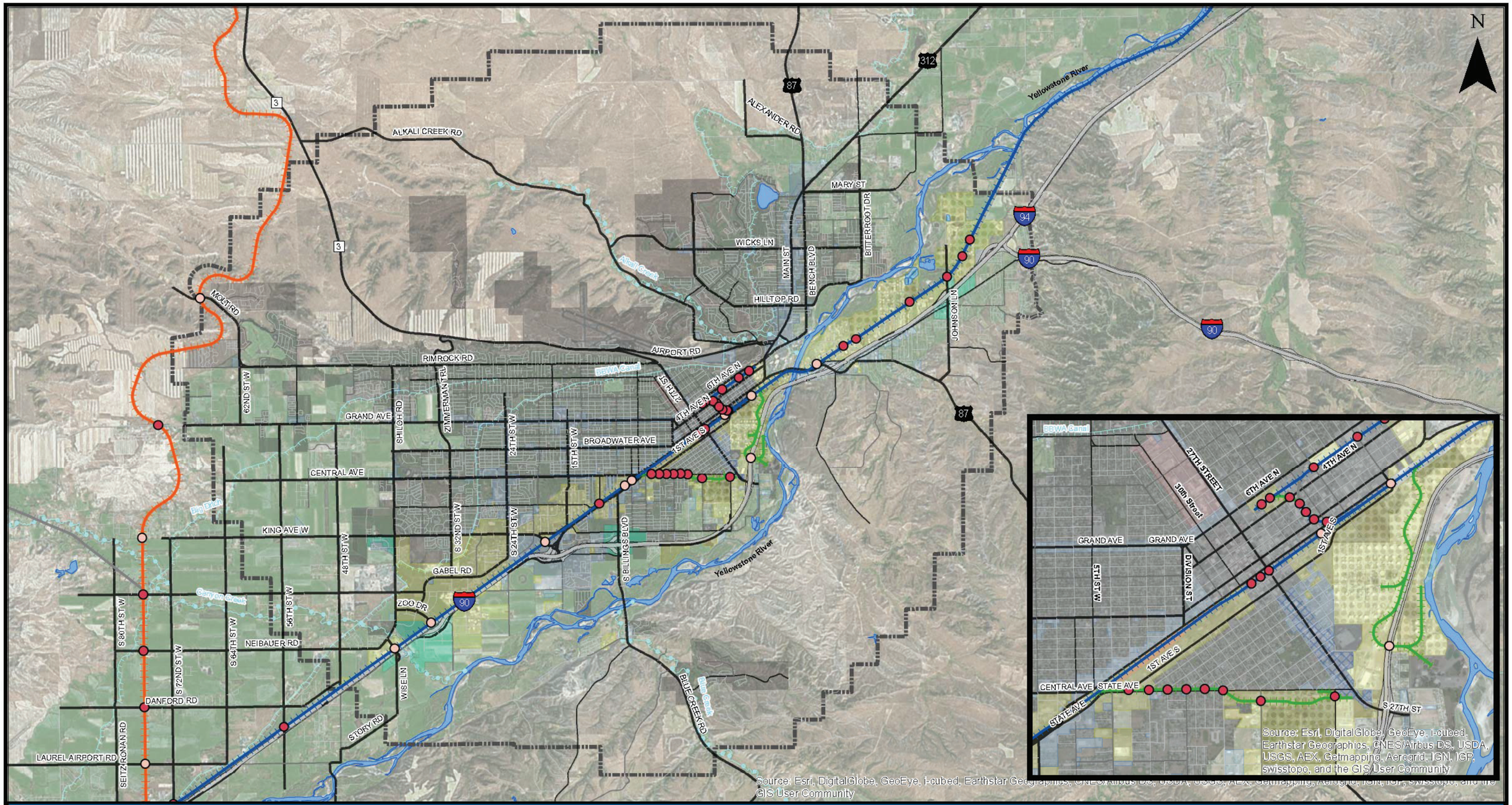
As shown in Figure 7-2, there are a high number of at-grade crossings in the downtown area that cross the MRL railroad tracks and spur lines. Tables 7.1 and 7.2 report AADT for roadways that intersect rail lines in the study area. AADT's on roadways with at-grade crossings are typically below 5,000 vehicles, with the exception of 27th street, which has an AADT of 15,000 to 20,000 vehicles. Pedestrian crossing treatments are included at three at-grade rail crossings in the downtown area. Exhibit 7.1 shows the railroad crossing and pedestrian treatment at 27th Street.

Exhibit 7.1 Rail and Pedestrian Crossing at 27th Street

Table 7.2 Major Rail Crossing Characteristics – Burlington Northern Santa Fe

Location of Railroad Crossing	Type	Active or Passive	Roadway AADT[1]	Pedestrian Crossing Treatment
Laurel Airport Road	Grade Separated	N/A	2,000 – 3,000	N/A
Danford Road	At-Grade	Passive	Not Available	No
Neibauer Road	At-Grade	Passive	1,100	No
Hesper Road	At-Grade	Passive (stop sign)	1,000	No
King Avenue West	Grade Separated	N/A	2,000 – 3,000	N/A
Grand Avenue	At-Grade	Active	1,000	No
Molt Road	Grade Separated	N/A	1,000 – 2,500	N/A

[1]AADT values taken from 2012 Traffic Count Map (7-7) when available, otherwise taken from travel demand model output.



Montana Rail Link
Burlington Northern Santa Fe
Rail Spur
Abandoned Rail

At Grade Crossing
Grade Separated Crossing
Railyard
Commercial
Commercial/Industrial

Light Industrial
Heavy Industrial
Medical Corridor Permit
South 27th Street Corridor
Entryway

Interstate
Principal Arterial
Minor Arterial

Collector
Local Streets
Study Area
Billings

Existing Railroad Facilities

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Figure **7-2**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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) (7-8). Upgrades at 27th Street, 28th Street, and 29th Street were completed through the Billings Quiet Zone project in 2008 (7-9).

There are currently two grade-separated rail crossings within the downtown area, located at 21st Street and 13th Street. Exhibit 7.2 and 7.3 show the crossings at 13th Street and 21st Street, respectively. The crossing at 13th has a clearance of 13 feet and 8 inches with sidewalk on the west side only. The section of 13th Street that includes the underpass is approximately a half-mile long and serves an AADT of approximately 2,000 – 4,000 vehicles. The crossing at 21st Street has a clearance of 8 feet with sidewalk on both sides of the road. The section of 21st Street that includes the underpass is approximately a tenth of a mile long and the roadway's AADT was not recorded on the 2012 Traffic Count Map (7-7). Both of these crossings are discussed in more detail in the needs and deficiencies section.

Exhibit 7.2 Rail Crossing at 13th Street

Exhibit 7.3 Rail Crossing at 21st Street

TRAIN FREQUENCY

Prior to 2002, Montana had three intermodal facilities across the state; however, Billings is currently the only one still in operation. During 2007/2008 MDT surveyed potential users of intermodal service and found 59% of those surveyed would use intermodal service for exports if it were available (7-1). BNSF has expressed interest in resuming intermodal service if 20-foot equivalent units (TEU) were to reach 250 per week or 13,000 per year. Exhibit 7.4 shows a MRL train entering the intermodal facility in downtown Billings. Table 7.3 summarizes the train movement data, as reported to the Montana Department of Transportation, for the eleven active, at-grade crossings along the Montana Rail Link railroad line.

Exhibit 7.4 MRL Train near Intermodal Facility Downtown

As shown in Table 7.3, 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.

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

Table 7.3 Major Rail Crossing Daily Activity – Montana Rail Link

Location of Railroad Crossing	Thru Movements	Switching Movements
72nd Street	32	0
56th Street	32	0
Moore Lane	32	0
29th Street	32	10
28th Street	32	6
27th Street	32	6
Steffes Road	30	0
Brickyard Lane	30	0
Refinery Road	30	2
Johnson Lane	30	0
Gravel Pit Road	30	2

Source: Data provided by Montana Rail Link

SAFETY

Crash data for the study area was reviewed to identify crashes related to the rail crossings over the three year period from 2010 to 2012. Table 7.4 summarizes the crashes related to rail crossings in the study area. Figure 7-3 summarizes the rail related crashes in the study area.

As shown in Table 7.4, only 15 crashes related to rail crossings have occurred in the study area. Of these 15 crashes, only 3 (20%) resulted in an injury and 12 (80%) resulted in property damage only. None of the rail related crashes resulted in a fatality.

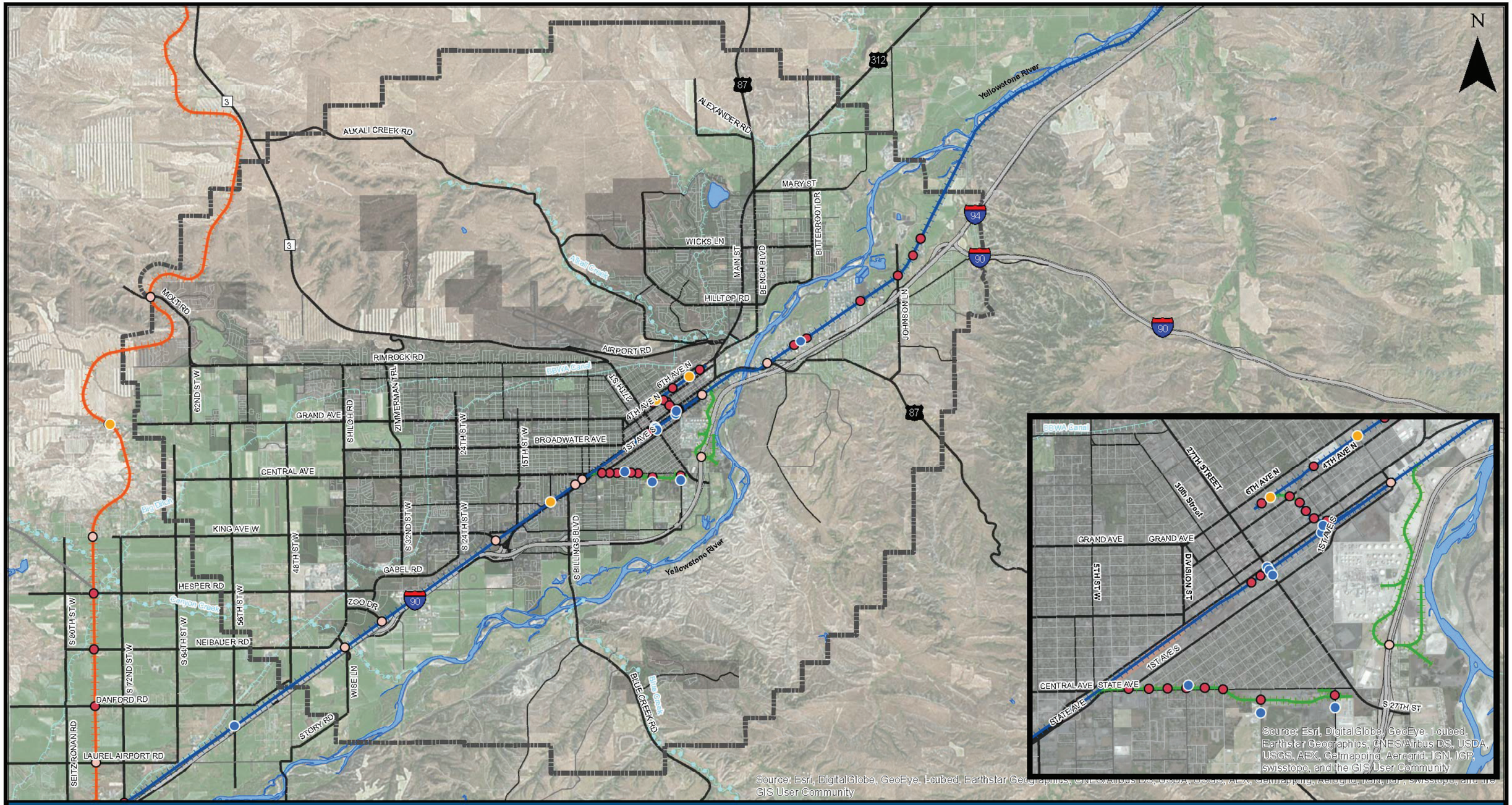
Existing and Future Rail Demand

To aid in the identification of rail facility needs the existing (year 2011) and future year (year 2040) rail demand was summarized based on data provided in the Freight Analysis Framework by Federal Highway Administration (FHWA) (7-10). As of year 2011 approximately 32% of freight tonnage was moved by rail. Of the 32%, 29% is freight being moved from the state. Exhibit 7.5 and Exhibit 7.6 show the percent breakdown of mode choice for moving freight, and a breakdown of freight moved within, from, and to the state by rail for year 2011 and year 2040, respectively.

Table 7.4 Rail Crossing Related Crash Summary (2010-2012)

Category	Injury	Property Damage Only	Fatal	Total
Rail Crossing Related	3 (20%)	12 (80%)	0 (0%)	15

Source: Data provided by Montana Rail Link



Rail Crossing Related Crashes

- Injury Crash
- Property Damage Only

- Montana Rail Link
- Burlington Northern Santa Fe
- Rail Spur
- Abandoned Rail

- At Grade Crossing
- Grade Separated Crossing
- Railyard

- Interstate
- Principal Arterial
- Minor Arterial

- Collector
- Local Streets
- Study Area
- Billings

Rail Crossing Related Crashes (2010 - 2012)

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MPO Billings - Yellowstone County Metropolitan Planning Organization

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Figure **7-3**

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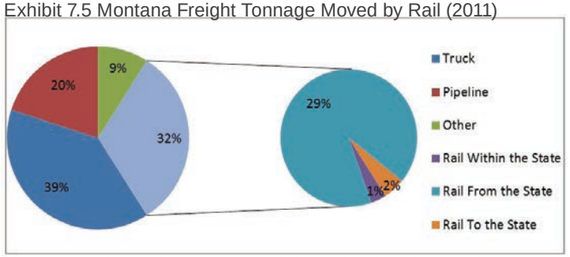
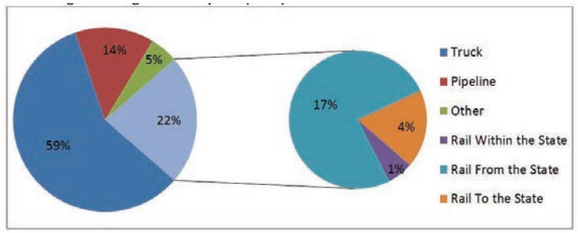
Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

Exhibit 7.5 Montana Freight Tonnage Moved by Rail (2011)



Source: Freight Analysis Framework by Federal Highway Administration (FHWA)- Freight Management and Operations (7-10)

Exhibit 7.6 Montana Freight Tonnage Moved by Rail (2040)



Source: Freight Analysis Framework by Federal Highway Administration (FHWA)- Freight Management and Operations (7-10)

Rail is projected to continue to serve as a valuable economic driver in Billings and Montana. Total tonnage of freight moved by rail from the state is projected to decrease from 32% in 2011 to 22% by year 2040. 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 and is the nation's fifth largest coal producing state with over

73% of it being shipped via rail (7-1). Exhibit 7.6 shows the percent breakdown of mode choice for moving freight in year 2040, and a breakdown of freight moved within, from, and to the state. Table 7.5 compares the year 2011 and projected year 2040 rail demand within, from, and to the state in millions of tons and millions of dollars.

As shown in Table 7.5, the value of freight moved within and to the state is projected to increase by 47% and 297%, respectively. Freight moved from the state is projected to decrease in total tonnage and value of freight by year 2040. Overall, the amount of freight moved around and across the state of Montana is projected to increase by 2040. Billings will continue to serve as a central hub for rail transport in Montana and several surrounding areas.

Table 7.5 Year 2011 and 2040 Total Freight Moved by Rail Conditions

Montana Rail Shipments	Within State			From State			To State		
	2011	2040	% change	2011	2040	% change	2011	2040	% change
In Millions of Tons (% moved by Rail)	2.0 (4%)	3.1 (6%)	55%	50.5 (91%)	37.9 (75%)	-25%	2.9 (5%)	9.3 (18%)	221%
In Millions of Dollars (% moved by Rail)	$171 (3%)	$252 (5%)	47%	$4,403 (88%)	$3,040 (60%)	-31%	$452 (9%)	$1,795 (35%)	297%

Source: Freight Analysis Framework by Federal Highway Administration (FHWA)- Freight Management and Operations (7-10)

The Montana Freight Assessment (7-10) conducted a study to identify ways Montana's freight network could be improved and identified four goals for doing such. The assessment also identified Montana's outbound freight as mostly lower value bulk cargo, while inbound freight is highway value package or non-bulk commodities. Increasing value-added exports from Montana to other markets is one of the most promising opportunities for Montana to improve its' freight network.

Needs and Deficiencies

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

PUBLIC AND POC 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 POC identified the following focus areas for projects related to freight rail traffic.

- Provide an alternate route to 27th Street during closures/train delays – consider improvements to the underpass at 21st Street.
- Understand the increase of future rail traffic
- Identify the type of freight (i.e. coal trains, agriculture, etc.) that will be moved by rail.
- Consider advanced warnings, signal modifications, and other smart technology solutions for the city .
- Address capacity and design issues at railroad underpasses with 13th Street and 21st Street.

NEEDS DEFINED IN PREVIOUS STUDIES/PLANS

Review of recent city wide studies/plans identified several rail facility needs used to recommend projects. A summary of information identified during the literature review is below.

- **Yellowstone County and City of Billings Growth Policy Update:** This policy discusses the importance of railroad crossings at key locations around the city (7-2).
- **Railroad Crossing Feasibility Study - City of Billings:** This study identifies the challenges of at-grade crossings in the downtown area, specifically at 27th Street, 28th Street, and 29th Street. Alternatives were developed and evaluated at these locations (7-4).
- **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 (7-10).

A railroad crossing feasibility study completed in 2004 identified several alternatives for grade separated crossings at 27th Street; however, 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.

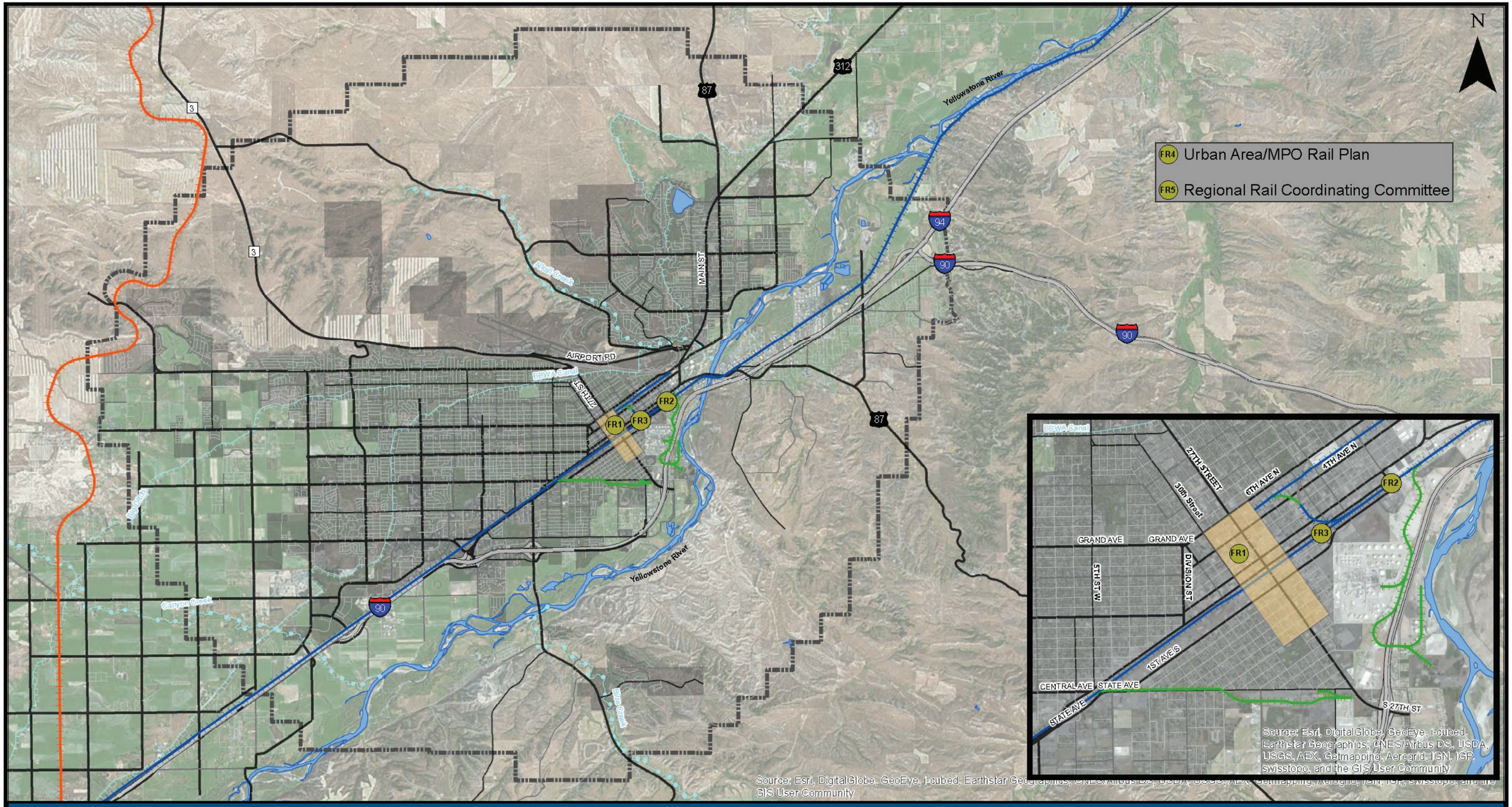
Currently, real-time information is needed to alert transportation users of the time table of approaching trains in downtown and to expect delays. Advanced warning systems linked to websites and mobile devices could warn roadway users of delays at the at-grade intersections and identify potential alternate routes.

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 POC. Table 7.6 summarizes the projects proposed in the study. Figure 7-4 shows the projects related to freight rail.

Table 7.6 Freight Projects Related to Rail Traffic (See Figure 7-4)

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost	Referenced Plan/Study
FR1	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	See CM19	N/A
FR2	13th Street Underpass	Capacity improvements and pedestrian/bicycle crossing enhancements	See R25	N/A
FR3	21st Street Underpass	Capacity improvements and pedestrian/bicycle crossing enhancements	See R24	N/A
FR4	Urban Area/MPO Rail Plan	Conduct a regional rail plan focused on current and future projections	$300,000	N/A
FR5	Regional Rail Coordinating Committee	Form a committee to address rail elements and provide coordination between the MPO, local agencies, rail providers, and businesses	To be determined	N/A



Freight-Rail Projects

- Rail Crossing/Planning
- ITS/Advanced Warning System
- Montana Rail Link
- Burlington Northern Santa Fe
- Rail Spur
- Abandoned Rail
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Study Area
- Billings

Freight Projects Related to Rail Traffic

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Figure **7-4**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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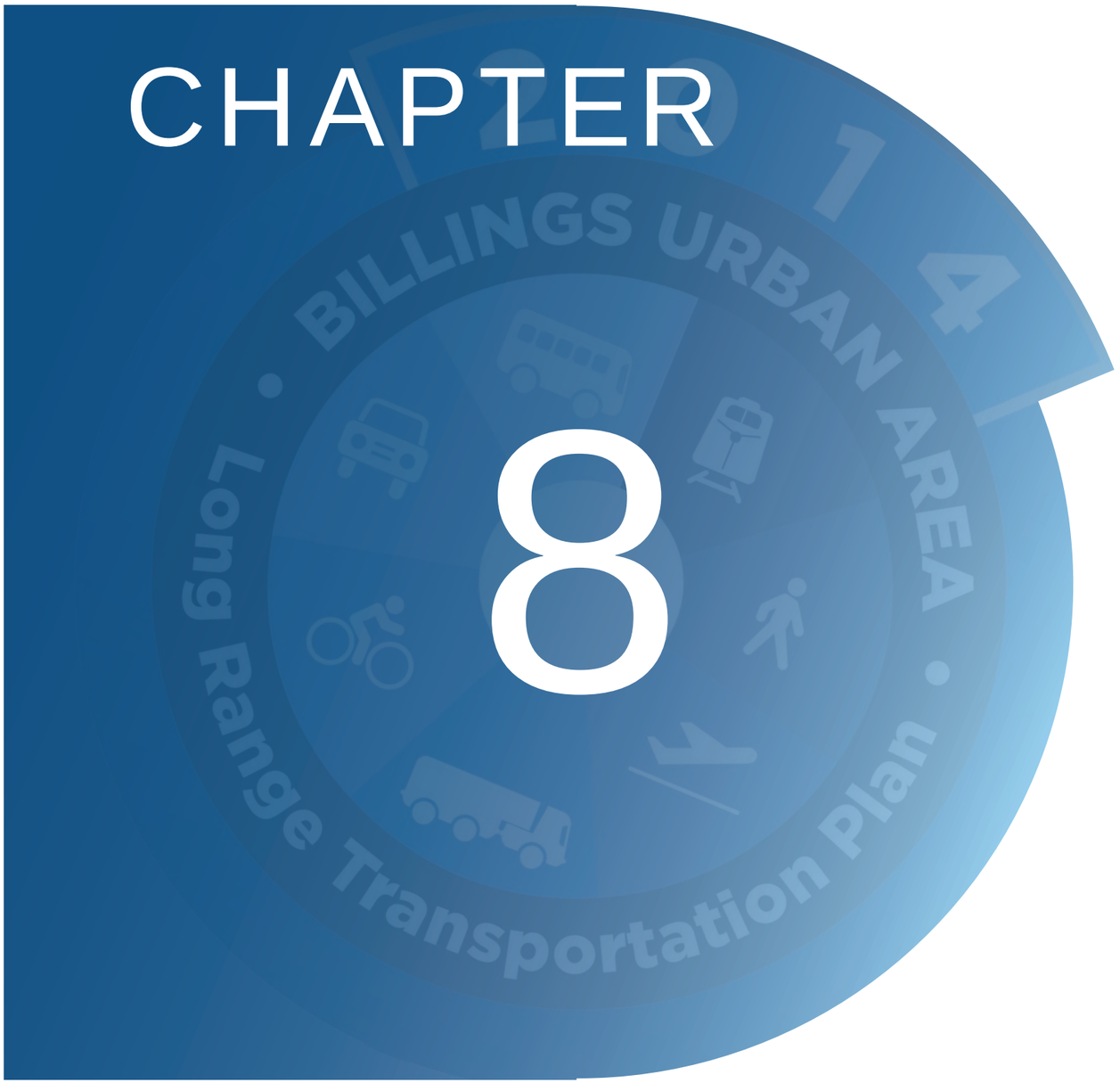
CHAPTER 8



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 20 years.

The City of Billings has taken steps toward this goal by promoting programs such as Safe Routes to School, Trail Trek, Ales for Trails; and adopting planning studies such as the BikeNet Plan (1995), Heritage Trail Plan (2004), Billings Area Bikeway and Trail Master Plan (2011), Complete Streets Policy (2011), and a Complete Streets Benchmark Study (2013). Promoting alternate modes of transportation has led to the adoption of two Safe Routes to School Studies (SRTS) in Billings and Lockwood that aim to enhance student safety and encourage more students to walk and bike to school. In addition to the planning documents mentioned above, the City of Billings has adopted a complete streets policy to encourage healthy living and active transportation. Non-motorized travel continues to be a priority of the community.

Did you know? 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 2020.

As such, the 2014 LRTP outlines several goals related to pedestrian and bicycle elements:

- **Goal 1: Safe, Efficient, Effective –** To develop a transportation system that is safe, efficient, and effective
- **Goal 4: Environmental -** To develop a transportation system that protects the natural environment and promotes a healthy, sustainable community
- **Goal 5: Multimodal –** To create a transportation system that supports the practical and efficient use of all modes of transportation
- **Goal 6: Economic Vitality -** To develop a transportation system that supports the existing local economy and connects Billings to local, regional, and national commerce

Literature Review

Recent city wide 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:

- **Billings Urban Area Long Range Transportation Plan (8-1):** This plan summarizes non-motorized travel in the Urban Area and identifies priority projects for the area.
- **Billings Area Bikeway and Trail Master Plan (8-2):** 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 recommendations, program and policy recommendations, and implementation plan.

- **Trail Asset Management Plan (8-3):** 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 (8-4):** The plan evaluates non-motorized travel 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 Benchmark Study (8-5):** This study provides baseline measures of multimodal infrastructure in place as of 2012, so that the City can begin to track performance and implementation of their complete streets policy.

The studies listed below were reviewed, but usually focused on a particular section of the city for pedestrian and bicycle elements.

- Billings Exposition Gateway Concept Plan (2013)
- Hospitality Road Corridor Study (2013)
- Billings Bypass EIS Project (2012)
- Lockwood Safe Routes to School (2010)
- East Billings Urban Renewal District (EBURD) Master Plan (2009)
- Yellowstone County and City of Billings Growth Policy Update (2008)
- South Billings Urban Renewal Area (2008)
- Lockwood Transportation Study (2008)

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 2011 mode share data was obtained through the American Census Survey (ACS). Table 8.1 summarizes the mode share data.

Table 8.1 Year 2011 Mode Share in the City of Billings

Mode Used	Number of Commuters	Percent of Commuters
Drove Alone	42,117	81.3%
Carpool (2 people)	3,821	7.4%
Carpool (3+ people)	965	1.9%
Public Transportation	821	1.6%
Bike	348	0.7%
Walk	1,651	3.2%
Other	460	0.9%
Worked at Home	1,643	3.2%
Total	**51,826**	**100%**

Source: ACS 2011

As shown in Table 8.1, driving alone to work is the most common commuter mode share (81.3%). Non-motorized travel (biking and walking) make up 3.9% of commuter mode share. As part of 2013 Complete Streets Benchmark Study (8-5), bicycle and pedestrian counts were collected on a weekday and weekend in September 2013 at following six intersections in September 2013.

- 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

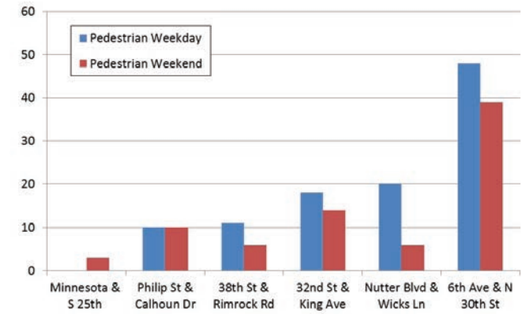
The pedestrian and bicycle counts are shown in Exhibits 8.1 and 8.2, respectively. Pedestrian and bicycle usage is consistently higher on weekdays than weekends. The highest pedestrian and bicycle activity was recorded at the intersection of 6th Avenue and N 30th Street for both weekday and weekend.

Did you know? Biking and walking trips account for 3.9% of the commuter mode share.

School Related Mode Share

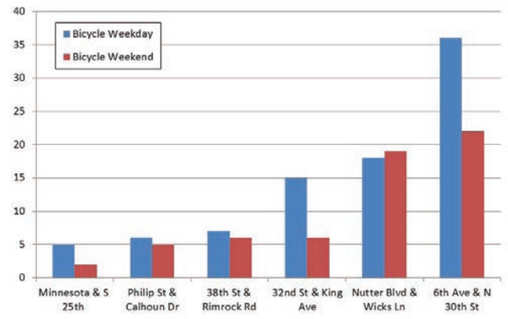
In October of 2007, a survey was administered to parents of students in kindergarten through sixth grade. The survey covered 21 of the 22 elementary schools in the Billings Urban Area and determined the percentages of students that walk, bike, take the bus, take a single vehicle, carpool, or take a daycare van/other to school. The daycare van/other include students that use public transit to get to school. The survey data is summarized in Table 8.2.

Exhibit 8.1 Weekday and Weekend Pedestrian Counts (September 2013)



Source: Complete Streets Benchmark Study (8-5)

Exhibit 8.2 Weekday and Weekend Bicycle Counts (September 2013)



Source: Complete Streets Benchmark Study (8-5)

Table 8.2 Mode Share Percentages for Kindergarten - Sixth Grade Students

School	Type of School Travel					
	Walk	Bike	Bus	Vehicle	Carpool	Daycare Van
Phase I Schools						
Arrowhead	22%	5%	24%	40%	6%	3%
Beartooth	Data Not Available					
Bench	10%	0%	44%	31%	2%	13%
Bitterroot	15%	4%	5%	49%	12%	15%
Boulder	29%	0%	8%	48%	8%	7%
Eagle Cliffs	15%	4%	28%	40%	9%	4%
Meadowlark	34%	0%	3%	42%	7%	14%
Newman	24%	0%	32%	29%	2%	13%
Poly	43%	4%	2%	40%	7%	4%
Ponderosa	24%	1%	38%	29%	1%	7%
Washington	35%	3%	5%	36%	4%	17%
Phase II Schools						
Alkali	13%	2%	36%	34%	5%	10%
Big Sky	28%	4%	0%	48%	8%	12%
Broadwater	33%	3%	0%	49%	7%	8%
Burlington	38%	0%	13%	35%	6%	8%
Central Heights	24%	3%	40%	20%	2%	11%
Highland	37%	9%	1%	37%	9%	7%
Mckinley	24%	0%	39%	32%	2%	3%
Miles Avenue	40%	0%	12%	34%	6%	8%
Orchard	35%	1%	0%	38%	7%	19%
Rose Park	50%	1%	0%	32%	5%	12%
Sandstone	26%	1%	2%	56%	8%	7%
Averages[1]	**28.5%**	**2.1%**	**15.8%**	**38%**	**5.9%**	**9.7%**

Source: Billings Safe Routes to School Study (8-3)

[1]Averages are based on the sum of percentages divided by the number of schools (twenty-one), not on the number of survey responses

As shown in Table 8.2, on average, a parent driving their child to school is still the most popular mode choice. The second most popular mode choice is walking to school. For this reason, the City of Billings has increased focus on providing safe travel for students walking to school. This includes updating and maintaining sidewalk facilities, reducing speed zones near schools, and providing crossing guards at popular crossing locations. Safe Routes to School Study (SRTS) evaluated the facilities for all modes at each of the twenty-two elementary schools and recommended improvements at each school.

PEDESTRIAN FACILITIES

Figure 8-1 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 8.3, 8.4, and 8.5 illustrate some of the existing pedestrian facilities in the region.

Exhibit 8.3 Sidewalks and Pedestrian Buffer Zone in Downtown Billings

Exhibit 8.4 Pedestrian Hybrid Beacon (HAWK) at 4th Avenue in Downtown Billings

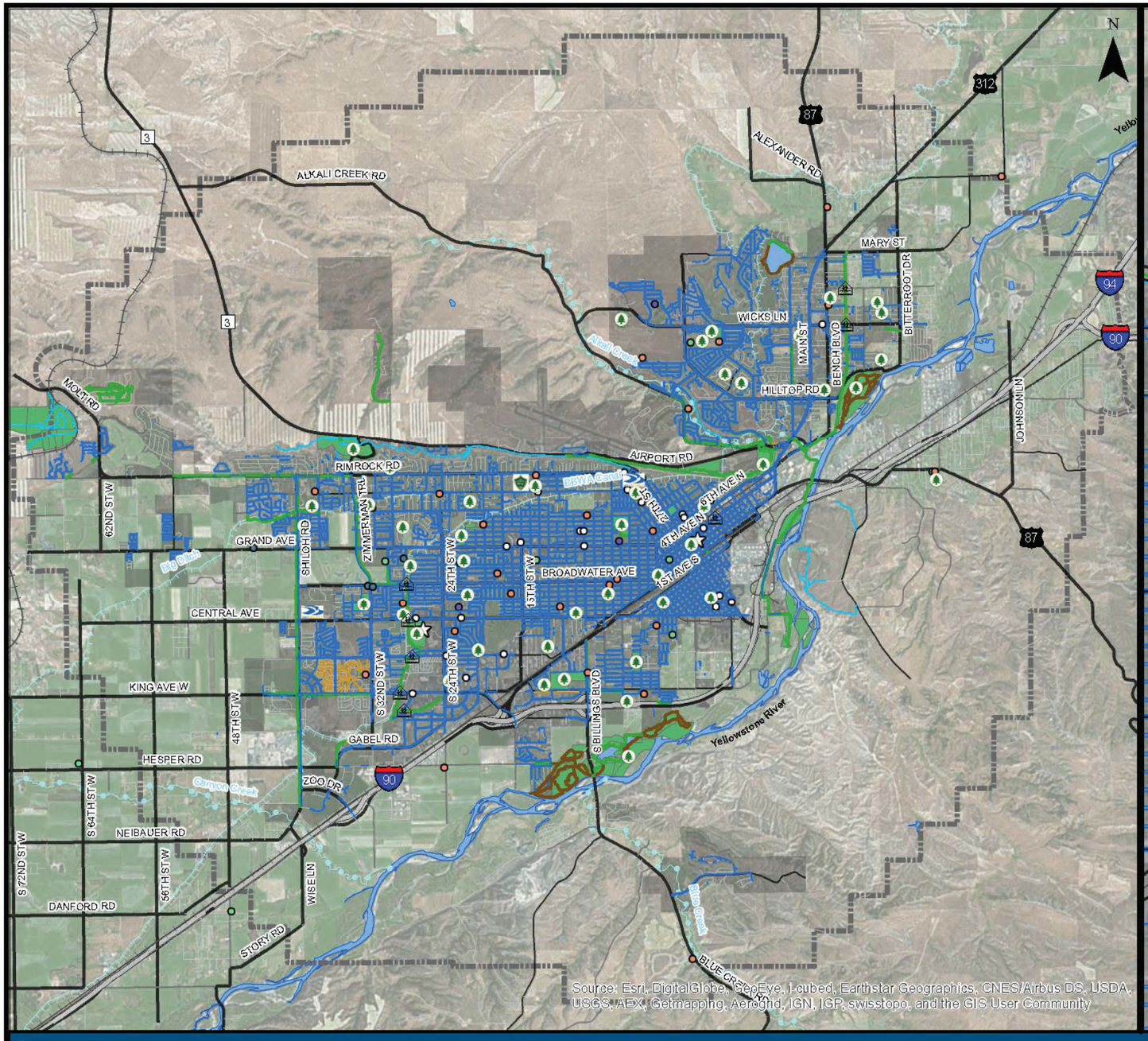
Exhibit 8.5 Rectangular Rapid Flashing Beacon (RRFB) on King Avenue

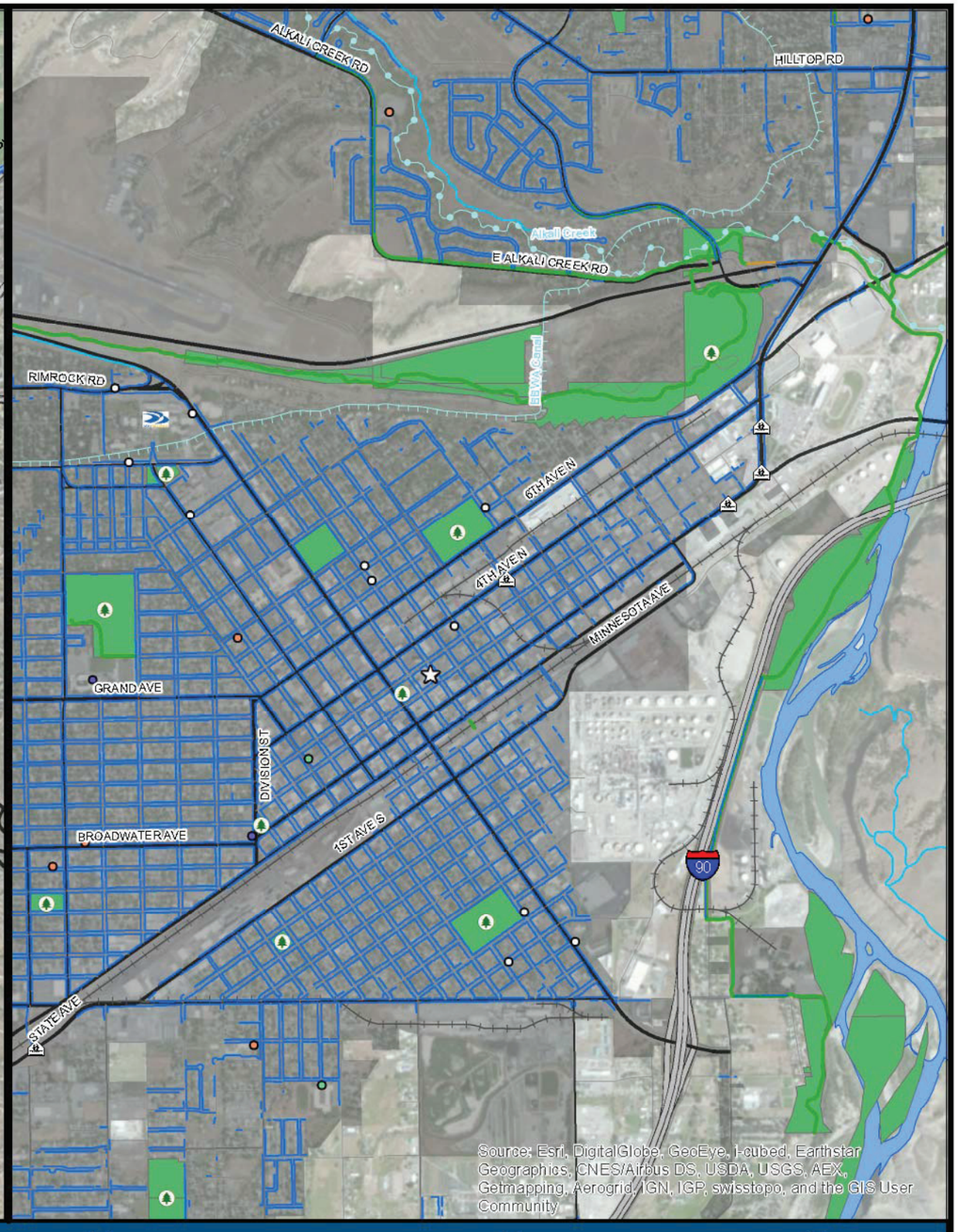
BICYCLE FACILITIES

Development of the City's bicycle facilities has mostly occurred over the last ten years, including 6 miles of new bike lanes provided during 2010. The City of Billings currently maintains approximately 17 miles of on-street bikeway facilities, classified as arterial, primary, and secondary bikeways. The length and type of bikeways are shown in Table 8.3 and defined below according to the Bikeway and Trail Master Plan (8-2).

- **Arterial Bikeway:** Placed on roadways classified as arterials. Users are generally more confident/ skilled riders and the routes provide more direct access and continuity.
- **Primary Bikeway:** Typically found along minor arterials or collector streets. Users can range from very experienced to the casual rider and provide a balance between directness and rider comfort. These routes should attempt to provide connections to off-street routes/trails.
- **Secondary Bikeway:** Shorter in length and typically found on local streets. These routes focus on providing links between neighborhoods, schools, parks, and neighborhood commercial centers.

Figure 8-2 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.





- Enhanced Street Crossing
- Sidewalk
- Multi-Use Trail
- Soft-Surface Trail
- Neighborhood Trail
- Unimproved
- Transfer Center
- Bus Shelter
- Rocky Mountain College
- Montana State University
- Park
- High School
- Middle School
- Grade School
- Mixed K-12
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Existing Pedestrian and Trail Facilities

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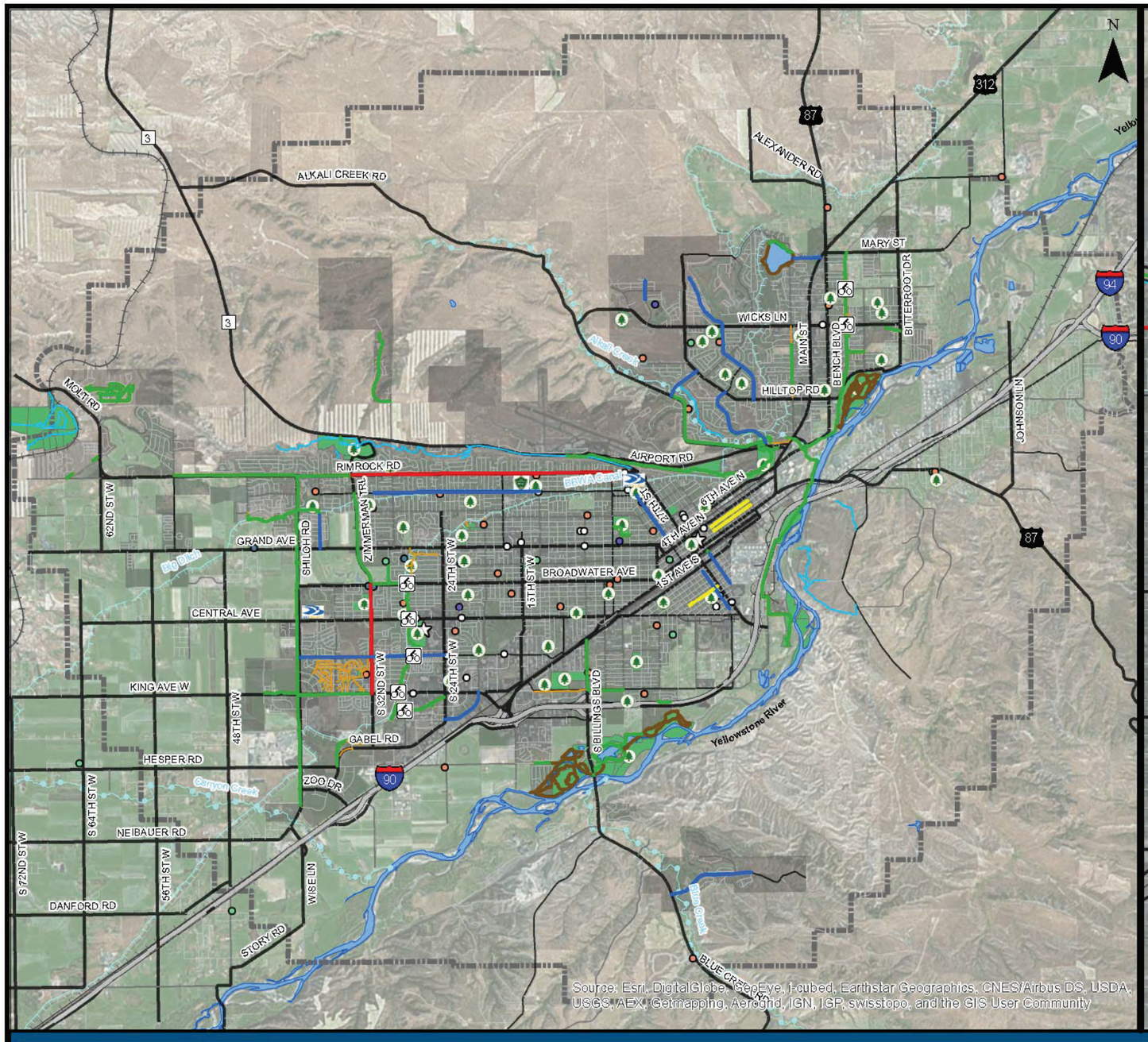
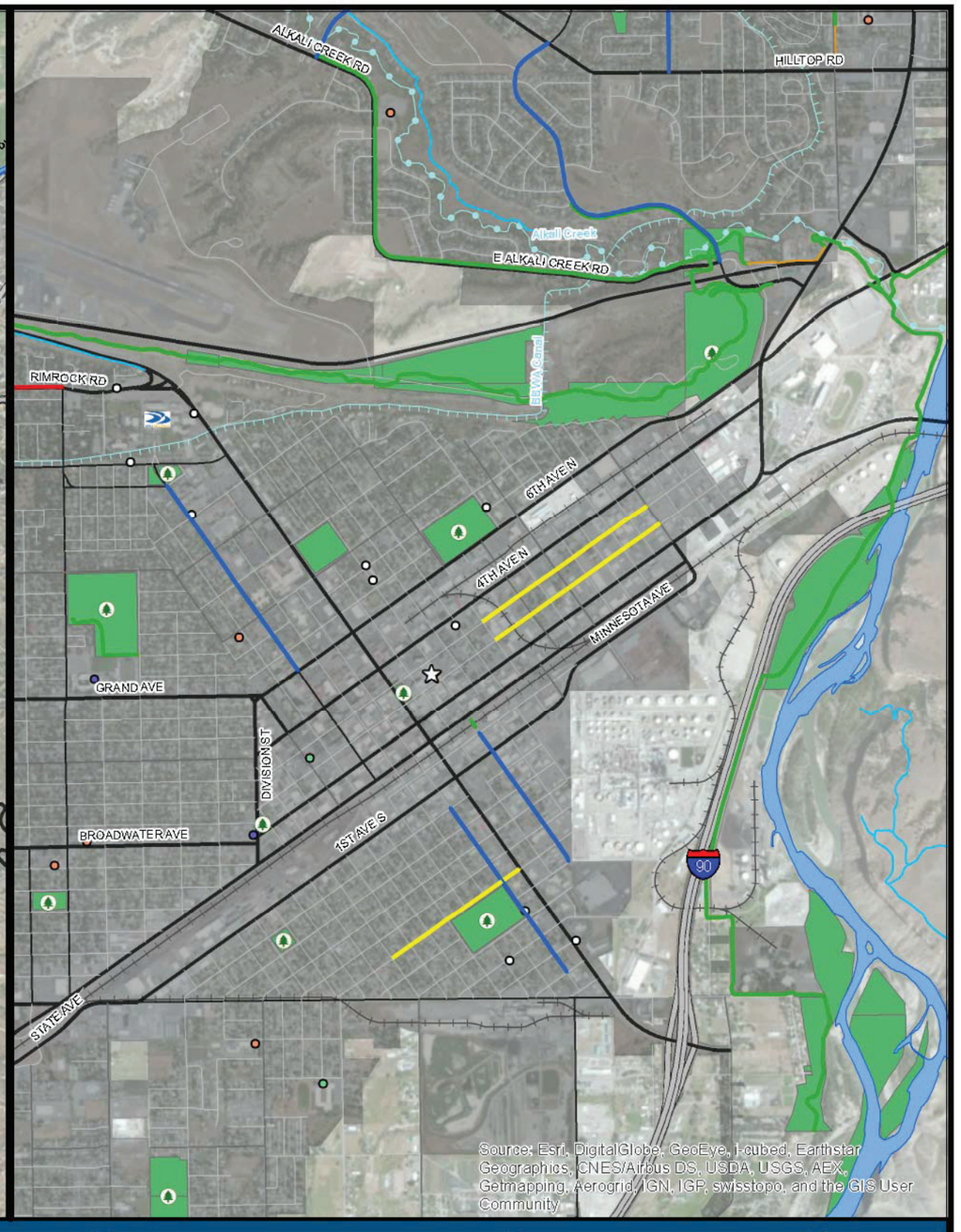
Figure 8-1

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations





Enhanced Street Crossing
Arterial Bikeways
Primary Bikeways
Secondary Bikeways
Multi-Use Trail
Soft-Surface Trail
Neighborhood Trail
Unimproved
Transfer Center
Bus Shelter
Rocky Mountain College
Montana State University
Park
High School
Middle School
Grade School
Mixed K-12
Interstate
Principal Arterial
Minor Arterial
Collector
Local Streets
Railroads
Study Area
Billings

Existing Bikeway and Trail Facilities

2014 Billings Urban Area Long Range Transportation Plan

Billings - Yellowstone County MPO Metropolitan Planning Organization

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Figure **8-2**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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Table 8.3 Types and Length of Bikeways in the Billings Urban Area

Type of Facility	Arterial	Primary	Secondary	Total
Length (miles)	4.6	11.0	1.8	17.4

Source: GIS data provided by City of Billings

As shown in Figure 8-2, the bikeway and trail system almost provide a complete "loop" around the city of 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* (8-6). Exhibits 8-6, 8-7, and 8-8 illustrate some of the existing bike facilities in the region.

Did you know? Implementing bike lanes, sharrows, cycle tracks, 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 8.6 Bike Rack in Downtown Billings

Exhibit 8.7 Bikes Lanes on Rimrock Road

Exhibit 8.8 Bikes Lanes on Monad Road

TRAIL FACILITIES

Billings currently maintains approximately 71 miles of trails throughout the study area. As shown in Figures 8-1 and 8-2, 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. 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, 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. The other major segment of unimproved trails runs parallel to the rims, connecting a multi-use path to Zimmerman Park. Table 8.4 summarizes the types and lengths of trails.

Table 8.4 Type and Length of Existing Trails in the Billings Urban Area

Type of Facility	Mutli-Use	Soft Surface	Neighborhood	Unimproved	Total
Length (miles)	37	11	9	14	71

Source: GIS data provided by City of Billings

The city has historically used two methods for collecting data on trail usage: the biennial "trail census" and an automated trail sensor. The biennial trail census first took place in May of 2003 and has occurred every two years on the third Thursday of May and a weekend day following the weekday count. Six locations have been counted with varying levels of consistency, and counts are specific to mode type (i.e. cyclists, runners, and walkers). A summary of the annual weekday counts shows a steady increase from 2003 to 2009. The automated trail censor was first used in October of 2007 and is most commonly left in a single place for a week at a time. The sensor has been used at 22 different trail locations; however, the counts do not always occur during the same time of the year and are not done annually. Exhibits 8.9 and 8.10 illustrate some of the existing trail facilities in the region.

Exhibit 8.9 Jim Dutcher Trail by MetraPark Arena

Exhibit 8.10 Swords Park Trail Near the Airport

The City has been collecting trail counts on an annual basis at various sites since 2007. This data, which is available on BikeNet's website, is summarized in Table 8.5 on the next page.

Table 8.5 Average Daily Trail Usage in the City of Billings, 2007-2012

Trail	2007	2008	2009	2010	2011	2012	Total
Alkali Creek Road	45	-	57	23	54	103	**282**
Aronson Road	-	-	47	23	15	40	**125**
Bannister Drain Trail	-	-	41	19	16	21	**97**
Big Ditch Trail	-	140	-	181	127	201	**649**
Cabela's Trail	-	-	-	17	25	12	**54**
Coulson Park	-	69	-	85	35	89	**278**
Descro Park	-	223	-	233	123	232	**811**
King Ave W.	-	-	29	31	-	24	**84**
Kiwanis Trail	-	152	122	197	155	249	**875**
Lampman Strip Park	-	-	60	44	39	117	**260**
Metrapark Trail	-	78	130	107	154	80	**549**
Mystic Park	-	69	-	72	-	-	**141**
Norm's Island	-	267	-	196	184	359	**1006**
Rehberg Estates	-	-	-	24	-	23	**47**
Rimrock Road Trail	-	-	81	72	99	141	**393**
Shiloh North	-	-	-	-	32	59	**91**
Shiloh South	-	-	-	-	18	59	**77**
So. Billings Blvd.	-	41	-	22	-	40	**103**
Stewart Park Trail	-	72	104	109	51	163	**499**
Swords Park Trail	-	132	-	109	122	167	**530**
TransTech	-	12	-	43	-	40	**95**
Two Moon Park Trail	-	153	-	365	93	182	**793**
Midland Trail	-	13	21	26	14	14	**88**
Will James Cut	-	41	-	-	-	41	**82**
Zimmerman Road	-	-	87	70	60	39	**256**
Sites Counted	**1**	**14**	**11**	**22**	**19**	**24**	**N/A**
Total	**45**	**1462**	**779**	**2068**	**1416**	**2495**	**N/A**
Average	**45**	**104**	**71**	**94**	**75**	**104**	**N/A**

Source: Counts by BikeNET at http://bikenet.org/wp-content/uploads/2013/06/Trail-Scanner-Count-Matrix-March2013-Trail-Counts.pdf

As shown in Table 8.5, trail usage in the study area has increased steadily over the last 5 years. Seventeen of the twenty-four trails counted in 2012 show an increase in daily usage compared to the daily average the first year the trail was counted. An average of 104 daily users recorded on the trail system in 2012 ties the highest total recorded in the five year period. Big Ditch Trail, Descro Park, Kiwanis Trail, and Norm's Island recorded the highest usage totals in 2012, all above 200 users a day. A total of 2,500 daily users were counted on the twenty-four trails in 2012, the highest total over the five year period.

CRASH HISTORY

Crash data for the study area was reviewed to identify crashes involving a pedestrian or bicyclist over the three-year period from 2010 to 2012. Table 8.6 summarizes the pedestrian and bicycle related crashes. Figure 8-3 shows the approximate location of pedestrian and bicycle related crashes in the study area from 2010 – 2012.

Table 8.6 Pedestrian and Bicycle Crash Summary (2010-2012)

Category	Possible Injury	Non-incapacitating (Injury Evident)	Incapacitating Injury	Property Damage Only	Fatal	Unknown	Total
Pedestrian	58	22	10	11	3	6	**110 (95%)**
Bicycle	2	1	0	3	0	0	**6 (5%)**
Total	**60 (52%)**	**23 (20%)**	**10 (9%)**	**14 (12%)**	**3 (2%)**	**6 (5%)**	**116 (100%)**

Source: MDT Crash Data (2010 - 2012)

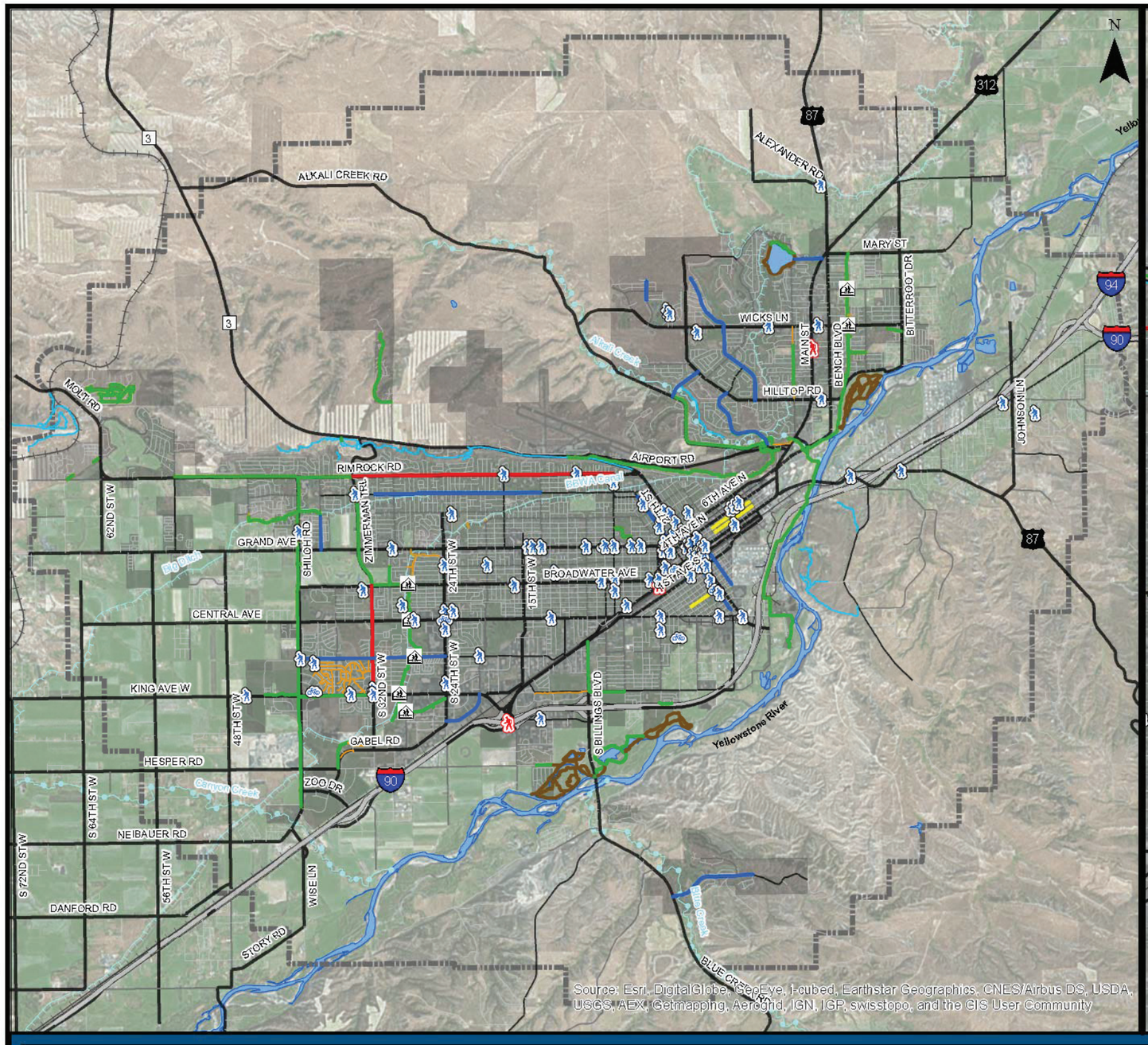
As shown in Table 8.6, there have been 116 reported crashes involving a pedestrian or bicyclist over the three year time period. 88% of the crashes involving a pedestrian or bicyclist resulted in some type of injury. Three fatal crashes involving a pedestrian occurred during the three year time period. A safety analysis was performed to identify the ten intersections with the highest crash rates in the study area. The crash rates were determined by dividing the number of crashes at an intersection per one million vehicle miles traveled. The summary is shown below in Table 8.7.

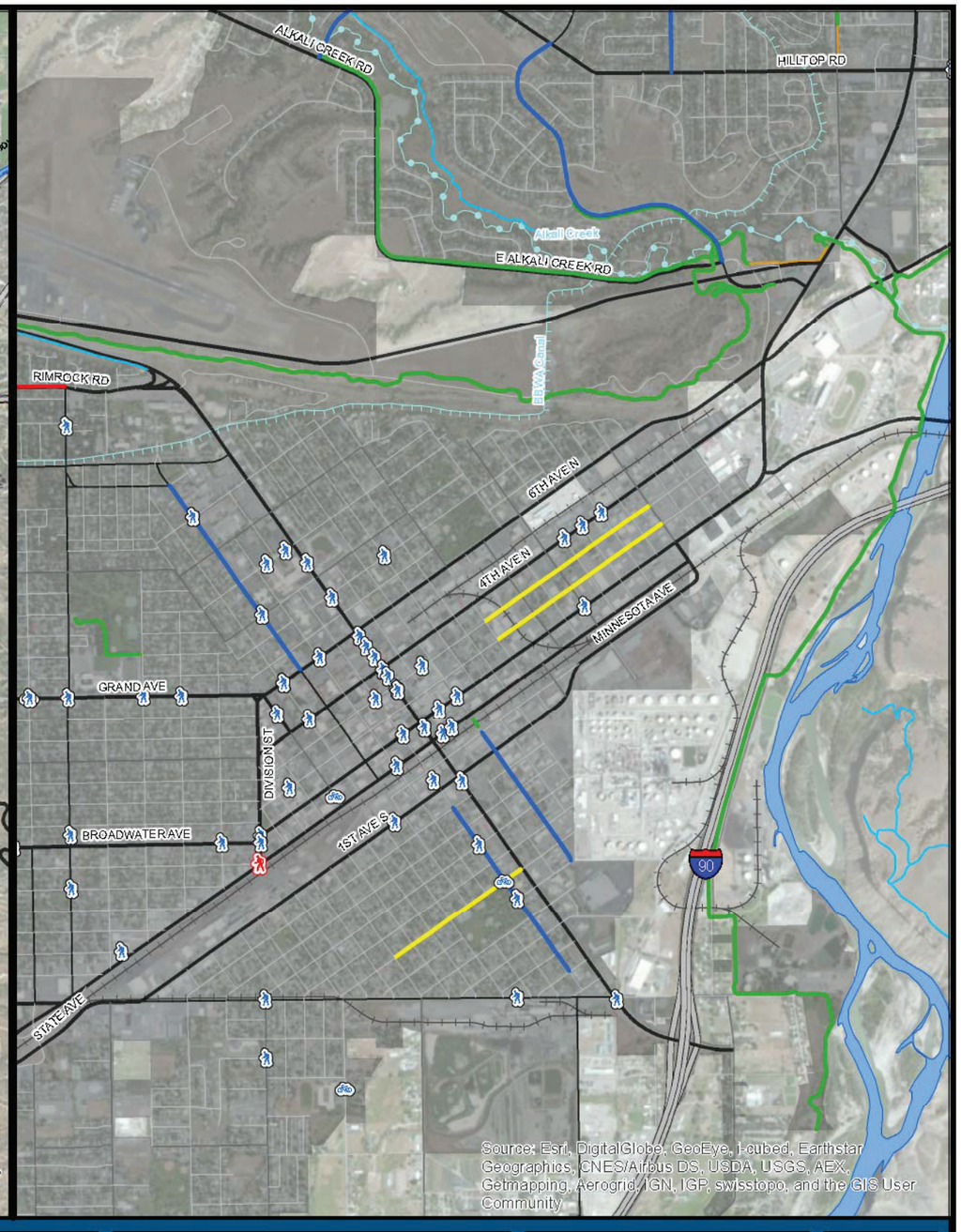
As shown in Table 8.7, five pedestrian crashes and one bicycle crash occurred at these high crash rate locations. At the high crash rate locations, there has been a low percentage of reported crashes involving a pedestrian and bicyclist.

Table 8.7 Bicycle and Pedestrian Related Crashes at Intersections with High Crash Rates

Intersection	# of Crashes	Crash Rate	Pedestrian	Bicycle	Total Crashes	Injury Total
Rosebud Drive & 24th Street West	85	4.20	3	0	3	3
Central Avenue & 24th Street W	124	2.58	0	1	1	1
King Avenue W &24th Street W	103	2.39	0	0	0	0
Grand Avenue & 17th Street West	92	2.27	0	0	0	0
Monad Road & 24th Street West	58	1.98	0	0	0	0
Grand Avenue & 24th Street West	56	1.90	0	0	0	0
Broadwater Avenue & 24th Street West	63	1.76	0	0	0	0
King Avenue West & 20th Street West/Overland Avenue	63	1.44	0	0	0	0
Wicks Lane & Main Street	81	1.41	1	0	1	0
Broadwater Avenue & Division Street	42	1.30	1	0	1	1

Source: MDT Crash Data (2010 - 2012)





- Fatal Pedestrian Crash
- Pedestrian Crashes
- Bicycle Crashes
- Enhanced Street Crossing
- Arterial Bikeways
- Primary Bikeways
- Secondary Bikeways
- Multi-Use Trail
- Soft-Surface Trail
- Neighborhood Trail
- Unimproved
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Pedestrian and Bicycle Related Crashes (2010 - 2012)

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Figure **8-3**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations, MDT Crash Data (2010-2012)

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, POC, and review of past plans/studies.

PUBLIC AND POC 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 2014 LRTP update. Review of the public comment feedback and POC comments suggested the following themes:

- Bicycle Related Comments
  - Continue adding bike lanes to roadways, especially those near schools and desired destinations to improve connectivity
  - Include sharrows along roadways that see a high volume of cyclists
  - Provide a safe route for bicyclists between the heights and downtown
  - Provide bike lanes to connect developments on the west end
- Pedestrian Related Comments
  - Improve pedestrian facilities around Minnesota Avenue in the downtown area
  - Complete pedestrian facilities and provide controlled crossings near schools
- Other Comments
  - Continue to connect the trail system to bicycle and pedestrian facilities around the city
  - Continue emphasis and education for non-motorized travel, vehicles in some areas do not yield
  - Provide more facilities that connect pedestrians and bicyclists to the transit system

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:

- **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:** Prioritized bikeway and trail projects according to a needs assessment, system coverage, safety, connectivity, and connections to adjacent jurisdictions.
- **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.
- **Other Documents Reviewed:** Recommendations based on projects that would best improve facilities in the specific study area. These studies/ plans included:
  - Hospitality Road Corridor Study (8-7)
  - Lockwood Safe Routes to School Study (8-8)
  - Lockwood Transportation Study (8-9)
  - South Billings Master Plan (8-10)

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 39 pedestrian facility projects, 83 bicycle facility projects, and 44 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 Program, FY 2015 – 2019 (8-11).

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 8.8 summarizes the pedestrian projects. Figure 8-4 shows the approximate location of each project.

Bikeway projects include on-street bike lanes, bicycle routes, and bicycle boulevards. Consistent with the previous classification of bikeways, it is assumed that any on-street bikeways would be classified as arterial or primary bikeways. Bicycle routes and boulevards are classified as secondary bikeways. Table 8.9 summarizes the bikeway projects. Figure 8-5 shows the approximate location of each project.

Multi-use trail projects include both soft-surface and paved trails. Table 8.9 summarizes the multi-use trail projects.

Table 8.8 Recommended Pedestrian Projects (See Figure 8-4)

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
P1	Safe Routes to School (SRTS) - Arrowhead	■ Install sidewalks along both sides of Poly Drive from 38th Street West to Zimmerman Trail.	$200,000	C
P2	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	C
P3	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	C
P4	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	C
P5	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	C
P6	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	C
P7	SRTS - Meadowlark	■ Install enhanced school crossing with curb extensions or pedestrian refuge island on 32nd Street West near the intersection with St. Johns Avenue.	$144,782	C
P8	SRTS - Newman	■ Install sidewalks where missing along Calhoun Lane. ■ Install sidewalks where missing along east-west side streets.	$1,140,880	C
P9	SRTS - Poly Drive Sidewalk Improvements	■ Pedestrian Improvements at the Poly Drive and Arvin Road Intersection	$97,147	B

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
P10	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	C
P11	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	C
P12	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	C
P13	SRTS - Big Sky	■ Enhance crossing at 32nd Street West and Lampman Drive or move crossing to Granger Avenue and signalize. Preform 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	C
P14	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	C
P15	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	C
P16	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	C
P17	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	C

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
P18	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	C
P19	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	C
P20	SRTS - Orchard	■ Install curb extensions and crosswalk enhancements on Jackson Street crossings.	$129,134	C
P21	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	C
P22	S 32nd Street Pedestrian Crossing	Install a midblock crossing on S 32nd Street	$210,000	A
P23	6th Ave Underpass	Pedestrian Improvements to Existing Underpass	$102,211	D
P24	King Ave Pedestrian Crossings	Seven proposed crossings along King Ave	$264,992	D
P25	S. Billings Blvd & Simpson St Crossing	Pedestrian crossing treatment to be determined	$158,995	D
P26	State Ave Pedestrian Crossings	Three proposed crossings along State Ave	$149,910	D
P27	Moore Ln & Laurel Rd Pedestrian Crossing	Pedestrian crossing treatment to be determined	$210,000	A
P28	Washington St Pedestrian Crossing	Overpass or underpass crossing of Interstate 90	$1,680,000	A
P29	1st Ave N/US 87/ Main St (Exposition Dr)	Add pedestrian crossings to existing intersections	$28,000	A
P30	US 87 Pedestrian Easement	1.0 miles adjacent to Metra Park from Airport Rd to Yellowstone River	$369,600	A
P31	Metra Park Pedestrian Overpass	Crossing Main St (Exposition Dr) near 3rd Ave N	$1,680,000	A
P32	N 10th St/1st Ave N	Add pedestrian crossings to existing intersection (potential new signal with pedestrian phase)	$280,000	A
P33	1st Ave N/US 87 Sidewalk	Add 0.7 miles of sidewalks to N 10th Street to Yellowstone River	$258,720	A
P34	US 87 Sidewalks	Add 0.3 miles of sidewalks to northside of Bridge crossing Yellowstone River	$110,880	A
P35	Hope Church Sidewalk	New sidewalk and trail improvements along Grand Ave and 56th Street W	$97,248	B

Project ID	Proposed Name	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
P36	N 32nd Street Pedestrian Crossing	Install a midblock crossing on N 32nd Street	$210,000	A
P37	Aronson Ave Sidewalk	Add sidewalk along Aronson Ave south of E Alkali Creek	$73,920	A
P38	Poly Drive Sidewalks	Add sidewalks between 13th and Virginia (BL1 includes the bike lane project)	$120,000	E
P39	Calhoun Lane Sidewalks	Construct new 5-foot sidewalk on both sides of Calhoun Lane from King Avenue to State	$173,000	E
P40	Jackson Street Sidewalks	Construct new 5-foot sidewalk on west side of Jackson/crossing at Orchard	$216,500	E
P41	Broadwater Elementary School	Install sidewalk, fencing, and landscaping	$131,290	E

[1] Cost estimates from recent studies when available

[2] Document References
A – Engineer's Estimate from Consultant Team
B – Capital Improvement Program, FT 2015 – FY 2019 (8-11)
C – Safe Routes to School Study, Phase I & II, 2011 (8-3)
D – South Billings Master Plan, 2012 (8-10)
E - City of Billings CTEP List

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

Table 8.9 Bicycle Projects (See Figure 8-5)

Project ID[1]	Proposed Name	Length (miles)	Project Description	Estimated Planning-Level Cost[2]	Cost Reference[3]
Bicycle Lane Projects					
BL1	Poly Drive	1.5	Add bike lanes from N 27th S to 13th St and 32nd St to 38th St W	$88,704	A
BL2	Lake Elmo Drive	2.5	Add bike lanes from Main St to Pemberton Ln	$110,880	A
BL3	Mary Street	2.0	Add bike lanes from Main St (Bench Blvd) to Five Mile Cr	$118,272	A
BL4	S 24th Street West/Gabel Road	2.5	Add bike lanes from King Ave W to Zoo Dr	$36,960	A
BL5	Lewis Avenue	3.0	Add bike lanes from Parkview Dr to Division St	$44,352	A
BL6	Parkhill Drive	2.0	Add bike lanes from 19th St W to N 32nd St	$29,568	A
BL7	Monad Road	3.0	Add bike lanes from 24th St W to Moore Ln	$44,352	A
BL8	Colton Boulevard	1.5	Add bike lanes from Rehberg Ln to 17th St W	$22,176	A
BL9	2nd Avenue South	1.0	Add bike lanes from S 28th St to State Ave	$59,136	A
BL10	North 28th Street	0.8	Add bike lanes from 9th Ave N to Railroad Trail	$47,309	A
BL11	8th Street West	1.5	Add bike lanes from Parkhill Dr to Railroad Trail	$22,176	A
BL12	South 34th Street	0.5	Add bike lanes from 1st Ave S to State Ave	$32,330	A
BL13	9th Avenue North	1.0	Add bike lanes from N 32nd St to N 19th St	$14,784	A
BL14	1st Street West	0.8	Add bike lanes from Avenue C to railroad trail	$47,309	A
BL15	Bitterroot Drive	2.0	Add bike lanes from Plateau Rd to Yellowstone River Rd	$129,320	A
BL16	Central Avenue	4.0	Add bike lanes from Shiloh Rd to Access St	$258,640	A
BL17	King Avenue East	3.0	Add bike lanes from Shiloh Rd to Sugar Ave	$193,980	A
BL18	S Billings Blvd (Blue Creek Rd)	4.0	Add bike lanes from Laurel Rd to Briarwood Blvd	$258,640	A
BL19	Wicks Lane	3.5	Add bike lanes from High Sierra Blvd to Bitterroot Dr	$226,310	A
BL20	State Avenue	1.5	Add bike lanes from 1st Ave S to S 27th St	$66,528	A
BL21	Riverside Road	1.0	Add bike lanes from King Ave E to State Ave	$64,660	A
BL22	Sugar Avenue	1.0	Add bike lanes from State Ave to King Ave E	$64,660	A
BL23	Rod and Gun Club Rd	0.5	Add bike lanes from Ironhorse Trail to Airport Rd	$32,330	A
BL24	Yellowstone River Road	1.5	Add bike lanes from Bitterroot Dr to Bench Blvd	$96,990	A
BL25	High Sierra Boulevard	0.5	Add bike lanes from W Wicks Ln to Siesta Ave	$32,330	A
BL26	Hilltop Road	0.5	Add bike lanes from Bench Blvd to Highway 10 W	$22,176	A
BL27	Virginia Lane	0.5	Add bike lanes from Poly Dr to Avenue E	$7,392	A
BL28	5th Street West	1.0	Add bike lanes from Montana Ave to Grand Ave	$14,784	A
BL29	11th Avenue North	1.0	Add bike lanes from N 32nd St to N 22nd St	$14,784	A

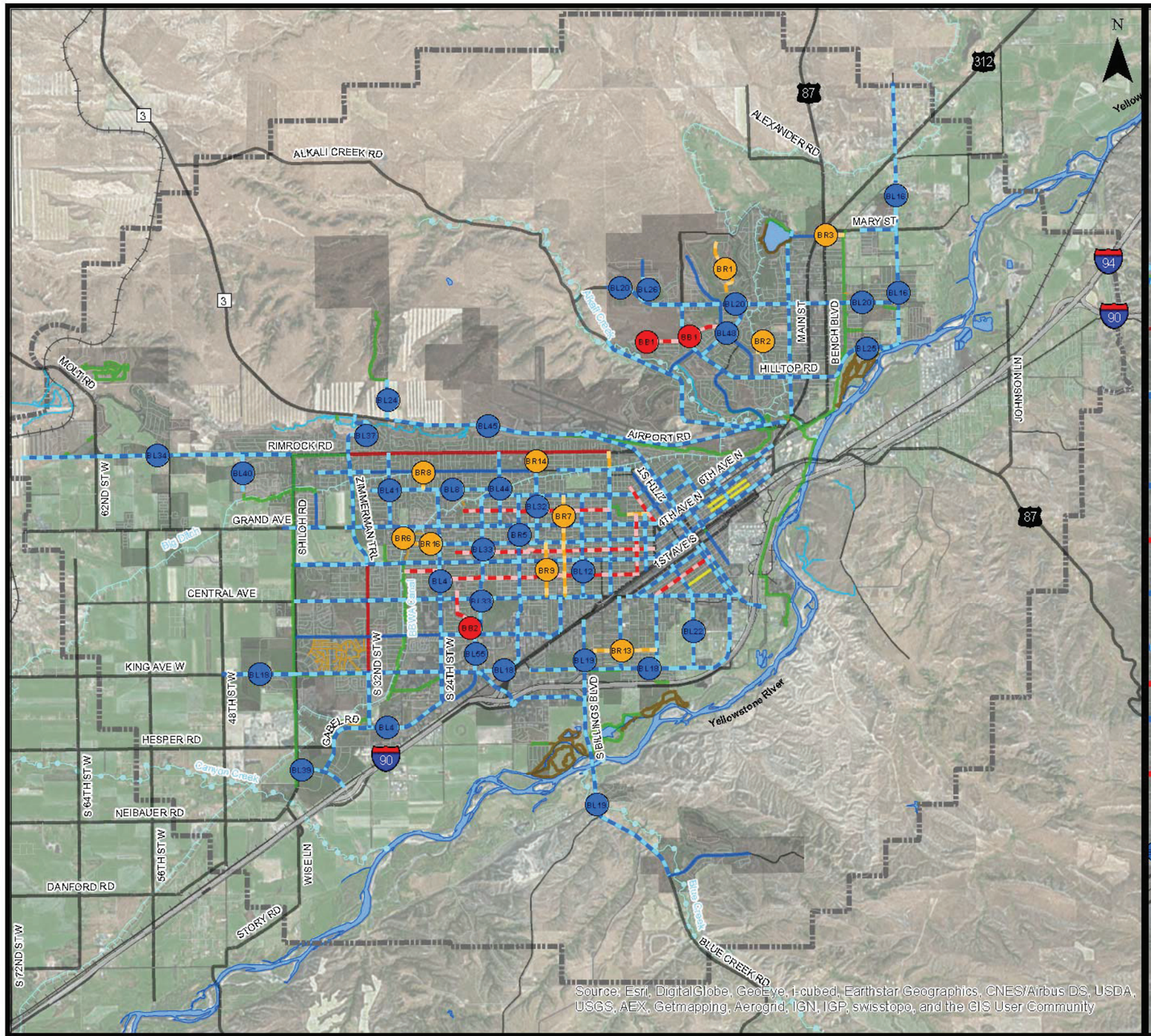
Project ID[1]	Proposed Name	Length (miles)	Project Description	Estimated Planning-Level Cost[2]	Cost Reference[3]
BL30	Jackson Street	1.0	Add bike lanes from State Ave to Murphy Ave	$14,784	A
BL31	13th Street West	1.0	Add bike lanes from Grand Ave to Lewis Ave	$14,784	A
BL32	19th Street West	1.5	Add bike lanes from Parkhill Dr to Central Ave	$22,176	A
BL33	Rimrock Road	2.0	Add bike lanes from 17th St W to Edmond St	$29,568	A
BL34	North 27th Street	1.0	Add bike lanes from Rimrock Rd to 6th Ave N	$59,136	A
BL35	South 27th Street	1.0	Add bike lanes from 1st Ave S to Garden Ave	$59,136	A
BL36	Zimmerman Trail	4.0	Add bike lanes from Rimrock Rd to Broadwater Ave	$236,544	A
BL37	Alkali Creek Road	0.5	Add bike lanes from Highway 10 W to Airport Rd	$29,568	A
BL38	Zoo Drive	1.0	Add bike lanes from 40th St W to I-90 Frontage Rd	$59,136	A
BL39	46th Street West	0.5	Add bike lanes from Rimrock Rd to Rangeview Dr	$7,392	A
BL40	Rehberg Lane	1.0	Add bike lanes from Rimrock Rd to Grand Ave	$14,784	A
BL41	Grand Avenue	2.0	Add bike lanes from Shiloh Rd to Forest Park Dr	$29,568	A
BL42	Broadwater Avenue	2.0	Add bike lanes from 35th St W to N 24th St W	$29,568	A
BL43	17th Street	1.0	Add bike lanes from Rimrock Rd to Grand Ave	$14,784	A
BL44	Airport Road (Highway 3)	4.0	Add bike lanes from Zimmerman Trail to N 27 St	$59,136	A
BL45	East Airport Road	3.0	Add bike lanes from N 27th St to Alkali Creek Rd	$44,352	A
BL46	Governors Boulevard	2.5	Add bike lanes from W Wicks Ln to Babcock Blvd and Bazaar Exchange to Main St	$36,960	A
BL47	Babcock Boulevard	1.0	Add bike lanes from W Wicks Ln to Governors Blvd	$14,784	A
BL48	North 22nd Street	0.5	Add bike lanes from Burnstead Dr to 6th Ave N	$7,392	A
BL49	6th Avenue North	2.0	Provide bicycle facilities along 6th Avenue North to facilitate a safe connection from the east of Swords Lane on the north side of Airport Road	$500,000	B
BL50	4th Avenue North	2.0	Add bike lanes from Division St to Exposition Dr	$29,568	A
BL51	North 18th Street	0.5	Add bike lanes from 6th Ave N to 1st Ave N	$7,392	A
BL52	1st Avenue North	2.0	Add bike lanes from Division St to N 13th St	$29,568	A
BL53	Orchard Lane	1.0	Add bike lanes from Frances Ave to King Ave E	$14,784	A
BL54	N 25th Street	0.5	Add bike lanes from 6th Ave N to Minnesota Ave	$7,392	A
BL55	South 20th Street West	0.5	Add bike lanes from Monad Rd to King Ave	$7,392	A
BL56	Moore Ln/Monad Rd	1.7	Complete bike lanes along Monad Rd/Moor Ln to Central Ave	$67,527	A
BL57	Regal St/Daniel St	0.9	Add bike lanes along Regal St/Daniel St from Central Ave to King Ave W	$35,750	A
BL58	S 32nd Street	0.7	Add bike lanes along S 32nd St from King Ave to Gabel Rd	$45,262	A
BL59	Midland Road	1.0	Add bike lanes on Midland Rd from Mullowney Ln to S Billings Blvd	$44,352	A

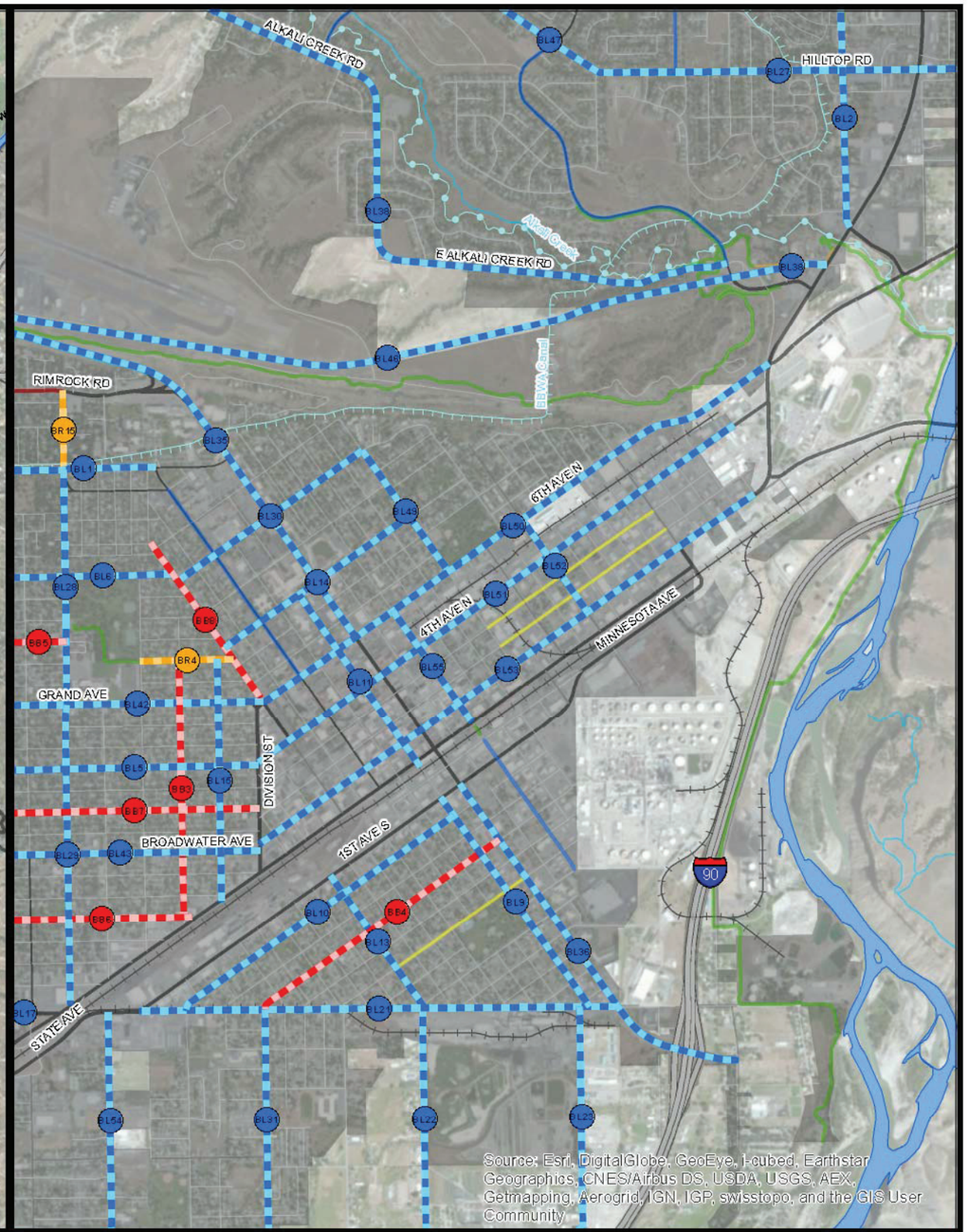
Project ID[1]	Proposed Name	Length (miles)	Project Description	Estimated Planning-Level Cost[2]	Cost Reference[3]
Bicycle Route Projects					
BR1	Wentworth Drive	1.5	Bicycle route from Annandale Rd to Wicks Ln	$10,080	A
BR2	Butterfly Lake Lane	1.0	Bicycle route from Nutter Blvd to Uninta Park Dr	$6,720	A
BR3	Crist Drive	0.5	Bicycle route from Main St to Yellowstone River Trail	$3,360	A
BR4	Avenue C	0.5	Bicycle route from 3rd St W to N 32nd St	$3,360	A
BR5	15th Street West	2.0	Bicycle route from Parkhill Dr to Monad Rd	$13,440	A
BR6	28th Street West	0.5	Bicycle route from Grand Ave to Broadwater Ave	$3,360	A
BR7	10th Street West	1.5	Bicycle route from Parkhill Dr to Central Ave	$10,080	A
BR8	Wingate Lane	0.5	Bicycle route from Rimrock Rd to Colton Blvd	$3,360	A
BR9	12th Street West	1.0	Bicycle route from Lewis Ave to Central Ave	$6,720	A
BR13	Simpson Street	1.0	Bicycle route from Newman Ln to Jackson St	$6,720	A
BR14	13th Street West	0.5	Bicycle route from Rimrock Rd to Poly Dr	$3,360	A
BR15	Virginia Lane	0.5	Bicycle route from Rimrock Rd to Poly Dr	$3,360	A
BR16	Lewis Avenue	0.5	Bicycle route from 24th St W to Parkview Dr	$3,360	A
Bicycle Boulevard Projects					
BB1	Kootenai Ave/Constitution Avenue	1.0	Bicycle Boulevard from Calico Ave to Nutter Blvd	$337,459	C
BB2	Berthoud Drive/Santa Fe Drive	1.0	Bicycle Boulevard from Monad Rd to St Johns Ave	$194,039	C
BB3	2nd Street West	1.0	Bicycle Boulevard from Avenue C to Miles Ave	$230,597	C
BB4	4th Avenue South	1.0	Bicycle Boulevard from S 27th St to State Ave	$258,719	C
BB5	Avenue D	2.0	Bicycle Boulevard from 21st St W to Virginia Ln	$568,056	C
BB6	Miles Avenue/Terry Avenue	3.5	Bicycle Boulevard from 28th St W to Montana Ave	$928,013	C
BB7	Yellowstone Avenue	3.0	Bicycle Boulevard from 22nd St W to Division St	$815,526	C
BB8	North 32nd Street	1.0	Bicycle Boulevard from Grand Ave to Poly Dr	$230,597	C

[1] BL= Bike Lane Project, BR= Bicycle Route Project, BB= Bicycle Boulevard Project

[2] Cost estimates from recent studies when available with adjustments for inflation to current year dollars

[3] Document References: A – Engineer's Estimate from Consultant Team
B – Capital Improvement Program, FY 2015 – FY 2019 (8-11)
C - Billings Bikeway and Trail Master Plan, 2011 (8-2)





Bicycle Projects
- Proposed Bike Lane
- Proposed Bicycle Boulevard
- Proposed Bicycle Route

Existing Facilities
- Arterial Bikeways
- Primary Bikeways
- Secondary Bikeways
- Multi-Use Trail
- Soft-Surface Trail
- Neighborhood Trail
- Unimproved Trail
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Bicycle Projects

Figure **8-5**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

Table 8.10 Multi-Use Trail Projects

Project ID	Proposed Name	Length (miles)	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
M1	Audubon Conservation Education Center Connector Trail	0.5	Construct a multi-use trail from ACEC Trails to Mullowney Lane	$274,017	A
M2	Audubon Conservation Education Center Trail	0.5	Construct a multi-use trail from Riverfront Park to Josephine Crossing	$456,695	A
M3	Alkali Creek Trail	0.5	Extend trail from Swords Park northeast along Alkali Creek or Swords Lane to Main Street Pedestrian Underpass	$250,000	B
M4	Arnold Drain Trail	0.5	Construct a multi-use trail from Arnold Drain Connector to Grand Ave	$456,695	A
M5	Arnold Drain/Shiloh Road Connector Trail	1	Construct a multi-use trail from Broadwater Ave to Shiloh Rd	$913,390	A
M6	Big Ditch Trail	2.5	Construct a multi-use trail from Rimrock West to Hogans Slough	$1,370,084	A
M7	Birely Drain to Big Ditch Trail	3	Construct a multi-use trail from Big Ditch/Hogans Slough to Canyon Creek	$1,644,101	A
M8	BNSF Rail with Trail	15	Construct a multi-use trail from MRL Rail with Trail to Highway 3	$8,220,506	A
M9	Briarwood to Blue Creek School	1.5	Construct a multi-use trail from Briarwood Blvd to Blue Creek School	$1,370,084	A
M10	Briarwood to Pictograph Caves	2.5	Construct a multi-use trail from Briarwood Blvd to Pictograph Caves State Park	$1,370,084	A
M11	Broadwater/Arnold Ditch	1	Construct a multi-use trail from Zimmerman Trail to Shiloh Rd	$913,390	A
M12	Canyon Creek	6	Construct a multi-use trail from Zoo Montana to BNSF Rail with Trail	$3,288,202	A
M13	Castle Rock	1	Construct a multi-use trail from Governors Blvd to BBWA Canal	$913,390	A
M14	Colton Connector	1	Construct a multi-use trail from 32nd St W to 38 St W	$913,390	A
M15	Cove Ditch	2	Construct a multi-use trail from Molt Rd to Hogans Slough	$1,096,067	A
M16	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	B
M17	Four Dances Connector	1	Construct a multi-use trail from Lockwood Trail to Four Dances Natural Area	$548,034	A
M18	Heights BBWA	3	Construct a multi-use trail from Aronson Ave to Lake Elmo State Park	$2,740,169	A
M19	Heights Upper Loop	4.5	Construct a multi-use trail from Yellowstone River to Alkali Creek Rd	$4,110,253	A
M20	High Ditch	4	Construct a multi-use trail from Rimrock West Trail to Hogans Slough	$2,192,135	A
M21	Hogans Slough	5.5	Construct a multi-use trail from Shiloh Rd to BNSF Rail with Trail	$3,014,186	A
M22	SRTS - Arrowhead School Path	0.2	Construct a 10-foot wide multiuse path from Shiloh Road to Arrowhead Elementary School	$84,000	C
M23	Inner Belt Loop	6.5	Construct a multi-use trail from Governors Blvd to Highway 3	$5,937,032	A
M24	King Avenue	1	Construct a multi-use trail from S 44th St W to Hogans Slough	$913,390	A
M25	Lockwood	6	Construct a multi-use trail from Interstate-90 to Shiloh Rd	$5,480,337	A

Project ID	Proposed Name	Length (miles)	Project Description	Estimated Planning-Level Cost[1]	Cost Reference[2]
M26	Monad	1	Construct a multi-use trail from S 45th St W to Hogans Slough	$913,390	A
M27	Monad	2.5	Construct a multi-use trail from BBWA Canal Trail to 48th St W	$2,283,474	A
M28	MRL Rail with Trail	9	Construct a multi-use trail from Interstate-90 to Highway 312	$8,220,506	A
M29	Rehberg Ranch	1	Construct a multi-use trail from Extension of Existing Trail to Inner Belt Loop	$913,390	A
M30	Rimrock Road	1.5	Construct a multi-use trail from 54th St W to Cove Ditch	$1,370,084	A
M31	Senators Park	1	Construct a multi-use trail from Aronson Ave to Inner Belt Loop Trail	$913,390	A
M32	Snow Ditch	2	Construct a multi-use trail from Shiloh Rd to Big Ditch	$1,096,067	A
M33	South Hogans Slough	1	Construct a multi-use trail from Suburban Ditch to MRL Rail with Trail	$913,390	A
M34	Spring Creek Extension	1	Construct a multi-use trail from 24th St W to 15th St W	$913,390	A
M35	Transtech Connector	0.5	Bring McCail trail segment up to standards and complete connection to Transtech Center Trail at 32nd Street West	$480,000	B
M36	Two Moon Park to Five Mile Creek	3	Construct a multi-use trail from Kiwannis Trail to Five Mile Creek	$2,740,169	A
M37	Western Yellowstone River Trail	5	Construct a multi-use trail from Josephine Crossing Trail to Shiloh Rd Trail	$4,566,948	A
M38	Riverfront Park	2.5	Construct a multi-use trail from Mystic Park Trails to Riverfront Park Trails	$1,500,000	B
M39	Zimmerman	1	Construct a multi-use trail from Highway 3 to Poly Dr	$913,390	A
M40	25th Street Railroad Bridge	0.5	Construct a multi-use trail from Montana Avenue to Minnesota Avenue	$1,700,000	A
M41	BBWA to Swords Park Trail	5.5	Construct a multi-use trail from Lillis Park to Aronson Ave	$5,023,643	A
M42	Ponderosa Elementary School Multi Use Connector	0.5	Extend trail from Kings Green Subdivision to Ponderosa School	$180,000	B
M43	Rim Top Trail from 27th Street West/Airport Road to Zimmerman Trail Vicinity	3.5	New Trail along the Rims resulting from Highway 3 corridor study	$1,200,000	B
M44	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	B
M45	Swords Park/6th Avenue North Connector	1	Trail connection from Swords Park Trail/Airport Road/6th Avenue N to existing sidewalk on 6th Avenue N	$120,000	B
M46	34th Street Pedestrian Bridge	0.25	Construct a multi-use bridge to cross the tracks near 34th Street	$2,000,000	C
M47	44th Street West	0.5	Construct a multiuse bike/pedestrian path along 44th Street from Shiloh Conservation Area to King Avenue West	$102,000	C
M48	Wicks Lane	1.5	Construct a multiuse bike/pedestrian path along south side of Wicks Lane to the Inner Belt Loop	$255,000	C
M49	Heights Middle School Path	0.25	Construct a trail from the Kiwanis trail to New Heights Middle School near Bench and Barrett	$131,290	C
M50	King Avenue West Sidewalks, 32nd to BBWA	0.25	Enhance the existing sidewalk to a multiuse path between 32nd and BBWA	$76,500	C

[1]Cost estimates from recent studies when available with adjustments for inflation to current year dollars

[2]Document References: A – Engineer's Estimate by Consultant Team
B - City of Billings Capital Improvements Project, FY 2015 – FY 2019 (8-11)
C - City of Billings CTEP List

CHAPTER

9

Safety

There are many federal, state, and local requirements and guidelines to incorporating safety into the transportation planning process. This chapter presents background information, analysis, and strategies to address safety within the Billings Urban Area. Additionally, Chapters 4 through 8 include some discussion on safety data and analysis for their respective modes. Overall, safety is a key element in the transportation planning process, and with new research and avaialble data, safety can be incoporated into the project development process (planning, design, and maintenance) to effectively identify countermeasures to reduce crashes and crash severity for a community.

Did you know? There have been a total of 8,792 reported crashes between 2010 and 2012. An important component of this LRTP is to incorporate safety into the planning process and identify a set of projects and strategies to help reduce the number of crashes.

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 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 (9-1).

STATE PLANS

TranPlan 21 (2002 and 2007), Montana's long-range transportation plan was amended in 2007 after SAFETEA-LU was passed. A traveler safety section is included in this plan that includes policies to help improve transportation system safety, and develop a transportation safety element that is consistent a state's Strategic Highway Safety Plan (9-2).

The Montana Comprehensive Highway Safety Plan (CHSP, Amended 2010) is intended to be a living document to help guide the State of Montana to effectively address the safety needs of Montana. The vision of the plan is that "all highway users in Montana arrive safely at their destinations." 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 adopted the following priority emphasis areas as the focus of the CHSP highway safety improvement efforts (9-3):

- Increase safety belt usage to 90 percent
- Reduce statewide alcohol-and drug-impaired fatal and incapacitating injury crashes
- Reduce Native American fatal crashes
- Reduce and mitigate the consequences of single run-off-the-road fatal and incapacitating injury

crashes

- Develop and implement a comprehensive transportation records and crash reporting, data management, and analysis system, accessible to all stakeholders, to manage and evaluate transportation safety;
- Reduce young drive (under age 21) fatal and incapacitating injury crashes
- Establish a process to reduce crashes, injury crashes, and fatal crashes in identified high-crash corridors and locations
- Reduce fatal and incapacitating injury crashes involving large vehicles and buses
- Develop an effective and integrated Emergency Medical Services (EMS) delivery system
- Reduce fatal and incapacitating injury crashes in urban areas
- Reduce motorcycle fatal and incapacitating injury crashes
- Reduce older driver fatal and incapacitating injury crashes

LOCAL PLANS

Yellowstone County and City of Billings 2008 Growth Policy Update

The Yellowstone County and the City of Billings 2008 Growth Policy (9-4) is a guide for local officials and community members in making decisions that will affect the future of the community. The Growth Policy directs basic policy choices and provides a flexible framework for adapting to real conditions over time. This plan has several community goals and objectives that focus on safety within the different elements of the plan. The goals include:

- A **safe,** attractive, economically vibrant downtown.
- A multi-purpose trail network integrated into the community infrastructure that emphasizes **safety,** environmental preservation, resource conservation, and cost effectiveness.
- **Safe** traffic speeds consistent with the surrounding uses.
- A **safe** and efficient transportation system characterized by convenient connections and steady traffic flow.
- City streets and County roads maintained at **safe** standards.
- Well maintained network of **safe** and interconnected sidewalks.
- Vehicles, pedestrians and bicyclists **safely** and courteously sharing facilities.
- All transportation modes **safely** and courteously sharing facilities.
- **Safe**, functional, and attractive streets for all users, including drivers, bicyclists and pedestrians.
- Active, **safe** neighborhoods with a high quality of life.
- **Safe** roadways supportive of vehicles, bicycles and pedestrians.

City of Billings Safe Routes to School Study (2011)

The SRTS study (9-5) developed recommendations for twenty two elementary schools in Billings. The goals of the Billings SRTS Study are to 1) enhance the safety of students traveling to and from school and 2) increase the number of students walking or bicycling to school. The SRTS efforts consisted of the five E's—Engineering, Enforcement, Encouragement, Education, and Evaluation. Projects from the SRTS study have been reviewed and included in the project lists for pedestrians and bicyclists in Chapter 8.

Lockwood School District Safe Routes to School Plan (2009)

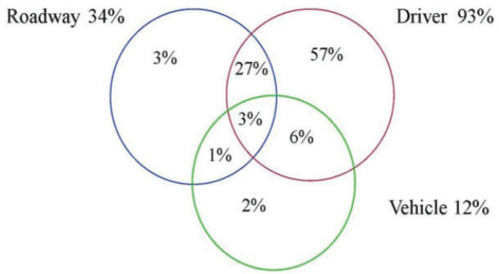
The SRTS plan (9-6) developed recommendations to address the five E's—Engineering, Enforcement, Encouragement, Education, and Evaluation for the Lockwood School District. Projects from the SRTS plan have been reviewed and included in the project lists for pedestrians and bicyclists in Chapter 8.

Safety Considerations

INTRODUCTION TO THE 5 "E" APPROACH TO SAFETY

Motor vehicle crashes generally involve multiple contributing factors (Figure 9-1), which may be related to drivers, the roadway, or the vehicle(s) involved, thus making transportation safety a multidisciplinary concern. The contributing factors that relate to roadway elements are about a third of those related to those of the driver.

Figure 9-1 Contributing Factors to Crashes

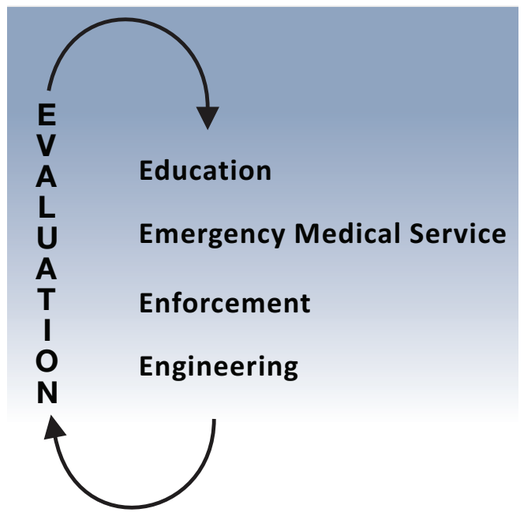


This means we cannot "engineer" our way to safety, and education and enforcement must be integrated into a safety culture and strategy. The State of Montana and the Billings Urban Area safety goals cannot be achieved by one agency working alone. Accomplishing our safety goals requires a collaborative approach that draws from several key areas associated with traffic safety, which are shown in Figure 9-2 and listed below:

- **Education** – States and cities incorporating strong educational components report declines in fatality rates (9-7). Effective prevention education programs typically include some combination of knowledge content, social norming, personal commitment, and resistance skill strategies (9-8).
- **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.
- **Enforcement** – Affecting behavior changes to transportation system users through enforcement, education and incarceration.
- **Engineering** – Includes designing, constructing, operating, and maintaining transportation facilities.
- **Evaluation** – Ties the four elements together by measuring the success (effect in improving safety and cost effectiveness) of implemented solutions and deploying new solutions to address evolving needs.

The 5 E's of safety define the broad stakeholder communities who are responsible for making the

Figure 9-2 The 5 "E's"



transportation system safe for all users.

SAFETY ANALYSIS

As part of this LRTP Update, a focus has been made to bring equity to all modes within the transportation plan. Within the safety environment, historical crash data was obtained from MDT and reviewed to identify crashes involving different modes over the three-year period from 2010 to 2012.

A total of 8792 crashes were reported over the three-year period in the study area. Table 9.1 summarizes the total reported crashes and breakdown of injury and property damage only type of crash for commercial vehicles, rail, pedestrians, and bicyclists.

Crash Data Summary

Intersection and roadway segment crash rates are reported for the high crash locations within the study area. Each chapter presents additional detail on the safety analysis. Figure 9-3 illustrates the location of the crashes by category (auto, commercial, pedestrian, bicycle).

Table 9.2 summarizes the intersections with high crash rates within the study area. In Chapter 4, the highest ten crash rate locations are discussed in more detail.

As shown in Table 9.2, there are several high crash rate intersections on 24th Street West (5 locations), Grand Avenue (2 locations), and Main Street (3 locations). As discussed in Chapter 8, five pedestrian crashes and one bicycle crash occurred at these high crash rate locations. Overall, there has been a low percentage of reported crashes involving a pedestrian and bicyclist at these high crash rate locations.

Table 9.3 summarizes the roadway segments with high crash rates within the study area. In Chapter 4, the highest ten crash rate locations are discussed in more detail.

Crash Severity

In the study area, there were a total of 2,402 injury crashes (27% of total crashes) which resulted in 3,315 injuries over the three-year. Of the injury crashes, 122 (5% of injury crashes) resulted in an incapacitating injury. In addition, there was 33 fatal crashes (<1% of total crashes) which resulted in 36 fatalities. Figure 9-4 illustrates the location of crashes that resulted in a fatality or an incapacitating injury.

Table 9.1 Commercial Vehicles, Rail Related, Pedestrian, and Bicycle Crash Summary (2010-2012)

Category	Possible Injury	Non-incapacitating (Injury Evident)	Incapacitating Injury	Property Damage Only	Fatal	Unknown	Total
Crash Involving a Commercial Vehicle (Truck)	17 (9%)	11 (6%)	5 (3%)	160 (83%)	1 (<1%)	0 (0%)	194
Crash Related to Rail Crossing (Rail)	2 (13%)	1 (7%)	0	12 (80%)	0	0	15
Pedestrian	58 (53%)	22 (20%)	10 (9%)	11 (10%)	3 (3%)	6 (5%)	110
Bicycle	2 (33%)	1 (17 %)	0 (0%)	3 (50%)	0 (0%)	0 (0%)	6

Source: MDT Crash Data (2010 - 2012)

Table 9.2 Intersections with High Crash Rates (2010-2012)

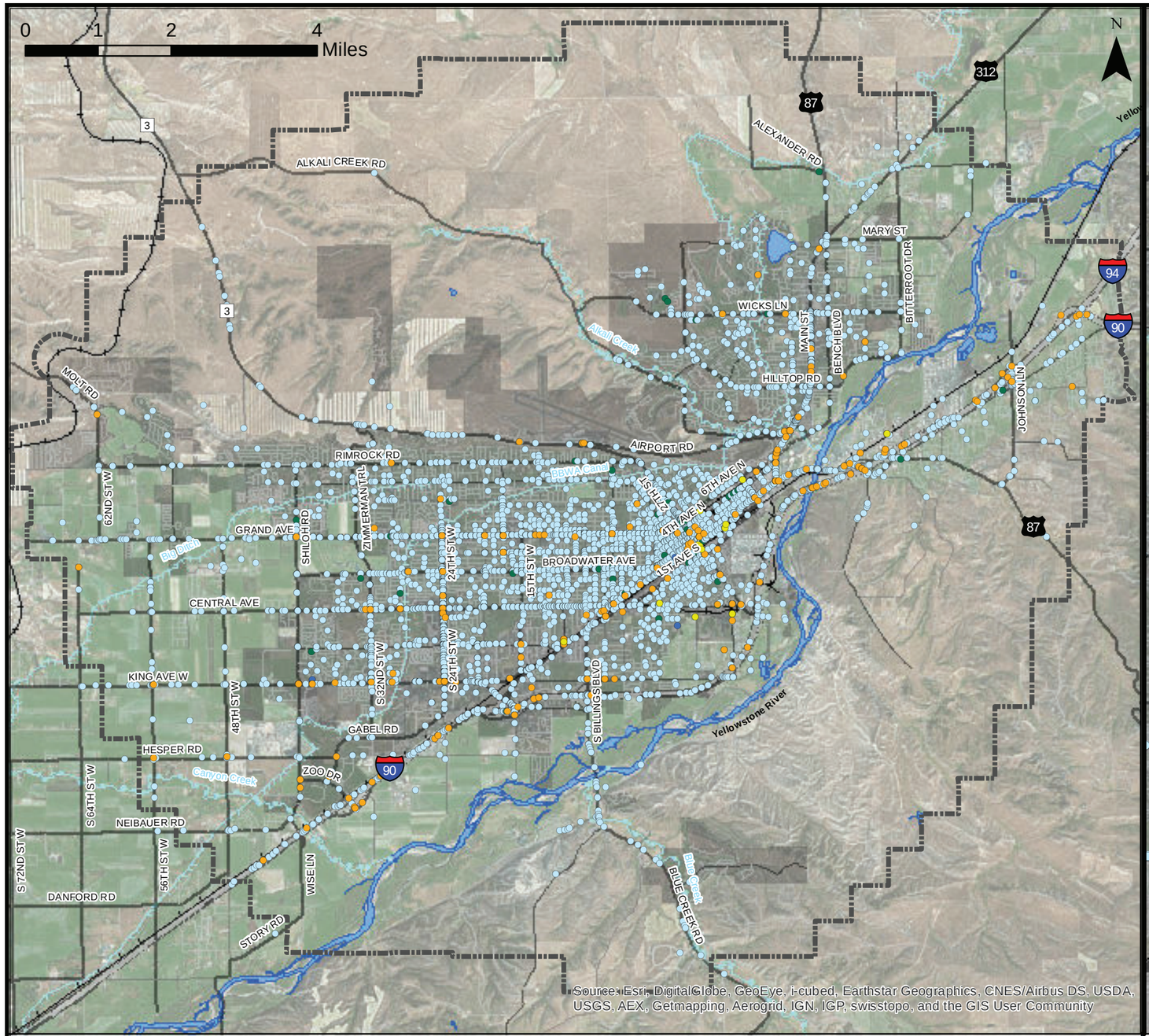
	Intersections	Total Crashes	Crash Rate
1	Rosebud Drive and 24th Street West	85	4.20
2	Central Avenue and 24th Street West	124	2.58
3	King Avenue West and 24th Street West	103	2.39
4	Grand Avenue and 17th Street West	92	2.27
5	Monad Road and 24th Street West	58	1.98
6	Grand Avenue and 24th Street West	56	1.90
7	Broadwater and 24th Street West	63	1.76
8	King Avenue West and 20th Street West / Overland Avenue	63	1.44
9	Wicks Lane and Main Street	81	1.41
10	Broadwater Avenue and Division Street	42	1.30
11	Main Street and Lake Elmo Drive	77	1.00
12	Airport Road / Alkali Creek Road and Main Street	78	0.92
13	Hilltop Road and Main Street	57	0.91

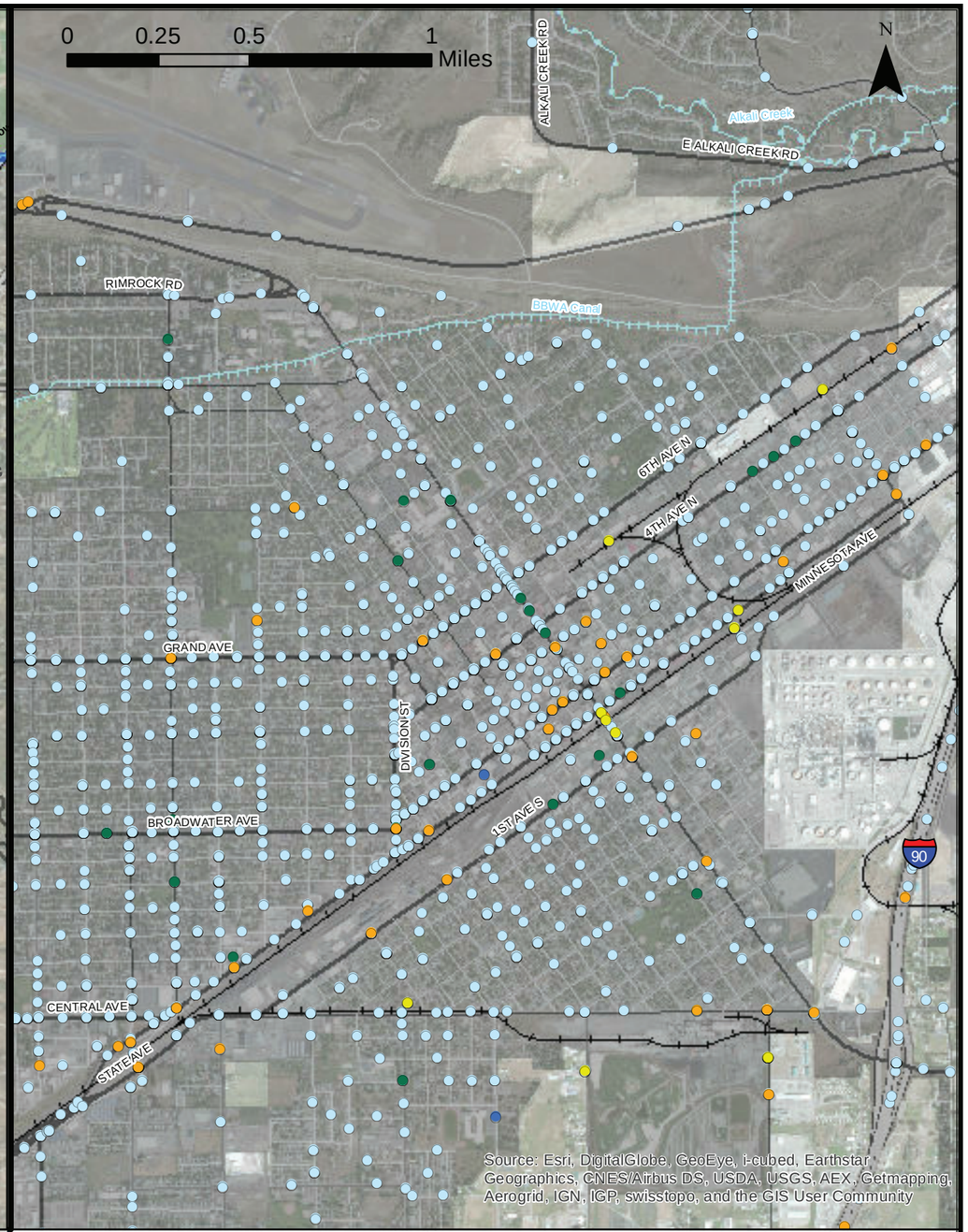
Source: MDT Crash Data (2010 - 2012)

Table 9.3 Roadway Segments with High Crash Rates (2010-2012)

	Roadway Segment	Total Crashes	Crash Rate
1	24th Street West: King Avenue West to Monad Road	206	27.45
2	24th Street West: Monad Road to Central Avenue	208	23.63
3	North 27th Street: 6th Avenue North to 1st Avenue North	195	19.61
4	Central Avenue: 24th Street West to 19th Street West	110	19.29
5	24th Street West: Central Avenue to Broadwater Avenue	174	18.22
6	24th Street West: Broadwater Avenue to Grand Avenue	140	18.02
7	Grand Avenue: 17th Street West to 13th Street West	166	15.45
8	Central Avenue: 15th Street West to 6th Street West	190	14.32
9	Central Avenue: 32nd Street Southwest to 24th Street West	171	13.16
10	King Avenue West: 32nd Street West to 24th Street West	135	12.9
11	King Avenue West: 24th Street West to 20th Street West	81	8.51
12	Grand Avenue: 13th Street West to 8th Street West	88	6.32
13	Grand Avenue: Shiloh Road to Zimmerman Trial	69	6.16
14	27th Street: Mountain View Boulevard to 6th Avenue North	85	5.76
15	Grand Avenue: 24th Street West to 19th Street West	96	5.66
16	Main Street: Airport Road to Hilltop Road	130	4.53
17	Main Street: Hilltop Road to Wicks Lane	106	2.35

Source: MDT Crash Data (2010 - 2012)





Crashes by Category

- Bicycle
- Pedestrian
- Vehicle Only
- Railroad
- Commercial Vehicle

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets

- Railroads
- Study Area
- Billings

Crashes by Category (2010-2012)

2014 Billings Urban Area Long Range Transportation Plan

MPO Billings - Yellowstone County Metropolitan Planning Organization

DOWL HKM

Figure **9-3**

Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

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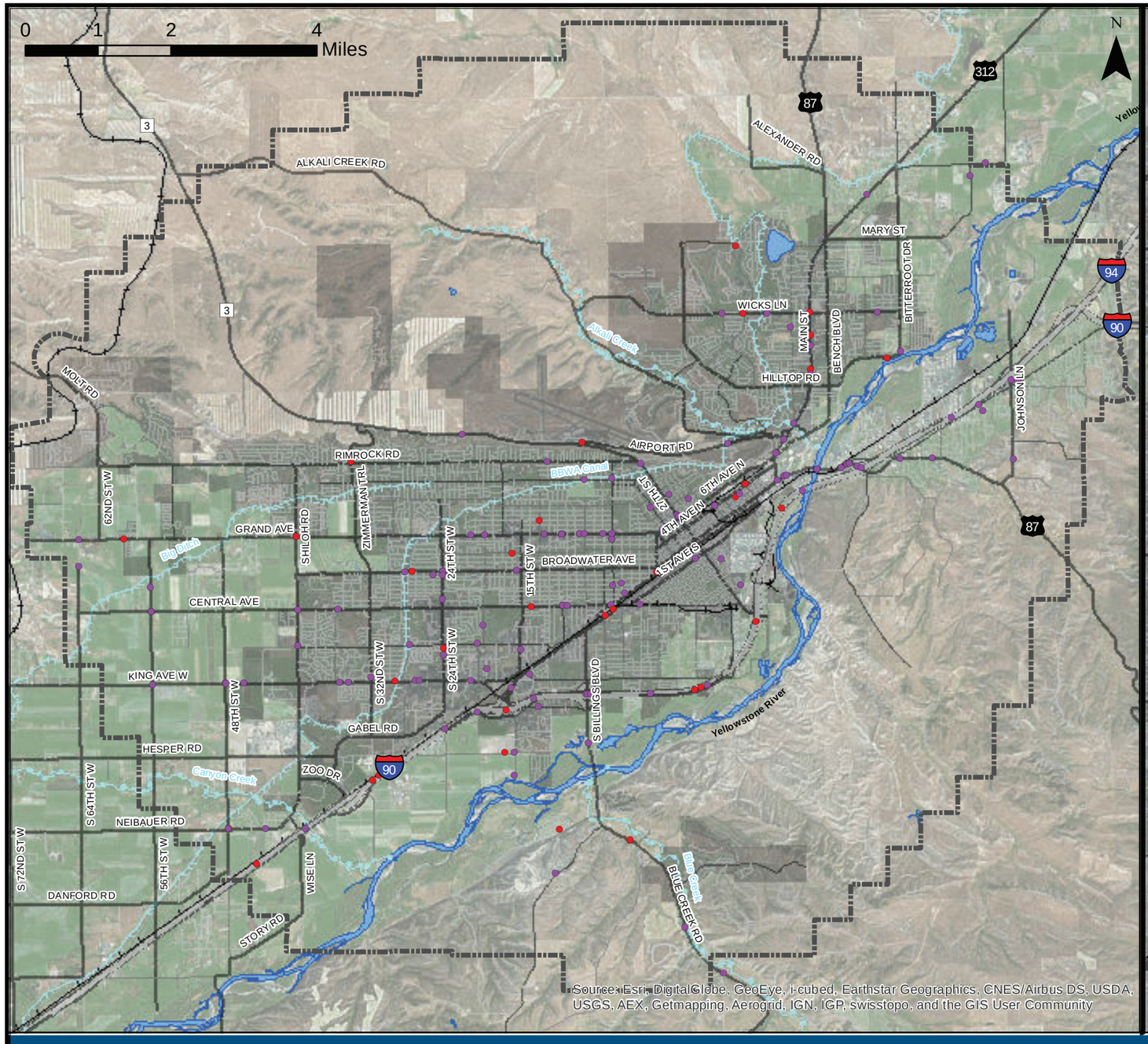

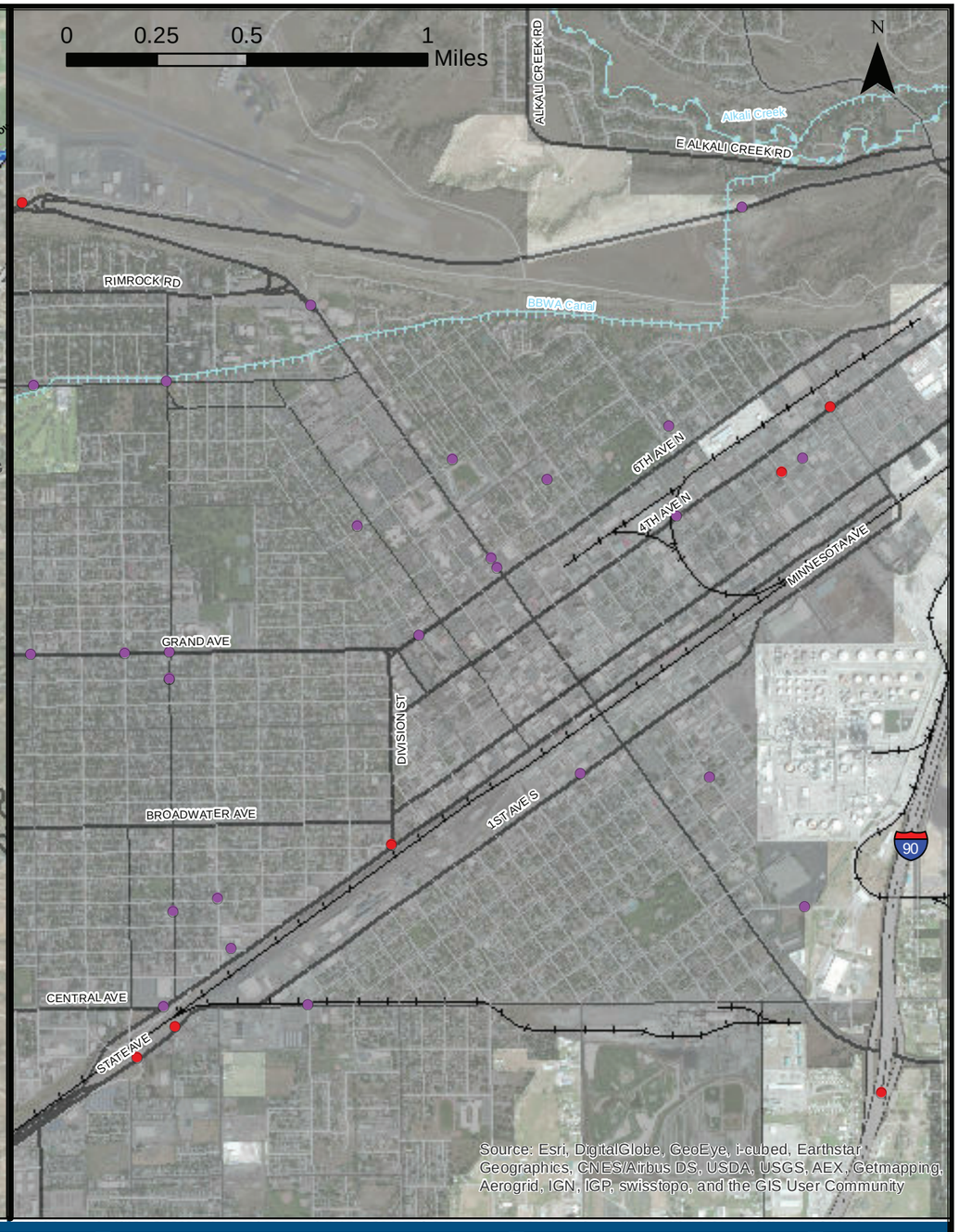

Crash Severity

- Fatal Crash
- Incapacitating Injury Crash

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local Streets
- Railroads
- Study Area
- Billings

Crash Severity (2010-2012)

Figure **9-4**

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Source: City of Billings GIS Database, City of Billings Unified Zoning Regulations

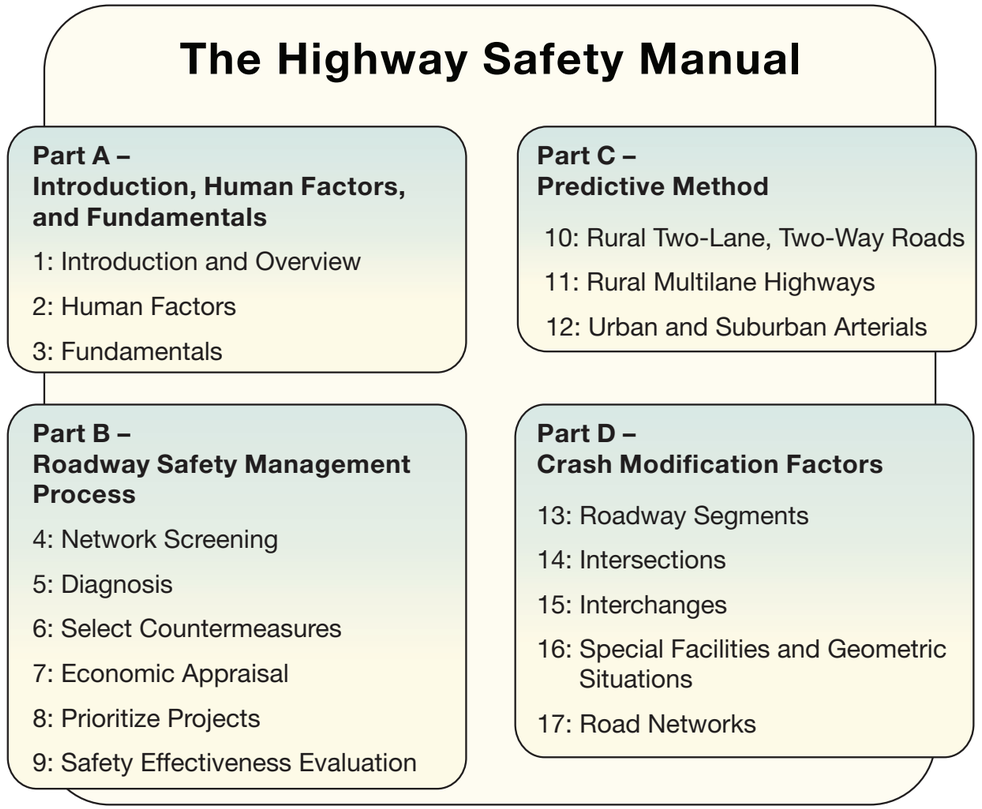
Use of the Highway Safety Manual in Project Development

Most typical roadway safety evaluation tools have included methods based on current and past data, typically centered on calculations dealing with crash rate, crash frequency, and crash severity. There is now a more comprehensive method available for examining roadway safety. The First Edition of the Highway Safety Manual (HSM) outlines methods and procedures to comprehensively manage roadway facilities and guide project decisions. HSM concepts include an integrated approach to safety-based improvements applicable to all aspects of the project development process (planning through maintenance). Figure 9-5 shows the organization of the HSM (9-9).

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 countermeasures 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 evaluate the safety effectiveness of potential countermeasures and to modify policies and design criteria**

Figure 9-5 Organization of the Highway Safety Manual



Recommended Strategies

Several recommended strategies are identified for incorporating safety in the transportation planning process and furthering the implementation effort to meet the 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 City of Billings Safe Routes to School Study and Lockwood School District Safe Routes to School Plan
- Developing a Community Transportation Safety Plan to incorporate the 5 "E" Approach to Safety, similar to other communities in the State of Montana
- Integrating the Highway Safety Manual methods and procedures into the planning, design, and policy components of the project development process
- Evaluating the high crash rate locations in more detail to determine specific countermeasures to address the specific crash type

CHAPTER 10

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 (10-1).

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 apply asset management principles and techniques in establishing planning goals, defining TIP priorities, and assessing transportation investment decisions, including transportation system safety, operations, preservation, and maintenance, as well as strategies and policies to support homeland security and to safeguard the personal security of all motorized and non-motorized users (10-2).

A 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 (10-3).

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 (10-4).

Did you know? 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

TranPlan 21 (2002 and 2007), Montana's long-range transportation plan was amended in 2007 after SAFETEA-LU was passed. 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 (10-5).

Montana Emergency Response Framework (MERF, 2012) identifies the state's roles, responsibilities, and actions in the event of an emergency and coordinates all other emergency operations plans in Montana. The plan illustrates the state's role in efforts to prevent, protect from, mitigate, respond to and recover from the effects of all-hazard incidents regardless of cause, size, location or complexity. This plan 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 (10-6).

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 (10-7).

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 (10-8).

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 declared disasters (e.g. floods of 1978 and 1997), and managing the authorized emergency levy, and
- Serving as the County Fire Chief, 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 a future references for agency consultation.

POTENTIAL HAZARDS

The Multijurisdictional PDM reviewed and identified the potential hazards for the Yellowstone County. Table 10.1 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 10.1 Potential Hazards in Yellowstone one 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

Source: Yellowstone County, Multijurisdictional Pre-Disaster Mitigation Plan, 2012 Update

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 crucial points on the system are bridges, interchanges, and intermodal facilities. Connecting segments that are considered to be vital to security are evacuation routes, state and interstate highways/freeways, transmission lines, and mainline freight and passenger rail lines.

Critical roadways that are part of the National Highway System (NHS) in the Billings Urban Area include the following (10-9):

- Interstate 90 (NHS)
- Interstate 94 (NHS)
- Montana Route 3 (NHS, STRAHNET Connector)
- US Route 87 (NHS)
- 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.

Significant multimodal and cargo facilities are also important to security. Within the Billings Urban Area, these include:

- MET Transfer Centers (Stewart Park and Downtown)
- Billings Logan International Airport
- Montana Rail Link railroad facilities
- 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 10-2 summarizes the community rankings of potential natural and man-made hazards.

As shown in Table 10.2, 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.

Table 10.2 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

Source: Yellowstone County, Multijurisdictional Pre-Disaster Mitigation Plan, 2012 Update

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.
- Evaluate and update the Yellowstone County Multijurisdictional PDM on a yearly basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities.
- 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.

CHAPTER 11

Recommended Plan

This chapter presents the recommended set of projects that help to ensure the efficient and safe multimodal movement of people and goods within and through the Billings Urban Area. These projects were identified from the previous LRTP, projects developed through the TIP process, and projects developed through the LRTP public involvement and interagency process. The LRTP investments provide several benefits to the transportation system:

- Increase road safety, connectivity, and capacity
- Manage the transportation system better
- Improve transportation options
- 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

Exhibit 11.1 illustrates some of the key areas that are connected by transportation within the Billings Urban Area.

Exhibit 11.1 Connecting the Billings Urban Area

A Toolbox of Transportation Strategies

The Billings Urban Area has significantly invested in streets, highways, intersections, and multiuse trails infrastructure over the past 15 to 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. 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 165 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 are just initiating major upgrades to the signal system and incorporating an annual signal timing program to analyze and update signal timings at intersections. Exhibits 11.2 and 11.3 illustrate a few of the critical signalized corridors, Main Street and 27th Street in the Billings Urban Area.

Exhibit 11.2 Signalized Intersection on Main Street

Exhibit 11.3 Signalized Intersections on 27th Street, Gateway to Downtown Billings

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 11.4 and 11.5 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 11.4 Rimrock Arena at MetraPark

Exhibit 11.5 Exposition Drive along MetraPark

PUBLIC TRANSPORTATION SYSTEM OPERATIONS

The MET Transit budget is around $5 million annually to operate the public transit and Paratransit system (Exhibit 11.6). 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, but a change in the funding will need to occur to allow MET Transit begin implementing new routes and increased frequency on existing routes.

Exhibit 11.6 A Key Transportation Option for the Billings Urban Area

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 11.7 and 11.8 illustrate existing trails within the Billings Urban Area.

Exhibit 11.7 Connecting Neighborhoods with Trails

Exhibit 11.8 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 (11-1). 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) 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 11.9 illustrates a MUT in Utah. Exhibit 11.10 illustrates a DDI in Minnesota.

Exhibit 11.9 Median U-Turn intersection in Draper, Utah

Exhibit 11.10 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; and 2) up to a 29 percent reduction in total roadway crashes (11-2). Exhibit 11.11 illustrates the pedestrian hybrid beacon recently implemented on 4th Avenue in downtown Billings.

Exhibit 11.11 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 (11-3). Exhibit 11.12 illustrates a roundabout on the Shiloh Road Corridor.

Exhibit 11.12 Roundabout at Airport Road and 27th Street

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 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 2035, 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 and the City's CIP.

Projects that are not expected to be funded by 2035, 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. Since there are a significant number of projects identified in the committed and recommended project list for streets and highways, the illustrative projects are shown for the streets and highways element as a reference. The illustrative projects are identified in the project lists for public transit, pedestrians, bicyclists, and multiuse trails in Chapters 5 and 8. A brief discussion on the illustrative projects is included with each element below. 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 (11.4)
- Billings Urban Area Transportation Improvement Program (TIP), FY 2012-2016 (11.5)
- City of Billings FY 2015-2019 Capital Improvement Program (CIP) (11.6)
- City of Billings Proposed Budget FY 2015 (11.7)
- MET Transit Business Plan (11.8)

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 Transportation Improvement Program (TIP) process. Additionally, future LRTPs could take the project list and begin to incorporate a screening and prioritization 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 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 11.1 summarizes the committed and recommended projects for streets and highways. Table 11.2 summarizes the illustrative projects for streets and highways. The illustrative projects are included here for reference, since there are a significant number of projects identified in the committed and recommended project list for streets and highways.

PEDESTRIAN, BICYCLE, AND MULTIUSE TRAILS

The pedestrian, bicycle, and multiuse trails committed and recommended projects provide for pedestrian enhancements around MetraPark and US 87, new bike facilities on a few of the east-west corridors, 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. This type of program can be used to implement some of the pedestrian projects associated with the Safe Routes to School program. Table 11.3 summarizes the committed and recommended projects for pedestrians, bicycles, and multiuse trails.

The illustrative project list is fairly significant (identified in Chapter 8), since there are currently large gaps in the bicycle, pedestrian, and multiuse trails system. Additionally, there is a lot of support from the community for these projects. The MPO and partnering agencies should continue to monitor these projects and look for funding opportunities to implement some of the lower cost non-motorized projects.

PUBLIC TRANSPORTATION

The public transportation committed and recommended projects are focused on the purchase of new vehicles for operating the transit system. Table 11.4 summarizes the committed and recommended projects for public transportation.

All of the illustrative projects, identified in Chapter 5 are necessary for the growth of the Billings Urban Area. The illustrative projects provide new routes to areas not served by transit today and increase the amount of service provided on existing routes. However, at this time, the funding is not in place to implement these projects. Again, it is recommended that additional funding be pursued by the MPO and MET Transit to support future expansion of the public transportation system.

Table 11.1 Committed and Recommended Projects - Streets and Highways

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5]
Programmed Projects					
R2	32nd Street West - King Ave to Gabel Rd[1]	Reconstruct to a 3-lane urban roadway	Arterial Fee Fund	2019	$4,920,000
R4	Zimmerman Trail - Rimrock Rd to Highway 3[1,2]	Reconstruct to improve roadway geometry	Arterial Fee Fund, Local and Federal	2014	$8,600,000
R5	Poly Drive - 32nd St W to 38th St W[1]	Reconstruct to urban roadway	Arterial Fee Fund, SID Bonds	2015	$2,418,000
R6	36th Street West - Mt. Rushmore to Central Ave[1]	New roadway to connect 36th St to Central Ave	Gas Tax, Arterial Fee Fund (if combined with R35)	2015	Project part of R35
R7	Calhoun Street - King Ave E to Underpass Ave[1]	Reconstruct to urban roadway	Gas Tax, TIFD	2015	$2,258,880
R8	Orchard Lane - King Ave E to State Ave[1]	Reconstruct to urban roadway	Gas Tax, TIFD	2016	$3,150,360
R9	Wicks Lane - Bench Blvd to Hawthorne Ln[1]	Reconstruct to urban roadway	Arterial Fee Fund, Developer Contributions	2018	$3,340,800
R10	I-90 Bridge Crossing[2,3]	Reconstruct section of bridge crossing Yellowstone River	STP Bridge and IM	2019	$46,972,799
R11	Grand Avenue - Shiloh Rd to 54th St W[1]	Reconstruct to 5-lane urban roadway (design-only)	Arterial Fee Fund	2018	$928,000
R13	Bench Boulevard – Phase II - Hilltop Rd to Highway 312[2]	Reconstruct roadway	STPU	2015	$15,808,000
R19	Central Avenue – 19th Ave to 6th Ave[1]	Road diet to 3 Lanes, part of overlay project	Operations & Maintenance	2019	$1,000,000
R23	Billings Bypass[2]	New roadway connecting Interstate at Johnson Ln to Hwy 87/Hwy312	Earmark, CMAQ, STPU, NH, IM, Bridge	2018	$120,500,000
R26	Barrett Road – Hawthorne to Bitterroot Dr[1]	Reconstruct – 3-lane cross section	Gas Tax	2015	$364,000
R27	27th Street – 1st Ave S to Airport Rd[2,3]	Mill/overlay with updated traffic signals, ADA work, and luminaires	NH	2015	$12,912,064
R28	Yellowstone Bridge Crossing – Flood Repair[3]	Scour protection around one pier of Yellowstone River bridge/east bridge	Bridge Rehabilitation & STPB	2014	$599,000
R29	Main Street - limits to be determined[3]	Pavement preservation with ADA work (3.7 miles)	NH	2017	$1,784,681
R30	D5 Interstate Fencing[3]	Replace existing deteriorated fence on I-90	IM	2014	$650,000
R31	4th Avenue North – N 13th St to Main St[3]	Pavement preservation with ADA work (0.5 miles)	UPP	2015	$522,057
R32	1st Ave S/Minnesota Ave/13th – 27th St to 4th Ave N[3]	Pavement preservation with ADA work (1.5 miles)	UPP	2015	$1,059,508
R34	Grand Avenue – 32nd St to Shiloh Rd[1]	Reconstruct – cross section to be determined	Arterial Fee Fund	2016	$3,024,000
R35	Central Avenue – 35th St to Shiloh Rd[1]	Reconstruct – cross section to be determined	Arterial Fee Fund, Gas Tax	2016	$3,315,600
-	Shawnee Drive Improvements[1]	Road reconstruction	Gas Tax	2015	$67,600
I2	32nd St W/Gabel Rd[1]	Install traffic signal to improve capacity and safety	Arterial Fee Fund	2015	$312,000
I4	Poly Dr/Virginia Ln[1]	Improve intersection capacity, operations, and safety	Arterial Fee Fund	2015	$426,400
I5	Monad Rd/Daniel Street[1]	Improve intersection capacity, operations, and safety	Arterial Fee Fund	2016	$432,000
I6	4th Ave N/Division St[1]	Improve intersection capacity, operations, and safety	Arterial Fee Fund	2016	$345,600

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5]
I7	24th St W/King Ave[1]	Improve intersection capacity, operations, and safety (interm capacity improvements)	Arterial Fee Fund	2017	$224,000
I8	Central Ave/24th St W[1]	Improve intersection capacity, operations, and safety	Arterial Fee Fund	2018	$464,000
I11	Underpass Avenue Improvements[3]	Study to determine the appropriate treatment for reconstruction of the intersection at Underpass Ave/State Ave and construction to follow	CMAQ, NH	2014	$202,740
I14	Poly Drive/Zimmerman[1]	Install traffic signal to improve capacity and safety	Arterial Fee Fund, SID Bonds	2014	Project part of R5
I26	King Avenue West & 56th Street[2]	SF - Construct a roundabout at this intersection	HSIP	2015	$2,991,690
I27	Central Avenue & 56th Street[2]	SF - Construct a roundabout at this intersection	HSIP	2017	$2,699,200
I28	13th Street & Parkhill Road[2]	SF - Construct a traffic signal at this intersection	HSIP	2015	$412,880
-	Grand Avenue and 54th Intersection[1]	Improvements of the intersection	Arterial Fee Fund, Developer Contributions	2015	$182,000
CM1	32nd Street West – King Ave to Zimmerman[4]	Update signal timing for 4 signals	HSIP, CMAQ, Arterial Fee Fund	2014	$40,000
CM2	King Avenue West – Frontage Rd to 32nd St W[2,3]	Update signal timing for 10 signals	HSIP	2014	$184,419
CM6	24th Street West – King Ave to Grand Ave[1]	Update signal controllers and signal timing for 11 signals	Arterial Fee Fund	2017	$246,400
-	Intersection Capacity Improvements[1]	Evaluate and construct improvements to selected intersection trouble areas	Arterial Fee Fund	2019	$420,000
-	PAVER Program[1]	Annual program responsible for crack sealing, overlay, and chip seals of various streets throughout the City.	Gas Tax	2015-2019	$11,100,000
			Total Committed Streets and Highways Project Costs		**$255,078,678**
Recommended Projects					
R12	Inner Belt Loop - Alkali Creek Rd to Highway 3[1]	New roadway connecting Wicks Ln to Zimmerman Trail	Arterial Fee Fund, STPU	2026	$18,500,000
R24	N 21st Street - Montana Ave to 1st Ave South[4]	Reconstruct railroad underpass	Arterial Fee Fund, STPU, MACI/CMAQ	2035	$18,400,000
R25	N 13th Street – 1st Ave N to Minnesota Ave[4]	Reconstruct railroad underpass	Arterial Fee Fund, STPU, MACI/CMAQ	2035	$18,400,000
R36	Highway 3 to Molt Road Connection[4]	Construct a new roadway connecting Highway 3 to Molt Rd	Arterial Fee Fund, STPU	2035	$21,353,412
I12	King Ave/24th St[3,4]	Evaluate intersection to identify alternative intersection treatment (i.e. displaced left turn, median u-turn, etc.)	Arterial Fee Fund, HSIP	2015	$260,000
I13	Grand Ave/24th St[3,4]	Evaluate intersection to identify alternative intersection treatment (i.e. displaced left turn, median u-turn, etc.)	Arterial Fee Fund, HSIP	2016	$270,000
CM3	Grand Avenue – 3rd St W to 24th St W[4]	Update signal timing for 10 signals	HSIP, Arterial Fee Fund	2017	$112,000
CM4	Broadwater Avenue – 5th St W to Zimmerman[4]	Update signal timing for 8 signals	HSIP, Arterial Fee Fund	2018	$92,800
CM5	Central Avenue – 6th St W to Zimmerman[4]	Update signal timing for 10 signals	HSIP, Arterial Fee Fund	2018	$116,000
CM7	27th Street – State Ave to Poly Dr[4]	Update signal timing for 11 signals	HSIP, Arterial Fee Fund	2015	$114,400
CM8	Main Street – 1st Ave N to Permberton Ln[4]	Update signal timing for 10 signals	HSIP, Arterial Fee Fund	2019	$120,000
CM9	Division Street – Broadwater Ave to 4th Ave N[4]	Update signal timing for 3 signals	HSIP, Arterial Fee Fund	2019	$36,000
CM10	Grand Avenue – 24th St W to Zimmerman[4]	Update signal timing for 3 signals	HSIP, Arterial Fee Fund	2019	$36,000

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5]
CM11	Rimrock Road – 38th St W to 13th St W[4]	Update signal timing for 5 signals	HSIP, Arterial Fee Fund	2020	$62,000
CM12	15th Street West – Central Ave to Grand Ave[4]	Update signal timing for 5 signals	HSIP, Arterial Fee Fund	2020	$62,000
CM13	Wicks Lane – Governors Blvd to Bench Blvd[4]	Update signal timing for 5 signals	HSIP, Arterial Fee Fund	2023	$68,000
CM14	State Avenue – 6th St Underpass to Washington St[4]	Update signal timing for 5 signals	HSIP, Arterial Fee Fund	2023	$66,000
CM15	19th Street West – Monad Rd to Grand Ave[4]	Update signal timing for 5 signals	HSIP, Arterial Fee Fund	2022	$66,000
CM16	17th Street West – Grand Ave to Rimrock[4]	Update signal timing for 5 signals	HSIP, Arterial Fee Fund	2022	$66,000
CM17	Monad Road – 19th St W to 32nd St W[4]	Update signal timing for 4 signals	HSIP, Arterial Fee Fund	2021	$51,200
CM18	Governors Boulevard/Hilltop Road – Wicks Ln to Main St[4]	Update signal timing for 3 signals	HSIP, Arterial Fee Fund	2021	$38,400
CM19	ITS Signage and Advanced Warning System[4]	Implement a signage and advanced warning system to inform transportation users of crossing delays due to incoming and stopped trains	HSIP, Arterial Fee Fund	2017	$560,000
CM20	Downtown Billings Signal Upgrades[3]	Traffic signal controller and signal timing upgrades at 36 signals in the down-town area, excluding 27th Street	HSIP, Arterial Fee Fund	2015	$318,110
CM21	Downtown Billings Signal Upgrades[3]	Traffic signal controller and timing upgrades at 13 signals in downtown	HSIP, Arterial Fee Fund	2015	$318,110
CM22	Downtown Billings Signal Upgrades[3]	Traffic signal controller and timing upgrades in the downtown area	HSIP, Arterial Fee Fund	2016	$3,413,784
CM23	S. Billings Boulevard Signal Timing[3]	Traffic signal controller and timing upgrades at 6 signals on S Billings Blvd.	HSIP, Arterial Fee Fund	2016	$100,440
CM24	Lockwood Interchange Signal Timing[3]	Traffic signal controller and timing upgrades at 3 signals	HSIP, Arterial Fee Fund	2016	$50,220
CM25	Citywide Signal Timing[3]	Traffic signal controller and timing upgrades at 24 signals within Billings	HSIP, Arterial Fee Fund	2016	$401,760
-	Pavement Preservation[3]	Other short range pavement preservation projects	UPP	2015-2020	$6,760,000
-	Safety[3]	Other short range HSIP projects	HSIP	2015-2020	$2,600,000
-	PAVER Program[3]	Annual program responsible for crack sealing, overlay, and chip seals for various streets throughout the city	Gas Tax	2020-2035	$53,280,000
			Total Recommended Streets and Highways Project Costs		**$146,105,260**

Source: [1]City of Billings Capital Improvement Program (FY 2015-2019)
[2]Billings Urban Area Transportation Improvement Program (FY 2012-2016)
[3]Montana Department of Transportation
[4]City of Billings

Note: [5] Year of Expenditure cost represents construction costs.

Project ID: R - Roadways
I - Intersections
CM - Congestion Management

Table 11.2 Illustrative Projects - Streets and Highways (Not funded in LRTP—after 2035)

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5] (Represent Year 2035)
Illustrative Projects					
R1	Grand Avenue - 17th St W to 24th St[4]	Reconstruct to a 5-lane urban roadway	To be determined	Beyond 2035	$18,768,000
R3	Old Hardin Road - Lockwood Interchange to Johnson Ln[3]	Reconstruct to a 3-lane urban roadway	To be determined	Beyond 2035	$10,488,000
R14	1st Avenue South-Minnesota Avenue - 21st St to N 13th St[3]	Reconstruct to urban roadway	To be determined	Beyond 2035	$1,840,000

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5] (Represent Year 2035)
R15	Pemberton Lane - BBWA to Lake Elmo Dr[3]	Reconstruct to urban roadway	To be determined	Beyond 2035	$5,336,000
R16	Broadwater Avenue – BBWA to Shiloh Rd[4]	Reconstruct to urban roadway	To be determined	Beyond 2035	$7,360,000
R17	Rimrock Road – 56th to 62nd[4]	Reconstruct – cross section to be determined	To be determined	Beyond 2035	$5,520,000
R18	54th Street West – Grand Ave to Rimrock Rd[4]	Reconstruct – cross section to be determined	To be determined	Beyond 2035	$5,520,000
R19	Central Avenue – 19th Ave to 6th Ave[4]	Road diet to 3 Lanes	To be determined	Beyond 2035	$12,512,000
R20	48th Street West – King Ave to Grand Ave[4]	Reconstruct – cross section to be determined	To be determined	Beyond 2035	$10,120,000
R21	King Avenue West – 44th St to 56th St[4]	Reconstruct – cross section to be determined	To be determined	Beyond 2035	$7,728,000
R22	King Avenue East – Orchard Ln to Sugar Ave[4]	Reconstruct to a 3-lane urban roadway	To be determined	Beyond 2035	$5,888,000
R33	1st Avenue North - Division St to Main St[3]	Reconstruct existing cross section	To be determined	Beyond 2035	$12,880,000
I1	Rimrock Rd/N 27th St[4]	Improve intersection capacity, operations, and safety	To be determined	Beyond 2035	$8,648,000
I3	1st Ave/US 87 Roundabout[3,4]	Install roundabout to improve operations and safety	To be determined	Beyond 2035	$11,040,000
I9	Airport Rd/Main St[3]	Improve intersection capacity, operations, and safety	To be determined	Beyond 2035	$8,280,000
I10	Rimrock Rd/Virginia Ln[4]	Improve intersection capacity, operations, and safety	To be determined	Beyond 2035	$754,400
I15	Division/Grand/6th Ave/N32nd St[3]	Improve intersection capacity, operations, and safety	To be determined	Beyond 2035	$373,000
I16	Division/Broadway/1st Ave N[3]	Improve intersection capacity, operations, and safety	To be determined	Beyond 2035	$460,000
I17	Lockwood Road & N Frontage Road[3]	Reconfiguration of existing intersection	To be determined	Beyond 2035	$460,000
I19	Johnson Lane & Old Hardin Road[3]	Intersection improvements and access management around Johnson Lane Interchange	To be determined	Beyond 2035	$1,030,400
I20	Shiloh Interchange[3]	Geometric improvements to improve operations and safety	To be determined	Beyond 2035	$1,030,400
I21	South Billings Blvd Interchange[3]	Additional EB and WB mainline lanes under and through the Interchange	To be determined	Beyond 2035	$910,800
I22	27th Street Interchange[3]	Construct additional EB and WB mainline lanes under and through Interchange. Restripe EB off-ramp and improve pedestrian facilities	To be determined	Beyond 2035	$1,159,00
I24	Johnson Ln Interchange[3]	Geometric improvements to improve operations and safety	To be determined	Beyond 2035	$3,496,000
I25A	West Billings Interchange[3]	Update geometry to match MDT standards, improve landscaping and improve pedestrian facilities	To be determined	Beyond 2035	$2,944,000
I25B	West Billings Interchange[3]	Construct additional EB and WB mainline lanes through interchange, modify vertical curve, reconstruct bridge segments and restripe WB off-ramp at West Billings Interchange.	To be determined	Beyond 2035	$3,496,000
			Total Illustrative Streets and Highways Project Costs		**$135,530,000**

Source: [1]City of Billings Capital Improvement Program (FY 2015-2019)
[2]Billings Urban Area Transportation Improvement Program (FY 2012-2016)
[3]Montana Department of Transportation
[4]City of Billings

Note: [5] Year of Expenditure cost represents construction costs.

Project ID: R - Roadways
I - Intersections
CM - Congestion Management

Table 11.3 Committed and Recommended Projects – Pedestrian, Bicycle, and Multiuse Trails

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5]
Committed Projects					
P9	SRTS - Poly Drive Sidewalk Improvements[1]	Pedestrian Improvements at the Poly Drive and Arvin Road intersection	CTEP, BikeNet, Private Contribution	2014	$97,147
BL49	6th Avenue North[1]	Provide bicycle facilities along 6th Avenue North to facilitate a safe connection from the east of Swords Lane on the north side of Airport Road	CTEP, TIFD, Private contribution	2016	$540,000
M3	Alkali Creek Trail[1]	Extend trail from Swords Park northeast along Alkali Creek or Swords Lane to Main Street Pedestrian Underpass	TAP, BikeNet	2017	$280,000
M11	Broadwater Avenue Multilane Path[4]	Construct a 10 foot wide multi-use trail along Broadwater Ave from Zimmerman Trail to Shiloh Road	CTEP, Private Contributions	2014	$421,470
M16	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	TAP, Private Contribution	2016	$1,080,000
M22	SRTS - Arrowhead School Path[1]	Construct a 10-foot wide multiuse path from Shiloh Road to Arrowhead Elementary School	CTEP, BikeNet, Private Contribution	2014	$84,000
M35	Transtech Connector[1]	Bring McCail trail segment up to standards and complete connection to Transtech Center Trail at 32nd Street West	TAP, RTP, BikeNet, Private contribution	2017	$537,600
M38	Riverfront Park[1]	Construct a multi-use trail from Mystic Park Trails to Riverfront Park Trails	TAP, Private Contribution, RTP	2016	$1,620,000
M42	Ponderosa Elementary School Multi Use Connector[1]	Extend trail from Kings Green Subdivision to Ponderosa School	CTEP, TIFD	2015	$187,200
M44	Rim Top Trail from 27th Street West/Airport Road to Zimmerman Trail Vicinity[1]	New Trail along the Rims resulting from Highway 3 corridor study	HSIP, TAP, Private Contribution, BikeNet	2016	$1,296,000
M44	Downtown BBWA Corridor Trail/On Street Facilities[1]	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	TAP, Gas Tax	2016	$226,800
M45	Swords Park/6th Avenue North Connector[1]	Trail connection from Swords Park Trail/Airport Road/6th Avenue N to existing sidewalk on 6th Avenue N	CTEP, BikeNet	2015	$124,800
-	Bike Lane Striping[1]	Provide program funding for striping of bike lanes as needs and opportunities arise	TAP, BikeNet	2016	$124,200
-	Misc. Curb, Gutter, and Sidewalk[1]	Annual replacement and infill program of curb, gutter, and sidewalk (Cost includes 5-year total)	Sidewalk Bonds, Gas Tax, Storm Drain	2015-2019	$2,512,500
-	Annual ADA Replacement[1]	Replace ADA ramps in accordance with the signed agreement between the City of Billings and the Department of Justice (Cost includes 5-year total)	Arterial Fee Fund, Gas Tax	2015-2019	$1,250,000
			Total Committed Pedestrian, Bicycle, and Multiuse Trail Project Costs		**$10,381,717**
Recommended Projects					
P29	1st Ave N/US 87/ Main St (Exposition Dr)[4]	Add pedestrian crossings to existing intersections	TAP, TIFD, HSIP	2020	$34,720
P30	US 87 Pedestrian Easement [4]	1.0 miles adjacent to Metra Park from Airport Rd to Yellowstone River	TAP, TIFD	2025	$532,224
P31	Metra Park Pedestrian Overpass [4]	Crossing Main St (Exposition Dr) near 3rd Ave N	TAP, TIFD	2025	$2,419,200
P32	N 10th St/1st Ave N [4]	Add pedestrian crossings to existing intersection	TAP, TIFD	2025	$403,200
P33	1st Ave N/US 87 Sidewalk [4]	Add 0.7 miles of sidewalks to N 10th Street to Yellowstone River	TAP, TIFD, HSIP	2025	$372,557
P34	US 87 Sidewalks [4]	Add 0.3 miles of sidewalks to northside of Bridge crossing Yellowstone River	TAP, TIFD, HSIP	2025	$159,667

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost[5]
P38	Poly Drive Sidewalks[4]	Add sidewalks between 13th and Virginia (BL1 includes the bike lane project)	CTEP	2014	$120,000
P39	Calhoun Lane Sidewalks[4]	Construct new 5-foot sidewalk on both sides of Calhoun Lane from King Avenue to State	CTEP	2014	$173,000
P40	Jackson Street Sidewalks[4]	Construct new 5-foot sidewalk on west side of Jackson/crossing at Orchard	CTEP	2014	$216,500
P41	Broadwater Elementary School[4]	Install sidewalk, fencing, and landscaping	CTEP	2014	$131,290
BL5	Lewis Avenue[4]	Add bike lanes from Parkview Dr to Division St	TAP, BikeNet	2025	$63,867
BL16	Central Avenue[4]	Add bike lanes from Shiloh Rd to Access St	TAP, BikeNet	2025	$372,441
M40	25th Street Railroad Bridge[4]	Construct a multi-use trail from Montana Avenue to Minnesota Avenue	TAP, BikeNet	2025	$2,448,000
M46	34th Street Pedestrian Bridge[4]	Construct a multi-use bridge to cross the tracks near 34th Street	TAP, BikeNet	2025	$2,880,000
M47	44th Street West[4]	Construct a multiuse bike/pedestrian path along 44th Street from Shiloh Conservation Area to King Avenue West	TAP, BikeNet	2025	$146,880
M48	Wicks Lane[4]	Construct a multiuse bike/pedestrian path along south side of Wicks Lane to the Inner Belt Loop	TAP, BikeNet	2025	$367,200
M49	Heights Middle School Path[4]	Construct a trail from the Kiwanis trail to New Heights Middle School near Bench and Barrett	TAP, BikeNet	2025	$189,058
M50	King Avenue West Sidewalks, 32nd to BBWA[4]	Enhance the existing sidewalk to a multiuse path between 32nd and BBWA	TAP, BikeNet	2025	$110,160
-	Misc. curb, gutter, and sidewalk[1]	Annual replacement and in fill program of curb, gutter, and sidewalk(cost includes 5-year total)	Sidewalk Bonds, Gas Tax, Storm Drain	2020-2035	$7,839,000
-	Annual ADA Replacement[1]	Replace ADA ramps in accordance with the signed agreement between the City of Billings and the Department of Justice (cost includes the 15-year total)	Arterial Fee Fund, Gas Tax	2020-2035	$3,900,000
			Total Recommended Pedestrian, Bicycle, and Multiuse Trail Project Costs		**$22,878,964**

Source: [1]City of Billings Capital Improvement Program (FY 2015-2019)
[2]Billings Urban Area Transportation Improvement Program (FY 2012-2016)
[3]Montana Department of Transportation
[4]City of Billings
Note: [5] Year of Expenditure cost represents construction costs.

Project ID: R - Roadways
I - Intersections
M - Congestion Management

Table 11.4 Committed and Recommended Projects – Public Transit

Project ID	Project Name	Project Description	Eligible Funding Source	Anticipated Year of Construction	Year of Expenditure Cost
Committed Projects					
-	Transit Capital[1]	Replacement vehicles	FTA Section 5310 and local funds	2015	$210,000
-	Transit Capital[1]	Replacement vehicles	FTA Section 5310 and local funds	2016	$177,840
-	Transit Capital[1]	Replacement vehicles	FTA Section 5339 and local funds	2015	$410,211
			Total Committed Public Transit Project Costs		**$798,051**
Recommended Projects					
-	Transit Capital (2017-2020)	Replacement vehicles	FTA Section 5310, Section 5339, and local funds	2017-2020	$1,483,453
-	Transit Capital (2021-2025)	Replacement vehicles	FTA Section 5310, Section 5339, and local funds	2021-2025	$1,985,887
-	Transit Capital (2026-2030)	Replacement vehicles	FTA Section 5310, Section 5339, and local funds	2026-2030	$2,261,521
-	Transit Capital (2031-2035)	Replacement vehicles	FTA Section 5310, Section 5339, and local funds	2031-2035	$3,291,943
			Total Recommended Public Transit Project Costs		**$9,022,804**

Source: [1]Billings Urban Area Transportation Improvement Program (FY 2012-2016)

Utilizing Performance Measures in Future Planning Efforts

The 2035 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.

Simply examining roadway capacity and automobile travel times as a means of monitoring performance of the transportation system is no longer sufficient. Preliminary performance measures were identified as part of this planning process and highlighted in Chapter 1. The performance measures are directly related to the goals and objectives outlined in Chapter 1 to 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 preliminary 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 if the performance measures identified are appropriate for the region.

Summary of LRTP Recommendations

The recommended 2035 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 2035. 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 11.5 summarizes the capital costs of the committed and recommended LRTP projects by mode.

Table 11.5 Summary of LRTP Projects Cost

Mode	Committed	Recommended	2035 Fiscally Constrained Total
Streets and Highways	$241,885,000	$92,826,000	$334,711,000
System Operations and Maintenance	$41,301,000	$53,280,000	$94,581,000
Pedestrian, Bicycle, and Multiuse Trails	$10,383,000	$22,879,000	$33,262,000
Public Transportation (Capital Only)	$798,051	$9,022,804	$9,820,855
Total Projects	**$294,367,051**	**$178,007,804**	**$472,374,855**

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CHAPTER 12

Financial Plan

This chapter discusses the financial plan for the 2035 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.

Did you know? The 2035 LRTP will guide more than $600 million in transportation project investments within the Billings Urban Area during the next 20 years.

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 2035 are more than $400 million. Additional funding would be required to address the illustrative projects identified in Chapter 11 of the LRTP.

The following references and documents were used to develop this chapter.

- Montana Department of Transportation
- Billings Urban Area Transportation Improvement Program (TIP), FY 2012-2016
- City of Billings FY 2015-2019 Capital Improvement Program (CIP)
- City of Billings Proposed Budget FY 2015
- MET Transit Business Plan

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 Code Annotated (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.

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 12.1 summarizes the available federal funding sources.

Did you know? The Billings Urban Area has received over $50 million in federal earmarks since 2003, which has been a key funding source in development of the transportation infrastrucutre.

Table 12.1 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 Montana 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 recreational 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 "Moving Ahead for Progress in the 21st Century Act" (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 5310 and Section 5311 transit programs and state funding is provided through the TransADE program. The new highway bill MAP-21 incorporated the JARC and New Freedoms Programs into the Section 5311 and 5310 programs, respectively. It also created a new bus and bus facilities discretionary formula program (Section 5339) for fixed route bus operators. All projects funded must be derived from a locally developed, coordinated public transit-human services transportation plan (a "coordinated plan"). The coordinated plan must be developed through a process that includes representatives of public, private, and nonprofit transportation and human service providers and participation from the public.	■ Bus and Bus Facilities (Section 5339) ■ Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) ■ Formula Grants for Rural Areas (Section 5311)
Community Transportation Enhancement Program (CTEP)	*This program does not exist under the new transportation bill. However, there are a few projects that will continue to receive CTEP funds through the end of FY 2016. Therefore, this funding source is included as a tracking reference.* CTEP funds are designed to improve the transportation system by providing facilities for bicycles, pedestrians, and the beautification of portions of the transportation system.	■ No other programs are included with this source.

Source: Montana Department of Transportation

STATE FUNDING SOURCES

Table 12.2 summarizes the available state funding sources.

Table 12.2 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 within 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 construction 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 attendant 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: Montana Department of Transportation

LOCAL FUNDING SOURCES

Local governments generate revenue from a variety of sources that contribute to the funding of transportation projects in the Billings Urban Area. Table 12.3 summarizes the available local funding sources.

Table 12.3 Local Funding Sources

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 community.
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 Improvement Program FY 15-FY19. Planning and Public Works/City of Billings Proposed Budget FY 2015

Spending and Revenue Plan

MDT Statewide and Urban Planning Section provided a current allocation (2014) of available transportation funding for the Billing Urban Area. The current allocation (2014) was projected to year 2025 and 2035. Table 12.4 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 2035, but are not currently committed within the STIP, TIP, or CIP. Projects that are not expected to be funded by 2035, 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. Illustrative projects are shown in Chapter 11.

All project costs were converted to year of expenditure (YOE) dollars using a four-percent annual inflation (Source: FHWA). The committed and recommended projects for streets and highways; pedestrians, bicyclists, and multiuse trails; and public transit are included in Chapter 11.

Table 12.4 Project Funding (Estimated) by Funding Source

Funding Source	Current Annual Allocation	Projected Annual Allocation	Revenue Projection	Revenue Projection
	2014	Per Year	2025	2035
NHPP – NH, IM*	$2,792,000	$4,520,000	$45,200,000	$95,000,000
HSIP Safety*	$500,000	$620,000	$6,200,000	$13,000,000
STPU – Urban**	$2,489,770	$2,489,770	$25,900,000	$54,380,000
STPS – Secondary*	$0	$0	$0	$0
STP – Bridge*	$0	$2,240,000	$22,400,000	$47,000,000
UPP – Preservation*	$1,300,000	$1,350,000	$13,500,000	$28,390,000
TA[6]	$350,000	$670,000	$6,700,000	$14,000,000
Earmark[4], **	$0	$1,160,000	$11,600,000	$24,400,000
MACI - CMAQ	$1,043,000	$1,080,000	$10,800,000	$22,780,000
Operations & Maintenance (State) [1]	$1,287,269	$1,340,000	$13,400,000	$28,110,000
Operations & Maintenance (Local)[1]	$0	$60,000	$600,000	$1,200,000
State and Local Fuel Tax (City)	$3,375,000	$3,510,000	$35,100,000	$73,710,000
State Fuel Tax (County)	$292,334	$300,000	$3,000,000	$6,380,000
SID's / RID's	$0	$10,000	$100,000	$200,000
FTA Sec. 5307[2]	$1,991,100	$2,070,000	$20,700,000	$43,490,000
FTA Sec. 5310[3]	$300,000	$310,000	$3,100,000	$6,550,000
FTA Sec. 5339	$410,200	$430,000	$4,300,000	$8,960,000
Other (Private, Bonds, TIF, CBDG, etc.)[4]	$568,803	$760,000	$7,600,000	$16,000,000
Local Transit Mill Levy[4]	$1,881,197	$1,960,000	$19,600,000	$41,090,000
Arterial Fee Fund[4]	$4,500,000	$3,670,000	$36,700,000	$77,000,000
CTEP[5]	$0	$0	$0	$1,361,549
TOTAL	**$23,080,673**	**$28,550,000**	**$286,500,000**	**$601,640,000**

Notes: Although MAP-21 only provides for Federal funding through FFY2015, 2025 and 2035 projections are based on continuance of current levels of funding unless otherwise noted. It is important to note that the projected funding estimates are based on the best information available at this time and that there is no guarantee that these funding sources will be available beyond MAP-21. Estimated Federal fund allocations do not include amounts of any required local matching funds. Federal revenues, local revenues and local and state matching funds are held constant and do not inflate over time due to uncertainty with federal transportation program reauthorization. Accordingly, future year allocation for year 2025 and 2035 are based on current carryover (if available) plus annual allocations, equal to current annual allocations. Reevaluation of revenue estimation may be necessary as part of the 2018 LRTP update if a trend of shorter authorizations continues.

[1]Transportation system operations and maintenance are obligations necessary for routine enhancements and maintenance activities. Local annual obligations for these activities with the urban planning boundary include $1,287,269 (MDT). This estimate is based on a 3-year average of operations and maintenance.

[2]5307 included transfer from 5311, possible future transfers not included in projections.

[3]5310 administered by MDT for qualified providers.

[4]Based on TIP and CIP estimates

[5]This program does not exist under the new transportation bill. However, there are a few projects that will continue to receive CTEP funds through the end of FY 2016. Therefore, this funding sources is included as a tracking reference.

[6]TA funds are distributed through a competitive process.

*Estimates from MDT are based on historical obligation figures with input from district. Billings Urban area does not receive a set annual obligation of STP Bridge and Secondary funds; Billings will receive $40 million in bridge funds for 1-90 Yellowstone River Bridges beginning approximately 2019.

**Project 4199_Billings Bypass is estimated at approximately $120,500,000. The project will be funded with multiple sources including Earmark Funds. The Billings MPO has committed their CMAQ and Urban allocations for a total of $25,000,000 or more as needed to complete funding package.

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 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 $120.5* million in year of expenditure dollars. This project is funded through the following sources.

Billings Bypass	$17,000,000 (secured earmarks)
	$78,500,000 (NH, IM, Bridge)
	$25,000,000 (Urban**, CMAQ**, Local funding)
Total Costs	$120,500,000*

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

**$2.5 million annual urban allocation (STPU), $1.04 million annual CMAQ allocation—local commitment of funding $25,000,000 or until completion of project, after funding for Bench Boulevard Phase II is complete.

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 Transportation Improvement Program (TIP) process. Additionally, future LRTPs could take the project list and begin to incorporate a screening and prioritization 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 12.5 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 11, the illustrative projects do not have a funding source within the 20-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 12.5, the estimated available revenue ($601 million) is greater than the estimated total costs ($557 million) to implement the committed and recommended projects for this LRTP. Therefore, this plan is fiscally responsible and meets the fiscally constrained requirement.

Table 12.5 Committed and Recommended Projects by Category and Funding Source

Project ID	Committed Project Costs	Recommended Project Costs	Committed Project Costs	Recommended Project Costs	Committed Project Costs	Recommended Project Costs	Committed Project Costs	Recommended Project Costs	Total Project Costs (Committed + Recommended)	Revenue Projection (see Table 12.4)	Difference Between Revenue and Project Costs
	Streets & Highways		Pedestrian, Bicycles, & Multiuse Trails		Public Transit		System Operations & Maintenance		Year 2035		
NHPP – NH, IM	$94,873,000	$0	$0	$0	$0	$0	$0	$0	$94,873,000	$95,000,000	$127,000
HSIP Safety	$6,308,000	$6,271,000	$200,000	$85,000	$0	$0	$0	$0	$12,864,000	$13,000,000	$136,000
STPU – Urban	$28,808,000	$24,727,000	$0	$0	$0	$0	$0	$0	$53,535,000	$54,380,000	$845,000
STPS – Secondary	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
STP – Bridge	$46,545,000	$0	$0	$0	$0	$0	$0	$0	$46,545,000	$47,000,000	$455,000
UPP – Preservation	$1,582,000	$6,760,000	$0	$0	$0	$0	$0	$0	$8,342,000	$28,390,000	$20,048,000
TA	$0	$0	$4,783,000	$9,005,000	$0	$0	$0	$0	$13,788,000	$14,000,000	$212,000
Earmark	$24,400,000	$0	$0	$0	$0	$0	$0	$0	$24,400,000	$24,400,000	$0
MACI - CMAQ	$12,220,000	$8,000,000	$0	$0	$0	$0	$0	$0	$20,220,000	$22,780,000	$2,560,000
Operations & Maintenance (State)	$0	$0	$0	$0	$0	$0	$28,110,000	$0	$28,110,000	$28,110,000	$0
Operations & Maintenance (Local)	$0	$0	$0	$0	$0	$0	$1,200,000	$0	$1,200,000	$1,200,000	$0
State and Local Fuel Tax (City)	$0	$0	$1,473,000	$4,544,000	$0	$0	$11,991,000	$53,280,000	$71,288,000	$73,710,000	$2,422,000
State Fuel Tax (County)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,380,000	$6,380,000
SID's / RID's	$200,000	$0	$0	$0	$0	$0	$0	$0	$200,000	$200,000	$0
FTA Sec. 5307	$0	$0	$0	$0	$21,800,000	$21,690,000	$0	$0	$43,490,000	$43,490,000	$0
FTA Sec. 5310	$0	$0	$0	$0	$388,000	$840,000	$0	$0	$1,228,000	$6,550,000	$5,322,000
FTA Sec. 5339	$0	$0	$0	$0	$410,000	$8,183,000	$0	$0	$8,593,000	$8,960,000	$367,000
Other (Private, Bonds, TIF, CBDG, etc.)	$5,160,000	$0	$2,083,000	$8,604,000	$0	$0	$0	$0	$15,847,000	$16,000,000	$153,000
Local Transit Mill Levy	$0	$0	$0	$0	$21,000,000	$20,090,000	$0	$0	$41,090,000	$41,090,000	$0
Arterial Fee Fund	$21,789,000	$47,068,000	$1,123,000	$0	$0	$0	$0	$0	$69,980,000	$77,000,000	$7,020,000
CTEP	$0	$0	$721,000	$641,000	$0	$0	$0	$0	$1,362,000	$1,361,549	$0
TOTAL	$241,885,000	$92,826,000	$10,383,000	$22,879,000	$43,598,000	$50,803,000	$41,301,000	$53,280,000	$556,955,000	$601,640,000	$44,685,000

CHAPTER

13

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 long range transportation plan (LRTP), transportation improvement plan (TIP), or any revisions to its plan will not adversely affect air quality (13-1).

The conformity analysis and determination was developed based on the applicable federal, state, and local requirements; input from the FHWA and Environmental Protection Agency (EPA) staff (13-2); Section 4.10, Air Quality/Conformity from the 2009 Billings Urban Area LRTP (13-3); 2010-2014 Billings Transportation Improvement Program (13-4); and similar information presented in Chapter 12, Conformity Determination of the adopted Great Falls LRTP 2014 (13-5).

Background

TIMELINE OF CONFORMITY REGULATIONS AND ACTIONS

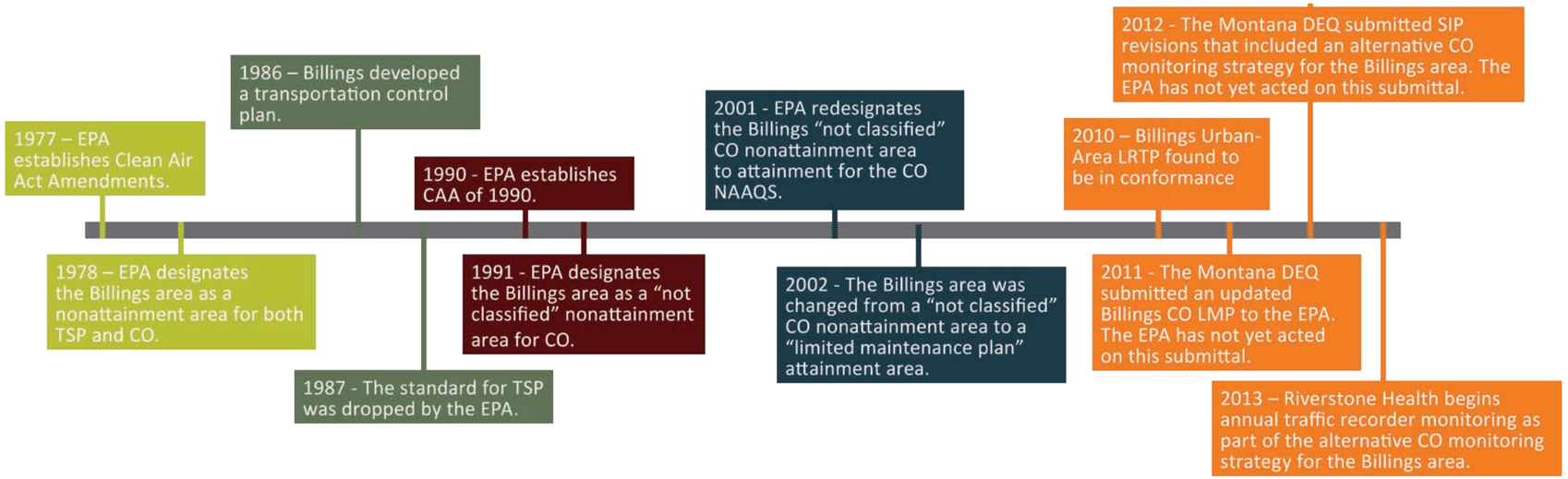
Over the last 30 years, several regulations have passed and actions have occurred within the State of Montana and Billings area that have changed certain requirements for determining conformity of a long range transportation plan. Figure 13-1 (on the next page) illustrates a timeline of the different regulations and actions for conformity.

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 and First Avenue. 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

Figure 13-1 Timeline of Conformity Regulations and Actions for the Billings Area



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 that 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.). (13-6).

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 2014 Billings Urban Area Long Range Transportation Plan 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 2014 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 area. Guidance for the outreach is included in the Yellowstone County Board of Planning Participation Plan (13-7). The plan is reviewed and updated periodically by the MPO. For this transportation plan, a public involvement plan was established at the beginning of the project and used to guide the public, stakeholder, and interagency involvement (13-8). 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 transportation plan.

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 (13-9). Table 13.1 summarizes the rolling three year monthly ADT comparison between the 2008-2010 base year and the most recent 2011-2013 year time period.

Table 13.1 Rolling Three Year Monthly Average Daily Traffic (ADT) Comparison

Year	Monthly Average Nov-Feb ADT
2011-2013	31,287
2008-2010	33,952
% Difference	**-8.8%**

Source: MDT's Monthly Automatic Traffic Recorder Comparistion (13-10)

As shown in Table 13.1, the most recent rolling three year monthly ADT is 8.8 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 Statewide Implementation Plan (SIP) and no specific TCM's are recommended for implementation in this transportation plan. Therefore, the TCM timely implementation requirement is not applicable to 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 12 of this LRTP documents that planned expenditures are consistent with existing and proposed funding sources that can be reasonably be expected to be available for transportation uses. As such, the transportation plan meets that fiscal constraint requirement.

Conclusion

In addition to the above conditions and requirements, it is concluded that the 2014 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.

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