



Activate Missoula 2045

Missoula Long Range Transportation Plan

March 2017



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Acronyms/Abbreviations

The following guide lists transportation abbreviations and acronyms that appear in this Long Range Transportation Plan.

AADT	Average Annual Daily Traffic	MRA	Missoula Redevelopment Agency
ACS	American Community Survey (U.S. Census Bureau)	MRTMA	Missoula-Ravalli Transportation Management Association
ADA	The Americans with Disabilities Act of 1990	MUTD	Missoula Urban Transportation District
ASUM	Associated Students of the University of Montana	NEPA	National Environmental Policy Act (1969)
BBER	Bureau of Business and Economic Research – University of Montana	NH	National Highways (funding program)
BR	Bridges (funding program)	SFCN	State Funded Construction (funding program)
CAA	Clean Air Act	STPU	Surface Transportation Program Urban (funding program)
CAAA	Clean Air Act Amendments of 1990	STPS	Surface Transportation Program Secondary Highway (funding program)
CAC	Community Advisory Committee	STPX	Surface Transportation Program Off-System Routes (funding program)
CIP	Capital Improvement Program	TA	Transportation Alternatives (funding program)
CMAQ	Congestion Mitigation and Air Quality (funding program)	TAC	Technical Advisory Committee
CTSP	Community Transportation Safety Plan	TDM	Transportation Demand Management
DOT	Department of Transportation	TIF	Tax Increment Financing
EMS	Emergency Medical Services	TIGER	Transportation Investments Generating Economic Recovery (grant funding)
FAST Act	Fixing America's Surface Transportation Act or FAST Act	TIP	Transportation Improvement Program
FTA	Federal Transit Administration	TPCC	Transportation Policy Coordinating Committee
HSIP	Highway Safety Improvement Program (funding program)	TTAC	Transportation Technical Advisory Committee
IM	Interstate Maintenance (funding program)	URD	Urban Renewal District
ITS	Intelligent Transportation Systems	VMT	Vehicle Miles of Travel
LOS	Level of Service		
LRTP	Long Range Transportation Plan		
MACI	Montana Air and Congestion Initiative (funding program)		
MAP - 21	Moving Ahead for Progress in the 21st Century		
MDT	Montana Department of Transportation		
MEPA	Montana Environmental Policy Act		
MIM	Missoula In Motion		
MPO	Metropolitan Planning Organization		

Table of Contents

Acknowledgements	i
Acronyms/Abbreviations	iii
Introduction	1
I. Transportation and People	2
II. Plan for Missoula's Future	2
III. Structure of the Plan	6
Existing & Future Conditions	7
I. Existing Transportation System	8
II. Future Population, Household and Employment Growth Projections	38
III. Committed Projects	41
IV. Forecast 2045 Congestion	41
V. Forecast 2045 Project Needs and Costs ..	43
VI. Forecast 2045 Available Funding and Shortfall	44
Community Outreach	45
I. Public Participation Plan	46
II. Missoula Area Transportation Survey ..	48
III. Transportation Summit #1 - Project Kick-off	52
IV. Transportation Summit #2 - Funding Workshop	52
V. Transportation Summit #3 – Goals & Funding Scenarios	55
Performance Measures & Project Ranking	57
I. Performance-based Planning and Programming	58
II. Project Evaluation and Ranking	62

Exploring the Future	71
I. Different Approaches to the Transportation System	72
II. Transportation System Scenarios	79
III. Scenario Performance	83
Our Transportation Future	85
I. Recommended Plan	86
II. Estimated Revenue	88
III. Funding Allocation	90
IV. Plan Performance	102
Implementation	106
I. Delivering Our Transportation Future ...	107
II. The Community's Role	110

Appendices

Appendix A: Community outreach
documentation

Appendix B: Full project list

Appendix C: Project scoring & ranking

Appendix D: Revenue projections

Appendix E: Air quality conformity
analysis

Appendix F: Travel Demand Model
documentation

Table of Figures

Figure 1. Missoula Metropolitan Planning Area boundary	3	Figure 20. Natural resource and environmentally sensitive areas	33
Figure 2. Project timeline	5	Figure 21. Vulnerable and under-represented populations	34
Figure 3. Street and highway system.	10	Figure 22. Means of transportation to work in the Missoula Urbanized Area.	35
Figure 4. Level of Service (LOS) designation system	11	Figure 23. Historic mode share for the urbanized area	35
Figure 5. 2010 Congestion	12	Figure 24. Existing and projected new dwelling units within the MPO area.	39
Figure 6. 2015 Congestion	13	Figure 25. Existing and projected new employment growth within the MPO area.	40
Figure 7. Mountain Line transit service routes (2015)	15	Figure 26. Current (2015) congestion on existing roadways.	41
Figure 8. Mountain Line annual transit ridership, 2005-2016	16	Figure 27. Projected 2045 congestion on existing roadways + committed projects	41
Figure 9. Existing bicycle facilities (2015).	18	Figure 28. Completed and committed projects	42
Figure 10. Sidewalk network, 2015.	20	Figure 29. Available funding by source (Federal vs. Local discretionary dollars)	44
Figure 11. Five-year average fatal and incapacitating injury crash rates.	21	Figure 30. Public outreach via online content	47
Figure 12. Motor vehicle crash locations, 2007-2014	22	Figure 31. Rankings of possible strategies to improve the transportation system	48
Figure 13. Bicycle-involved crash locations, 2007- 2014.	23	Figure 33. Rankings of possible actions to improve the transportation system	49
Figure 14. Pedestrian-involved crash locations, 2007- 2014.	24	Figure 32. City vs. County mode of travel to work	49
Figure 15. Response times for police, fire and emergency medical services.	26	Figure 34. City vs. County ratings of area transportation system quality	50
Figure 16. Missoula's traffic signal system, 2015	28	Figure 35. Overall rating of area transportation system by mode of travel to work	50
Figure 17. Projected major truck flows in 2040	29	Figure 36. City vs. County priorities for adding and improving roadways for vehicles	51
Figure 18. Annual average daily truck traffic, 2015	29		
Figure 19. Freight routes and generators (manufacturing and industrial centers)	30		

Figure 37. City vs. County priorities for improving pedestrian and bicycle facilities.	51	Figure 52. Committed and recommended non-motorized projects	99
Figure 38. Funding allocation “game” board from Transportation Summit #2	53	Figure 53. Project categories, as a percentage of all funding (committed + recommended projects)	102
Figure 39. Goal ranking survey responses through the Activate Missoula website	54	Figure 54. Project categories, as a percentage of available discretionary funding (recommended projects only)	102
Figure 40. Performance based planning and programming (source: Federal Highway Administration)	58	Figure 55. Registered voter support/opposition to paying new taxes or fees for transportation system improvements	108
Figure 41. Non-motorized project ranking using the goals, objectives and scoring criteria	69	Figure 56. Registered voters preference for type of new tax or fee	109
Figure 42. Commute mode share for Missoula urban area (source: ACS 5-year average, 2010-2014)	73		
Figure 43. Commute mode shares for bicycling, walking, and transit by census tract	74		
Figure 44. Current commute mode share and adopted goals in four comparison cities	75		
Figure 45. Three proposed 2045 commute mode share goals for the Missoula urban area	76		
Figure 46. Estimated discretionary and non-discretionary revenues through 2045	78		
Figure 47. Discretionary and non-discretionary funding categories	79		
Figure 48. Outline of process for creating transportation system scenarios	80		
Figure 49. Adopted Activate Missoula 2045 plan scenario	87		
Figure 50. Adopted 2045 mode share goal	87		
Figure 51. Committed and recommended roadway projects	98		

Table of Tables

Table 1. General Federal Functional Classification	9	Table 17. Total Transportation Options funding allocations, by revenue source	91
Table 2. 2010 and 2015 Congestion comparison.	11	Table 18. Total ITS funding allocations, by revenue source	92
Table 3. Types of bicycle facilities	17	Table 19. Total safety funding allocations, by revenue source	92
Table 4. High crash rate intersections (2010 - 2014)	25	Table 20. Total roadway maintenance funding allocations, by revenue source	93
Table 6. Percentage of minority populations .	32	Table 21. Total transit capital funding allocations, by revenue source	94
Table 5. Percentage household income below poverty level	32	Table 22. Total transit operations funding allocations, by revenue source	94
Table 7. Household employment and person trip growth, 2015 - 2045	38	Table 23. Committed and Recommended roadway improvement projects	96
Table 8. Traffic comparison, 2015 to 2045 (with committed projects)	43	Table 24. Committed and Recommended non-motorized projects	97
Table 9. Cost estimates for anticipated discretionary-funded transportation need through 2045	43	Table 25. Committed and Recommended transportation options projects/programs	100
Table 10. National Performance Goals	60	Table 26. Committed and Recommended ITS projects	100
Table 11. National Planning Factors	60	Table 27. Committed and Recommended safety projects	100
Table 12. Scenario comparison of travel demand model performance measures vs. 2045 base model.	83	Table 28. Committed and Recommended roadway maintenance projects/programs .	100
Table 13. Federal revenue sources and estimated funding over the next 30 years.	88	Table 29. Committed and Recommended transit projects/programs	101
Table 14. Local revenue sources and estimated funding over the next 30 years.	89	Table 30. Recommended plan consistency with goals and objectives	104
Table 15. Total roadway funding allocations, by revenue source	90		
Table 16. Total non-motorized funding allocations, by revenue source	91		

Introduction



I. Transportation and People

Transportation is a part of everyone's life. Whether you are commuting to work or school, going to the store or movie theater, expecting a delivery to your home or office, or taking the dog for a walk - transportation is a daily necessity. Activate Missoula 2045 is a plan for Missoula's transportation future. It provides a blueprint for creating an accessible and connected transportation system over the next 30 years.

At its heart, transportation is about moving people – in whatever way they choose to travel. As Missoula's multi-modal Long Range Transportation Plan (LRTP), Activate Missoula 2045, addresses all modes of travel, including vehicular, bicycle, transit, and pedestrian, because a strong and balanced transportation system provides access for all people, of all ages and abilities. Activate Missoula 2045 also seeks to support and play a role in the implementation of Missoula's policies related to growth and development, environmental protection, economic development, neighborhood preservation, climate change, and community health.

II. Plan for Missoula's Future

Activate Missoula 2045 is not only a transportation plan, but also an investment strategy to support regional goals. It is meant to coordinate the multitude of transportation projects and programs carried out by various transportation partners across the region to ensure that our system is comprehensive, seamless, and coordinated. Coordination is essential, not only because transportation investments are typically costly and require a lot of up-front planning, but also because needs and priorities change over time. To ensure that we provide the most effective and efficient system possible, we must carefully choose how we prioritize our investments and we must continuously evaluate and try to respond to the needs of the community.

The Missoula Metropolitan Planning Organization

The Missoula Metropolitan Planning Organization (MPO) is a regional transportation planning body that was established in Missoula in the early 1980s. Federal law requires the formation of an MPO when an area reaches a population of 50,000. There are over 400 MPOs across the country, all working within their regions to help local agencies plan for and provide coordinated and connected transportation systems.

Who makes transportation decisions?

The Transportation Policy Coordinating Committee (TPCC) is the MPO's governing body and is comprised of 7 voting representatives from multiple agencies:

- City of Missoula Mayor
- 1 City of Missoula Council member
- 2 Missoula County Commissioners
- Missoula District Administrator of Montana Department of Transportation
- 1 Missoula Planning Board member
- 1 Mountain Line Board member

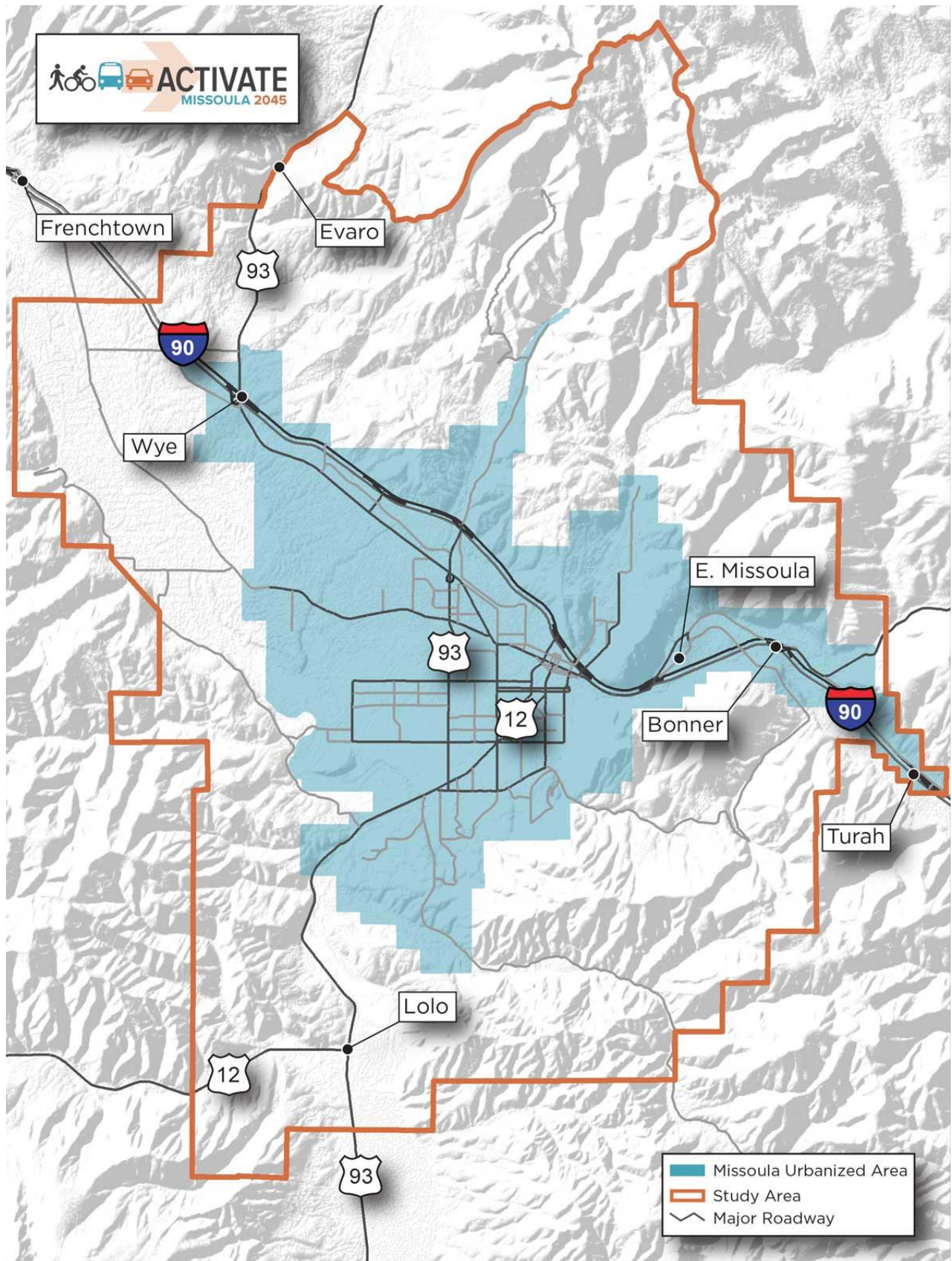


Figure 1. Missoula Metropolitan Planning Area boundary

MPOs work to bring agencies together to cooperatively identify regional transportation issues and needs and then prioritize the projects and programs meant to help address them. Missoula's MPO is small in comparison to the many others across the country, which may encompass multiple counties, numerous cities, or even cross state lines. Despite our small size, our transportation issues are not much different than those of larger metropolitan areas.

The MPO works with multiple agencies, including the City of Missoula, Missoula County, the Montana Department of Transportation, Mountain Line, the University of Montana, and others to decide how best to spend limited transportation funds and which

projects and programs are implemented within our region. Figure 1 shows the MPO's planning area and the study area for the Activate Missoula 2045 plan.

Missoula Long Range Transportation Plan

Federal transportation law requires the Missoula MPO to update and adopt an LRTP for the region every four years. The LRTP is required to address all modes of transportation and plan for, and prioritize, projects for the next 20 years (at a minimum). LRTPs are also required to be "fiscally constrained," which means that the projects and programs recommended for funding must not exceed the amount of funding that is anticipated to be received in that time frame.

ACTIVATE MISSOULA 2045 GOALS

- Maintain our existing transportation system
- Improve the efficiency, performance, and connectivity of a balanced transportation system
- Maximize the cost-effectiveness of transportation
- Promote consistency between land use and transportation plans to enhance mobility and accessibility
- Provide safe and secure transportation
- Support economic vitality
- Protect the environment
- Promote community health and social equity through the transportation system

The previous LRTP (Connections 2040) was completed in 2012 (adopted in January 2013). This update seeks to carry forward many of the same goals and objectives of the previous plan, and plans completed even earlier, particularly as it relates to the creation of a transportation system that is safe, connected, accessible, preserves the environment, and supports Missoula's economy and growth policies. Activate Missoula 2045's goals and objectives provide a framework for the future of Missoula's transportation system, looking ahead 30 years.

Plan Process

The Activate Missoula 2045 planning process kicked off in earnest in the fall of 2015 and has taken more than a year to complete. Figure 2 illustrates the general process, including the technical tasks that were involved, and the points in which public input was sought from the community.

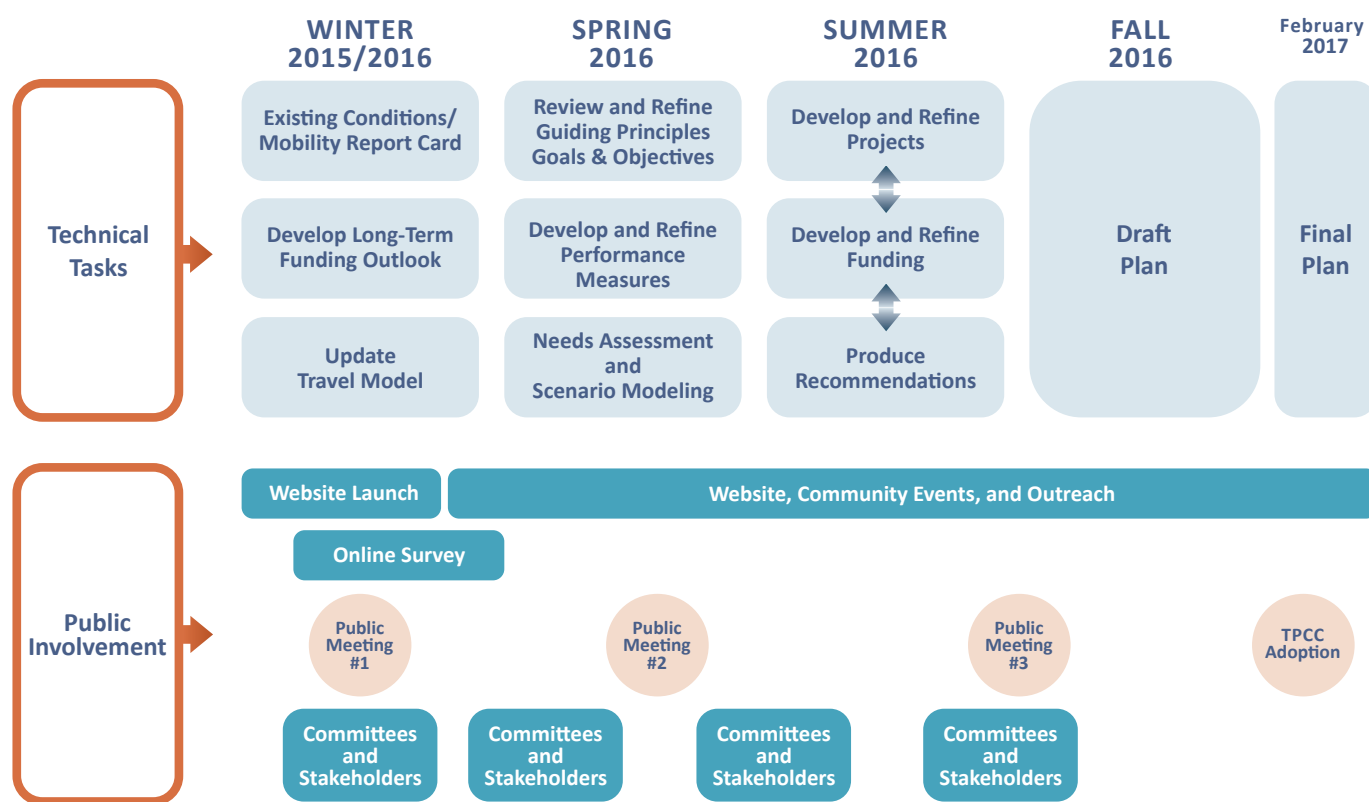


Figure 2. Project timeline

III. Structure of the Plan

The following chapters lay out the Activate Missoula 2045's development process, the ideas and issues studied, the public input involved, existing and future needs, and recommendations for the future. This multimodal plan integrates all modes and outlines policy and infrastructure investments at a regional scale:

Multimodal Vision Plan

- Chapter 1 – Introduction.
- Chapter 2 – Existing & Future Conditions – *describes the state of Missoula's infrastructure today and discusses anticipated growth and development that the transportation system will be required to support.*
- Chapter 3 – Community Outreach – *provides an overview of the public input process and community's involvement in development of the plan.*
- Chapter 4 – Performance Measures & Project Ranking – *summarizes the measures and tools used to evaluate project performance and prioritize investments.*
- Chapter 5 – Exploring the Future – *outlines the development of alternative approaches to the future transportation system and discusses opportunities for shifting travel behavior.*
- Chapter 6 – Our Transportation Future – *details the recommended plan, including funding and project recommendations.*
- Chapter 7 – Implementation – *outlines the actions and tools to accomplish the vision expressed in the recommended plan.*

Appendices

Bound separately, the appendices provide additional information and data on what is presented in the main document.

- A. Community Outreach Documentation

- B. Full project list
- C. Project scoring and ranking
- D. Revenue projections
- E. Air quality conformity
- F. Travel demand model documentation

Missoula's Plans

Activate Missoula 2045, Missoula's LRTP, is intended to support, inform, and build upon other plans and policies in the region, including the following:

- Bicycle Facilities Master Plan (2016) – completed simultaneously with Activate Missoula 2045
- City of Missoula Growth Policy (2015)
- Missoula County Growth Policy (2015)
- Community Transportation Safety Plan (2013)
- Active Transportation Plan (2011)
- Mountain Line Long Range Transit Plan (2012)
- Missoula County Parks and Trails Plan (2011) and Master Parks and Recreation Plan for the Greater Missoula Area (2004)
- Master Sidewalk Plan (Draft 2006)
- City of Missoula Complete Streets Resolution (2016)
- City of Missoula Conservation & Climate Action Plan (2013) and Missoula Community Climate Smart Action Plan (2015)

Existing & Future Conditions



I. Existing Transportation System

In many ways, the form of the transportation system in the Missoula area today is the same as it was when it was first laid out decades ago. The decisions contemplated in this plan, Activate Missoula 2045, and in every Long Range Transportation Plan have the opportunity to influence the region for generations.

The development of the Activate Missoula 2045 Plan began with a systematic evaluation of the performance of the existing transportation system, followed by an estimate of the region's 2045 transportation needs based on anticipated growth. While there is a long list of needs for all modes of transportation, there is a limited amount of funding.

The transportation system in the Missoula MPO region is multimodal. Streets and highways, transit

CHAPTER CONTENTS

- I. Existing Transportation System
- II. Household, Population and Employment Growth
- III. Previous Committed Transportation Projects
- IV. Forecast 2045 Transportation Conditions
- V. Projects and Costs to Address Future Need
- VI. Anticipated Funding



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and paratransit services, bicycle and pedestrian facilities, airports and rail facilities - all provide for the movement of people and goods in the region. How these systems connect to each other and interact influences the efficiency of the system. Providing a balanced and connected system that includes multiple options to move in and around Missoula is key to supporting residents, businesses, and freight through the area.

Streets and Highways

A well-connected and designed roadway network is essential for safe and efficient travel. Such a network can reduce travel times, reduce crashes on certain facilities, assist in emergency operations, and help make the most of limited transportation funding.

The Federal Highway Administration groups roadways into classes according to the character of service they provide. For the purpose of allocating state and federal highway funds, Montana's public highways and streets are placed on systems based in part on the functional classification system.

There are three basic highway classifications: Arterial, Collector and Local. All streets and highways are grouped into one of these classes depending on the character of the traffic and the degree of land access that they allow (Table 1). Figure 3 illustrates the street and highway system for the study region.

Congestion

Traffic congestion results when traffic demand approaches or exceeds the available capacity of the system. One way to gauge the level of congestion is grading a facility on its level of service.

Level of Service (LOS) is a letter designation that rates the congestion conditions on a particular type of facility. The Highway Capacity Manual defines LOS as “qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers.” Just like in school, an A is better than a B and an F is failing. Figure 4 shows the range of LOS and what it generally translates to in terms of congestion.

Table 1. General Federal Functional Classification

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

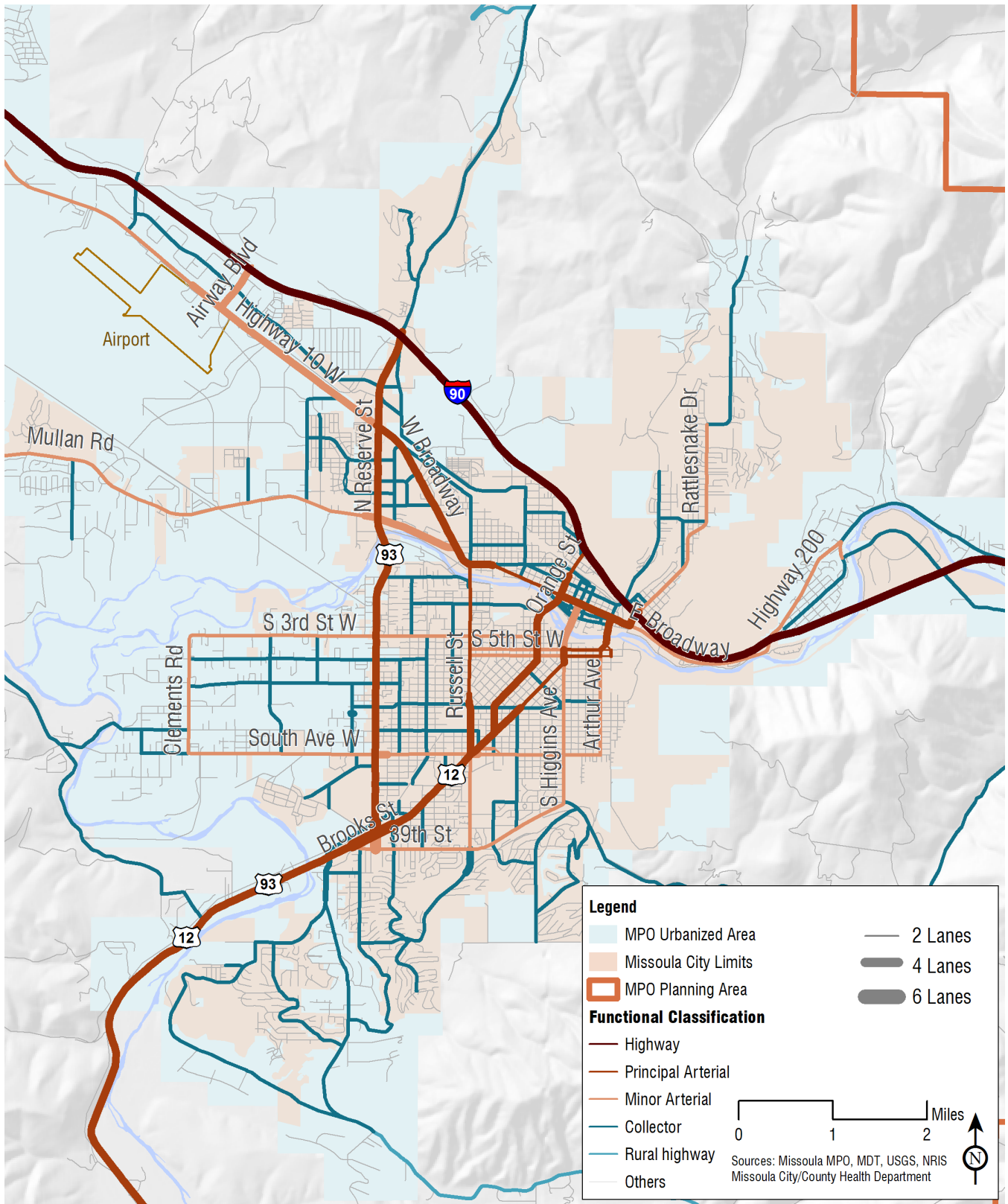


Figure 3. Street and highway system

Overall, the LOS in the Missoula metropolitan area is pretty good (Figure 5 and Figure 6). While there are some roadways that experience peak-hour congestion, most facilities function at a LOS of A to C (excellent to average). There are several locations that continue to experience congested travel at LOS E or F. Examples include Reserve, Russell, Brooks and Broadway. Congestion exists in Missoula, but not to the point that the overall street system will fail routinely.

Between 2010 and 2015, overall system function appears to have improved, with reductions in overall

average daily vehicle miles traveled (VMT), average travel time, and delay. This doesn't mean there are fewer cars on the road (Table 2). Reduction in VMT can be a result of transportation projects that shorten a driver's travel distance. A number of significant projects were completed between 2010 and 2015, including 3rd Street reconstruction, 5th/6th/Arthur reconfiguration and traffic signal timing adjustment. All of these projects may contribute to VMT reduction by providing a more direct path to a destination. However, VMT may also be influenced by other factors such as transition to transit or non-motorized transportation and gas prices.

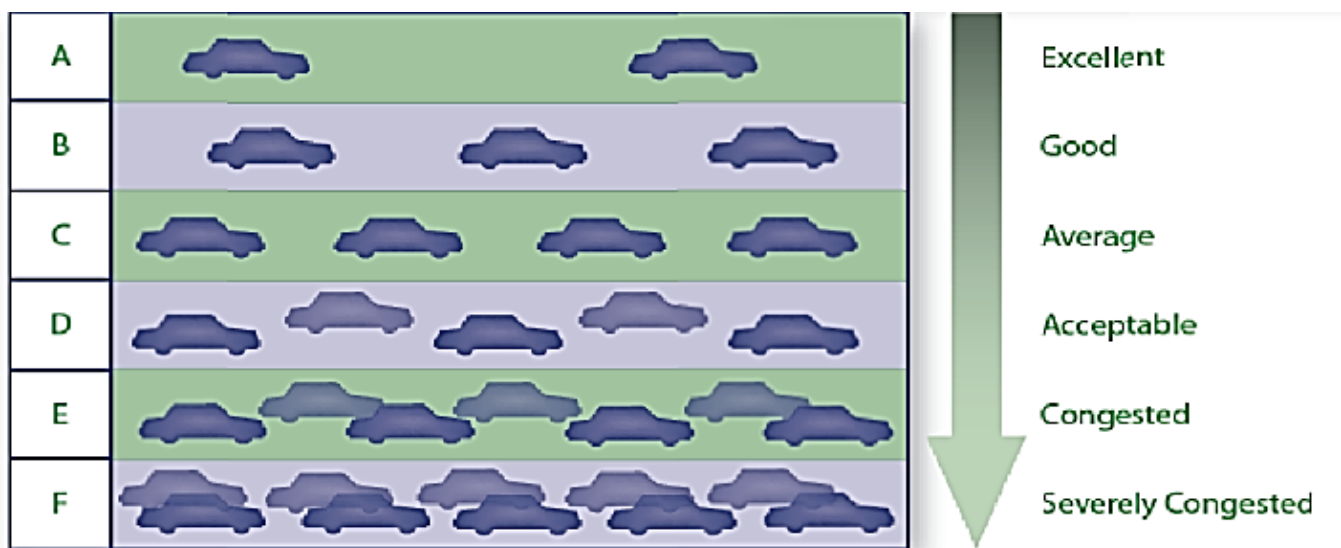


Figure 4. Level of Service (LOS) designation system

Table 2. 2010 and 2015 Congestion comparison

Daily Average	2010	2015
Vehicle Miles of Travel (VMT)	1,826,506	1,642,953
% Lane Mile Congested	1.41%	0.59%
Average Travel Time per trip (mins)	11.66	8.80
Average Delay per trip (mins)	2	1
Delay as a % of trip time	15%	9%

Source: MPO Travel Demand Model

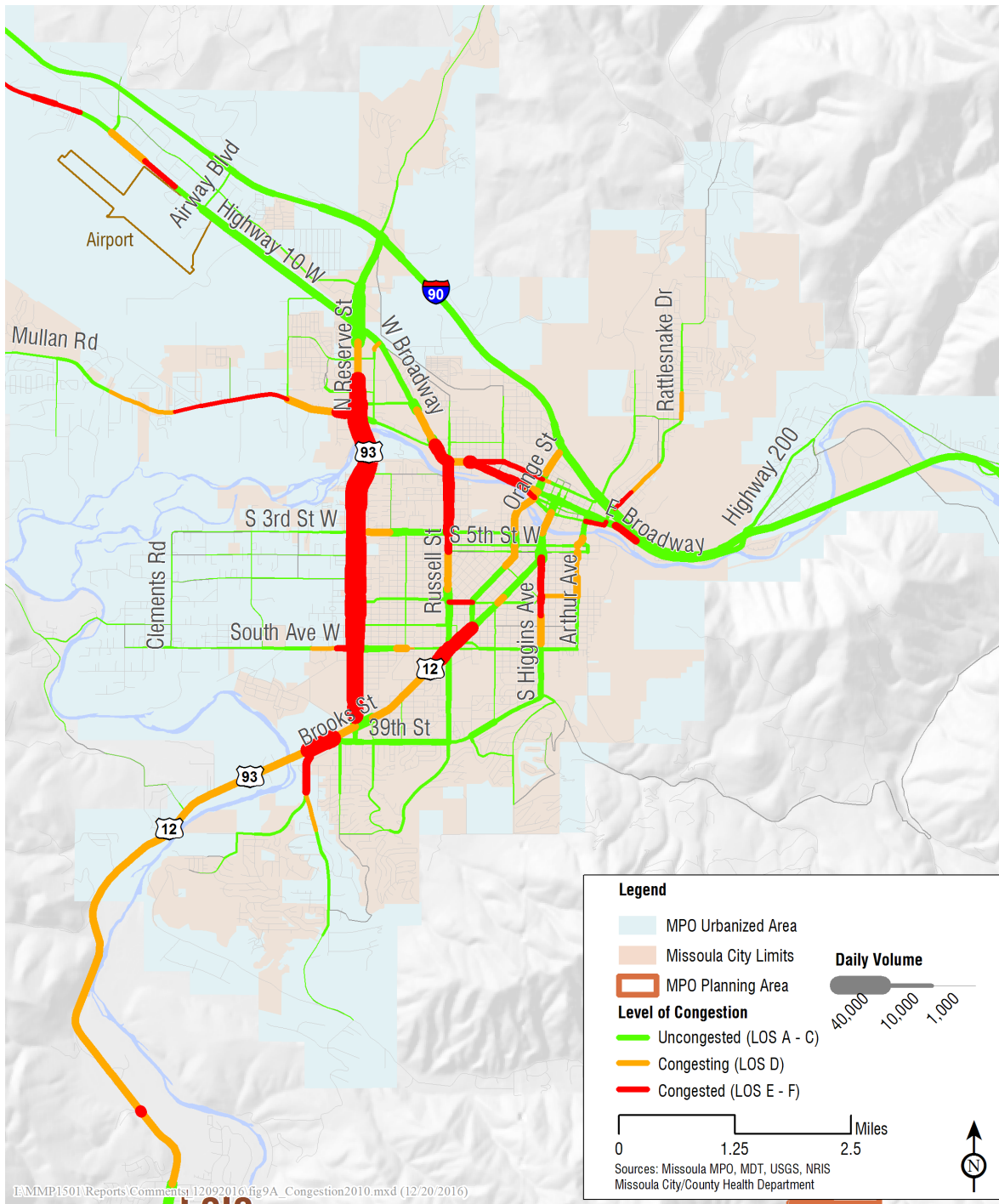


Figure 5. 2010 Congestion (Source: MPO Travel Demand Model)

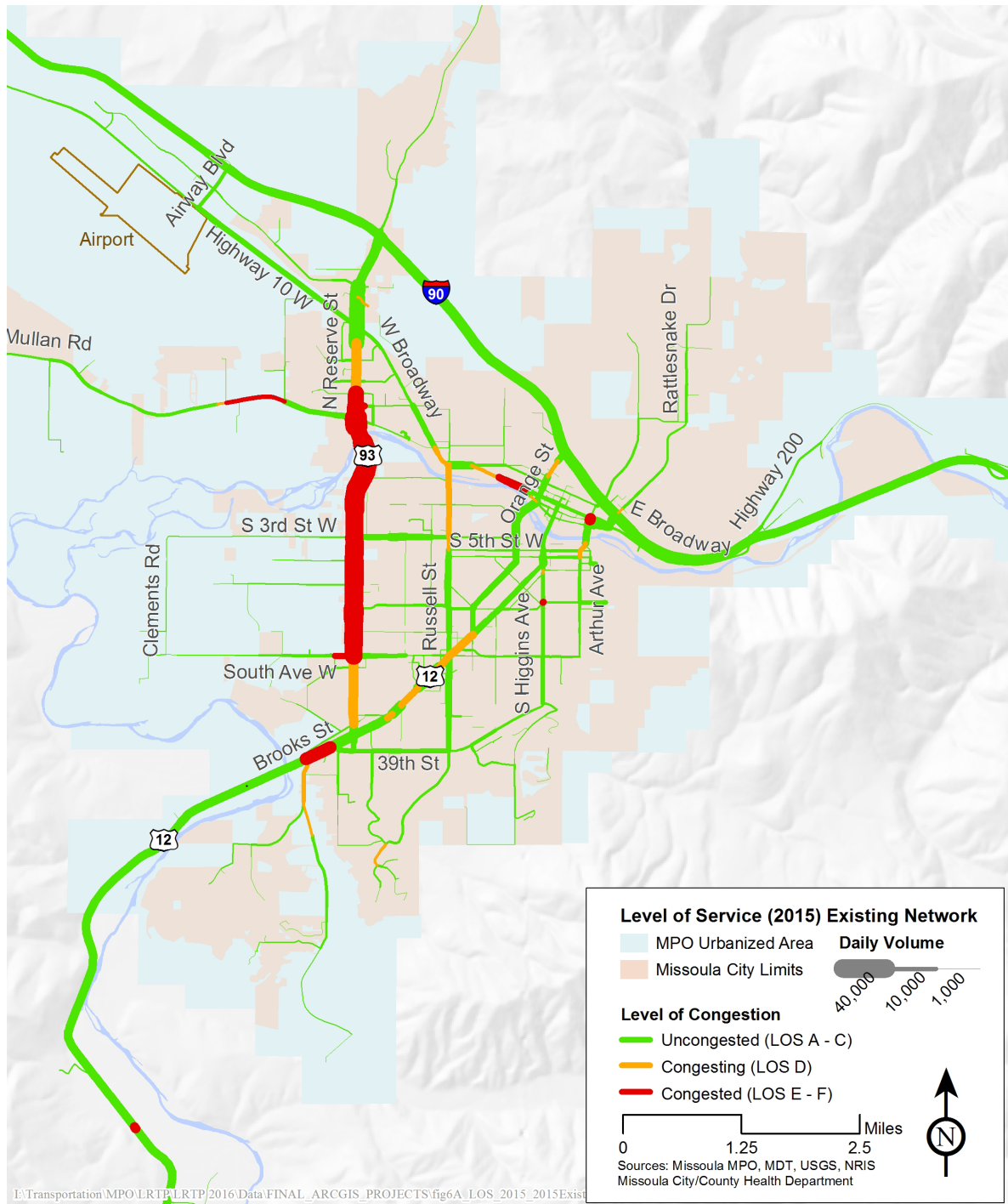


Figure 6. 2015 Congestion (Source: MPO Travel Demand Model)



Deteriorating sidewalks on the Russell Street Bridge

Pavement Condition

Most roadways within the Missoula metropolitan area are paved. Pavement condition data is typically gathered every several years to help prioritize roadway maintenance activities. Collecting regular condition data is extremely important. In some cases, if a roadway does not receive required surface maintenance, it becomes necessary to completely reconstruct it, which is significantly more costly.

MDT maintains all major roadways, sometimes under an agreement with the City of Missoula, and the City maintains local streets. Unfortunately, sufficient pavement condition data for local City of Missoula roadways is currently not available or not recent enough for accurate analysis. Transportation partners should work together to ensure that this data is collected regularly and accurately.



Incomplete sidewalks, poor roadway and bridge condition along Russell Street

Bridges

There are many bridges located throughout the MPO Planning area, all of which are inspected by MDT regularly. All bridges within the region are currently rated between fair to excellent condition except for four bridges: Russell, Madison, Higgins and Maclay, which are rated poor. All four of these bridges are scheduled for either replacement or major rehabilitation within the next 5 years.

Transit

Missoula-area transit service includes fixed-route transit, intercity transit, paratransit, senior transit, rural transit, and private transit services.

The Missoula Urban Transportation District (MUTD) provides the region with fixed route transit (Mountain Line buses), paratransit, and senior van services. Demand response service (paratransit) is any non-fixed-route system of transporting individuals that requires advanced scheduling by the customer including services provided by public entities, non-profits, and private providers.

Fixed-route services include any transit service in which vehicles run along an established path at preset times. Mountain Line had 12 fixed-route transit lines in 2010 and continues to provide 12 routes in 2015 as presented in Figure 7.

The transit coverage area within the City is extremely good with most of the region's population within 1/4 mile of a transit stop. Increased coverage area, higher transit frequency (Bolt! service), and Zero Fare for all has increased transit ridership from 2010 to 2015 by 56% as illustrated in Figure 8.

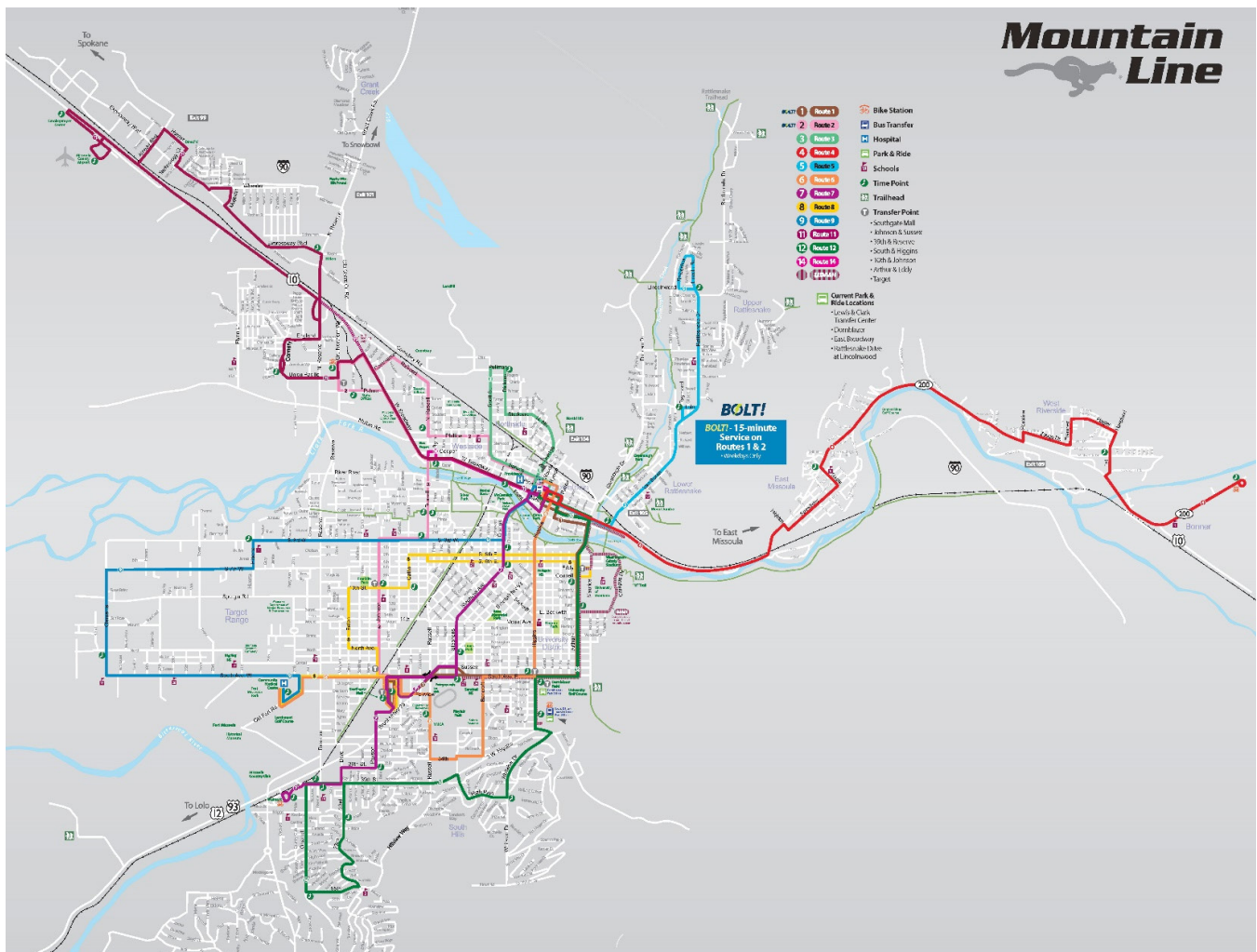
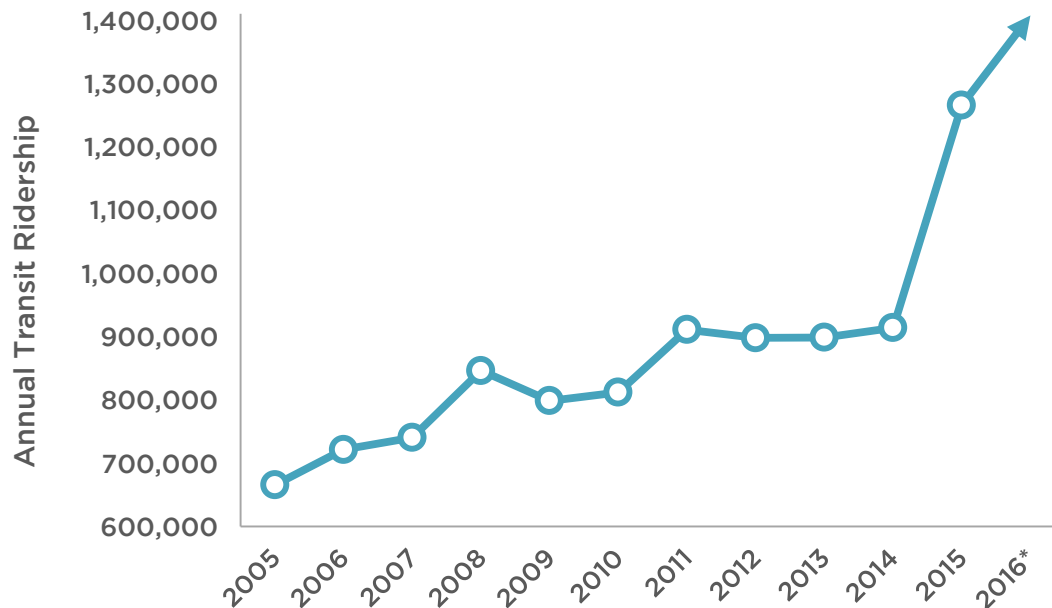


Figure 7. Mountain Line transit service routes (2015)



*Projected ridership for 2016

Figure 8. Mountain Line annual transit ridership, 2005-2016 (Source: Mountain Line rider count program)

Bicycle

Decades of development has resulted in a robust network of bike lanes, routes, and shared-use paths. Some intersections have incorporated bicycle specific improvements, and there is a genuine interest by all levels of County, City, and MPO staff to continue to make improvements.

Missoula's existing on-street system is generally limited to collector and arterial streets, though bicyclists frequently use local residential streets, even though they are not technically designated facilities.

Each type of facility has certain characteristics that are appropriate depending on the context and provide different levels of safety and comfort for riders. Table 3 outlines the different types of facilities in Missoula.

Many of the arterial roadways in Missoula have bike lanes (68 percent). Missoula has also been experimenting with lower stress facilities like the Higgins Avenue cycle track and the two-way cycle track along Maurice Avenue.



A protected cycle track along Maurice Avenue near the University of Montana

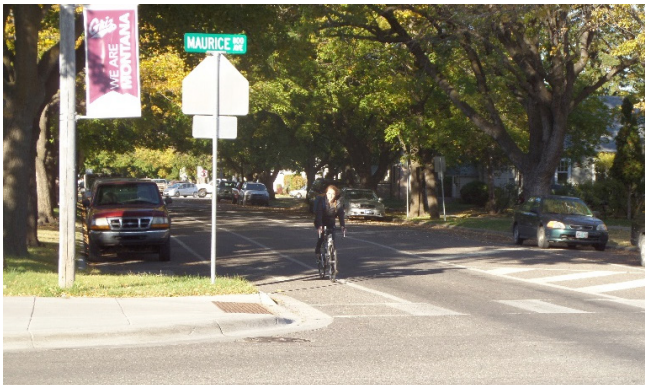
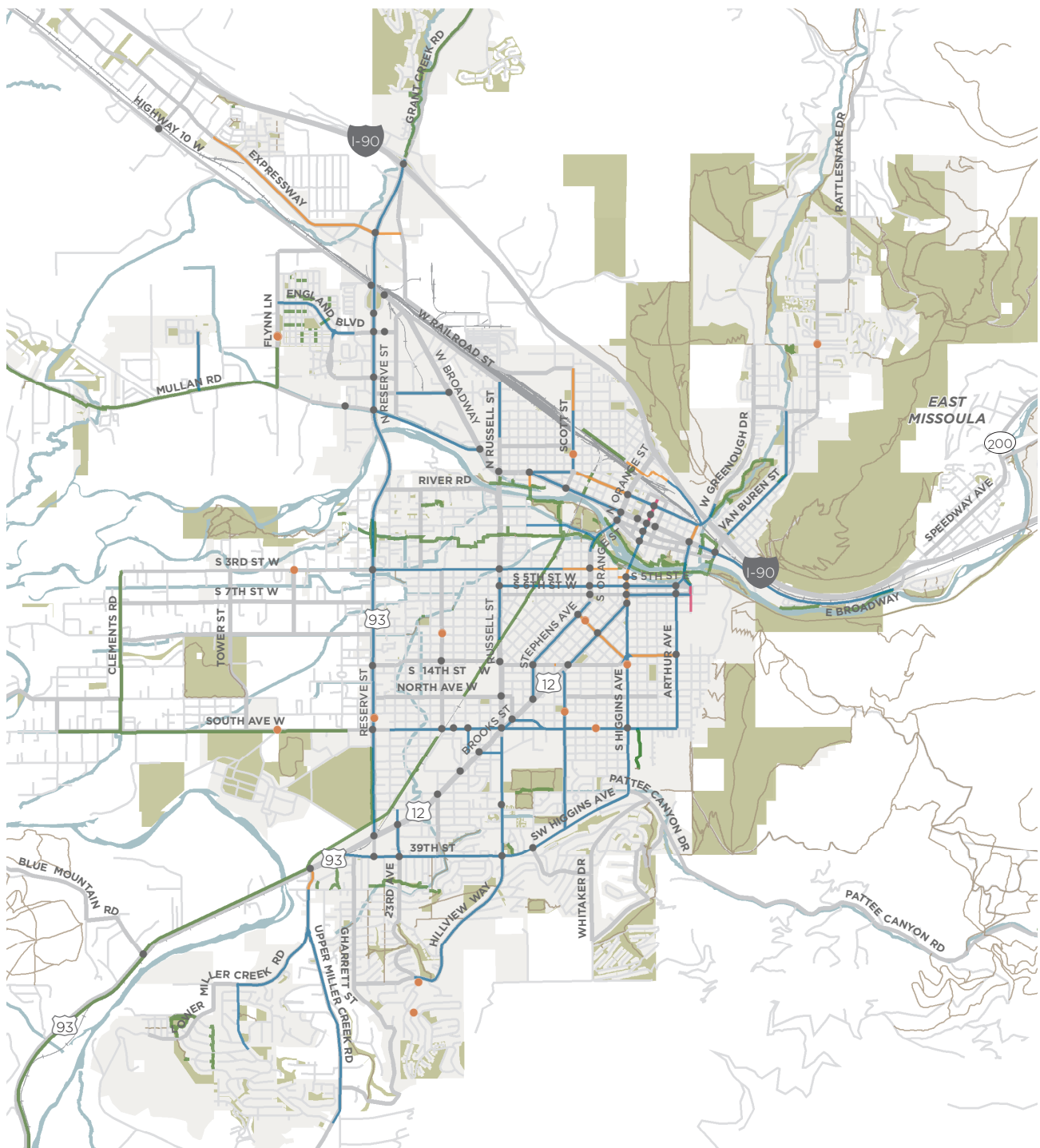


Table 3. Types of bicycle facilities

Type of Facility	Description
Cycle Tracks	Also known as Protected or Separated Bike Lanes, cycle tracks combine the user experience of a separate path with the on-street infrastructure of conventional bike lanes through various forms of physical separation from adjacent traffic. Cycle tracks are distinct from the sidewalk and can have many forms. In situations where on-street parking is allowed, cycle tracks are located to the curb-side of the parking (in contrast to bike lanes). Cycle tracks can be at street level, at sidewalk level, or at an intermediate level. By providing greater separation from motor vehicle traffic, cycle tracks offer a higher level of security than bike lanes and are attractive to a wider spectrum of the public. Missoula currently has two such facilities, a one-way raised cycle track on Higgins Avenue and a two-way street level cycle track on Maurice Avenue.
Bike Lanes	A bike lane uses signage, striping, and stenciling to designate a portion of the roadway for the preferential or exclusive use of bicyclists. Bike lanes allow bicyclists to ride at their preferred speed without interference from prevailing traffic conditions. Bike lanes can vary considerably with the amount of comfort they provide to users. A bike lane on a two lane collector with a 25 to 30 mph limit will feel much more comfortable than one on a higher speed arterial with multiple travel lanes. Similarly, the presence of on-street parking makes a bike lane less comfortable to users.
Buffered Bike Lanes	Buffered bike lanes are enhancements of conventional bike lanes by including a designated painted buffer space separating the bike lane further from the adjacent vehicle travel and/or parking lane. Missoula currently has buffered bike lanes on East Spruce Street and Arthur Avenue. Buffered bike lanes can be considered on any street where sufficient width exists.
Bike Routes	Bike Routes include paved shoulders and shared roadways where bicyclists and cars operate within the same travel lane, either side by side or in single file depending on roadway configuration. The most basic type of bikeway is a signed shared roadway. This facility is used to connect other bikeways (usually bike lanes), or designate preferred routes through high-demand corridors. Bike routes are typically signed with bike route or wayfinding signage and can have shared lane pavement markings. In contrast to most other communities, Missoula only designates bike routes on collector or arterial roadways. This results in situations where vehicle volumes and speeds are higher and can make sharing a lane uncomfortable to most bicyclists.
Shared Use Paths	Shared-use paths are paved off-street bikeways that are open to most forms of non-motorized use including skateboarders and roller bladers. Shared-use paths are physically separated from roadways either in their own right of way or paralleling a roadway. Shared-use paths that parallel roadways are called side paths. Shared-use paths can serve as transportation and/or recreation facilities. Missoula's most notable shared-use paths are the riverfront trail system, the Milwaukee Trail, and the Bitterroot Trail.
Unpaved Trails	Natural surface trails are present in many parts of Missoula. These facilities link neighborhoods, and provide access to recreational areas. Natural surface trails can be narrow and steep such as those on Mount Jumbo, or similar in configuration to a shared-use path like the Milwaukee Trail.



EXISTING BIKEWAYS

EXISTING BICYCLE NETWORK

- Bicycle Route
- Bicycle Lane
- Protected Bicycle Lane
- Unpaved Trail
- Paved Trail

OTHER EXISTING FEATURES

- Enhanced Pedestrian Crossing
- Traffic Signal
- Road
- Rail

- Water Body
- Park
- City Limits

0 1 2 MILES



Figure 9. Existing bicycle facilities (2015)

The shared use pathway system along the Bitterroot Trail and Milwaukee Trail are vital components of the bikeway network. The new Missoula to Lolo Trail is a significant improvement to regional transportation. As such, bicycle activity between 2010 and 2014 has increased by 18 percent according to the MPO's count program.

While 68 percent of arterial roadways have bike lanes, several major collectors and arterial roadways still do not have bike lanes and bicyclists are expected to share the lane with vehicles on higher speed and volume roadways. While some people are comfortable with this, there are many riders (or would-be riders) who are not. Providing designated facilities on lower-stress local streets may help to further increase bicycling, making it a more viable option for transportation.

Pedestrian

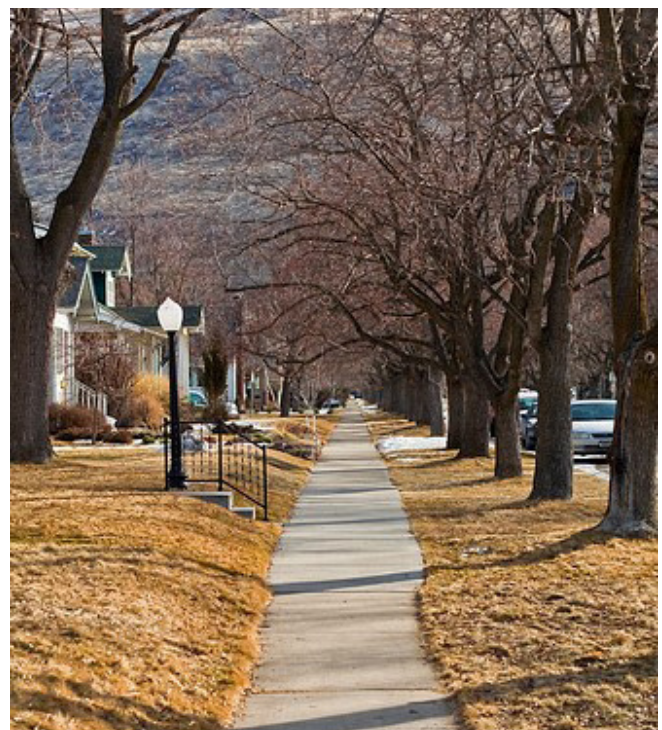
Pedestrian mobility is provided through a network of sidewalks and shared use paths, tunnels, bridges, and street crossings. A map of the region's sidewalks and gaps is presented in Figure 10 for year 2015. According to the MPO's count program, pedestrian activity has increased by 25 percent between 2010 and 2014.



People walking and on bikes use the Van Buren Pedestrian Bridge

There are still many missing sidewalks throughout Missoula. Currently, sidewalk gaps are filled as new development occurs, with the City requiring developers to install sidewalks and other transportation infrastructure as necessary. Additionally, the Missoula Redevelopment Agency has constructed many sidewalks within Missoula Urban Renewal Districts (URDs) over the years.

Moreover, in 2010, the City started a sidewalk subsidy program to attempt to increase the rate of sidewalk installation. The program, which allocates up to \$600,000 annually of road district funds, is intended to assist property owners with the cost of sidewalk installation at an approximate ratio of 2:1. Prior to the program, the City would require the property owner to fund 100 percent of the cost. It is undetermined thus far if the program has helped increase the rate of sidewalk completion, or if it has just lessened the cost-burden for property owners.



A sidewalk in the University neighborhood

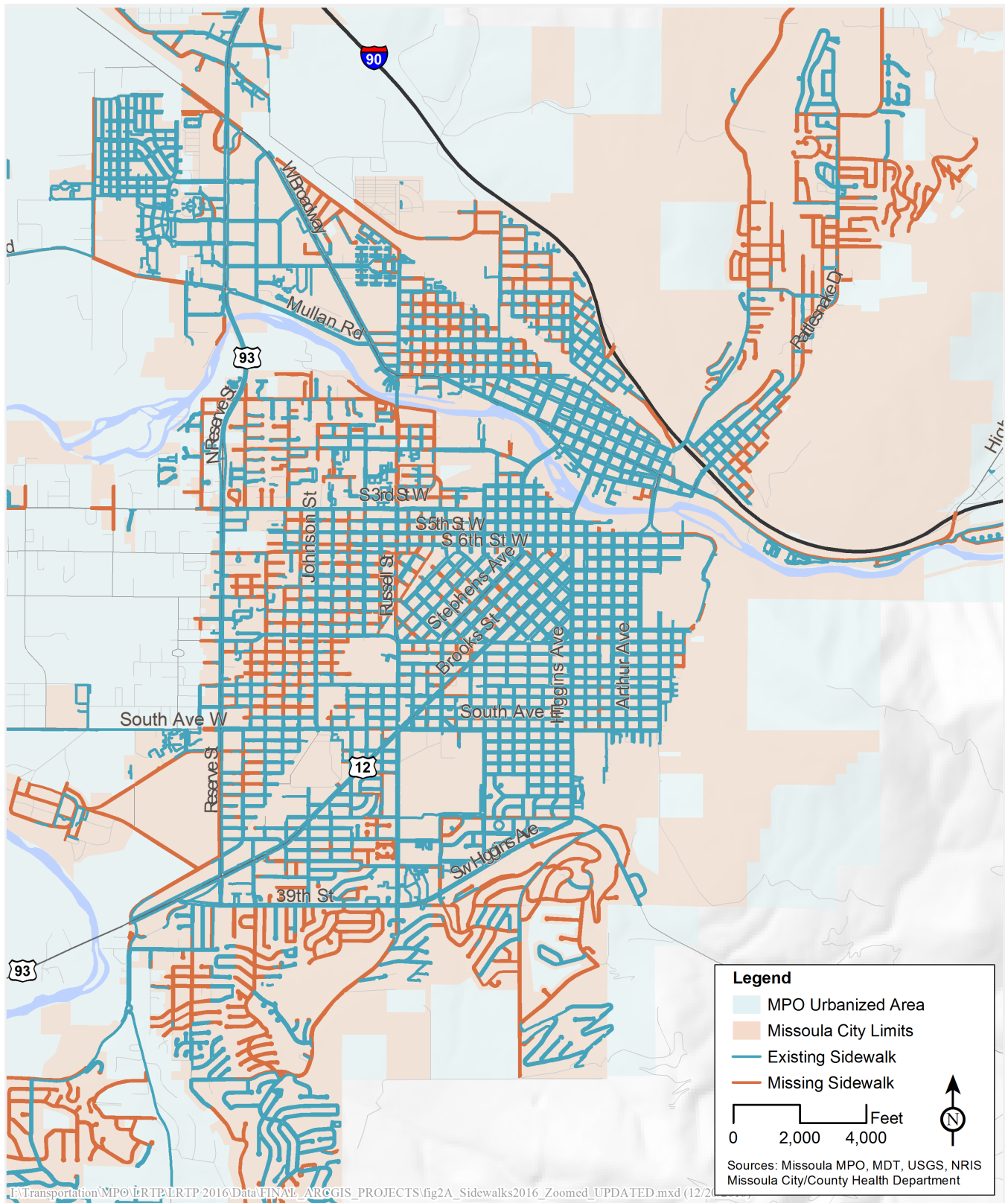


Figure 10. Sidewalk network, 2015 (Source: MPO sidewalk inventory)

Safety and Security

The MPO tracks annual vehicle, pedestrian, and bicycle crashes utilizing data from MDT that is submitted by local law enforcement agencies. The MPO's Community Transportation Safety Plan (2013) establishes goals and actions for local agencies to help reduce crash totals and crash severity, through a combination of education, enforcement, engineering, and emergency medical services (EMS).

Figure 11 presents fatal and incapacitating crash averages for motor vehicles, bicycles, and pedestrians. Figure 12 through Figure 14 illustrate the locations of the vehicle, bicycle and pedestrian crashes that have occurred between 2007 and 2014. Most crashes occur along high volume corridors and busy intersections.

Understanding where crashes occur, their frequency, severity and causes, helps to identify possible improvements to reduce crashes and improve safety across the region. Crash rates provide a simple consistent measure that can be used to assess intersection safety. The rates are used in the project ranking process to help identify and prioritize those intersections where improvements should be evaluated. The rate indicates the number of crashes, based on historical data, that could be expected for every million vehicles entering an intersection (Table 4).

On a positive note, the number of fatalities and incapacitating injuries has decreased over the past ten years for vehicles and stayed similar for bicycles and pedestrians.

In addition, emergency services continue to have good response times, with most of Missoula within 5 minutes of an EMS or fire station. Figure 15 illustrates the location of emergency services and general response times from each location.

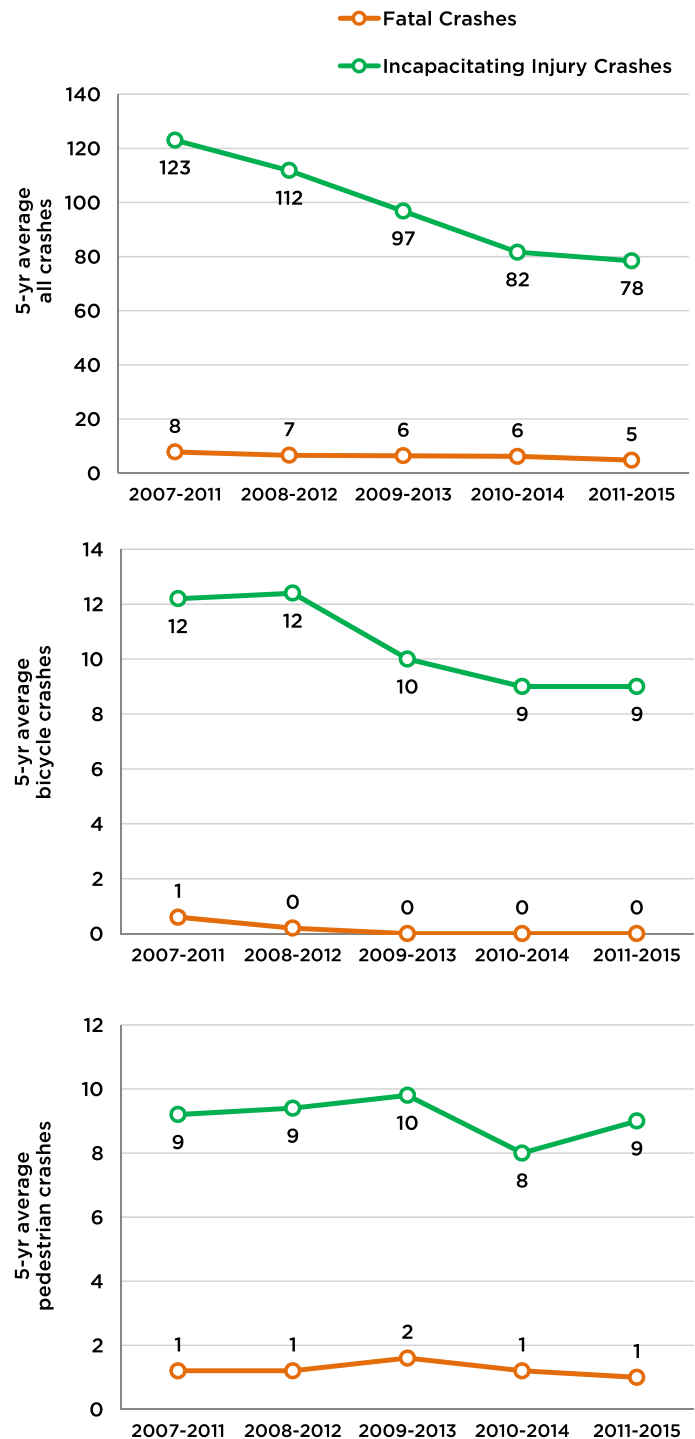


Figure 11. Five-year average fatal and incapacitating injury crash rates

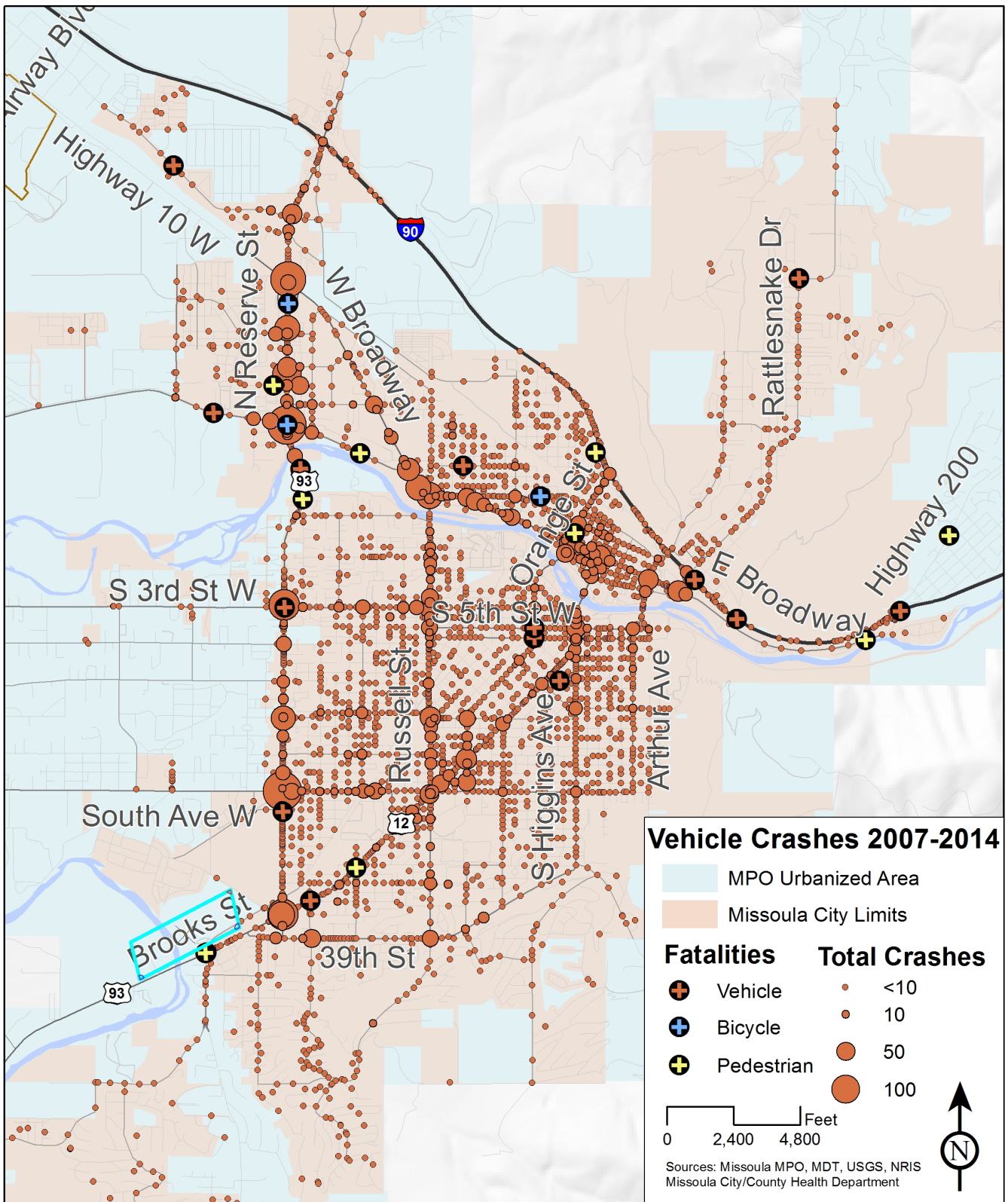


Figure 12. Motor vehicle crash locations, 2007- 2014

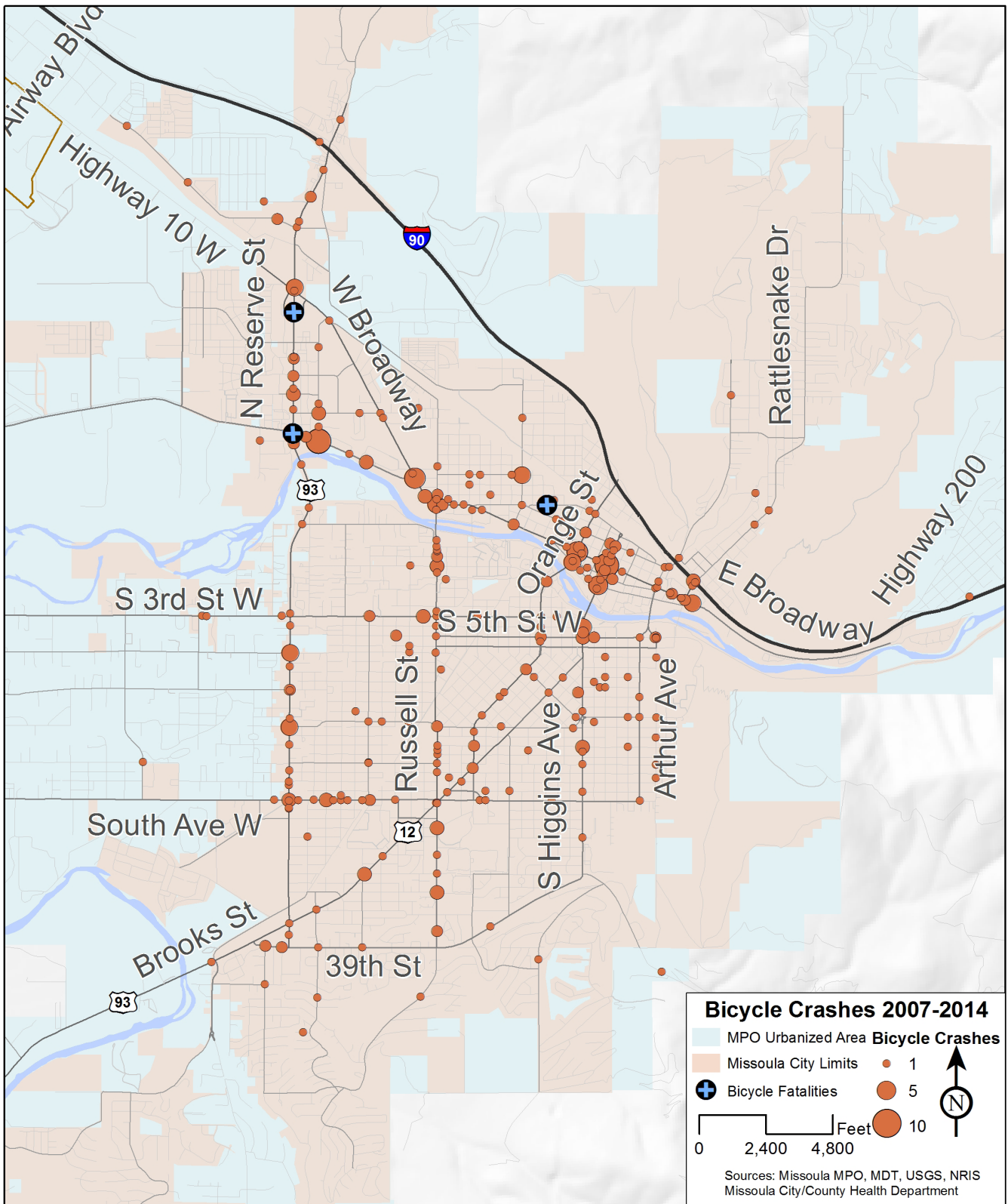


Figure 13. Bicycle-involved crash locations, 2007- 2014

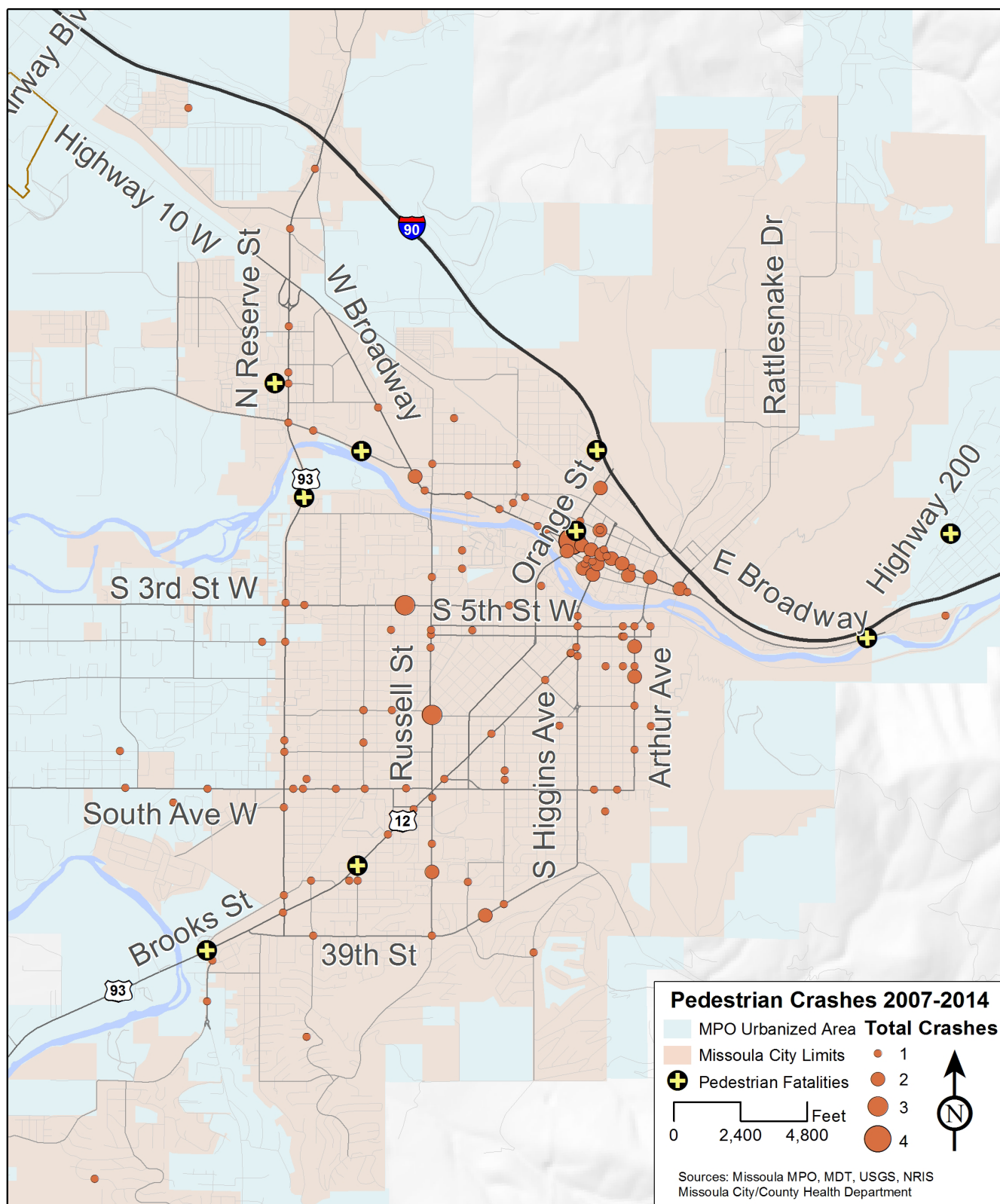


Figure 14. Pedestrian-involved crash locations, 2007- 2014

Table 4. High crash rate intersections (2010 - 2014)

Intersection	Total Crashes	5-yr Average	Total Cost*	Crash Rate†
Broadway & Reserve Ramp	134	27	\$5,686,200	1.75
Stephens Ave. & Sussex Ave.	24	5	\$1,334,100	1.47
Broadway & Van Buren St.	45	9	\$1,616,100	1.10
Brooks & Bancroft St.	32	6	\$ 1,520,100	1.09
Brooks & Russell St.	75	15	\$3,226,200	0.97
Reserve & Mount Ave.	67	13	\$3,958,800	0.85
Broadway & Madison St.	40	8	\$1,237,500	0.81
39th St. & 23rd Ave.	25	5	\$1,039,200	0.80
Higgins Ave. & S. 5th St. W	33	7	\$1,240,800	0.79
Orange St. & I-90	25	5	\$1,135,500	0.72
Broadway & Birch St.	44	9	\$2,028,900	0.67
Reserve & American Way	47	9	\$2,301,900	0.65
Orange St. & S. 6th St. W	27	5	\$2,818,500	0.65
Reserve St. & 39th St.	24	5	\$1,182,000	0.61
Stephens Ave. & Mount Ave.	24	5	\$1,200,600	0.60
Brooks St. & Stephens Ave.	35	7	\$1,538,700	0.58
Brooks St. & Oxford St.	36	7	\$2,339,400	0.58
Orange St. & Spruce St.	26	5	\$1,542,000	0.57
Reserve & I-90	34	7	\$1,107,300	0.48
Reserve & Dearborn Ave.	32	6	\$3,010,800	0.46
Brooks St. & Catlin St.	24	5	\$1,002,000	0.45
Reserve & Clark Fork Dr.	35	7	\$1,790,100	0.44
Reserve & Central Ave.	29	6	\$2,308,500	0.41
Reserve & England Blvd	29	6	\$1,777,800	0.40
Reserve & S. 5th St. W	24	5	\$1,110,600	0.35

*Crash cost calculation taken from FHWA publication, *Intersection Safety: A Manual for Local Rural Road Owners*

†Crash rate is per million vehicles entering the intersection

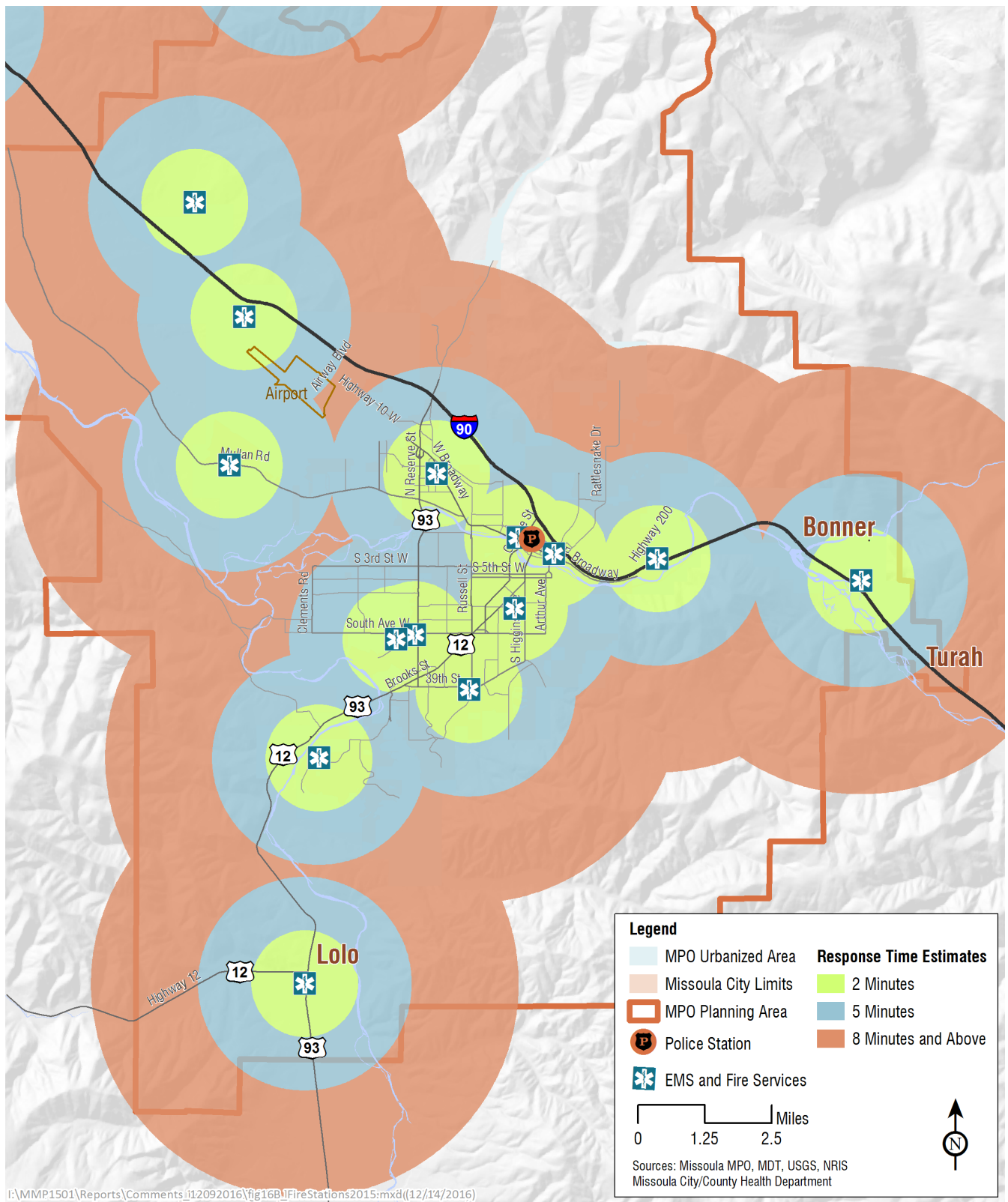


Figure 15. Response times for police, fire and emergency medical services.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) are applications of smart transportation technologies to improve the flow and efficiency of the existing transportation network. The use of ITS technology on traffic signal systems can have multiple benefits, including reducing congestion, reducing greenhouse gas emissions and fuel use, improving safety at intersections, and reducing overall costs associated with costly intersection and roadway expansion projects. Figure 16 depicts the location of traffic signals in the Missoula urban area, which are largely owned and operated by MDT.

Over the past few years, MDT has updated all the signal controllers to be ITS compatible. Nine of these controllers contain transit signal preemption modules for future use. MDT is also currently working to develop a statewide traffic signal system plan, which will include recommendations for ITS improvements to be implemented in signal systems across the state over the next decade, with a focus on Montana's urban centers.

In the meantime, local efforts continue to implement ITS improvements when possible. For example, Mountain Line transit has implemented smart phone transit arrival technology allowing transit users to see where buses are in real-time.

Transportation Options

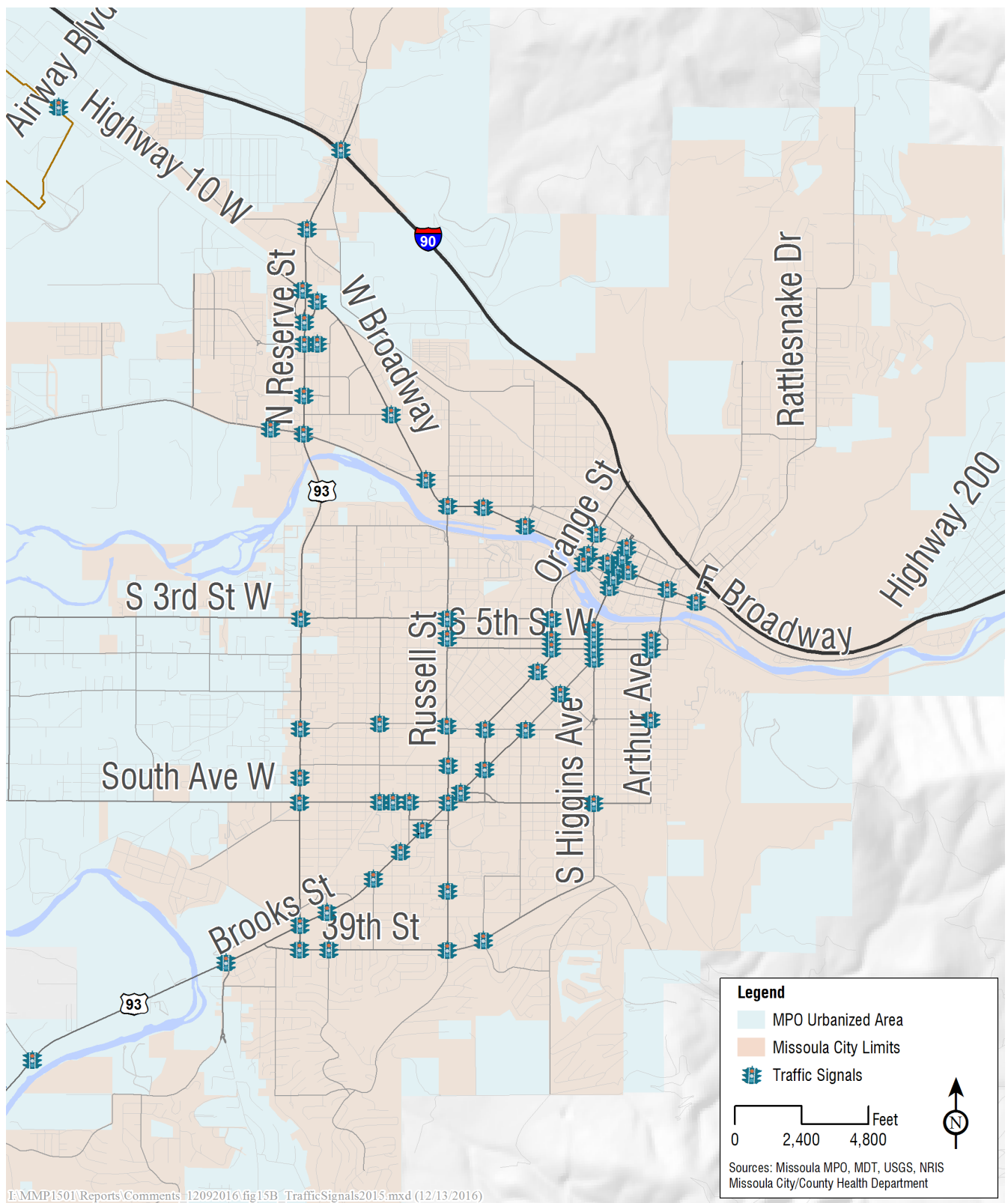
Transportation Options refers to a number of programs operating in the Missoula region that are designed to maximize the people-moving capacity of the transportation system by increasing the number of persons in a vehicle, or by encouraging citizens to utilize other modes of transportation, other than a single-occupancy vehicle. Encouraging the use of other transportation modes is an important strategy for a number of reasons. Most importantly, it helps lessen the stress on an already constrained roadway

network by reducing congestion and helping to eliminate or postpone roadway improvements. Additionally, utilizing other options helps reduce pollution, greenhouse gases, and contributes to individual health. The organizations leading these initiatives in Missoula include the following:

- **Missoula in Motion (MIM)** – offers individual and employer-based education and outreach programs to encourage the use of sustainable transportation.
- **ASUM Transportation** – operates the University's transit system (which is available to all Missoulians) and on-campus bike-share program.
- **Missoula Parking Commission** – manages on and off-street parking in downtown and the University district.
- **Missoula Ravalli Transportation Management Association (MRTMA)** – operates the regional iRide Vanpool program.
- **Mountain Line** – provides fixed route transit, paratransit, and senior van service.
- **City of Missoula Bicycle Pedestrian Office** – provides safety and encouragement education to the community and works with partners to plan bicycle infrastructure.



MRTMA operates a regional vanpool services called iRide, promoting ridesharing for those commuting longer distances



Intermodal – Aviation, Rail, Freight

Freight destinations are primarily along West Broadway near the airport and have good highway, rail, and air access. Figure 17 and Figure 18 illustrate commercial truck travel into and out of the state by ton and the average annual daily truck trips on western Montana highways in 2016, respectively. Figure 19 illustrates the freight routes and generators in the Missoula region.

Based on statistics available from MDT, the Missoula International Airport had 695,529 passenger arrivals and departures in 2015. Airport activity is expected to grow as additional flights continue to be added.

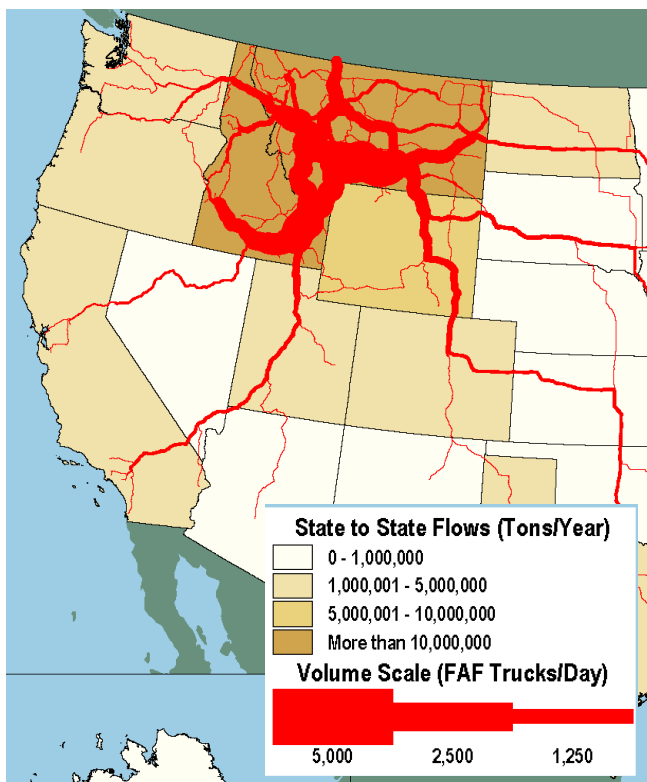


Figure 17. Projected major truck flows in 2040
(source: MDT)



Figure 18. Annual average daily truck traffic, 2015
(source: MDT)

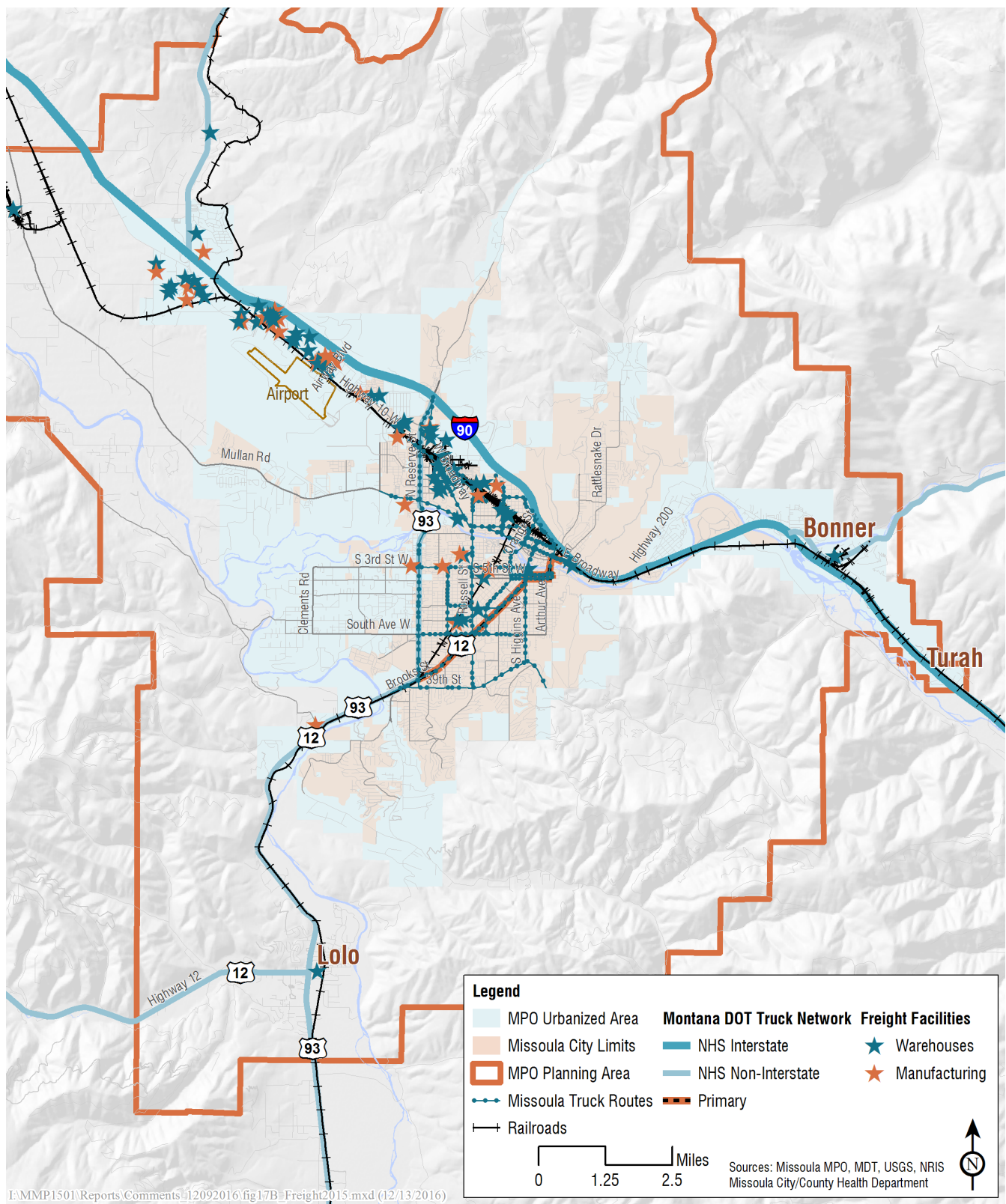


Figure 19. Freight routes and generators (manufacturing and industrial centers)

Rail Activity in the Missoula Region

Missoula has multiple rail lines that serve the region operated by Montana Rail Link (MRL). In 2015, there was an average of 17.0 loaded and empty trains that traveled through Missoula. This average was slightly less than the 2014 average of 17.8 empty and loaded trains. MRL attributes the decrease to varying economic conditions, including the strength of the US dollar, weak commodity prices and the slowing of the international and domestic economy, and they anticipate this to continue (as of 2015).

There are numerous at-grade and separated-grade railroad crossings in Missoula, many with safety features such as cantilevered gates and flashing lights, such as on W. Greenough Dr. where the Hiawatha rail line intersects, and on Broadway, where the Bitterroot rail line intersects. Other crossings may include less formal safety infrastructure in areas where traffic volumes, vehicle speeds, and train activity are less. Some of these features include warning signs, such as a “crossbuck.” MRL dispatch currently contacts Missoula County 911 dispatch to notify them when crossings will be blocked by train activity, which under normal operations lasts less than 15 minutes¹.

The heaviest rail activity in Missoula occurs on the Hiawatha rail line, which generally parallels the I-90 and Broadway corridors. The main switching yard is located near the north end of downtown and therefore this area sees the highest level of rail activity, raising noise, pollution, and emergency response concerns. For the last several years, the Bitterroot rail line has experienced very little activity, and is currently being used for rail car storage south of Missoula in the Bitterroot valley.

¹ Email from Jim Lewis, Chief Sales/Marketing & Information Officer, MRL, Inc., December 8, 2015

Passenger Rail

The Amtrak North Coast Hiawatha passenger rail service through Missoula was discontinued in 1979 as a result of national route rationalization required by the U.S. Congress in 1978. Discussion of potential return of passenger rail service on the old North Coast Hiawatha route has been ongoing since 1978. In 2010 an Amtrak study found substantial subsidy would be required for capital and operating costs to reinstate the service. Despite this, Objective 5 of the Economic Health section of the 2015 City of Missoula Growth Policy calls for the exploration of developing passenger rail service in the Missoula region to support regional and national connectivity, and community conversations about this possibility continue. In the meantime, the City Growth Policy suggests preserving the right-of-way along rail lines in order to potentially convert them to trails and/or transit routes.



Top: cantilevered gates and flashing lights at W. Greenough crossing. Bottom: Bitterroot line railroad crossing at Broadway.

Environmental Issues

The National Environmental Policy Act (NEPA) requires full disclosure of environmental impacts of federally funded transportation projects. Projects must seek to avoid impacts to resources or must include measures to either minimize or provide compensation or mitigation for those impacts. In addition, all state-funded projects are subject to environmental review under the Montana Environmental Policy Act (MEPA).

The environmental areas discussed below are those that could have an effect on the citing of specific transportation projects. In some cases, sensitive resources offer important constraints that can preclude the construction of a project in that location, or require a project to be altered. In other cases, the presence of a resource may not preclude development of a project but may be an important consideration. Figure 20 provides a detailed map of known environmentally sensitive areas.

Additionally, environmental sensitivity involves the consideration of potential negative impacts of transportation projects on minority and low-income populations (some minority groups are identified

Table 5. Percentage household income below poverty level

Jurisdiction	% below poverty level
Missoula County	15.8%
Montana	14.4%
United States	14.7%

Source: U.S. Census, American Community Survey 2011-2015 5-yr Estimate

in Table 5 and Table 6). This includes ensuring that these populations do not receive disproportionately high and adverse human health and environmental effects.

Figure 21 depicts the geographic distribution of potentially vulnerable or underrepresented populations in Missoula, by census block group (census tract for disability). The data sets do not encompass all potentially underrepresented groups, but illustrate areas of Missoula that may be under served by the current transportation system or at risk of greater impacts from planned projects.

Table 6. Percentage of minority populations

Jurisdiction	Hispanic	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or other Pacific Islander
City of Missoula	3.5%	1.4%	4.3%	2.6%	0.2%
Missoula County	3.0%	1.0%	4.2%	2.2%	0.2%
Montana	3.3%	0.9%	8.1%	1.2%	0.2%
United States	17.1%	13.8%	1.7%	6.1%	0.4%

Source: U.S. Census, American Community Survey 2011-2015 5-yr Estimate

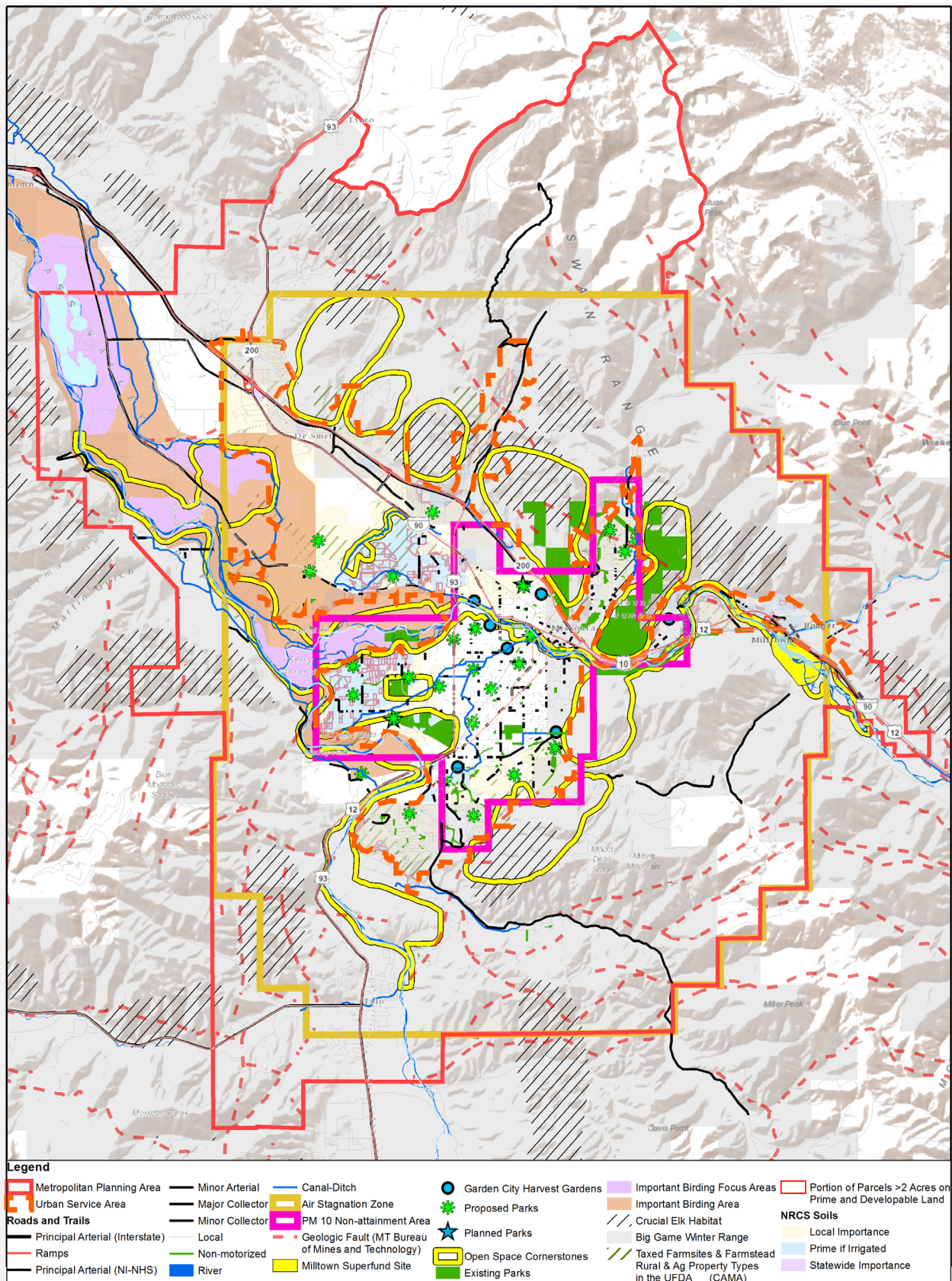


Figure 20. Natural resource and environmentally sensitive areas

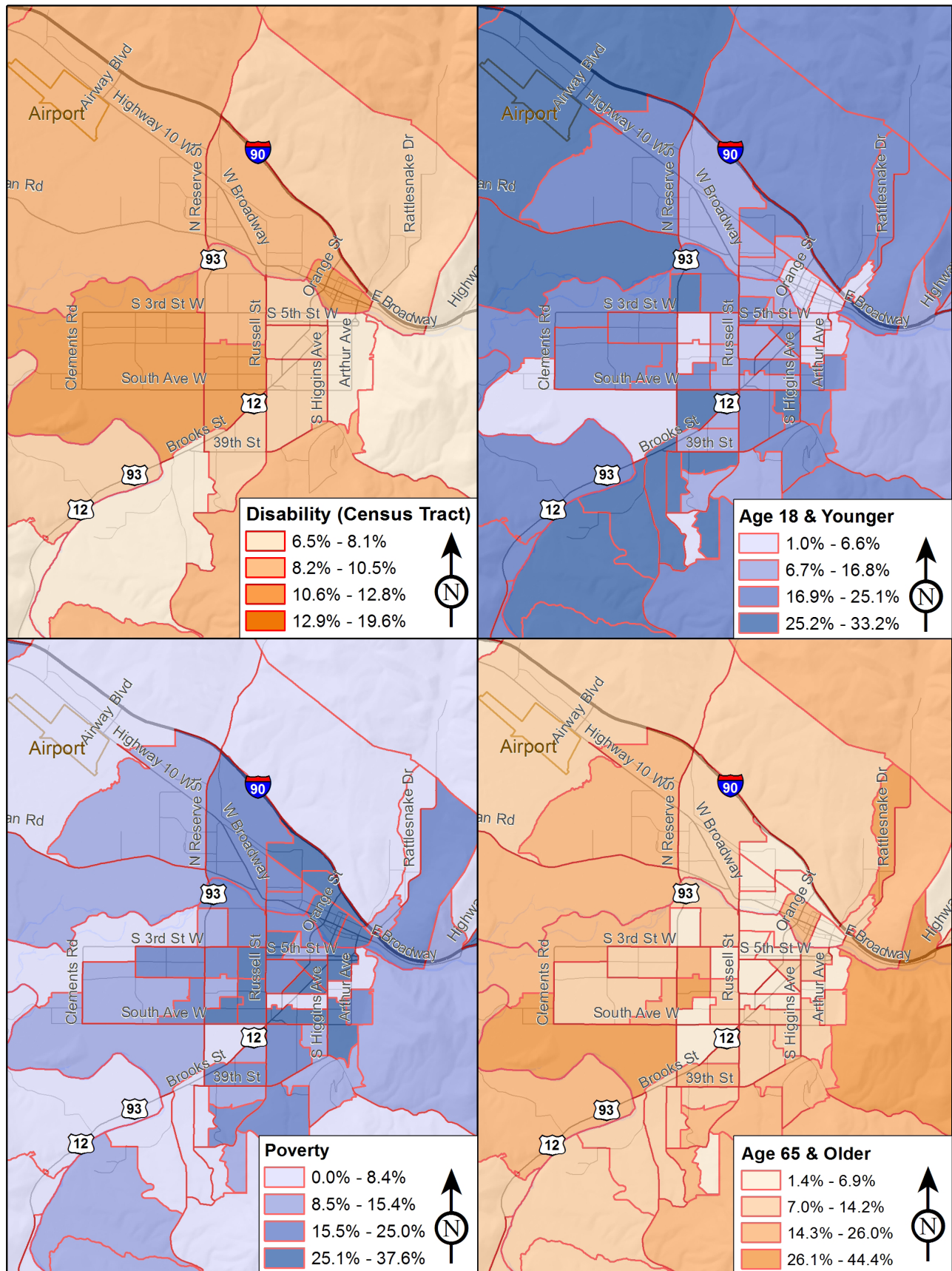


Figure 21. Vulnerable and underrepresented populations (Source: U.S. Census, 2010-2014 ACS 5-year average)

Mode Share

An important mobility measurement for the Missoula region has been mode share, or the percentage of people using the various travel modes. Mode share is tracked through the Census American Community Survey (ACS) on an annual basis and is a reliable and accurate data source. However, the ACS data only captures how citizens travel for their commute to and from work, not all types of trips. Despite this limitation, understanding mode share for commute

trips, which are trips that typically occur regularly and at peak times, still helps us to understand overall travel choices.

The Missoula urbanized area and the City have 5-6% less drive alone commuters than the state average. For bicycle and pedestrian commuters, the state average is 6.4% compared to 14.7% within Missoula's urbanized area (Figure 22).



Figure 22. Means of transportation to work in the Missoula Urbanized Area. Source: 2010-2014 ACS 5-year averages

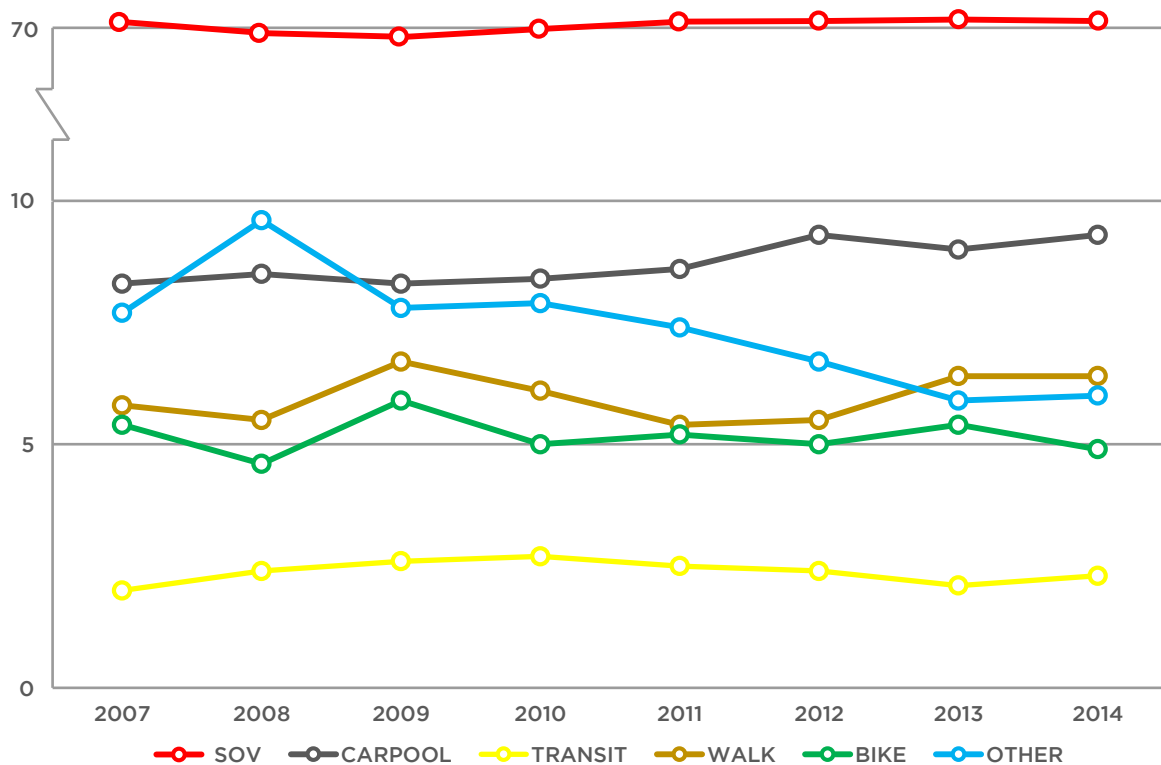


Figure 23. Historic mode share for the urbanized area

Although Missoula commuters drive alone less than the state average, the percentage of drive alone commuters has remained roughly the same since 2007 (Figure 23). Drive-alone commute trips account for about 67,000 of the total trips per day on Missoula area roads. As Missoula continues to grow, one way to accommodate future trips is to facilitate travel for transit, walking, biking, and carpool/vanpool.

Technology and Mobility

In the context of transportation, mobility means the ability and level of ease of moving people, goods and services. Recent advances in technology are already having an impact on transportation and mobility throughout the world, both on a large and small scale.

Recent Gains in Mobility-related Technology

Driverless vehicle technology has been one of the most exciting and most talked about transportation technology advances over the last several years. Many companies are now working to develop fully autonomous personal vehicles, as well as fleet



Autonomous trucks can have safety and fuel efficiency benefits, but may lead to loss of jobs associated with the freight trucking industry.

vehicles, buses, and trucks. In fact, many industry followers expect driverless buses and trucks to be widely adopted first, prior to full deployment and adoption of personal driverless vehicles. It is expected that by 2030, the use of fully autonomous vehicles will be widespread, with deployment occurring first in larger urban areas by private firms operating multi-vehicle fleets.

Apart from driverless vehicles, there have been many other technology-related transportation advancements, including those related to mobile technology, such as ride sharing services (e.g. Uber and Lyft), congestion monitoring apps (e.g. Waze), transit arrival apps, and “smart” parking technology improvements. Missoula currently takes advantage of many of these technologies and attempts to be proactive in planning for and utilizing new technology.

Impacts of Future Improvements in Technology

By 2030, even before personal driverless vehicle use becomes widespread, there may be other disruptive impacts that result from these technological advancements. For example, driverless technology will permit a single truck driver to lead a caravan of driverless trucks linked to his or her lead truck; this capability poses a potential disruption to 2-3.5 million professional truck-driving jobs and the cottage industries that support those drivers such as truck plazas, diners, and convenience stores.

Currently planners are discussing what the impacts of driverless vehicle technology could be on growth and development in cities and suburbs. Will car ownership decline or increase? Will people choose to live farther away from employment and services because autonomous vehicles will make their commutes easier? How will parking demand change? Will people have their cars drop them off and go back home, only to return to pick them up?

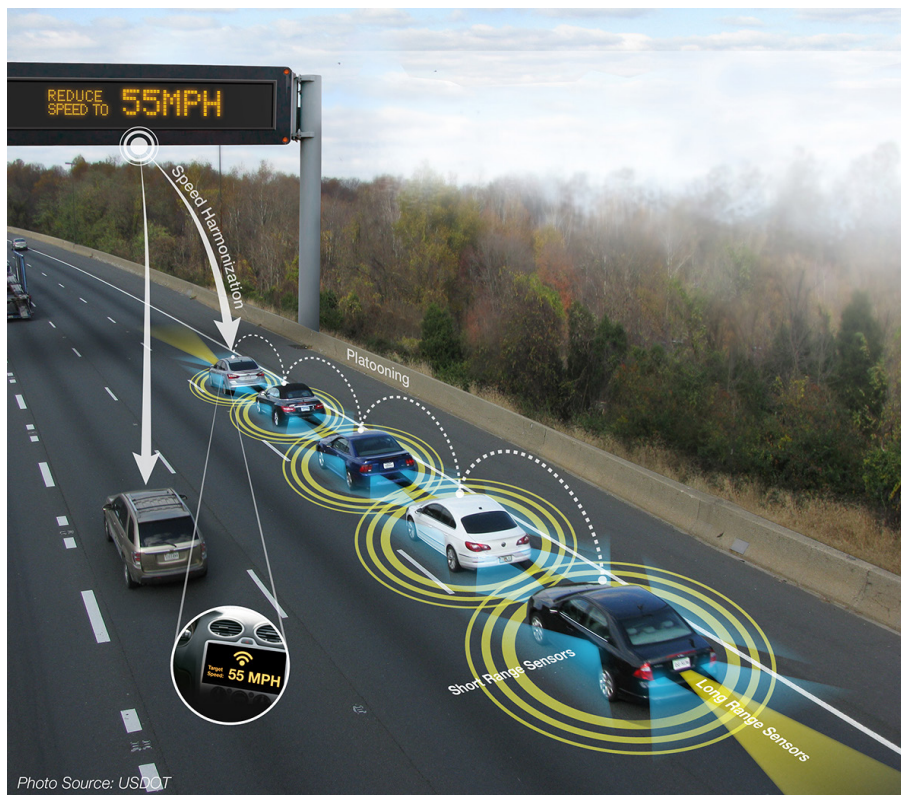
These are just a few of the questions that remain to be answered as the technology evolves and society adjusts to it.

Incorporating Assumptions about New Technology in Future LRTPs

Because there is currently still a high-level of uncertainty regarding the types of technology that will ultimately be implemented, when and how they will be implemented, and what the impacts will be, the Activate Missoula 2045 LRTP makes no specific attempt to incorporate assumptions related to new technology. However, the MPO is mindful of the growing importance of the role played by mobility-related technology in shaping Missoula's

Right: Driverless cars are already on our roadways undergoing testing in urban tech centers like San Francisco, CA. Bottom: communication between vehicles and road signs or warnings can increase the safety and efficiency of streets and highways.

transportation system and its future growth. To that end, the MPO continues to monitor developments in mobility-related technology and coordinates with local partners as necessary to ensure that appropriate advancements are evaluated and addressed in planning projects. Given the current rate of technological advancement, there will be greater clarity on this subject for the next LRTP update in 2020.



II. Future Population, Household and Employment Growth Projections

The Activate Missoula 2045 LRTP is based not just on the current population and employment of the region, travel patterns and transportation systems of today, but also attempts to address future transportation needs to accommodate anticipated population and employment growth.

Population, housing, and employment growth projections are based on data and information provided by the City and County of Missoula's individual Growth Policies, each of which were updated in 2015.

The City of Missoula Growth Policy is based on a "Focus Inward" approach to growth and development, which is meant to encourage growth within the already developed portions of the urban area. The Missoula County Growth Policy includes goals and objectives that promote development within and around existing communities in a way that efficiently utilizes existing infrastructure and minimizes impacts to our natural resources and rural character. These goals are intended to facilitate the wise use of limited resources to fund infrastructure, including transportation.

Table 7 shows the projected household and employment growth in the next thirty years for the MPO planning area. The number of households is expected to increase by 62 percent and employment by 58 percent between 2015 and 2045 based on the estimates provided in the City and County Growth Policies.

The MPO uses its travel demand model to evaluate potential impacts to the transportation system resulting from increased population and the associated new trips. Based on the expected growth in employment and households, the number of "person trips" is expected to increase by 54 percent.

It is important to note however, that it is not just the number of trips, but where and through which modes they occur. As such, the MPO incorporates the locations of expected new households and employment centers into the travel demand model as well. Figure 24 depicts the existing and projected new housing units between 2015 and 2045, and Figure 25 depicts the existing and new employment locations between 2015 and 2045.

Table 7. Household employment and person trip growth, 2015 - 2045

MPO	2015	2045	Percent Growth
Population	90,097	133,329	48%
Households	40,381	60,604	50%
Employment	69,210	109,639	58%
Person trip ends	452,860	691,705	54%

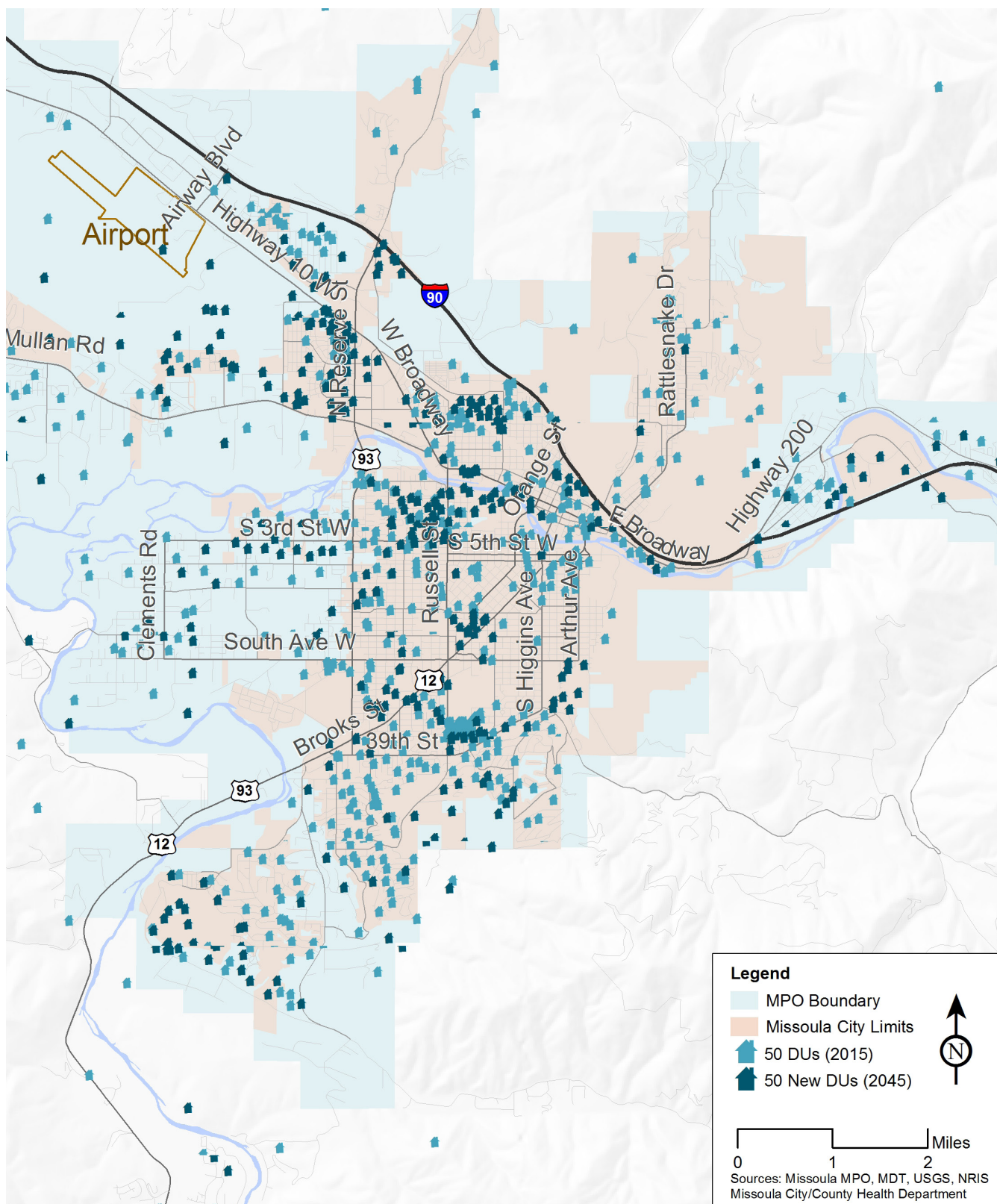


Figure 24. Existing and projected new dwelling units within the MPO area

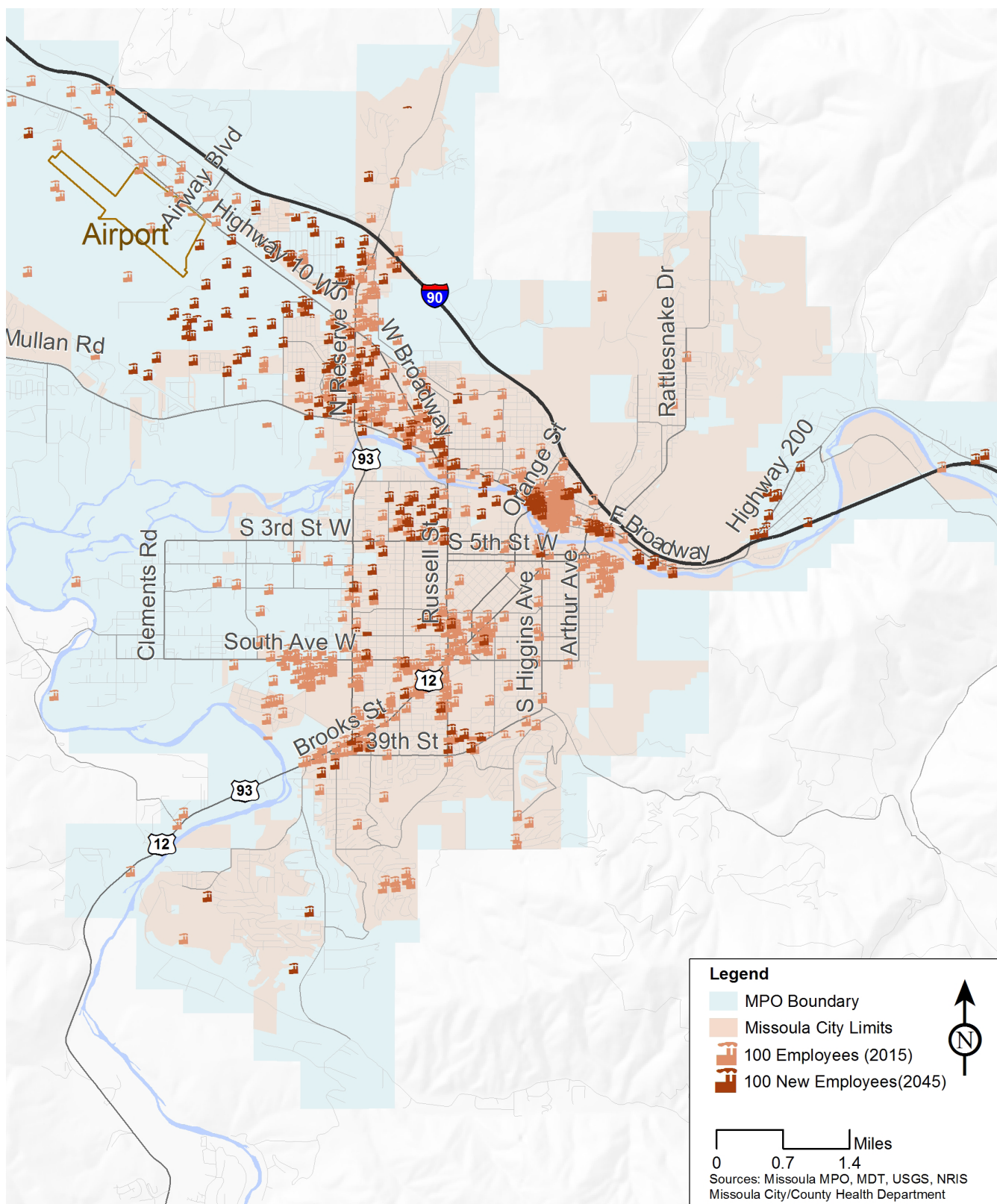


Figure 25. Existing and projected new employment growth within the MPO area

III. Committed Projects

In order to forecast and evaluate future transportation projects to determine what may be needed between now and 2045, it is necessary to incorporate planned projects that are currently scheduled for completion and funded through the current 2016-2020 Transportation Improvement Program (TIP), Capital Improvement Program (CIP) or other funding source. These are major committed capital projects that require years of planning and funding to complete, such as the Russell Street project.

IV. Forecast 2045 Congestion

The starting point for determining what additional future transportation projects might be needed

is to compare the existing roadway network with current congestion, with the 2045 household and employment growth with the committed projects. A comparison between these two scenarios is presented in Figure 26 and Figure 27. Table 8 presents a traffic comparison between 2015 with existing roadways and 2045 with the existing and committed roadways. Committed and completed projects included in the congestion modeling for 2045 are shown in Figure 28.

The number and extent of roadways that are expected to become congested with forecast growth will significantly increase by 2045. Average trip travel time will increase by 20 percent and the amount of delay occurring per trip will nearly double without additional improvements.

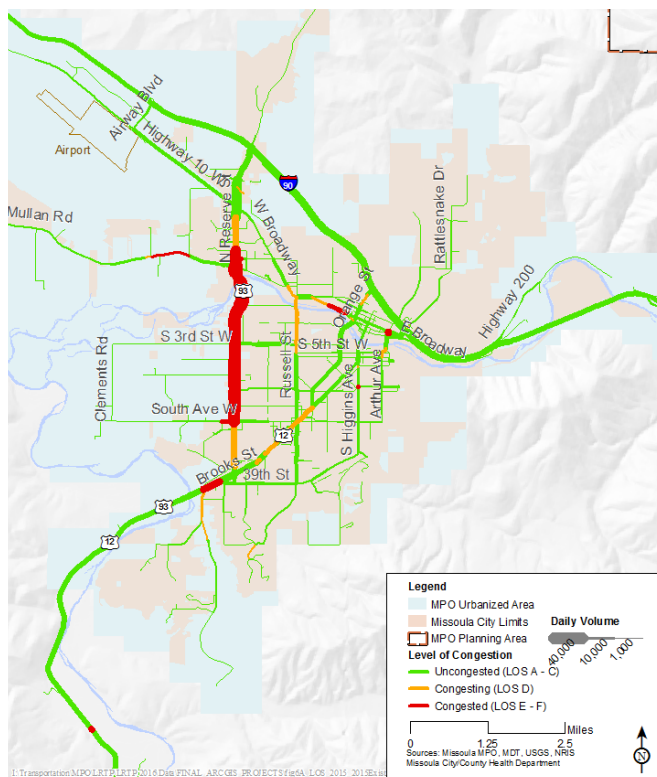


Figure 26. Current (2015) congestion on existing roadways

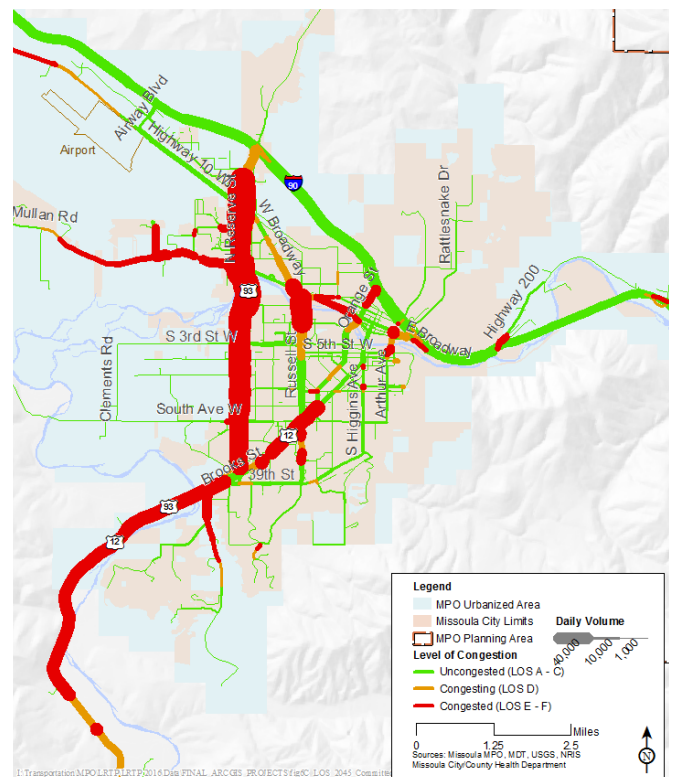


Figure 27. Projected 2045 congestion on existing roadways + committed projects

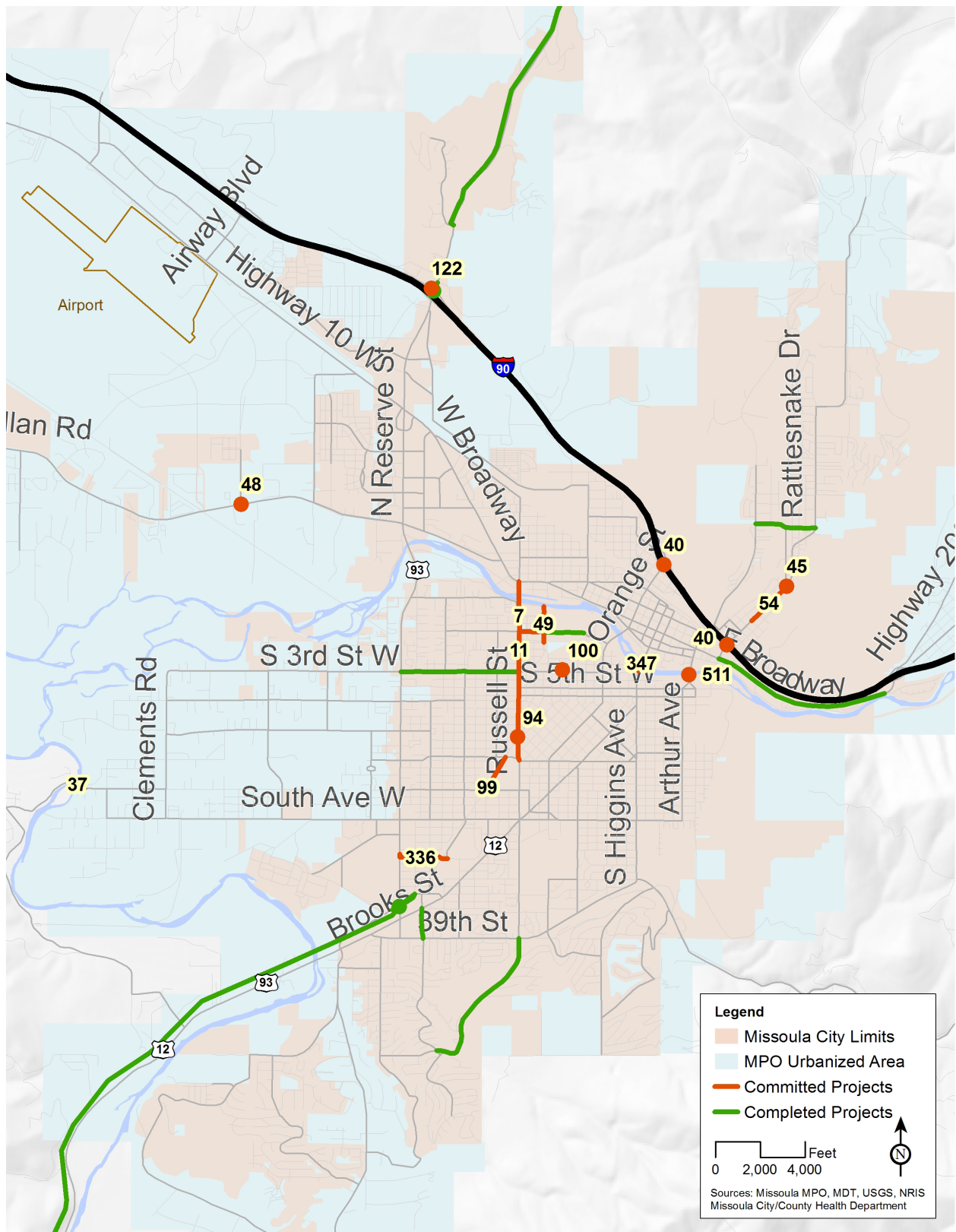


Figure 28. Completed and committed projects

V. Forecast 2045 Project Needs and Costs

As the Missoula region grows, more investment in the transportation system will be necessary to accommodate future travel. Table 9 provides the cost estimate for all identified transportation improvement need, broken down by each type, in current year dollars. A total of \$325.6 million would be required to implement all projects over the next thirty years, in addition to funding for projects and programs already committed (in 2016 dollars). The cost will be even greater as inflation and project estimates go up each year.

Table 8. Traffic comparison, 2015 to 2045 (with committed projects)

Daily Average	2015	2045
Vehicle miles of travel (VMT)	1,645,953	2,578,496
% lane miles congested	0.59%	3.1%
Average travel time per trip (min)	8.80	12
Average delay per trip (min)	1.02	2.18
Delay as a % of trip time	9%	18.1%

Table 9. Cost estimates for anticipated discretionary-funded transportation need through 2045

Project Type	Anticipated cost* (2016 \$)
Non-motorized	\$132,271,926
Safety	\$10,052,500
Roadway	\$158,447,500
ITS Projects	\$3,000,000
Studies	\$1,150,000
Transit (Capital)	\$20,700,000
Total Cost	\$325,621,926

**Cost totals do not include previously committed projects, or other non-capital project costs*

VI. Forecast 2045 Available Funding and Shortfall

Section V above presents the cost of all potential projects that could be implemented, if funding is available. The available funding for implementation of potential projects is broken into several categories: Non-Discretionary (projects dictated by the funding source), Committed (for projects that have funding already obligated or otherwise committed) and Discretionary (funding available for future projects).

To implement new projects, the only available funding source is discretionary funds. As shown in Figure 29, only \$97.75 million will be available as discretionary funds over the next thirty years (in 2016 dollars), yet the anticipated need is \$325.6 million. Therefore, a shortfall of \$227.8 million is anticipated for implementing all projects. It is necessary to evaluate and prioritize these projects to identify those improvements with the greatest benefit given the limited dollars available.

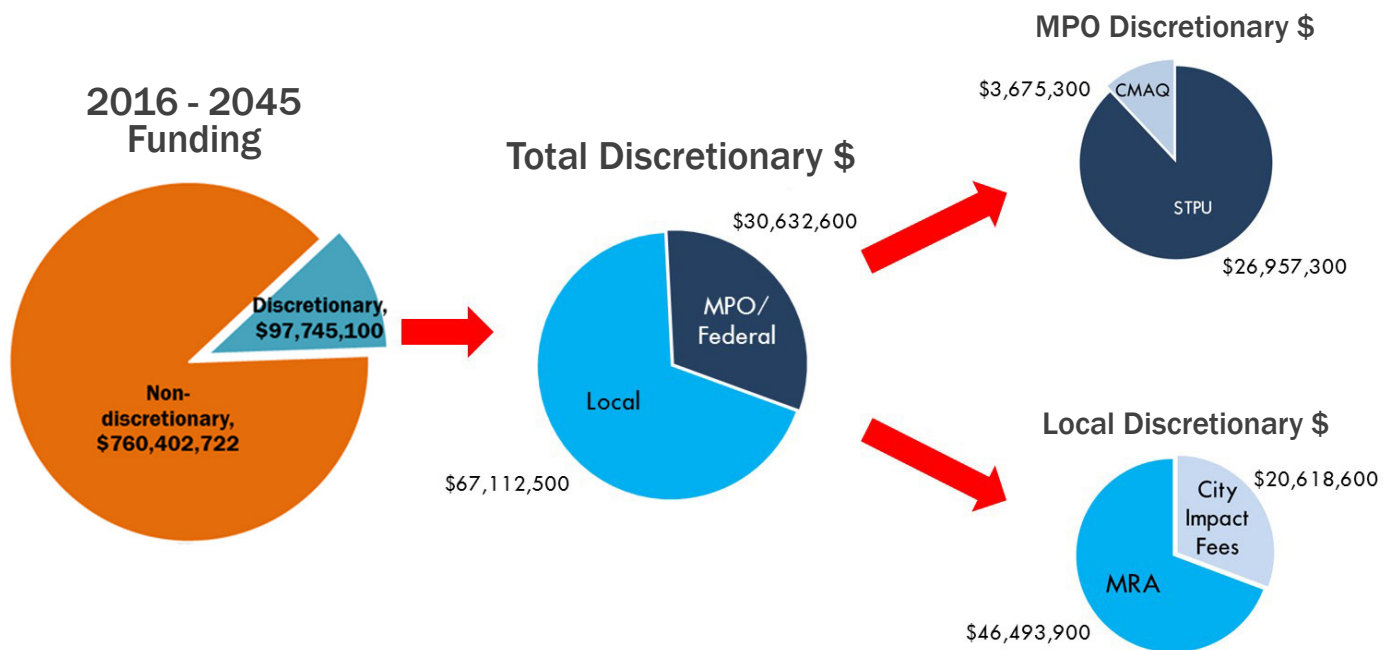


Figure 29. Available funding by source (Federal vs. Local discretionary dollars)

Community Outreach



I. Public Participation Plan

Developing any type of plan requires two key elements: technical work and community engagement. Given the significant sociocultural, economic, health, and environmental impacts of transportation on all citizens in the region, public involvement was a critical element in the development and adoption of Activate Missoula 2045.

The analytic review of existing conditions illustrated the infrastructure needs of our transportation system. The public engagement detailed in this chapter builds on our physical transportation needs by identifying community transportation experiences, needs and priorities.

The Activate Missoula planning process created a wide range of opportunities for citizens to be informed and engaged throughout the development of the Plan. In addition to traditional public meetings where staff and the public engaged directly, Activate Missoula relied heavily on electronic media to promote participation with those not typically able to be involved due to time, transportation, or accessibility constraints.

The following is a summary of the community engagement process. A detailed account of advertising activities, interagency consultations, and public meetings can be found in Appendix A.

CHAPTER CONTENTS

- I. Public Participation Plan
- II. Missoula Area Transportation Survey
- III. Transportation Summit #1 - Project Kick-off
- IV. Transportation Summit #2 - Funding Workshop
- V. Transportation Summit #3 - Goals & Funding Scenarios

Project Website

The project website www.activatemissoula.com was created and updated throughout the planning process in order to expand access to open house materials, input opportunities, and to help promote ongoing activities. In addition to the primary website information pages, the site utilized several key features oriented toward gathering public input with greater flexibility than can typically be achieved at a conventional public workshop or open house. Tools included interactive web maps, online surveys, and virtual open houses.



HOME PARTICIPATE RESOURCES FAQs



Activate Missoula website

Success of the project website was integral to providing expanded public outreach, but was also closely tied to other outreach efforts like the use of social media, print, television and radio ads, and electronic newsletters and community listserve and calendar posts. The Activate Missoula public participation effort relied on these tools to ensure a broad spectrum of engagement across the planning area.

Social Media

Building a successful public outreach campaign increasingly relies on focused and effective use of social media. MPO staff maintain and regularly update a “Transportation Planning” page on Facebook, which cultivates a following of community members interested in transportation issues. During the Activate Missoula process, staff posted all events, surveys, and other online tools to the Facebook page, reaching over 2,000 people. Posts were shared by partner organizations such as MIM, the Bike Walk Alliance of Missoula, Missoula Institute for Sustainable Transportation, and others; the leveraging of social media networks significantly expanded the audience beyond the MPO’s own contacts.

Print, Radio, and Television Media

Advertisements for all public meetings were placed in both print and radio media to help expand awareness of the events. Press releases helped inform journalists, leading to several news articles covering transportation system issues and the planning process. Staff also participated in live radio interviews and television interviews to help promote public meetings and to provide information about the transportation planning process to members of the community that are not traditionally involved in public workshops or other events.

Electronic Media Snapshot

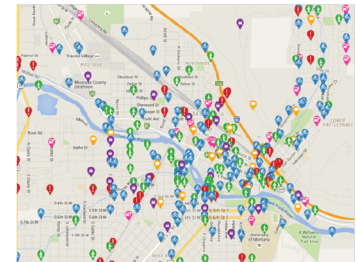
1,000+ Visitors to the website

22 Facebook posts

That reach an average of 380 people per post

765 Wikimap comments

964 Additional comments



151 Online survey responses

Figure 30. Public outreach via online content

Community and Technical Advisory Committees

Two standing committees were formed to support the LRTP update process. The Community Advisory Committee (CAC) included representatives from a diverse group of community organizations, such as the Bicycle Pedestrian Advisory Board, the Chamber of Commerce, Missoula Organization of Realtors, the Community Forum (City of Missoula neighborhood representatives), Community Councils (East

Missoula, Lolo and Target Range/Orchard Homes), the City-County Health Department, affordable housing, Summit Independent Living, and Climate Smart Missoula. The CAC met four times, providing input at critical stages of the planning process. Discussion at the CAC meetings provided important input on many aspects of the Plan and was used to shape recommendations for consideration by the Technical Advisory Committee, the TTAC, and the TPCC.

The Technical Advisory Committee (TAC) also met four times during Plan development, and represented agency staff and technical partners such as the City Engineer, MDT, County Planning and Public Works, City and County Parks, Missoula Redevelopment Agency, Mountain Line, and the City-County Health Department. The TAC provided invaluable input on project cost estimates and descriptions, project prioritization, formulation of mode split goal options, and development of funding scenarios.

Community Meetings and Other Community Outlets

The final element of outreach and engagement with the community was through direct participation in community meetings, such as the Community Forum, Downtown Master Plan Implementation Committee, Planning Board, the Bicycle Pedestrian Advisory Board, and other organizations as requested. These in-person updates to community groups helped broaden awareness of the LRTP update process and to gather input from affected groups.

II. Missoula Area Transportation Survey

In addition to the above methods of obtaining public input, the MPO conducted a statistically valid survey of area residents in order to obtain information from a broader array of citizens about their transportation

priorities, methods of travel, and future preferences. In the fall of 2015, the MPO sponsored a survey of Missoula area residents within the MPO’s planning area to help identify key community needs, priorities and experiences with the region’s transportation system. The survey, administered by the University of Montana’s Bureau of Business and Economic Research, received responses from 643 persons of which 475 resided in the city and 168 within the unincorporated Missoula County.

The survey results reflect a cross section of Missoula residents’ attitudes and opinions on transportation system issues. Information on community priorities was instrumental as a reference to ensure planning outcomes supported those priorities and addressed primary concerns of all Missoula residents. A selection of summary findings from the report is included below in Figure 31 through Figure 37 but the full document contains extensive additional analysis of the responses and can be found online at www.activatemissoula.com.

Possible Action	Rank			
	1	2	3	4
a. Improving bicycle and pedestrian facilities	16%	25%	31%	28%
b. Improving safety for drivers, passengers, bicyclists, and pedestrians	21%	41%	31%	7%
c. Reducing traffic congestion	52%	19%	13%	16%
d. Providing more or improved public transit (bus) services	13%	16%	24%	47%

Figure 31. Rankings of possible strategies to improve the transportation system

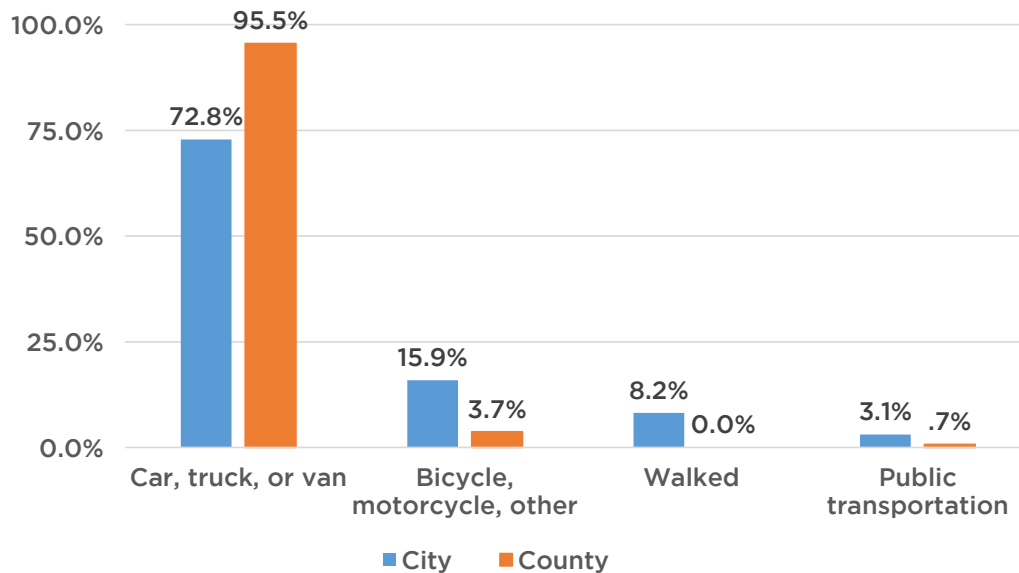


Figure 32. City vs. County mode of travel to work

Possible Action	Very High Priority	Somewhat High Priority	Middle Priority	Somewhat Low Priority	Very Low Priority	Don't Know
a. Adding and improving public transit (bus) services in the Missoula area	13.3%	18.9%	34.9%	13.9%	14.8%	4.1%
b. Adding and improving bicycle facilities, like bicycle lanes, trails/paths, and racks	20.3%	26.1%	26.2%	10.5%	16.5%	0.5%
c. Adding and improving pedestrian facilities, like sidewalks, trails/paths, and crosswalks	20.8%	37.9%	25.9%	8.8%	6.4%	0.2%
d. Adding and improving roadways for vehicles	41.5%	29.4%	16.0%	7.4%	5.5%	0.2%

Figure 33. Rankings of possible actions to improve the transportation system

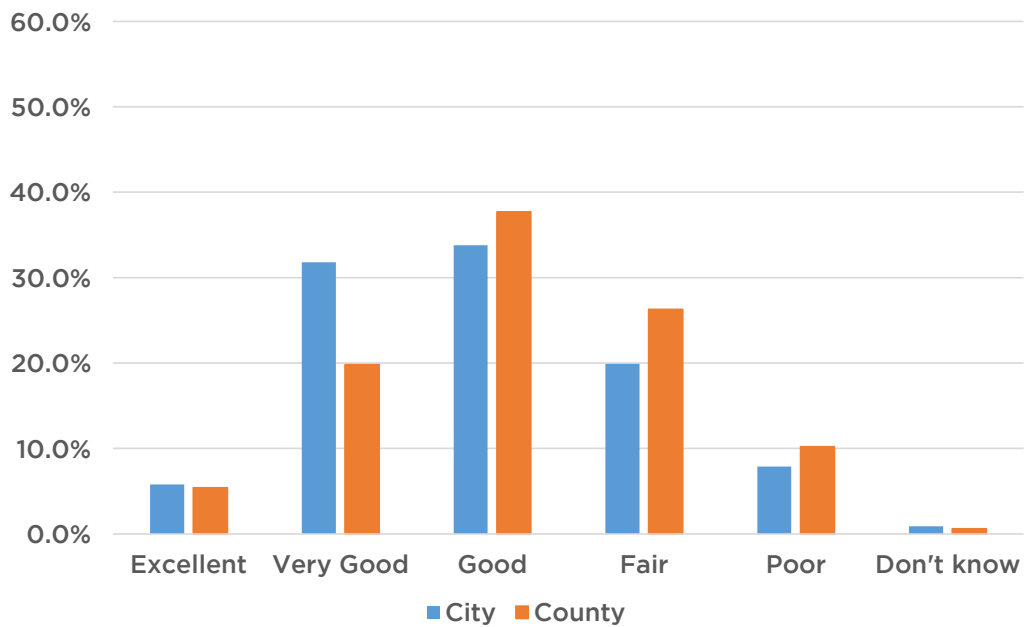


Figure 34. City vs. County ratings of area transportation system quality

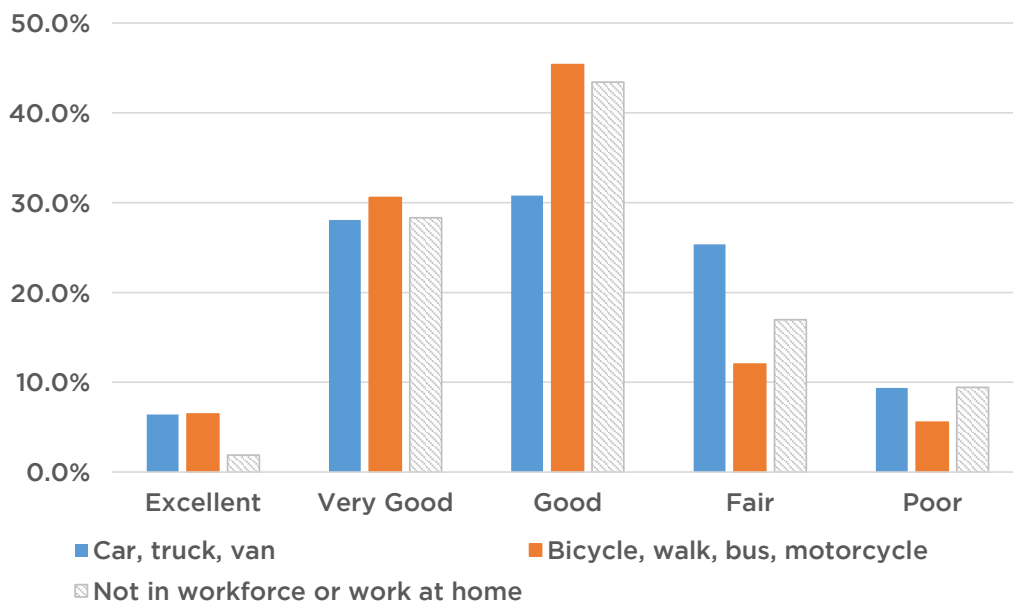


Figure 35. Overall rating of area transportation system by mode of travel to work

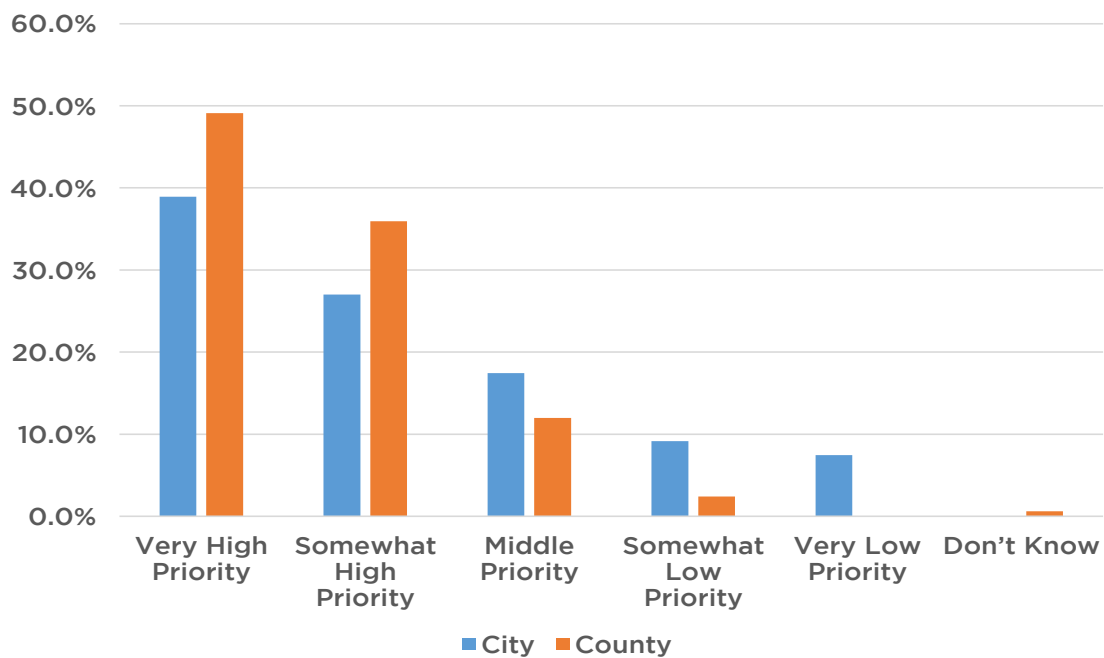


Figure 36. City vs. County priorities for adding and improving roadways for vehicles

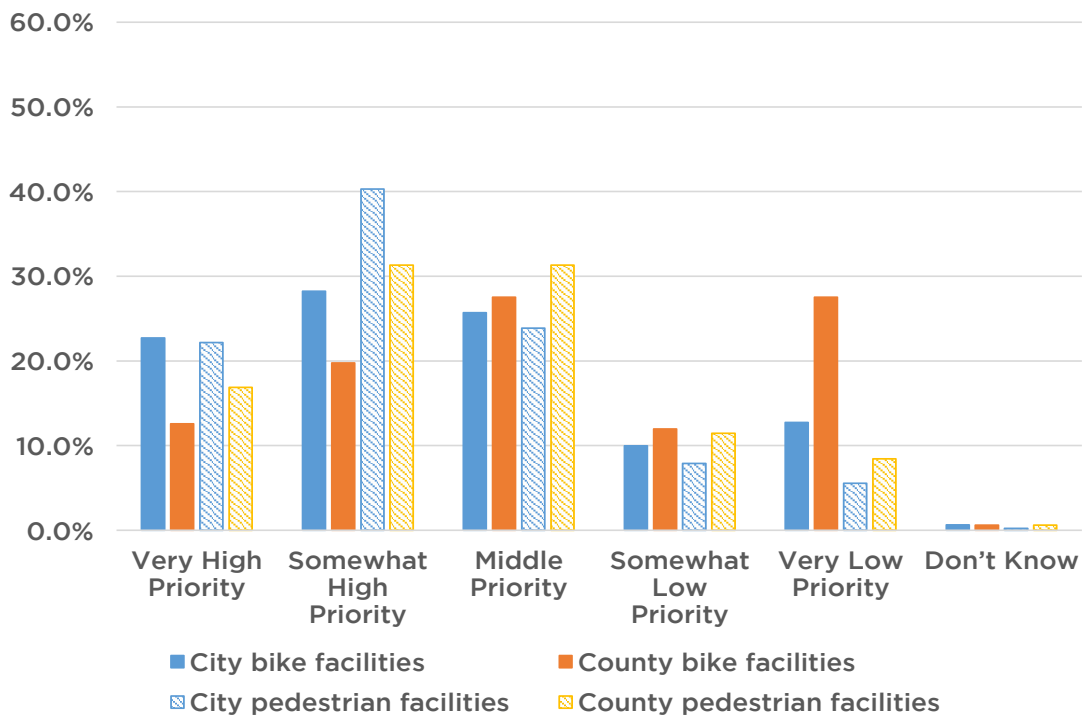


Figure 37. City vs. County priorities for improving pedestrian and bicycle facilities

III. Transportation Summit #1 - Project Kick-off

To set the stage for the Plan update, Activate Missoula held a public kick-off meeting, Transportation Summit #1, on November 4, 2015 at the Holiday Inn Parkside. During the meeting, the project team presented existing transportation system conditions via the Mobility Report Card to more than 50 attendees.

Existing Conditions & Mobility Report Card

The Mobility Report Card distilled the state of Missoula's transportation system down to a series of trends, such as pavement condition, levels of congestion, bicycling, walking, motor vehicle travel, safety, and other categories. Presenting the trends in transportation ensured that all participants attending understood the existing conditions prior to providing comments on future priorities and funding questions. Existing conditions formed the foundation of future phases of the planning process by identifying the key transportation needs along with public priorities for future improvements.

Priorities

Participants who attended the Summit were asked several questions about planning for Missoula's transportation future, building on responses from the 2015 Missoula Area Transportation Survey. The questions covered transportation priorities (improving roadway efficiency, capacity, aesthetics, travel choice, environment or spending), the most important kinds of projects (street reconstructions, maintenance, efficiency improvements, and bicycle, trail, transit, or pedestrian projects), and questions regarding support for potential new funding sources like gas taxes, impact fees or property tax increases. The survey questions were also posted to the Activate Missoula website, receiving over 150 additional responses.



Participants in Transportation Summit #2

Wikimap

At the kick-off Summit, an online Wikimap interactive feature was launched on the project website. The map tool allowed participants to provide comments about Missoula's transportation system, with categories of comments relating to different travel modes such as motorized vehicles, bicycling, walking and transit. Over the course of two months, more than 750 comments and an additional 1,500 comment "likes" were submitted through the project website's Wikimap.

IV. Transportation Summit #2 - Funding Workshop

The second public Activate Missoula meeting, Summit #2, focused on setting funding priorities for the available discretionary funds. About 50 people participated in the Summit, held on May 24, 2016 at the Missoula Children's Theater. During this public outreach phase, input was also sought for prioritizing the Plan's Goals.

Discretionary funding allocation game

At the Summit #2 workshop, participants were provided an opportunity to “spend” approximately \$100 million in discretionary funds through an interactive game designed to convey the costs and trade-offs of different funding strategies. During the exercise, each table of participants was given poker chips of differing values that totaled the approximately \$100 million in discretionary funds expected to be available through the 2045 planning horizon, then were asked to start funding projects from a list of five different project types (Roadway, Non-motorized, Safety, Transit and Intelligent Transportation Systems (ITS)/Transportation Studies). Tables were allowed to pick freely among projects from each category, but had to stop funding projects when all of the chips were allocated. Figure 38 shows a sample game board for allocating funding.

Results from the workshop indicated varying levels of investment in each of the different modes, however several trends emerged. First, ITS emerged as a consensus for funding among all tables. Second, although there was some variation in levels of funding for roadway projects, nearly all the tables preferred complete streets projects over other types of roadway improvements, such as projects that widened roads. Finally, the average allocations of all tables showed a more balanced approach to funding transportation improvements than what was seen in past LRTPs, with a slight shift in funding to non-motorized projects and generally away from roadway projects.

The average allocation to each funding category also generally reflected the priorities from the 2015 Missoula Area Transportation Survey, with

more than 50% of the discretionary funding going to roadway projects (highest priority in the transportation survey), 25-30% going to non-motorized (second highest priority in the survey), 13% to transit (lowest modal priority in the transportation survey), and the remainder to Safety and ITS projects.

 "Decisions" Selecting our Transportation Future May 24, 2016	
Funding Allocation	
Project Cost by Category	
Funding Allocations Categories	Funding Allocations
	Chips
Non-Motorized	
Safety	
Roadways (Travel Lanes) & Complete Streets (sidewalks, bicycle lanes, crosswalks, etc.)	
ITS & Studies	
Transit (Capital)	
Total	• 1 Green chip = \$25,000 • 1 Red chip = \$500,000 • 1 Black chip = \$1 Million
 LSA 	

Figure 38. Funding allocation “game” board from Transportation Summit #2

Goal Prioritization

Summit #2 also marked the launch of several surveys aimed at obtaining input about the relative importance of the Plan's goals. Surveys were provided at Summit #2, on the project website, and to the CAC, asking participants to rank each of the goals, including a proposed new goal related to promotion of health and social equity through the transportation system.

The survey also asked participants to indicate whether or not the new goal should be added. The survey questions remained on the website for 2 months, and between the Summit #2 and the website, 79 responses were received from the general public. Additionally, the MPO asked

members of TTAC to take the survey to see how the results of the public ranking would compare to those of the represented agencies.

Figure 39 below shows the results of the goal ranking, which show that efficiency and performance of the overall transportation system ranks highest among the other goals, with maintenance of the existing system, and system safety and security receiving the next highest rankings respectively.

The goal ranking were used as a guide in developing the criteria used to score and rank the transportation projects, which is discussed in more detail in Chapter 4.

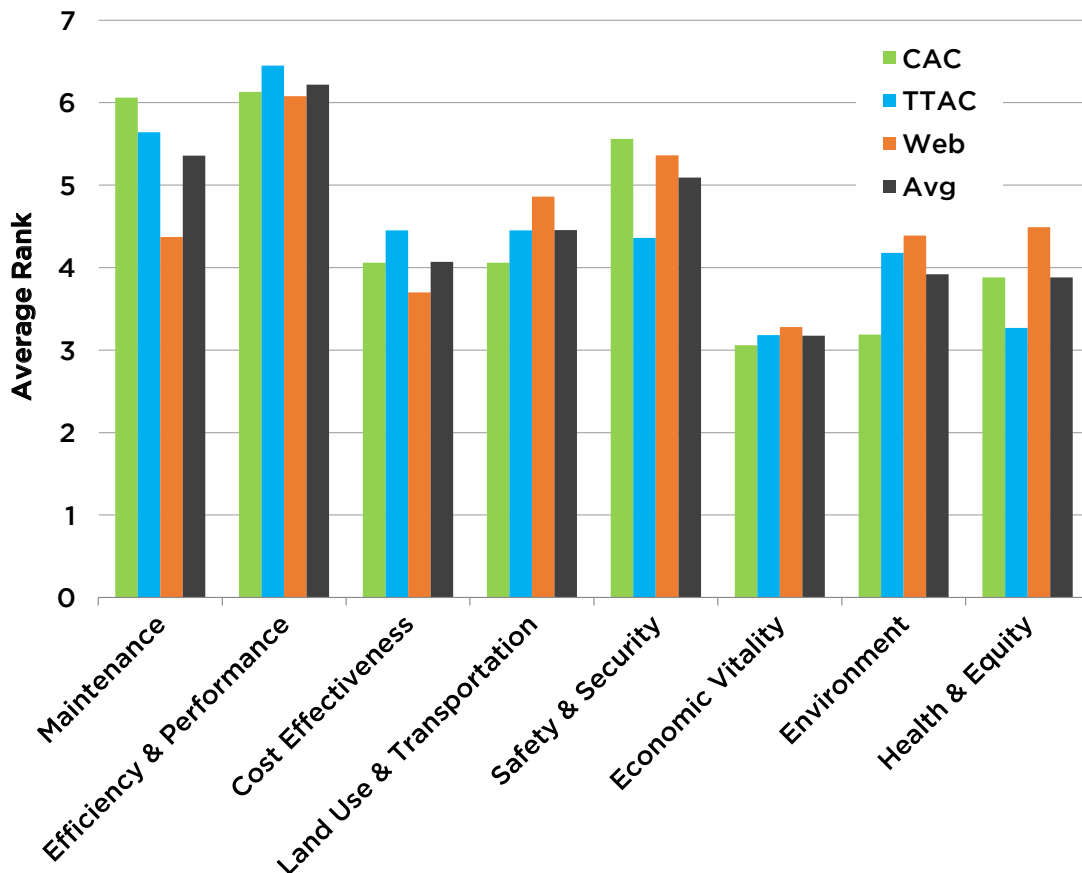


Figure 39. Goal ranking survey responses through the Activate Missoula website

V. Transportation Summit #3 – Goals & Funding Scenarios

The third phase of public outreach culminated with Activate Missoula Summit #3, an open house held on October 20, 2016 in the City Council Chambers. Nearly 60 people attended the event and provided feedback on some key questions important to developing the Plan's final recommendations.

The open house included a number of informational and interactive stations for participants to visit. The stations included a summary of the planning process and purpose, the Mobility Report Card and other existing conditions, public input from prior events (Summit #1 and #2) and the 2015 Missoula Area Transportation Survey, and information on how transportation projects were scored and ranked. Additionally, the MPO staff presented information about Missoula's current mode split (the percentage of people who travel by each type of mode) and asked for feedback on three options for setting a mode split goal for the future aimed at reducing single-occupancy vehicle commutes. Participants were also asked to choose their favorite of four possible scenarios to allocate future discretionary transportation funds.

Nearly all those who commented at the workshop preferred the most ambitious mode split goal, and generally supported additional policies to achieve that mode split goal (growth related, transportation, land use, funding or budgeting, and education). Responses to the funding scenarios were generally split between Scenario #3 (heaviest non-motorized funding scenario) and Scenario #4 (balanced funding approach with additional transit focus). Additional, more detailed information about the development of the mode split goal options and future funding scenarios is provided in Chapter 5.

Virtual Open House

After the Summit #3 public open house, all materials and survey questions were posted to the project website for an additional 20 day comment period. The virtual open house presented images of all poster boards from the “stations” in the same order presented at the live event. In addition to poster boards, a short survey asked online participants which mode split goal they preferred, additional policies to achieve those goals, and which funding scenario they preferred. A total of 27 individuals filled out the online survey, with responses split between the moderate and ambitious mode split goals, and split between funding Scenario #3 and Scenario #4.



Attendees at Transportation Summit #3 explore the information presented on the project boards



Performance Measures & Project Ranking



I. Performance-based Planning and Programming

Federal transportation law, starting with MAP-21 in 2012 (Moving Ahead for Progress in the 21st Century) and more recently the FAST Act in 2015 (Fixing America's Surface Transportation), introduced new requirements for the highway program, including a requirement to focus on performance and outcomes, particularly when planning transportation investments with scarce resources.

CHAPTER CONTENTS

- I. Performance-based planning & programming
- II. Project evaluation and ranking

MPOs are required to develop performance-based transportation plans that were created through a transparent, data-driven, evaluation process based on community input and objective performance measures to prioritize projects and programs regionally to achieve desired local, state, and national goals.

The development of a performance-based transportation plan touches on the key elements shown in



Figure 40. Performance based planning and programming (source: Federal Highway Administration)

Figure 40 under “Planning.” It includes the setting of a strategic direction (“where do we want to go?”) stemming from our goals, objectives, and performance measures. This step requires data and information from monitoring and evaluation of system performance (the feedback loop from implementation activities, answering the question, “where are we now?”). The development of a performance-based plan includes analysis of how the region will move toward achieving identified goals and objectives through investments and policies (“how are we going to get there?”). The resulting transportation plan identifies achievable targets and investment priorities, including capital and operating strategies that will be carried forward into programming.

System Performance Goals and Planning Factors

National-level Performance Goals and Planning Factors established in federal transportation law serve as a guide for local-level goals and objectives, and the coordination and investment of transportation funds regionally.

National Goals and Planning Factors

MAP-21 established seven national Performance Goals for federal highway programs, which were retained by the FAST Act. The goals are supported by 10 Planning Factors (MAP-21 included eight factors and the FAST Act added two additional factors). The national Goals and Planning Factors are summarized in Table 10 and Table 11. Additionally, the MPO is committed to supporting Statewide performance measures established by MDT, which are outlined in Appendix H.

Activate Missoula 2045 Goals and Objectives

Using the federal Goals and Planning Factors, the MPO developed localized goals and objectives for Activate Missoula 2045. Missoula’s goals and objectives address system-level (region, city, neighborhood, etc.) and project-level needs. Many of the goals and objectives in this plan were carried forward from the previous LRTP – though one new goal related to community health and social equity was added based on community input and feedback from the CAC, TAC, TTAC and TPCC early in the process.



Table 10. National Performance Goals

Goals	Objectives
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.
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.

Table 11. National Planning Factors

Goals	Objectives
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	Increase the accessibility and mobility of people and for freight.
Environment	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development.
Connectivity across modes	Enhance the integration and connectivity of the transportation system, across and between modes, people, and freight.
System management and Operation	Promote efficient system management and operation.
System Preservation	Emphasize the preservation of the existing transportation system.
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.

Goal 1: Maintain our existing transportation system

- Maintain & repair existing roads, bridges, sidewalks and trails to good or better condition.
- Promote complete streets and increase access to additional modes by replacing and retrofitting transportation facilities in the existing system to allow for a wide range of transportation options.

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

- Optimize the efficiency of transportation facilities through improved signal timing, road design, elimination of bottlenecks, integration of multiple modes, or other methods.
- Minimize increases in travel times by methods such as providing direct routes between destinations, use of intelligent transportation systems and transportation demand management tools, and/or providing information to the public to allow them to make informed transportation decisions.

Goal 3: Maximize the cost-effectiveness of transportation

- Reduce cost of travel to users by taking opportunities to include all modes of transportation in new and retrofitted projects and reducing travel times and distances for activities of daily living.
- Plan for a transportation system that is affordable, sustainable, and makes the best use of public financial resources.
- Construct projects with costs that produce a corresponding benefit to users.
- Reduce project costs and expedite movement of people and goods by accelerating project completion.

Goal 4: Promote consistency between land use and transportation plans to enhance mobility and accessibility

- Provide a transportation network which supports City and County Growth Policies with an emphasis on focusing growth on Missoula's urban area ("Focus Inward") and existing communities, and providing a range of transportation options for the region's community centers.
- Develop mixed-use activity centers including infill and redevelopment areas.
- Provide travel choices along multimodal travel corridors.

Goal 5: Provide safe and secure transportation

- Support transportation programs and design improvements which reduce crashes and improve safety of all modes.
- Facilitate the rapid movement of first responders and support incident management during times of emergency.

Goal 6: Support economic vitality

- Support new and existing commercial and industrial development by ensuring access by multiple transportation modes.
- Provide attractive and convenient transportation facilities that attract and retain businesses, young professionals, families and older adults.
- Facilitate the movement of goods and freight to commercial and industrial centers.

Goal 7: Protect the environment

- Reduce fossil fuel consumption by minimizing travel time and providing access to alternative modes and fuels.
- Maintain air quality attainment by minimizing air pollution related to vehicle emissions by reducing congestion and vehicle miles traveled.
- Minimize sediment, nutrients, and litter entering surface water via roads and drainage.
- Minimize impacts to the natural environment by taking opportunities to couple transportation projects with protection and enhancement of environmental resources.

Goal 8: Promote community health and social equity through the transportation system

- Improve multi-modal access to parks and trails to support active and healthy lifestyles.
- Improve multi-modal access to schools, health-care and social services.
- Reduce overall household transportation costs, particularly for typically under-served and/or vulnerable populations by providing safe and affordable transportation options.
- Reduce impacts on neighborhoods and cultural and historic resources through evaluation of assets and involvement of neighbors in the planning process with special attention to areas with typically under-served and/or vulnerable populations.

II. Project Evaluation and Ranking

Performance-based planning is intended to base decision-making on measurable, objective evaluation of projects and programs in order to help prioritize limited funding. Therefore, the MPO developed a method to score and rank individual transportation projects with the intention of measuring the relative benefit of each in relation to the goals and objectives described previously.

The list of projects evaluated was compiled by the MPO and includes many projects that were evaluated in previous LRTPs, as well as some new projects. Staff refined the list of projects based on information from agencies and organizations responsible for funding and implementing transportation projects to ensure that projects being analyzed were both feasible and consistent with agency plans.

Project Scoring Methodology

Activate Missoula 2045 scored and ranked projects based on a series of measurable criteria outlined under each of the eight goals. All roadway and non-motorized (bicycle and pedestrian) projects were scored with the same scoring criteria and methodology, recognizing that roadway projects have the potential to benefit all modes of transportation through complete street improvements, and that non-motorized projects can have an impact on overall system efficiency, functionality, and safety.¹

¹ Projects in the following categories were not scored using the project scoring methodology: Safety, Intelligent Transportation Systems, Transportation Options, Transit, and Studies. Some safety improvements are included in roadway projects, while others are prioritized at the State level using criteria developed by MDT. The Community Transportation Safety Plan also prioritizes specific crash locations based on analysis set out in that plan. Transportation Options continue to be funded in this plan at the same levels as stipulated in the 2016-2020

Projects could receive up to 210 possible points. Each goal was assigned a set number of possible points, based on the goal ranking feedback that was received (Chapter 3), and a set of scoring criteria were established for each goal related to its objectives. The scoring criteria were designed so that they are easy to measure with available data (such as the travel demand model, socioeconomic data, vulnerable and under served groups, crash data), are replicable and trackable, and are objective. The following figures illustrate the scoring methodology used to evaluate and rank the motorized and non-motorized projects. Much of the data used in the criteria can be found in Chapter 2.



Silver Park, located in the Sawmill District, includes trail connections to the California Street bridge and to Missoula's commuter trails system.

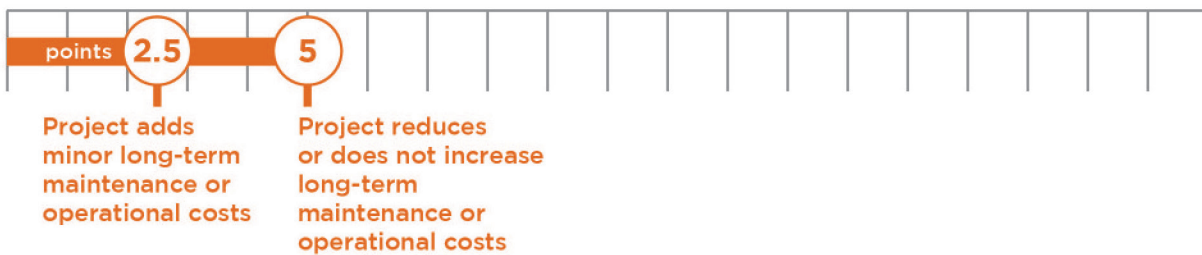
Transportation Improvement Program. Studies are typically funded through MPO planning funds or through local allocations by City Council, Missoula Redevelopment Agency, and other agencies.

1. Maintain our existing transportation system 30pts

A.1 Pavement Condition Rating: Project improves pavement on an existing roadway or trail



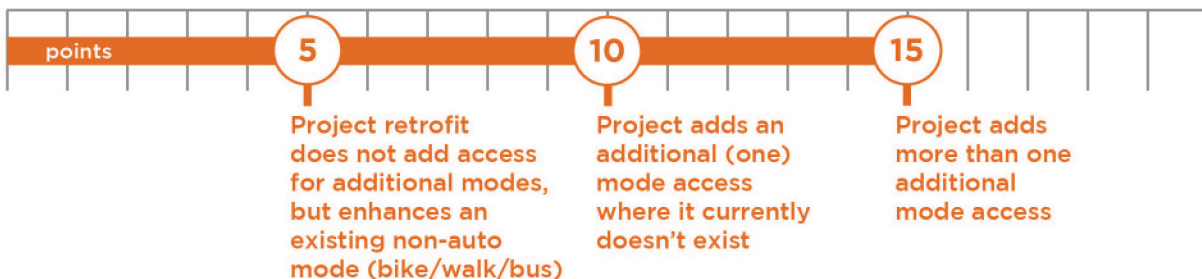
A.2 Maintenance Costs: Reduces or minimizes the long term costs to operate or maintain the transportation system



A.3 ADA Improvements: Project provides ADA improvements or enhances ADA access to existing facilities



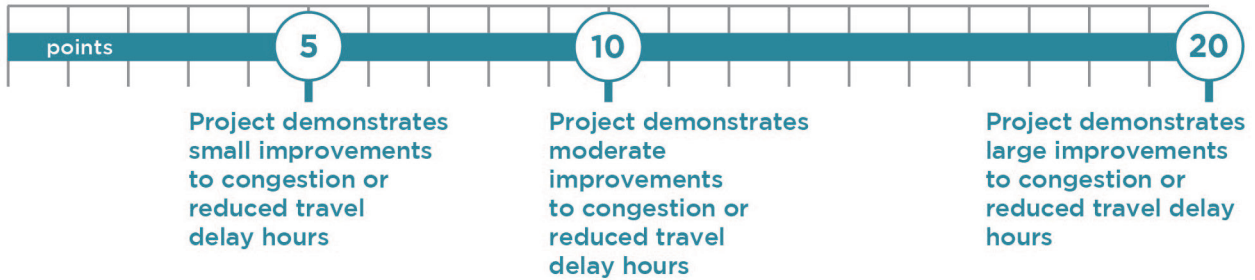
A.4 Complete Streets: Improves access along existing facilities for additional modes (motor vehicle, bicycling, walking, or transit)



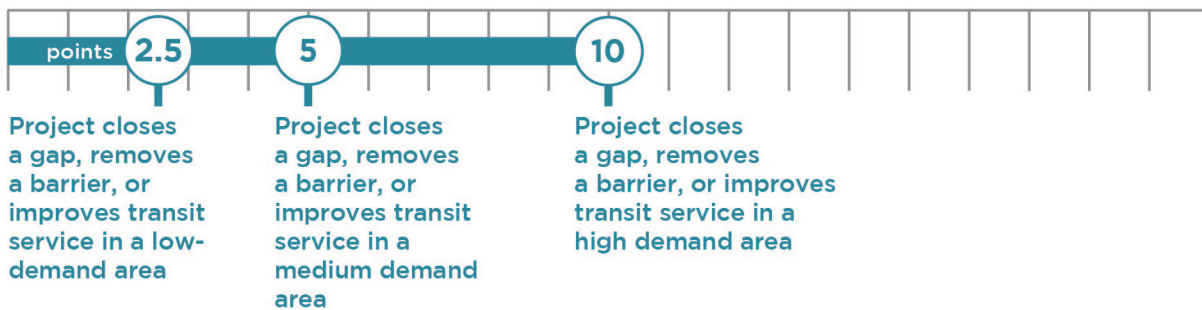
2. Improve efficiency & performance

40pts

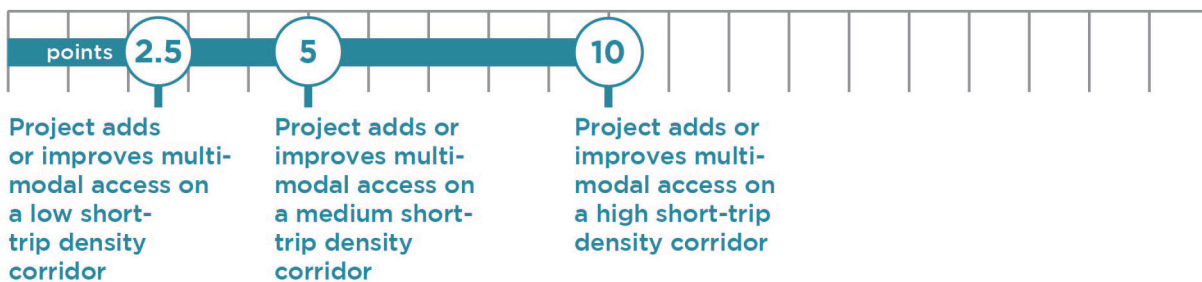
B.1 Reduced traffic delay: Improvements to the system-wide travel time or delay reduction/congestion mitigation



B.2 Connectivity: Improves transit service, closes gaps or removes barriers in the transportation system (all modes)



B.3 Short trips: Improves multi-modal access along corridors with high potential for bicycle, walk or transit trips (trip length < 3 miles)



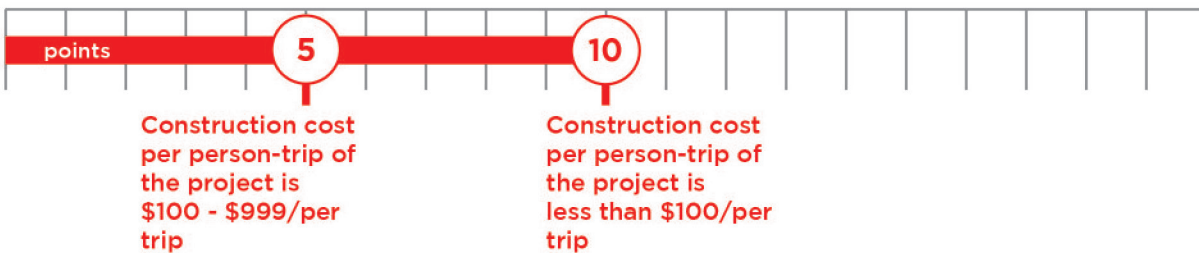
3. Maximize cost effectiveness

20pts

C.1 Cost per mile: Maximize transportation system investments by reducing construction cost per mile



C.2 Cost per trip: Maximize transportation system investments by reducing construction cost per person-trip



4. Land use and transportation

20pts

D.1 Planning consistency: Supports other plans or is included in another planning document/study (MUTD Long Range Plan, Growth Policy, trail plan, or other plan)



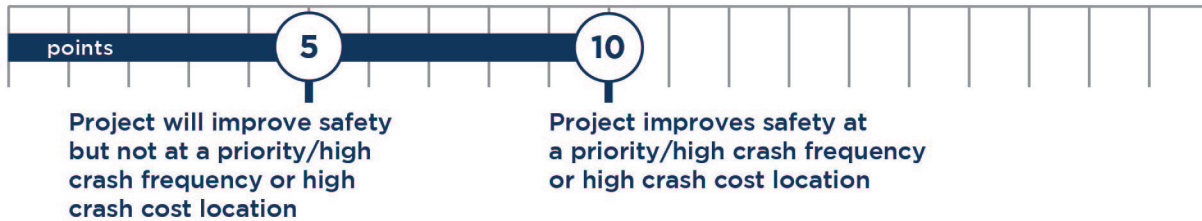
D.1 Location/Land use: Does the project support land use planning or locate improvements in areas of high demand or diversity of uses



5. Safe & secure transportation

30pts

E.1 High-crash locations: Improvements made at known high-crash locations identified as priorities in the CTSP



E.2 Emergency response: Provide improvements to emergency response times and enhance access for emergency responders



E.3 Bicycle Safety: Improves safety at high frequency crash locations



E.4 Pedestrian Safety: Improves safety at high frequency crash locations



6. Economic vitality

15pts

F.1 Freight: Provide for efficient movement of freight through and around the region



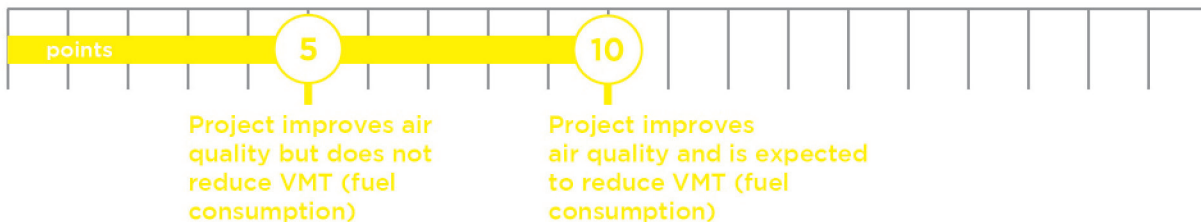
F.2 Commercial and industrial centers: Increase multi-modal access to commercial and industrial development/employment centers



7. Preserve the environment & resources

20pts

G.1 Air quality: Improve air quality and reduce fuel consumption



G.2 Natural environment: Protect natural resources and improve the natural landscape



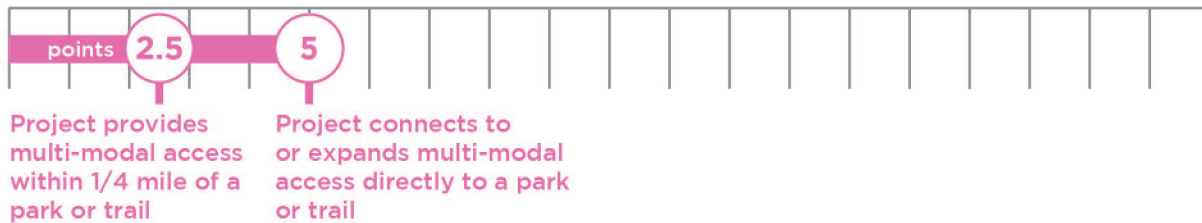
G.3 Stormwater: Improve stormwater management



8. Community health & social equity

20pts

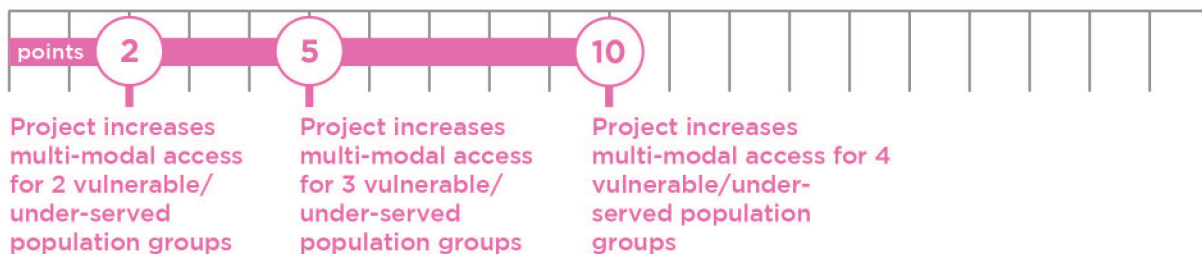
H.1 Access to parks & trails: Increase multi-modal access to parks, trails and open space



H.2 Access to schools, healthcare & social services: Increase multi-modal access to essential community services



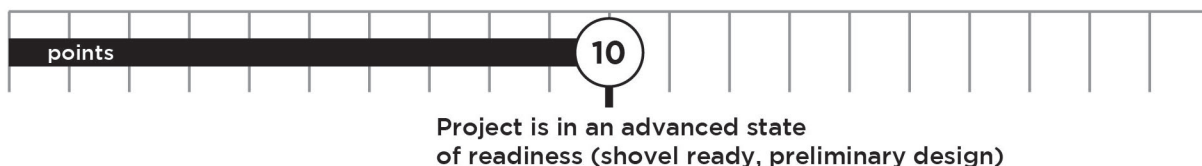
H.3 Transportation Equity: Increase multi-modal transportation options for under-served and vulnerable populations



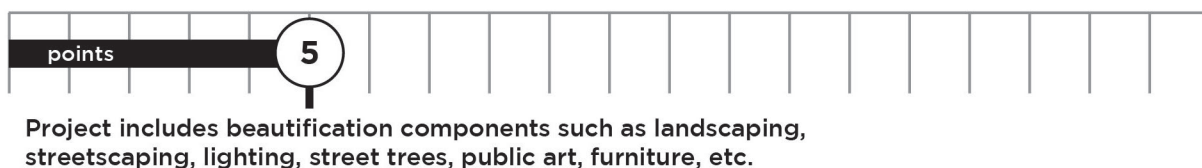
Additional scoring factors

15pts

Bonus.1 Readiness: State of project readiness



Bonus.2 Streetscape: Improve the physical streetscape environment



Project Scoring Results

The results of the scoring process were broken out by mode (roadway and non-motorized), then ranked and used to prioritize funding (described more thoroughly in Chapter 5). Some projects, despite scoring highly, may not be identified for funding due to their unique circumstances or challenges. A full

list of scored and ranked projects can be found in Appendix C, however an illustration of the results for non-motorized projects is shown in Figure 41. All scores are color-coded to match the goals in this chapter, and show how projects compare under each of the scoring criteria.

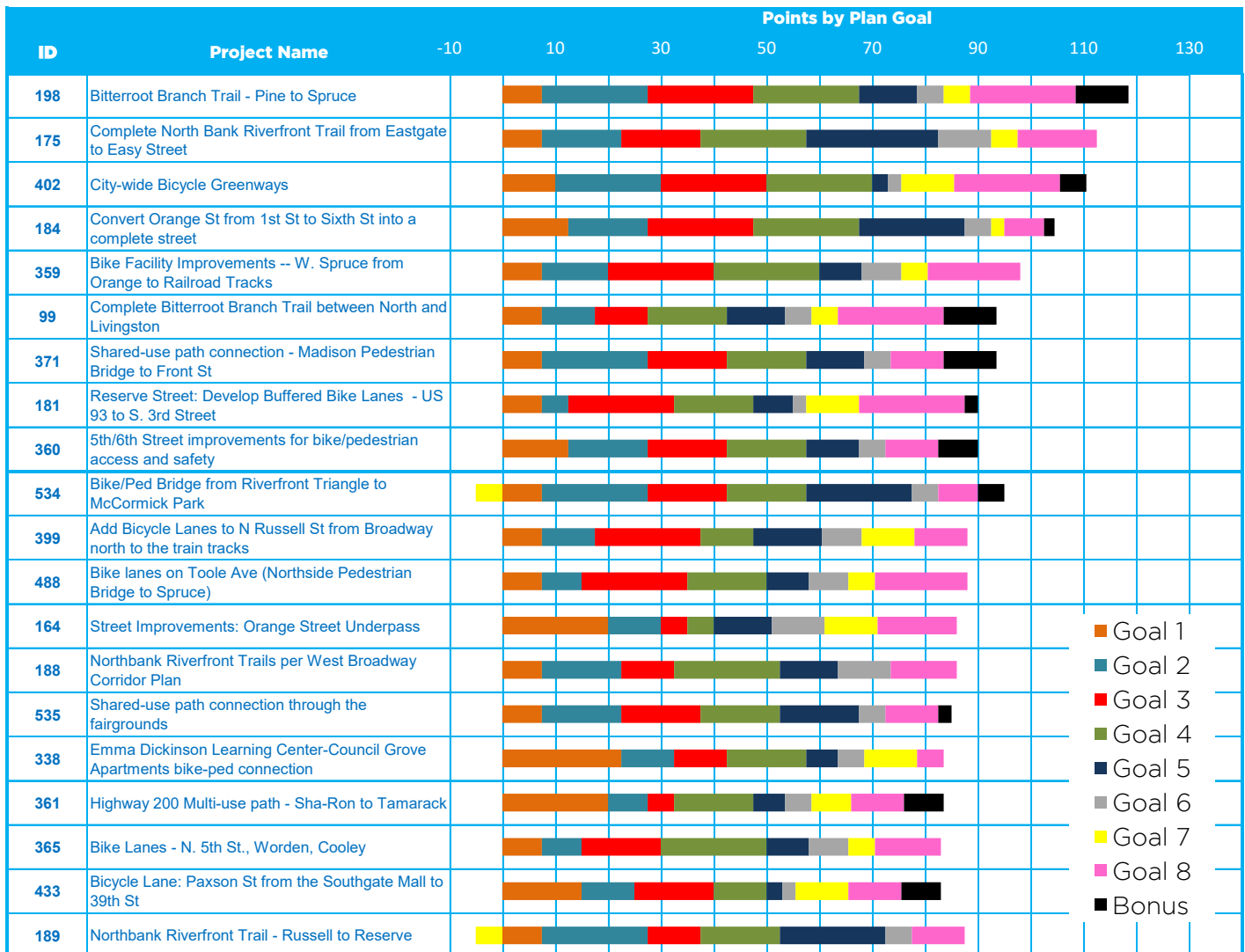


Figure 41. Non-motorized project ranking using the goals, objectives and scoring criteria



Exploring the Future



I. Different Approaches to the Transportation System

There are many approaches that can be taken to planning for future transportation needs. But all require the need to be thoughtful about, and pay attention to, the fact that resources are limited, and costs continue to rise. The MPO worked to develop several scenarios for how we, as a community, might allocate our limited funding and prioritize projects and programs over the next 30 years.

To do this, we began by considered the following:

- Current mode share and potential future mode share.
- The amount of funding expected to be available through 2045, both discretionary and non-discretionary (aka “restricted to certain uses”).
- Anticipated population growth and demographic changes (Chapter 2).
- Anticipated housing and employment growth and where it is expected (or desired) to occur (Chapter 2)
- The list of projects, prioritized by the criteria outlined in Chapter 4, and their construction cost.

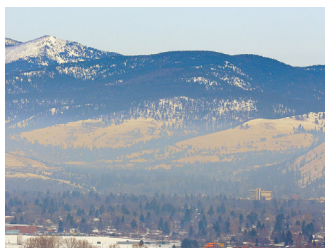
The following sections summarize the major “building blocks” of the scenarios the MPO developed, with input from the public, the CAC, the TAC, and the MPO’s TTAC and TPCC.

CHAPTER CONTENTS

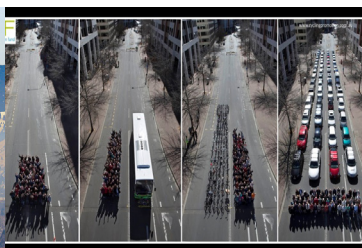
- I. Different approaches to the transportation system
- II. Transportation system scenarios
- III. Scenario performance

Mode Share

Part of the process included beginning a conversation about how and if we should attempt to “shift mode share” in Missoula. As discussed in Chapter 2, Missoula has a higher than average (both compared to the nation and the state) share of commuters using non-single occupancy vehicle modes to travel. This helps reduce the strain on our overall transportation system, while also having environmental, community health, and social equity benefits.



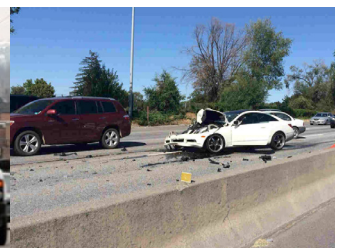
Vehicle emissions contribute to air pollution in the Missoula Valley



Single-occupancy vehicles need more space than other modes



Motor vehicles contribute to congestion on our streets



More vehicles on the road contributes to increased crash rates

Setting a Mode Share Goal

The concept of setting a goal or goals related to mode share has been discussed for several years by some members of the TTAC and TPCC, as well as some members of the bicycle/pedestrian advocacy community. While historically Missoula has worked hard to create opportunities for people to travel via a number of modes, and has had some success doing so (as seen by our current mode share numbers), the concept of setting a goal was viewed by some as a means of solidifying it as a policy direction and as a way to further encourage investment in active transportation modes.

Given this interest, it was determined that the Activate Missoula 2045 LRTP update would be a logical planning process through which to evaluate potential goal options and ultimately, set a mode share goal for the community.

The method for setting the goal consisted of the following pieces:

- Looking at our current and historic mode share.
- Reviewing other cities mode shares and whether they had set similar goals.
- Evaluating possible impacts to the transportation system if the mode share remains the same (i.e. how many additional vehicles will be on the road in 2045).



OUR MISSOULA
Looking inward. Moving forward.

The 2015 “Our Missoula” City of Missoula Growth Policy considered establishing a community Mode Share goal, but instead determined that it would be more appropriate to explore potential options for setting a goal related to mode share in the Activate Missoula 2045 Plan.

From the 2015 Growth Policy: “Implementation Action 1.8: Establish a mode-split goal with an emphasis on expanding active transportation and shifts away from single occupancy motor vehicle trips.”



70.1%
Drive-alone



9.3%
Carpool



6.4%
Walk



4.9%
Bike



2.3%
Bus



5.2%
Work from
home

Figure 42. Commute mode share for Missoula urban area (source: ACS 5-year average, 2010-2014)

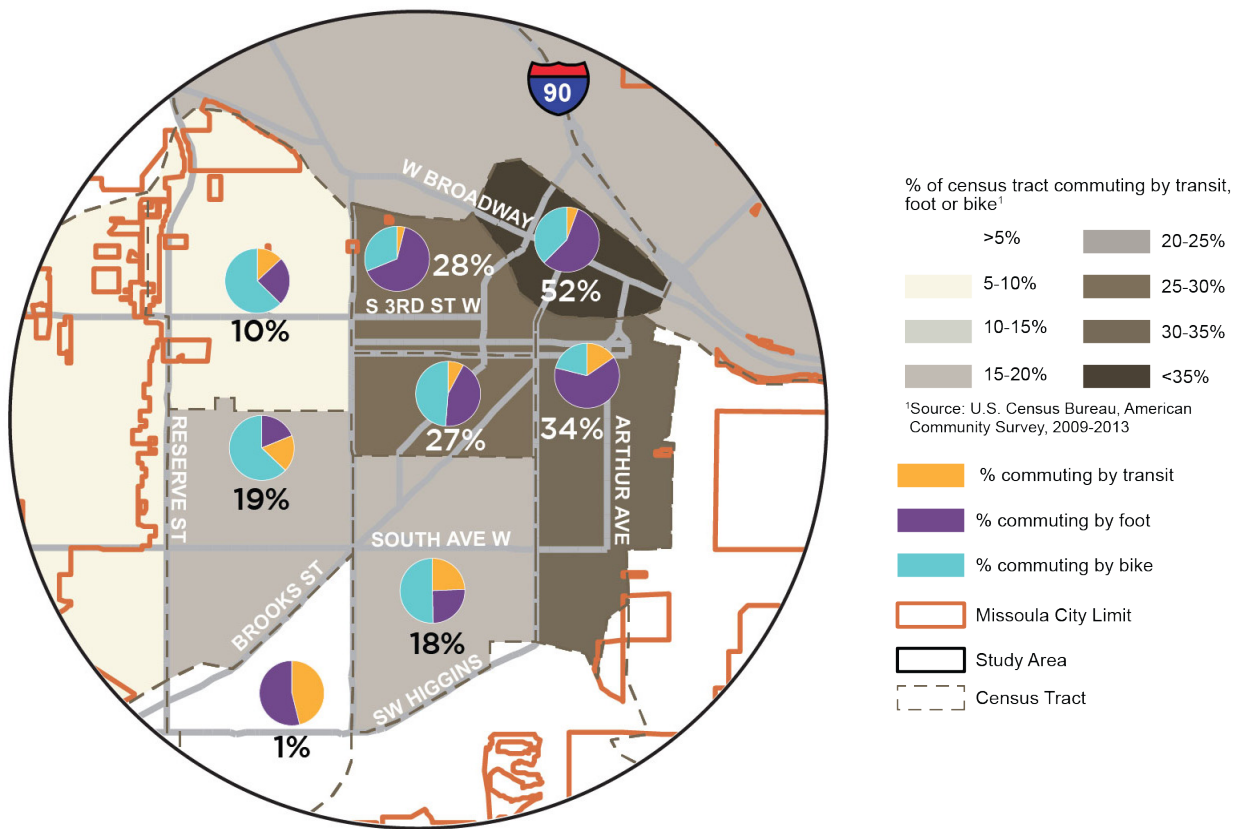


Figure 43. Commute mode shares for bicycling, walking, and transit by census tract (source: ACS 5-year average, 2010-2014)

Current Mode Share

Missoula's current mode share, as discussed in Chapter 2 and as illustrated below, indicates that the majority of commute trips are via single-occupancy vehicle, however a growing portion of commuters are also using other modes, carpooling/vanpooling, or working from home.

The mode share numbers in Figure 42 are averages for the Missoula urban area between 2010 and 2014. Figure 43 breaks down the mode share further by census tract, focusing on the percentages of transit, bike, and pedestrian commuters. As can be seen, some areas and neighborhoods within Missoula, particularly those nearest the urban core, have much higher than average shares of commuting by transit, foot, and bike, than other areas of the region outside the core.

It is likely that the areas with higher single-occupancy vehicle use have less non-motorized infrastructure and perhaps have existing barriers that make it difficult to travel using other modes. For example, the area bounded by Brooks Street, South Russell Street, and 39th Street has significantly lower levels of bike, walk, or transit use than adjacent areas, indicating that the major corridors surrounding this tract present a barrier.

Comparison Cities

MPO staff looked at other cities, including ones with similar characteristics to Missoula, to see if they had set mode share goals, and if so, how they set them. The MPO looked at 15 different cities and found that some cities did not set goals specific to mode share, but rather set related goals, such as for greenhouse gas reduction or vehicle miles traveled reduction. Some cities set goals for mode share,

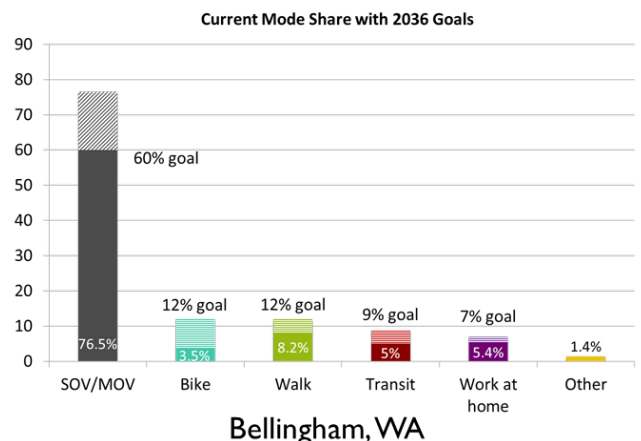
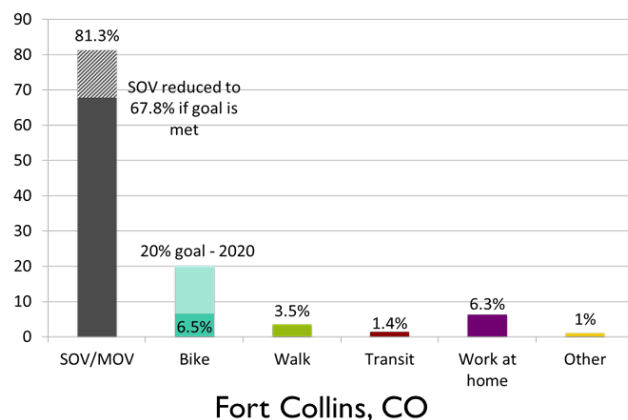
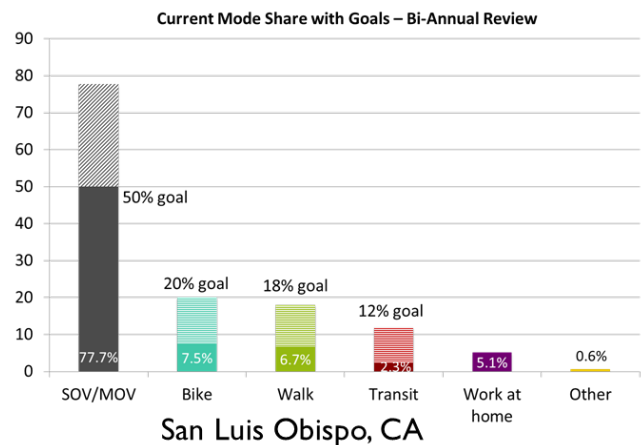
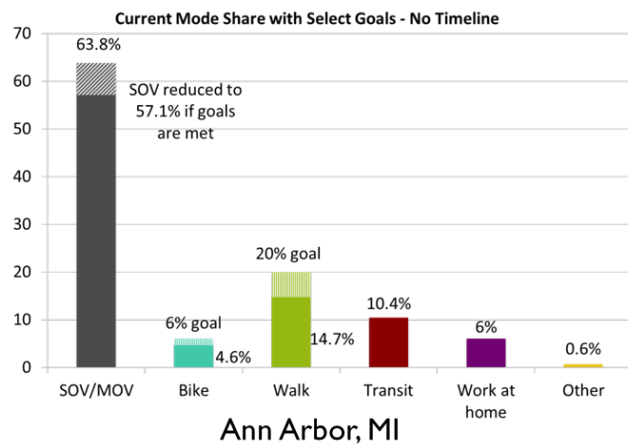


Figure 44. Current commute mode share and adopted goals in four comparison cities

but perhaps for only one or two modes, rather than a goal for each mode. Figure 44 highlights four of the comparison cities that were evaluated and presents their current mode shares and the goals they have set.

Mode Share Goal Options

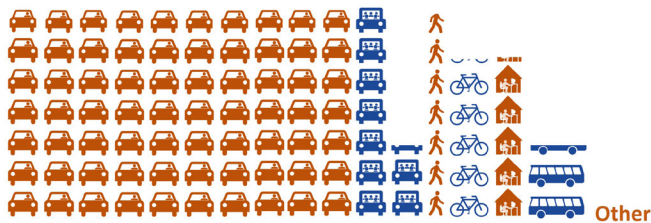
In reviewing the information, the MPO developed three mode share goal options for consideration. The options were based on the comparison city research, current mode share trends in Missoula, and feedback from the public and committees. The three options included “2045 Business as Usual” “2045 Moderate” and “2045 Ambitious” goals, which are outlined in Figure 45.

Generally, the “Business as Usual” goal was based on projecting the current mode share trends to 2045. The “Moderate Goal” generally doubles the percentage mode share for each mode by 2045 and the “Ambitious Goal” generally triples the percentage

2045 Mode Share Goal Parameters

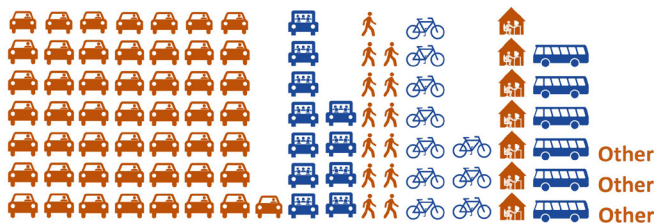
- Utilize the U.S. Census American Community Survey commute to work data based on 5-year rolling averages as the official primary data source for tracking mode share over time. (Other supplemental data, such as ridership and bike/ped activity will be used to confirm trends)
- Set the goal for the MPO Urbanized Area (not the County or the City, recognizing that what happens “in the City” has the most influence over the mode split in the Urban Area and County).
- Set an overall goal for reducing single-occupancy vehicle use and sub-goals for each mode.

Option 1 – Business as Usual



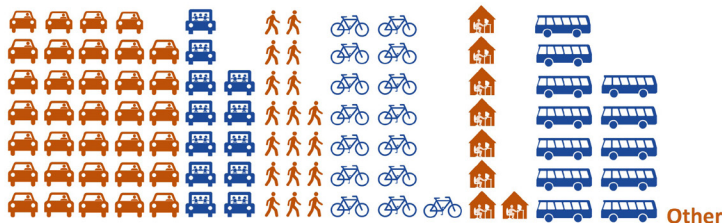
- Maintains current average mode share in 2045
- **70.5% drive-alone** commute share
- **30,000 more** drive-alone commute trips in 2045

Option 2 – Moderate Mode Shift



- Reduces drive-alone commute share to **50% by 2045**
- **Only 2,000 more** drive-alone commute trips in 2045
- Generally doubles bike, walk, and transit shares by 2045
- Small increase to carpool and work from home

Option 3 – Ambitious Mode Shift



- Reduces drive-alone commute share to **34% by 2045**
- **20,000 less** drive-alone commute trips in 2045
- Generally triples bike, walk, and transit shares by 2045
- Small increase to carpool and work from home

Figure 45. Three proposed 2045 commute mode share goals for the Missoula urban area

mode split for each mode by 2045, with the exceptions of “carpool” and “other” which were increased slightly and transit, which was nearly tripled (recognizing that current gains in ridership due to BOLT! service and Zero Fare may increase transit’s mode share more rapidly).

Additionally, an estimate of the number of drive-alone commute trips that would occur in 2045 for each option was created as a means to compare the goals and help produce a vision of what the transportation system may need to accommodate in terms of demand.

The three proposed goals were also utilized as a starting point to put together options for how future funds should be allocated, which is described more fully in the next section.

Funding

Satisfying the Missoula MPO region’s transportation needs over the next 30 years is a major undertaking. The infrastructure demands associated with building and maintaining roadways, non-motorized infrastructure, and transit systems will be challenged by the region’s projected population growth and by the aging of existing infrastructure already in use. The limited availability of federal, state, and local funds will also have a significant impact on the ability to implement proposed projects. Demands on the transportation system have grown significantly in the past and the increase in this demand will accelerate faster than the growth in funding.

This section describes the revenue sources and anticipated revenues to maintain, operate, and

expand the transportation system in the Missoula MPO region from now through 2045. The financial analysis presented in this chapter meets the federal requirements stated in the FAST Act. It must be emphasized that this is a long-range systems level plan and many of the cost estimates, as well as the revenue estimates, are preliminary and will be revisited several times before the years they represent come to pass. The intent is to prepare an approximate, yet realistic estimate of both the total funds available and the total costs. It goes without saying, but not all projects that are needed and/or desired will receive funds.

Fiscal Constraint

Federal rules require that LRTPs, such as Activate Missoula 2045, be fiscally constrained. That is, planned expenditures shall not exceed the revenue estimates to support the operations, maintenance, and new construction during the 30 years covered by the LRTP. The plan must include the revenues and costs to operate and maintain the roads and associated systems to allow the MPO to estimate future transportation conditions and to promote the use of existing infrastructure to the fullest.

The MPO approached the task of estimating future project costs and revenues in a conservative manner. Revenues for each funding source were estimated to increase only 3% every 5 years. When estimating future project costs, the MPO included a 3% per year inflation rate. Additionally, when looking at future project costs, the MPO attempted to estimate when proposed projects may be completed and then estimated a project cost that reflected the “year of expenditure.”

In the first 5 years of the 30-year plan, “year of expenditure” was estimated for each year using numbers from the current 2016-2020 Transportation Improvement Program; then the MPO broke the remaining years into two “bands”: one for 2021 to 2030 (10-year, mid-term band) and one for

2031-2045 (15-year, long-term band). If a proposed project was estimated to be completed in one of the future bands, the “year of expenditure” was estimated to occur in the middle year of the band.

Funding Sources

In general, there are two major categories of funding sources available for transportation in the Missoula region: federal/state funds and local funds. The vast majority of funds from federal/state sources are considered to be non-discretionary – i.e. they are restricted to specific uses or types of projects. For example, Federal Transit Administration funds must be used for transit purposes, state bridge funds must be used for bridges, and federal interstate maintenance funds must be used for maintenance projects on I-90.

Even some local funding is considered non-discretionary, such as the gas tax revenue that the County and City of Missoula receive, which is largely used for roadway maintenance. Also considered to be non-discretionary, are funds that are committed to projects that are already in the pipeline. A primary example is the Russell Street project, which is

Federal and State Funds (examples)

- Surface Transportation Program Urban
- Congestion Mitigation Air Quality
- Highway Safety Improvement Program
- Bridge
- Interstate Maintenance
- National Highways
- Federal Transit Administration (Sections 5310, 5311, 5339, etc.)
- Transportation Alternatives (grants)

Local Funds (examples)

- Gas tax – allocated by the state
- Road district
- Development impact fees
- Missoula Redevelopment Agency funds

expected to utilize the majority of the region’s federal Surface Transportation Program Urban (STPU) funds for the next 15 or more years.

Unfortunately, after taking non-discretionary and committed project funding out of the picture, there is not much discretionary funding left that the MPO can decide how to spend. Figure 46 illustrates the general breakdown of non-discretionary and discretionary funding estimated to be received over the next 30 years.

Currently, MPO staff estimates that approximately \$760.4 million in revenues will be received within the region through 2045, however the majority of this (approximately 85 percent) is committed or non-discretionary. MPO staff estimates that there will be \$97.7 million of discretionary funds through 2045 (about 15 percent of the total revenue), but it is important to note that not all of the discretionary funds are under the control of the MPO. Much of the discretionary funding is under local control, and therefore while the LRTP may recommend projects to be funded with locally-controlled funds,

these recommendations are only able to be implemented by the local jurisdictions responsible for them (namely the City of Missoula and the Missoula Redevelopment Agency).

Funds from two federal/state funding sources, STPU and Congestion Mitigation and Air Quality (CMAQ) are allocated every year to the Missoula MPO and the TPCC has the ultimate authority on how these funds are spent (currently STPU funds are programmed for Russell Street and CMAQ funds are programmed to a number of ongoing programs). These are considered discretionary, along with additional locally-controlled local sources.

Local funds can also be used for the completion of projects in the LRTP. In fact, a significant number of regional transportation projects are completed using only locally-derived funds. For example, the recently completed improvements to 3rd Street, Hillview Way, miles of sidewalks in MRA’s urban renewal districts, the S. Reserve Street pedestrian bridge, and Wyoming Street are all examples of locally-funded projects that contribute to the

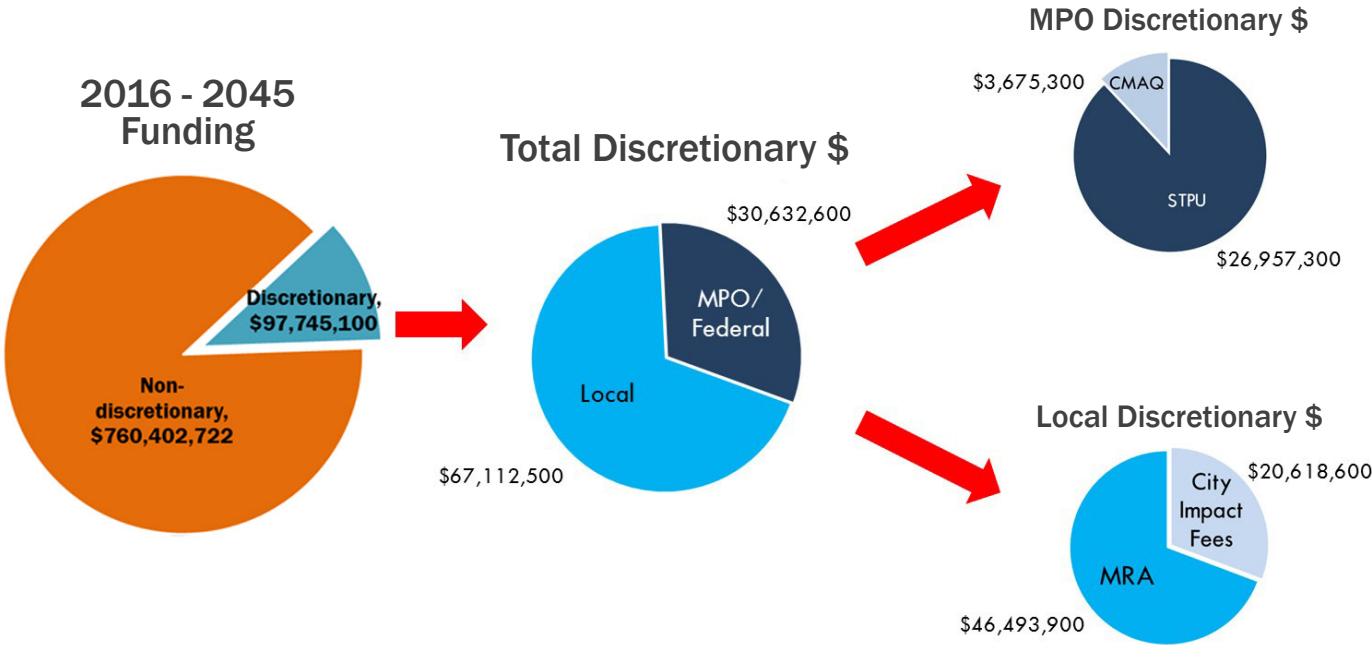


Figure 46. Estimated discretionary and non-discretionary revenues through 2045

regional transportation network. Transit funds raised through local property taxes have also made it possible for Mountain Line to operate 15-minute Bolt! service on two high-demand routes.

All in all, the LRTP is an important planning document that helps to coordinate projects and funding across the region, no matter where the funds come from or who ultimately constructs them.

Project and Program Categories

Apart from the various funding sources, it is also necessary to categorize the types of projects or programs, because this too ultimately relates to the source of funds and what can and cannot be used for particular projects or programs. For example, some funding sources are specific to capital, while others

can only be used for operations. Figure 47 breaks down the project/program categories used in the funding allocations described in the next section.

II. Transportation System Scenarios

Ultimately, the MPO developed four overall “transportation system scenarios” to evaluate for 2045. Each of the scenarios differed in how much of the discretionary funding (\$97 million) was allocated to each category, then based on the project ranking, projects were selected for each category. For example, Scenario 1 allocated \$70.6 million to “roadway” projects, then the top-ranked roadway projects that totaled no more than \$70.6 million were funded in that scenario. In Scenario 3, only \$35.6 million was allocated to “roadway” projects, so fewer roadway projects are funded in that scenario.

Part of the process also included matching the projects with eligible funding sources. For example, projects located in the county cannot be funded by the City of Missoula or by the MRA. Likewise, transit operating funds from the FTA cannot be used to fund roadway safety projects or construction of new trails. The complete list of ranked projects is included in Appendix C.

The process for building each of the transportation system scenarios is outlined in Figure 48. Each scenario started with a common discretionary



Figure 47. Discretionary and non-discretionary funding categories

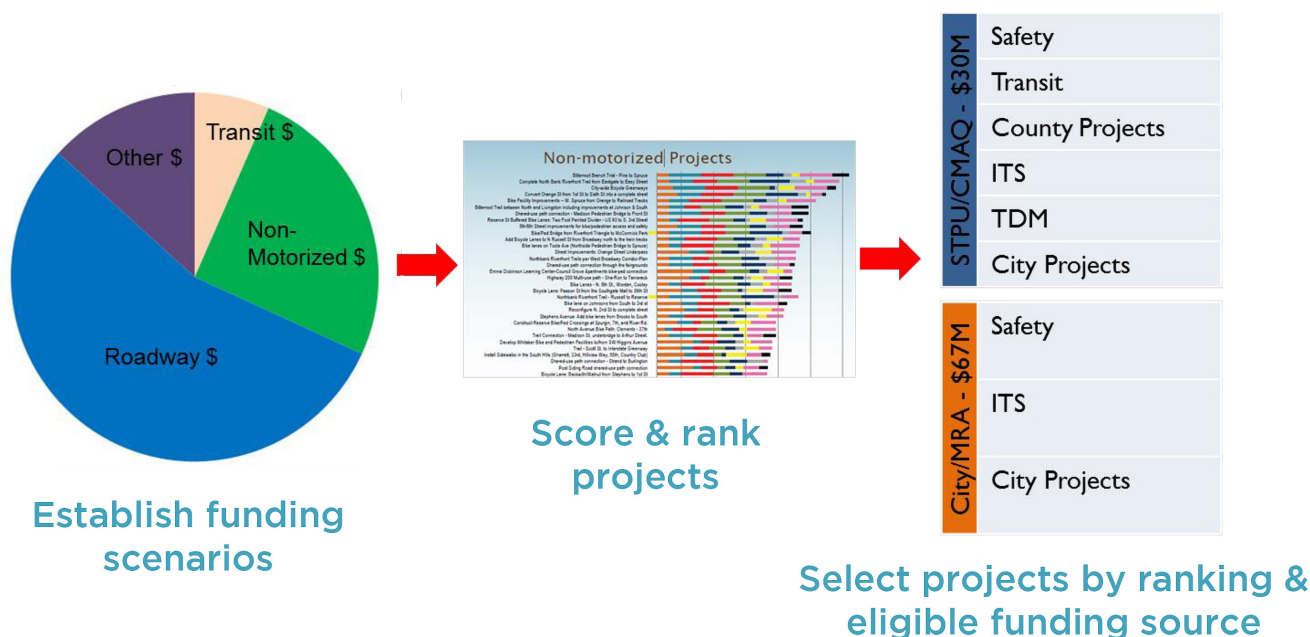


Figure 48. Outline of process for creating transportation system scenarios

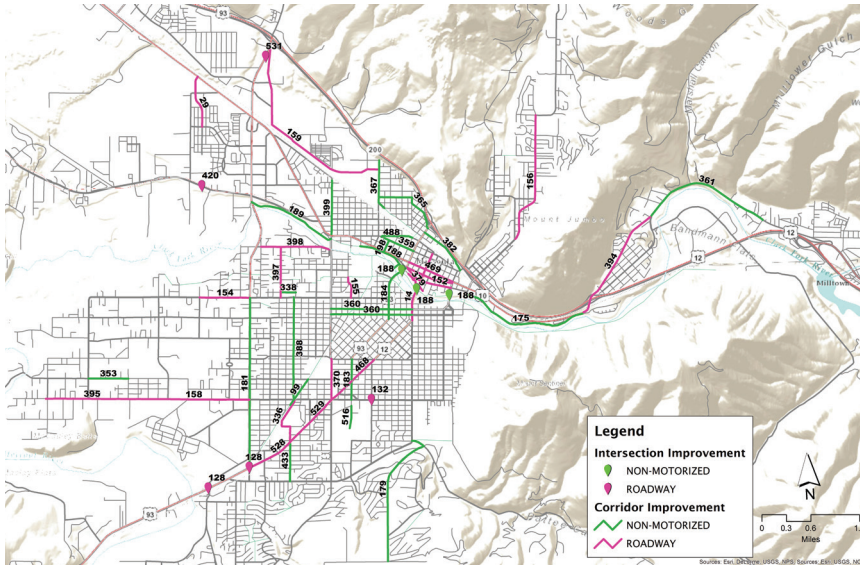
funding amount, which was then allocated to the funding categories using the three mode split goals as a starting point. Once funding scenarios were established, projects were scored using the methods described in Chapter 4. The final stage of each scenario development was to select projects for funding based on ranking and eligible funding source.

The following graphics summarize each of the scenarios that were developed and presented to the public and the various committees, including the CAC, the TAC, and the TTAC and TPCC for consideration. Scenarios 1 through 3 were originally developed by the MPO and were intended to “mirror” the three mode share goals, with Scenario 1 aligning with the “Business as Usual” mode share,

Scenario 2 aligning with the “Moderate” mode share, and Scenario 3 aligning with the “Ambitious” mode share. The idea behind doing this was to attempt to tie infrastructure investment to mode share outcomes. In other words, it could be assumed that greater investment in non-motorized/active modes would have a commensurate effect on shifting mode share.

Scenario 4 was developed later after receiving input from the TPCC, some of whom felt that a scenario that allocated more funding to transit was needed in order for Mountain Line to be in a better position to implement their next phase of transit improvements. Therefore Scenario 4 was created and modeled after Scenario 2, but with a larger portion of funds directed to transit.

SCENARIO #1



Roadway - \$70.6M

\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$

Emphasis on larger roadway projects and complete street improvements



Non-Motorized - \$11.9M

\$\$\$

Continue to fund non-motorized project at current levels. Focus on projects within the urban core



Transit - \$2.2M

\$

Support continued Mountain Line Phase II service (BOLT on Rte. 1 & 2); will not fund all future planned bus replacements

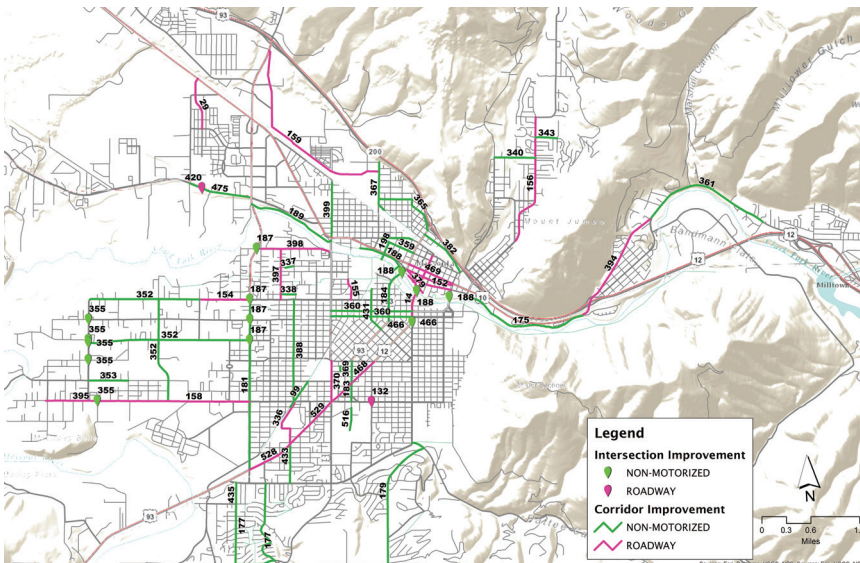


Other - \$13M

\$\$\$

Funding for ITS, Transportation Options (MIM, Bike/Ped/Missoula-Ravalli TMA) and CTSP priority safety improvements

SCENARIO #2



Roadway - \$53.6M

\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$

Fewer roadway capacity/expansion projects; emphasis on complete streets



Non-Motorized - \$24.6M

\$\$\$\$\$

Expand investment in active modes; additional connections, intersection improvements and regional facilities.



Transit - \$6.4M

\$

Funds capital bus purchases to continue providing Phase II (BOLT Rte. 1 & 2, evening service)

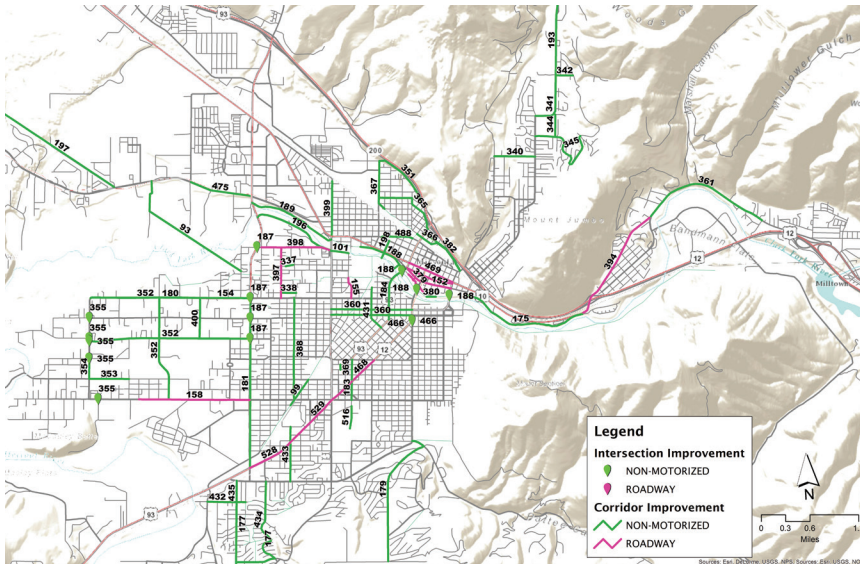


Other - \$13M

\$\$\$

Funding for ITS, Transportation Options (MIM, Bike/Ped/Missoula-Ravalli TMA) and CTSP priority safety improvements

SCENARIO #3



Roadway - \$36.5M

\$\$\$\$\$\$\$\$\$!

De-emphasize roadway projects; continue to fund priority complete streets projects

Non-Motorized - \$35.3M

\$\$\$\$\$\$\$\$\$

Shifts funding to active modes; expands intersection improvements, additional connections, and regional facilities

Transit - \$12.8M

\$\$\$

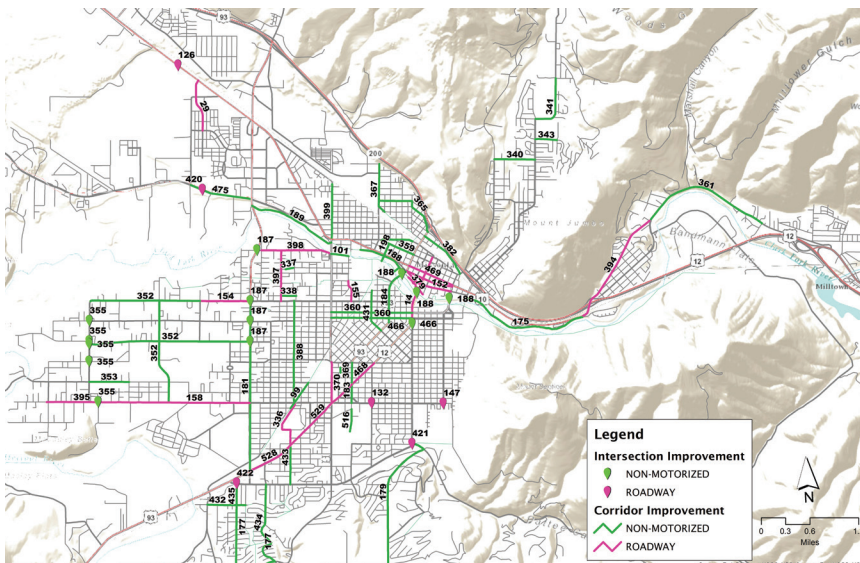
Support Mountain Line capital bus purchases for continuation of Phase II and partial funding of Phase III (add BOLT Rte)

Other - \$13M

\$\$\$

Funding for ITS, Transportation Options (MIM, Bike/Ped/Missoula-Ravalli TMA) and CTSP priority safety improvements

SCENARIO #4



Roadway - \$47.6M

\$\$\$\$\$\$\$\$\$\$\$\$\$!

Fewer roadway capacity/expansion projects; emphasis on complete streets

Non-Motorized - \$21.9M

\$\$\$\$\$!

Expand investment in active modes; additional connections, intersection improvements and regional facilities.

Transit - \$15.2M

\$\$\$

Additional investment in capital bus purchases to support Phase III (add BOLT service on Brooks St, SG Mall TC)

Other - \$13M

\$\$\$

Funding for ITS, Transportation Options (MIM, Bike/Ped/Missoula-Ravalli TMA) and CTSP priority safety improvements

III. Scenario Performance

Each of the scenarios was evaluated using the MPO's travel demand model by modeling the projects funded under each scenario using 2045 housing and employment projections. The travel demand model, which is a tool for evaluating high-level regional effects of transportation projects, provides some information to help compare scenarios, but it should be noted that it is only meant to provide a general summary of possible regional effects on certain performance measures.

Table 12 summarizes the general comparison of the performance of each scenario compared to the base model for 2045 (which includes only the existing transportation system and the committed projects). The evaluation looked at performance of the scenarios using the following measures: reduced daily VMT, daily hours of delay/congestion reduced, and the daily change in the number of transit, bike, and walk trips taken system-wide.

All scenarios are expected to result in reductions to daily VMT compared with the base model in 2045, with Scenario 4 having the greatest VMT reduction. Scenarios 3 and 4 have the largest reduction in daily hours of delay, which is a measure of congestion, with Scenario 3 having the largest reduction, followed by Scenario 4. All scenarios result in increased transit, bike, and walk trips over the base 2045 model, with Scenario 3 having the largest collective increase to these modes.

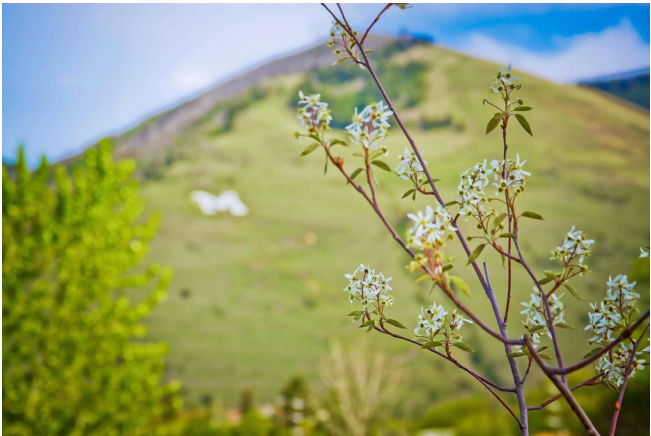


Table 12. Scenario comparison of travel demand model performance measures vs. 2045 base model

Performance measure	Scenario 1	Scenario 2	Scenario 3	Scenario 4
VMT saved (MPO area)	9,174	14,205	11,720	15,085
Hours of delay saved (MPO area)	-183	-27	196	141
Change in transit trips	578	526	533	541
Change in walk trips	1,427	1,638	1,748	1,191
Change in bicycle trips	811	1,834	1,920	1,791

All figures are changes in daily totals for the entire Missoula area transportation system



12 SOUTH HILLS

310

4-1582

Our Transportation Future



I. Recommended Plan

Following more than a year of research, analysis, public outreach, and evaluation of the various aspects of the transportation system's existing and future needs, a future transportation system scenario was chosen to move forward, which includes recommended allocations of future funding to the various project categories, as well as specific project recommendations. On the policy side, a mode share goal was chosen for the MPO to help guide future decision-making. The following sections describe the process and recommendations.

The 3rd and final Transportation Summit public meeting was an open house that asked participants, after reviewing the information collected throughout the Activate Missoula 2045 process, to choose which of the 4 overall transportation system scenarios was the best for Missoula, and which of the 3 proposed mode share goals was preferred.

The information was also presented on the activatemissoula.com website to gather feedback from those who could not attend in person and members of the CAC weighed in following the public meeting.

Open house attendees, CAC members, and online participants favored Scenario 3 (heaviest non-motorized funding scenario) and Scenario 4 (balanced funding approach with additional transit focus), with responses nearly evenly split.

Similarly, the “Moderate” and “Ambitious” mode share goals were most heavily favored, with nearly all those who commented at the open house preferring the “Ambitious” goal, while the results from the CAC and online were more evenly split.

All of the collected public input was then presented to the TTAC and TPCC, which both recommended

CHAPTER CONTENTS

- I. Recommended Plan
- II. Estimated Revenue
- III. Funding Allocation
- IV. Plan Performance

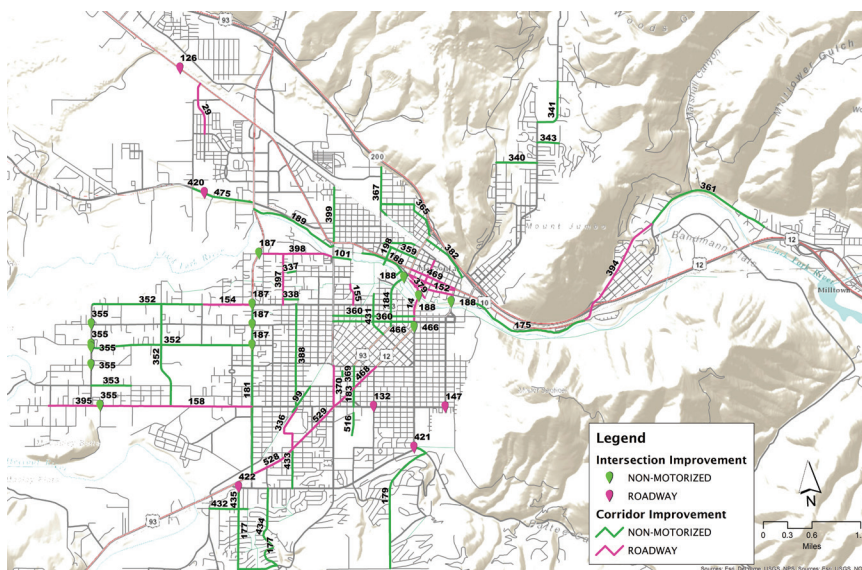


Transportation Summit #3 attendees discuss the mode split and funding scenario options

that Scenario 4 be the Activate Missoula 2045 preferred plan, and that the “Ambitious” mode share goal be adopted (Figure 49 and Figure 50). The recommended scenario is arguably the most balanced of the scenarios in terms of the allocation of the available discretionary funds to each of the categories being more evenly split.

It is expected that implementation of Scenario 4 will support the achievement of the “Ambitious” mode share goal as we move toward 2045, though it is important to recognize that infrastructure is only one part of the equation when it comes to shifting travel behavior – education, encouragement, and land use policy also play a vital role.

SCENARIO #4



Roadway - \$47.6M

\$\$\$\$\$\$\$\$\$\$\$

Fewer roadway capacity/expansion projects; emphasis on complete streets

Non-Motorized - \$21.9M

\$\$\$\$\$

Expand investment in active modes; additional connections, intersection improvements and regional facilities.

Transit - \$15.2M

\$\$\$

Additional investment in capital bus purchases to support Phase III (add BOLT service on Brooks St, SG Mall TC)

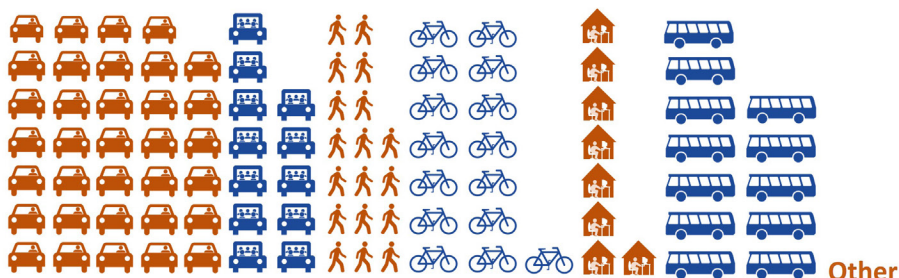
Other - \$13M

\$\$\$

Funding for ITS, Transportation Options (MIM, Bike/Ped/Missoula-Ravalli TMA) and CTSP priority safety improvements

Figure 49. Adopted Activate Missoula 2045 plan scenario

Option 3 – Ambitious Mode Shift



- Reduces drive-alone commute share to **34% by 2045**
- **20,000 less** drive-alone commute trips in 2045
- Generally triples bike, walk, and transit shares by 2045
- Small increase to carpool and work from home

Figure 50. Adopted 2045 mode share goal

II. Estimated Revenue

The following tables summarize the expected revenues and expenditures for each funding source, for both federal and state/local funds, over the life of the plan. The expenditures (or committed and recommended projects) are described more fully in the following pages and are broken down by category of project. A full breakdown of revenue projections by year can be found in Appendix D.

Revenue estimates are grouped into three time period “bands” that represent the short-term (cover the five years of the current 2016-2020 TIP), mid-term (2021 through 2030) and long-term (the final 15 years of the plan, through 2045).

Federal funding

Federal funding sources, broken down in detail in Table 13, provide nearly half of all funding over the next 30 years.

The MPO, via the TPCC, exercises primary authority over allocating the STPU and CMAQ funding sources, while MDT is responsible for administering other federal sources such as IM, NH, STPX/STPS/SFCN, HSIP, BR, UPP, and TA.

Revenue from FTA sources, such as 5307, 5339, 5310 and 5311 are allocated by the TPCC through the TIP, however, each agency typically is responsible for programming those funds to specific projects and operational programs.

Table 13. Federal revenue sources and estimated funding over the next 30 years

Funding Source	2016-2020	2021-2030	2031-2045	Total
Surface Transportation Program - Urban (STPU)	\$24,522,700	\$18,901,100	\$30,531,600	\$73,955,400
Congestion Mitigation & Air Quality (CMAQ)	\$7,357,100	\$13,805,000	\$22,254,100	\$43,416,200
Interstate Maintenance (IM)*	\$44,513,900	\$10,693,688	\$17,640,491	\$72,848,080
National Highways (NH)*	\$14,630,200	\$5,780,124	\$9,534,992	\$29,945,315
Montana Air & Congestion Initiative (MACI)*	\$5,999,455	\$10,095,880	\$16,654,337	\$32,749,672
Surface Transportation Program Off-system (STPX), Secondary (STPS), and State Funded Construction (SFCN)*	\$3,908,400	\$17,035,181	\$28,101,528	\$49,045,109
Highway Safety Improvement Program (HSIP)*	\$6,246,382	\$8,251,933	\$13,612,530	\$28,110,845
Transportation Alternatives (TA)*	\$284,600	\$0	\$0	\$284,600
Urban Pavement Preservation (UPP)*	\$972,400	\$3,905,947	\$6,443,317	\$11,321,663
Bridge Program (BR)*	\$33,244,400	\$8,832,980	\$14,571,035	\$56,648,415
Earmarks	\$2,376,848	\$0	\$0	\$2,376,848
Federal Transit Admin. - 5307†	\$8,004,491	\$16,736,589	\$27,035,246	\$51,776,325
Federal Transit Admin. - 5339†	\$549,779	\$1,149,533	\$1,856,884	\$3,556,196
Federal Transit Admin. - 5310†	\$618,690	\$1,293,619	\$2,089,632	\$4,001,941
Federal Transit Admin. - 5311	\$1,102,600	\$2,305,376	\$3,723,961	\$7,131,937
Totals	\$154,331,945	\$118,786,951	\$194,049,653	\$467,168,548

* There is no annual allocation for these funding sources. Revenue projections are based on 2013-2015 average yearly obligation.

† Federal allocation only. Local match reflected in the Mill Levy and Passenger Revenue lines below. This also applies to CMAQ for any Mountain Line projects and local match, but the amount varies and does not substantively change the total.

All revenue received a 3% inflation increase every five years.

State and local funding

Several state and local funding sources are considered in this plan. Although not required by federal transportation planning rules, inclusion of local funding sources provides a better regional picture of transportation investments throughout the region.

The revenues and recommended funding allocations in this plan are intended to guide local decision-makers to better plan for future transportation needs and investments, and give a clear picture of how federal, state and local transportation investments can work together to improve the regional transportation system.

State revenue sources include general maintenance funding for roadways and TRANSADE funds to support local transit operations.

Local funding sources include City and County gas taxes used for roadway maintenance, road improvement district funding, tax increment financing (TIF) from Missoula's URDs, and MUTD mill levy and other income (Zero Fare partners, advertising revenue, and other sources).

Anticipated state and local revenues are detailed in Table 14.

Table 14. Local revenue sources and estimated funding over the next 30 years

State/Local	Funding Source	2016-2020	2021-2030	2031-2045	Total
	City Gas Tax	\$5,461,795	\$11,420,068	\$18,447,268	\$35,329,131
	County Gas Tax	\$1,650,786	\$3,451,628	\$5,575,545	\$10,677,958
	State Maintenance	\$8,834,900	\$18,472,900	\$29,839,900	\$57,147,700
	Local Capital Improvement Funds%	\$12,056,281	\$25,208,478	\$40,720,209	\$77,984,968
	City Road Maintenance District	\$8,089,518	\$16,914,372	\$27,322,426	\$52,326,316
	TRANSADE	\$142,349	\$297,638	\$480,785	\$920,772
	MUTD Mill Levy & other income#	\$23,796,678	\$50,194,888	\$82,600,864	\$156,592,430
	Totals	\$60,032,307	\$125,959,972	\$204,986,996	\$390,979,274

% Average of FY 2011 to 2015 Road Impact Fees + MRA URD average TIF expended between FY 2011 and 2015 on transportation related infrastructure.

MUTD Other revenue includes fares, sponsorships, advertising, etc.

All revenue received a 3% inflation increase every five years.

III. Funding Allocation

As described in Chapter 5, all considered projects and programs were assigned to one of several funding categories: roadway (capital improvements), roadway maintenance, non-motorized (bicycle and pedestrian projects), safety, ITS, transportation options, transit capital investments, and transit operations. The financial plan outlined in Scenario 4 includes a set of recommended projects that are realistic given the anticipated revenue estimates detailed in the previous section.

The following sections provide a detailed description of the projects funded under each category, as well as the sources of funding necessary to complete those projects. All project cost estimates

and funding allocations are provided as year of expenditure dollars to demonstrate fiscal constraint in future years.

Roadway

Table 15 below outlines the funding allocated to roadway projects by funding source. Federal funding sources are further broken down to show the state and local match required to receive federal dollars. For example, STPU dollars are matched by the state at 13.42 percent of the total project cost.

An estimated \$206 million federal and \$69.1 million local dollars are projected to be available for roadway capital investments over the 30 year period of this plan. All committed and recommended roadway projects are listed in Table 23.

Table 15. Total roadway funding allocations, by revenue source

Federal	Roadway	2016-2020	2021-2030	2031-2045	Total
	STPU	\$20,714,500	\$15,661,551	\$5,410,614	\$41,786,665
	IM*	\$34,595,100	\$8,293,383	\$13,680,907	\$56,569,390
	NH*	\$8,284,300	\$3,427,960	\$5,654,822	\$17,367,082
	STPX/STPS/SFCN*	\$2,832,300	\$12,389,210	\$20,437,454	\$35,658,965
	BR*	\$28,550,800	\$7,647,594	\$12,615,602	\$48,813,996
	Earmark	\$2,057,875	\$0	\$0	\$2,057,875
Totals		\$97,034,875	\$47,419,698	\$57,799,399	\$202,253,973

*Estimates for 2021-2030 and 2031-2045 based on average roadway portion in current TIP

State/Local	Roadway	2016-2020	2021-2030	2031-2045	Total
	STPU*	\$3,210,800	\$2,427,558	\$838,651	\$6,477,010
	IM*	\$3,521,400	\$796,252	\$1,313,511	\$5,631,163
	NH*	\$1,284,100	\$329,120	\$542,922	\$2,156,143
	STPS*	\$439,000	\$1,920,342	\$3,167,829	\$5,527,171
	BR*	\$4,425,400	\$1,185,386	\$1,955,433	\$7,566,219
	Earmark*	\$318,973	\$0	\$0	\$318,973
Totals		\$21,304,673	\$25,503,564	\$21,765,703	\$68,573,940

*State/local match portion of overall source funding

Non-motorized

Funding allocated to non-motorized projects is shown in Table 16. Federal funding sources available for non-motorized projects include STPU and TA grants. Prior to the MAP-21 and the FAST Act, the MPO received dedicated non-motorized specific funding from Surface Transportation Program-Enhancement (STPE). However, starting with MAP-21, those dollars were allocated through the state-wide competitive TA grant program. Under this new allocation process, Missoula has only received \$240,000 over the last four years.

In lieu of dedicated federal dollars, and considering that STPU funds are committed to Russell Street

through 2030, more funding from local sources will be necessary to meet the goals of this plan. An estimated \$8.1 million federal dollars and \$33.1 million local dollars are planned for non-motorized projects over the next 30 years. The committed and recommended non-motorized projects are listed in Table 24.

Transportation Options

In this plan, funding for Transportation Options programs largely continues to support existing and on-going programs such as MIM, the City of Missoula Bicycle & Pedestrian Program, street sweepers, and MRTMA. These programs are the primary projects drawing on CMAQ funding. Table 17 shows the

Table 16. Total non-motorized funding allocations, by revenue source

Federal	Non-motorized	2016-2020	2021-2030	2031-2045	Total
	STPU	\$0	\$0	\$7,917,681	\$7,917,681
	TA	\$246,400	\$0	\$0	\$246,400
	Totals	\$246,400	\$0	\$7,917,681	\$8,164,081
State/Local	Non-motorized	2016-2020	2021-2030	2031-2045	Total
	STPU	\$0	\$0	\$1,227,250	\$1,227,250
	TA	\$38,200	\$0	\$0	\$38,200
	Local (MRA, Impact Fees)	\$1,000,000	\$6,321,375	\$24,558,229	\$31,879,604
	Totals	\$1,038,200	\$6,321,375	\$25,785,479	\$33,145,054

*State/local match portion of overall source funding

Table 17. Total Transportation Options funding allocations, by revenue source

Federal	Transportation Options	2016-2020	2021-2030	2031-2045	Total
	CMAQ	\$2,014,717	\$4,029,433	\$6,044,150	\$12,088,300
	5311	\$868,535	\$1,816,020	\$2,933,486	\$5,618,041
	Totals	\$2,883,252	\$5,845,453	\$8,977,636	\$17,706,341
St/Local	Transportation Options	2016-2020	2021-2030	2031-2045	Total
	CMAQ*	\$312,283	\$624,567	\$936,850	\$1,873,700
	5311*	\$234,041	\$489,356	\$790,475	\$1,513,872
	Totals	\$546,324	\$1,113,923	\$1,727,326	\$3,387,573

*State/local match portion of overall source funding

federal and local funding allocated to Transportation Options programs, including CMAQ and FTA 5311 sources. Local match for CMAQ and 5311 is generally the same as other federal programs, at 13.42 percent.

A full list of Transportation Options projects and programs funded in this plan are shown in Table 25.

Intelligent Transportation Systems

The Activate Missoula 2045 plan fully funds ITS projects. These systems were 100 percent funded at all tables during the Transportation Summit #2 funding game, and are strongly supported by committees. Due to lack of available federal funds in earlier years, the projects are in the long-term funding band (2031-2045). However, the MPO will continue to

explore grant opportunities or other funding sources to help implement a complete ITS in Missoula at an earlier date.

Funding allocations for ITS can be found in Table 18, and all recommended ITS projects can be found in Table 26.

Safety

The primary source of funding for safety projects, aside from safety enhancements included in roadway or non-motorized projects, is the state-managed Highway Safety Improvement Program (HSIP). An estimated \$25.4 million federal dollars and \$3.5 million state and local dollars are committed or recommended for safety improvements.

Table 18. Total ITS funding allocations, by revenue source

Federal	ITS	2016-2020	2021-2030	2031-2045	Total
	CMAQ	\$0	\$0	\$3,451,887	\$3,451,887
	Totals	\$0	\$0	\$3,451,887	\$3,451,887

St/Local	ITS	2016-2020	2021-2030	2031-2045	Total
	CMAQ*	\$0	\$0	\$535,046	\$535,046
	Totals	\$0	\$0	\$535,046	\$535,046

*State/local match portion of overall source funding

Table 19. Total safety funding allocations, by revenue source

Federal	Safety	2016-2020	2021-2030	2031-2045	Total
	HSIP	\$5,748,267	\$7,426,740	\$12,251,277	\$25,426,284
	Totals	\$5,748,267	\$7,426,740	\$12,251,277	\$25,426,284

St/Local	Safety	2016-2020	2021-2030	2031-2045	Total
	HSIP*	\$498,085	\$825,193	\$1,361,253	\$2,684,532
	Local (MRA, Impact Fees)			\$869,295	\$869,295
	Totals	\$498,085	\$825,193	\$869,295	\$3,553,827

*State/local match portion of overall source funding

Total funding for safety projects, by funding source, is described in Table 19. All committed and recommended safety projects are shown in Table 27.

Roadway, Trail and Sidewalk Maintenance

Table 20 details the federal, state and local funding for roadway maintenance. This funding category includes federal and state funds administered by MDT (IM, NH, STPX/STPS/SFCN, BR, UPP, and MACI) as well as state and local sources such as City and County gas taxes, road maintenance districts, and state-funded maintenance.

A full list of maintenance projects and programs can be found in Table 28.

Trail, shared-use path, sidewalk and lighting maintenance is also funded by both the City and the County. Most funding for trail and path maintenance comes from park impact fees or general fund revenue, so it is not included in the maintenance funding tables. It is a critical component of a functional active transportation system, however, and is a source of future funding shortfalls if growth in maintenance costs continues to outpace revenue.

Estimated revenue allocations for stated-administered funding sources (IM, NH, STPX/STPS/SFCN, BR and UPP) are based on the proportion of those funds obligated to maintenance projects in the 2016-2020 TIP, and are assigned to a placeholder project until specific projects are identified for funding.

Table 20. Total roadway maintenance funding allocations, by revenue source

Federal	Maintenance	2016-2020	2021-2030	2031-2045	Total
	CMAQ	\$1,982,682	\$2,686,866	\$4,030,299	\$8,699,847
	IM*	\$6,019,300	\$1,463,538	\$2,414,278	\$9,897,116
	NH*	\$4,382,500	\$1,845,825	\$3,044,904	\$9,273,229
	STPX/STPS/SFCN*	\$496,300	\$2,359,850	\$3,892,848	\$6,748,998
	BR*	\$232,200	\$0	\$0	\$232,200
	UPP*	\$841,900	\$3,381,769	\$5,578,624	\$9,802,292
	MACI*	\$4,104,300	\$8,741,013	\$14,419,325	\$27,264,638
	Totals	\$18,059,182	\$20,478,860	\$33,380,278	\$71,918,320
*Estimates for 2021-2030 and 2031-2045 based on average maintenance portion in current TIP					
State/Local	Maintenance	2016-2020	2021-2030	2031-2045	Total
	CMAQ*	\$307,318	\$416,467	\$624,701	\$1,348,486
	IM*	\$577,900	\$140,515	\$231,796	\$950,211
	NH*	\$679,200	\$177,219	\$292,343	\$1,148,761
	STPX/STPS/SFCN	\$76,900	\$365,779	\$603,396	\$1,046,075
	BR*	\$36,000	\$0	\$0	\$36,000
	UPP*	\$130,500	\$524,178	\$864,693	\$1,519,371
	MACI*	\$636,169	\$1,354,867	\$2,235,012	\$4,226,048
	Local (gas tax, road district)	\$24,036,999	\$50,258,968	\$81,185,138	\$155,481,105
	Totals	\$26,480,986	\$53,237,993	\$86,037,079	\$165,756,058

*State/local match portion of overall source funding

Transit - Capital

Transit capital costs include vehicles necessary to run Missoula's fixed route and paratransit services, as well as improvements to facilities, bus stops, and transfer centers. Funding available for transit capital improvements comes from federal, state and local sources, including FTA programs (5310, 5339), CMAQ, STPU, and local mill levy revenue.

The transit funding in this plan assumes Mountain Line will implement their Phase III services, which include an additional BOLT! line, expanded evening service, and a redesigned transfer center at the Southgate Mall. In order to achieve these fixed route service expansions, a substantial investment in capital bus purchases is necessary. Projected costs from MPO funding sources is listed in Table 21.

Committed and recommended transit capital projects are listed in Table 29.

Transit - Operations

Funding for transit operations also comes from a combination of federal, state and local sources. In addition to transit-dedicated FTA funding sources for service operations (5307), operations received funding from CMAQ, TRANSADE (state-allocated funds for transit service), and local mill levy revenue.

While the costs listed in Table 22 represent all anticipated transit operations funding, the specified expenses are determined annually by the FTA and MUTD (compensation, fuel, parts, repairs and other expenses). The MPO does program specific projects in this category.

Table 21. Total transit capital funding allocations, by revenue source

Federal	Transit - Capital	2016-2020	2021-2030	2031-2045	Total
	CMAQ	\$531,861	\$1,407,380	\$2,887,508	\$4,826,749
	STPU	\$0	\$0	\$13,160,160	\$13,160,160
	5339	\$439,823	\$919,626	\$1,485,507	\$2,844,957
	5310	\$494,952	\$1,034,895	\$1,671,705	\$3,201,552
Totals		\$1,466,636	\$3,361,901	\$19,204,880	\$24,033,418
State/Local	Transit - Capital	2016-2020	2021-2030	2031-2045	Total
	CMAQ*	\$82,439	\$218,146	\$447,567	\$748,152
	STPU*	\$0	\$0	\$2,039,840	\$2,039,840
	5339	\$109,956	\$229,907	\$371,377	\$711,239
	5310	\$123,738	\$258,724	\$417,926	\$800,388
Totals		\$316,133	\$706,776	\$3,276,710	\$4,299,619

*State/local match portion of overall source funding

Table 22. Total transit operations funding allocations, by revenue source

Federal	Transit - Operations	2016-2020	2021-2030	2031-2045	Total
	CMAQ	\$1,451,117	\$2,480,000	\$3,720,000	\$7,651,117
	5307	\$8,004,491	\$16,736,589	\$27,035,246	\$51,776,325
	Totals	\$9,455,607	\$19,216,589	\$30,755,246	\$59,427,442
State/Local	Transit - Operations	2016-2020	2021-2030	2031-2045	Total
	CMAQ*	\$351,083	\$620,000	\$930,000	\$1,901,083
	TRANSADE	\$142,349	\$297,638	\$480,785	\$920,772
	Mill Levy, Other Revenue	\$23,796,678	\$50,194,888	\$82,600,864	\$156,592,430
Totals		\$24,290,110	\$51,112,526	\$84,011,649	\$159,414,285

*State/local match portion of overall source funding



Table 23. Committed and Recommended roadway improvement projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
Committed Projects	7	N/A	Russell Street and Bridge Reconstruction (Broadway to Dakota)	MDT/City	STPU, BR, EARMARK	\$36,750,900	\$36,750,900	\$4,931,973	\$31,818,975				
	11	N/A	2nd half of Russell Street (Dakota to Mount Avenue)	MDT/City	STPU	\$19,640,309	\$19,640,309	\$208,200	\$1,343,000	\$2,427,558	\$15,661,551		
	30	N/A	Street Improvements: Wyoming (California to Russell)	City	Local	\$200,000	\$200,000	\$200,000					
	37	N/A	Bitterroot River - W of Missoula (South Ave Bridge - MacClay Bridge)	County	BR	\$10,900,000	\$9,657,980	\$110,700	\$714,300	\$1,185,386	\$7,647,594	\$577,285	\$3,724,388
	39	N/A	US 93: North of Desmet Interchange - North	MDT	NH	\$8,414,800	\$8,414,800	\$1,129,300	\$7,285,500				
	40	N/A	I-90: Missoula - East and West (Van Buran St, \$5,821,000 interchange)	MDT	IM	\$8,918,200	\$10,838,400	\$949,400	\$9,889,000				
	40.5	N/A	I-90: Missoula - East and West (Orange Street, \$1,969,000 interchange)	MDT	IM	\$3,925,800	\$3,932,700	\$344,500	\$3,588,200				
	49	N/A	Street Improvements: California (River Road to Dakota)	City	Local	\$400,000	\$400,000	\$400,000					
	54	N/A	Van Buren Street Reconstruction (Elm to Missoula Ave)	City	Local	\$345,000	\$345,000	\$345,000					
	122	N/A	Grant Creek Road right lane addition at I-90	MDT/City	IM, Local funds	\$604,200	\$604,200	\$235,400	\$368,800				
	131	N/A	Huson - East	MDT	STPS	\$3,271,300	\$3,271,300	\$439,000	\$2,832,300				
	347	N/A	Higgins Avenue Bridge Improvements - UPN 8807	City/MDT	BR	\$11,219,200	\$11,219,200	\$1,505,600	\$9,713,600				
	485	N/A	Intersection improvements - MT 200 and Old Hwy 10	MDT	NH	\$1,153,600	\$1,153,600	\$154,800	\$998,800				
	511	N/A	Madison Street Bridge Improvements - UPN 8806	MDT	BR	\$8,931,900	\$8,932,000	\$1,198,700	\$7,733,300				
	538	N/A	Mary Street - extend from Reserve over railroad to new Southgate Mall connector.	City	MRA	\$2,500,000	\$2,500,000	\$2,500,000					
	537	N/A	I-90 Bridge replacement - Bonner	MDT	IM	\$20,027,800	\$22,741,200	\$1,992,100	\$20,749,100				
		N/A	Placeholder for future IM projects	MDT	IM	\$24,084,053	\$24,084,053			\$796,252	\$8,293,383	\$1,313,511	\$13,680,907
		N/A	Placeholder for future NH projects	MDT	NH	\$9,954,825	\$9,954,825			\$329,120	\$3,427,960	\$542,922	\$5,654,822
		N/A	Placeholder for future STPX/STPS/SFCN projects	MDT	STPX/STPS/SFCN	\$37,914,836	\$37,914,836			\$1,920,342	\$12,389,210	\$3,167,829	\$20,437,454
		N/A	Placeholder for future BR projects	MDT	BR	\$10,269,362	\$10,269,362					\$1,378,148	\$8,891,214
Recommended Projects	528	132	Brooks St. (Reserve to Paxson) complete street	City	MRA	\$2,200,000	\$2,923,751			\$2,923,751			
	158	128	improvements at Old Fort and South Ave	City	Local	\$4,660,000	\$4,660,000	\$4,660,000					
	394	118.5	East Missoula - Highway 200 complete street reconstruction	County	STPU	\$1,835,000	\$3,544,792					\$475,711	\$3,069,081
	469	113	Downtown Master Plan	City	MRA	\$2,500,000	\$3,322,445			\$3,322,445			
	152	104.5	Front/Main conversion to 2-way streets	City	MRA	\$5,000,000	\$6,644,889			\$6,644,889			
	154	103.5	Street Improvements: 3rd (Reserve to Hiberta)	City/County	STPU	\$1,400,000	\$2,704,474					\$362,940	\$2,341,533
	397	98	Reconstruct Curtis St to make it a complete street	City	Local	\$770,000	\$1,023,313			\$1,023,313			
	398	93.5	Reconstruct River Road from Russell to Reserve as a complete street	City	Local	\$1,210,000	\$1,608,063			\$1,608,063			
	14	93	Higgins Avenue: 3-Lane conversion from Brooks Street to Broadway as detailed in the Downtown Master Plan (excluding bridge)	City	Local	\$2,500,000	\$3,322,445			\$3,322,445			
	370	88.5	Reconstruction to Complete Street standards - Russell St. from Mount to Brooks	City	Local	\$2,500,000	\$4,829,417					\$4,829,417	
	155	88	Street Improvements: California (3rd to Dakota)	City	MRA	\$1,000,000	\$1,931,767					\$1,931,767	
	336	87.5	Johnson Street: Extend from South Avenue to Brooks Street	City	MRA	\$2,500,000	\$2,549,932					\$2,549,932	
	379	83.5	Carousel Drive reconfiguration	City	Local	\$500,000	\$965,883					\$965,883	
	420	83.5	Intersection improvement at Mullan Rd & Mary Jane Blvd		Local	\$100,000	\$193,177					\$193,177	
	132	73.5	Intersection Improvements: Bancroft/South Ave	City	Local	\$300,000	\$579,530					\$579,530	
	468	67.5	Brooks St. (Stephens to Mount) reconstruct to complete street	City	MRA	\$500,000	\$965,883					\$965,883	
	421	66	Intersection improvement at Higgins Ave & Pattee Creek Rd	City	Local	\$100,000	\$193,177					\$193,177	
	126	65	Intersection Improvements: W. Broadway& George Elmer	MDT/City	Local	\$500,000	\$965,883					\$965,883	
	422	63.5	Intersection Improvements at Gharrett St & 39th St	City	Local	\$100,000	\$193,177					\$193,177	
	147	63	Intersection Improvements: Arthur & South	City	Local	\$300,000	\$579,530					\$579,530	

Table 24. Committed and Recommended non-motorized projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
Committed Projects	94	#N/A	Bitterroot Branch Trail Improved Crossing at Russell	City	STPU	\$1,500,000	\$2,897,650					\$388,865	\$2,508,786
	100	#N/A	Bitterroot Trail: Improve at-grade trail crossings to increase visibility/safety for bicyclists and pedestrians	City	TA	\$284,600	\$284,600	\$38,200	\$246,400				
	99	93.5	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South	City	MRA	\$1,000,000	\$1,000,000	\$1,000,000					
Recommended Projects	198	118.5	Bitterroot Branch Trail - Pine to Spruce	City	Local	\$45,000	\$59,804			\$59,804			
	175	112.5	Complete North Bank Riverfront Trail from Eastgate to Easy Street	City	Local, MRA	\$414,300	\$800,331					\$800,331	
	402	110.5	City-wide Bicycle Greenways	City	Local	\$1,950,000	\$2,591,507			\$2,591,507			
	184	104.5	Convert Orange St from 1st St to Sixth St into a complete street and increase bicycle and pedestrian access	City	Local	\$302,000	\$583,394					\$583,394	
	359	98	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks	City	Local	\$51,927	\$69,009			\$69,009			
	181	90	Reserve Street: Develop Buffered Bike Lanes to Allow for Two Foot Painted Divider - US 93 to S. 3rd Street	City	Local	\$50,000	\$66,449			\$66,449			
	360	90	5th/6th Street improvements for bike/pedestrian safety: lane reconfiguration on each street between Higgins and Russel to include a single vehicular travel lane, turn lanes at signalized intersections, parking, and buffered bike lanes	City	Local	\$159,643	\$212,161			\$212,161			
	534	90	Bike/Ped Bridge from Riverfront Triangle to McCormick Park	City	Local, MRA	\$2,500,000	\$3,322,445			\$3,322,445			
	399	88	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks	City	Local	\$17,700	\$34,192					\$34,192	
	488	88	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)	City	Local	\$12,500	\$24,147					\$24,147	
	188	86	Northbank Riverfront Trails per West Broadway Corridor Plan	City	Local, MRA	\$1,000,000	\$1,931,767					\$1,931,767	
	338	83.5	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	City	Local	\$172,586	\$333,396					\$333,396	
	361	83.5	Highway 200 Multi-use path - Sha-Ron to Tamarack	County	STPU	\$2,565,018	\$4,955,017					\$664,963	\$4,290,053
	365	83	Bike Lanes - N. 5th St., Worden, Cooley	City	Local	\$139,205	\$268,911					\$268,911	
	433	83	Bicycle Lane: Paxson St from the Southgate Mall to 39th St	City	Local	\$16,800	\$32,454					\$32,454	
	189	82.5	Northbank Riverfront Trail - Russell to Reserve	City	Local	\$1,000,000	\$1,931,767					\$1,931,767	
	388	80.5	Bike lane on Johnsons from South to 3rd st	City	Local	\$37,500	\$72,441					\$72,441	
	382	78.5	Reconfigure N. 2nd St to complete street	City	Local	\$360,000	\$695,436					\$695,436	
	183	78	Stephens Avenue: Add bike lanes from Brooks to South	City	Local	\$25,000	\$48,294					\$48,294	
	187	73.5	Construct Reserve Bike/Ped Crossings at Spurgin, 7th, and River Rd.	City	Local	\$3,000,000	\$5,795,300					\$5,795,300	
	353	73.5	North Avenue Bike Path: Clements - 37th	County	STPU	\$368,955	\$712,734					\$95,649	\$617,085
	179	71	Develop Whitaker Bike and Pedestrian Facilities to/from SW Higgins Avenue	City	Local	\$238,000	\$459,760					\$459,760	
	367	71	Trail - Scott St. to Interstate Greenway	City	Local, MRA	\$490,110	\$946,778					\$946,778	
	177	70	Install Sidewalk in the South Hills (Gharrett, 23rd, Hillview Way, 55th, Country Club)	City	Local	\$159,000	\$307,151					\$307,151	
	369	68.5	Shared-use path connection - Strand to Burlington	City	Local, MRA	\$47,333	\$91,436					\$91,436	
	536	68.5	Post Siding Road shared-use path connection	City	Local	\$368,000	\$710,890					\$710,890	
	431	68	Bicycle Lane: Beckwith/Walnut from Stephens to 1st St	City	Local	\$22,800	\$44,044					\$44,044	
	349	66	Bitterroot Branch Trail River Crossing	City	Local	\$1,500,000	\$2,897,650					\$2,897,650	
	355	66	Intersection improvements at: Clements & Mount, Clements & Spurgin, Clements & S. 7th W, South Ave. & 40th Ave.	County	STPU	\$300,000	\$579,530					\$77,773	\$501,757
	475	66	Mullan Road Trail - Flynn Lane to Reserve Street	City	Local	\$775,000	\$1,497,119					\$1,497,119	
	518	66	Milwaukee Trail connection to Hawthorne school	City/County	Local	\$100,000	\$193,177					\$193,177	
	519	66	Bike/Ped bridge - Missoula College to Kim Williams trail	City	Local, MRA	\$2,500,000	\$4,829,417					\$4,829,417	
	466	65.5	Intersection of Higgins and Brooks Bicycle Slip Lane	City/MDT	Local	\$15,000	\$28,977					\$28,977	

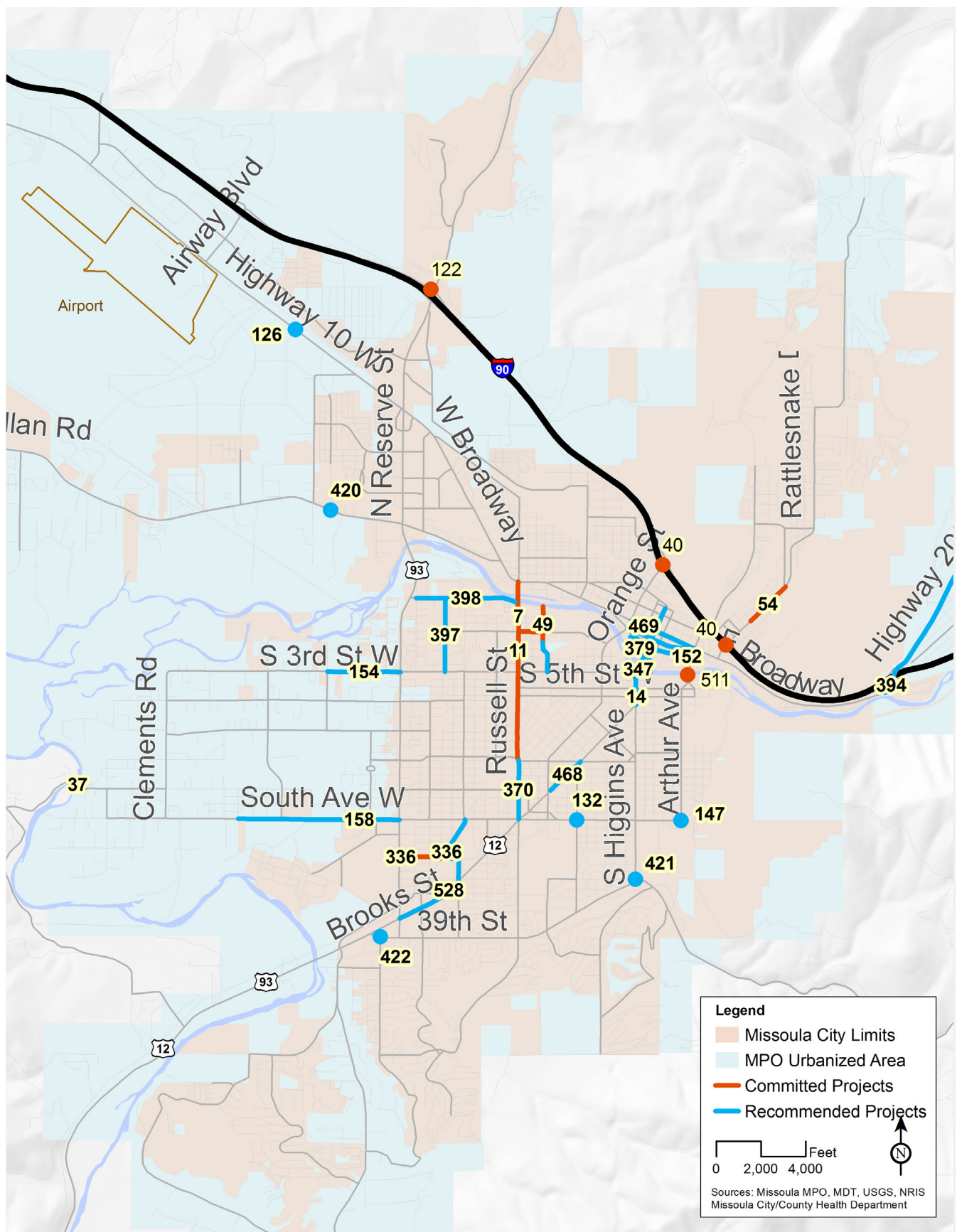


Figure 51. Committed and recommended roadway projects

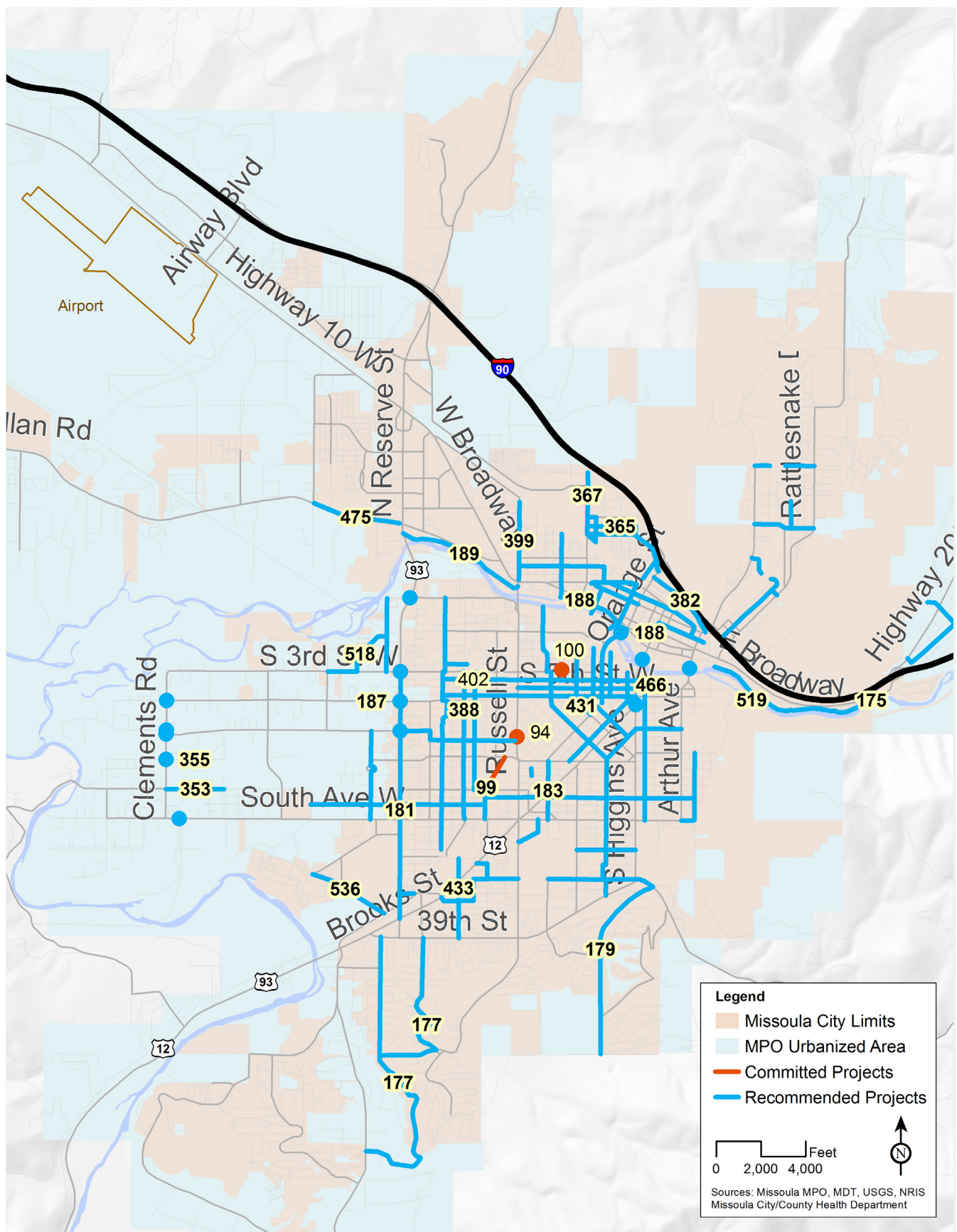


Figure 52. Committed and recommended non-motorized projects

Table 25. Committed and Recommended transportation options projects/programs

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local Federal		2021-2030 State/Local Federal		2031-2045 State/Local Federal	
Committed Projects	119	#N/A	Bike and Pedestrian Program (30 Years @ \$30,000 per Year)	MPO	CMAQ	\$888,114	\$1,326,000	\$29,658	\$191,342	\$59,316	\$382,684	\$88,975	\$574,025
	120	#N/A	Missoula in Motion (30-Years @ \$320,000 per Year)	MPO	CMAQ	\$7,279,574	\$9,600,000	\$214,720	\$1,385,280	\$429,440	\$2,770,560	\$644,160	\$4,155,840
		#N/A	Vanpool Operations, Administration & Maintenance	MRTMA	5311	\$1,138,764	\$1,138,764	\$23,626	\$152,424	\$49,399	\$318,704	\$79,797	\$514,814
		#N/A	Vanpool Capital purchases (vans, carpool vehicles)	MRTMA	5311	\$5,993,150	\$5,993,150	\$210,415	\$716,111	\$439,957	\$1,497,317	\$710,679	\$2,418,672
	386	#N/A	MRTMA (28-Years @ \$125,700 per year)	MPO	CMAQ	\$3,036,000	\$3,036,000	\$67,905	\$438,095	\$135,810	\$876,190	\$203,716	\$1,314,284

Table 26. Committed and Recommended ITS projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local Federal		2021-2030 State/Local Federal		2031-2045 State/Local Federal	
Recom. Projects	437	N/A	Traffic Signal Controllers	MDT/City	CMAQ	\$500,000	\$664,489					\$89,174	\$575,314
	479	N/A	Advanced Signal Detectors	MDT/City	CMAQ	\$1,000,000	\$1,328,978					\$178,349	\$1,150,629
	480	N/A	Adaptive Signal Control System	MDT/City	CMAQ	\$1,000,000	\$1,328,978					\$178,349	\$1,150,629
	481	N/A	Transit Priority System for Signalized Intersections	MDT/City	CMAQ	\$500,000	\$664,489					\$89,174	\$575,314

Table 27. Committed and Recommended safety projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local Federal		2021-2030 State/Local Federal		2031-2045 State/Local Federal	
Com Proj	515	#N/A	Reserve Street Bridge safety barrier over Clark Fork River: Mullan Rd. to River Rd.	MDT	HSIP	\$1,101,370	\$1,101,370	\$110,137	\$991,233				
			Safety upgrades/maintenance improvements	MDT	HSIP	\$3,657,800	\$4,444,282	\$317,848	\$4,126,434	\$825,193	\$7,426,740	\$1,361,253	\$12,251,277
	517	#N/A	I-90 Safety Barrier near Frenchtown: MP 84.2-94.4	MDT	HSIP	\$700,700	\$700,700	\$70,100	\$630,600				
Rec Proj	48	#N/A	Intersection Improvements: George Elmer Drive & Mullan signal	City	Local funds	\$450,000	\$869,295					\$869,295	

Table 28. Committed and Recommended roadway maintenance projects/programs

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local Federal		2021-2030 State/Local Federal		2031-2045 State/Local Federal	
Committed Projects	58	N/A	Purchase Street Cleaners - City and County	MPO	CMAQ	\$10,048,333	\$10,048,333	\$307,318	\$1,982,682	\$416,467	\$2,686,866	\$624,701	\$4,030,299
	59	N/A	Ongoing Roadway Operations & Maintenance	City/County/MDT	MACI, NH, STPS,	\$144,273,132	\$144,273,132	\$21,948,426	\$5,880,600	\$44,258,968		\$72,185,138	
	60	N/A	I-90: Frenchtown East and West	MDT	IM	\$991,000	\$991,000	\$86,800	\$904,200				
	102	N/A	Annual Sidewalk Installation/Replacement Program	City	Local	\$18,000,000	\$18,000,000	\$3,000,000		\$6,000,000		\$9,000,000	
		N/A	Missoula ADA upgrades	MDT	MACI	\$4,555,400	\$4,555,442	\$611,342	\$3,944,100				
		N/A	Reserve St Interchange - E & W pavement preservation	MDT	IM	\$5,606,200	\$5,606,200	\$491,100	\$5,115,100				
	516	N/A	Bridge Maintenance - Steel Bridge Rehabilitation (6 bridges in Missoula area)	MDT	BR	\$268,200	\$268,200	\$36,000	\$232,200				
		N/A	Placeholder for future IM projects	MDT	IM	\$4,250,127	\$4,250,127			\$140,515	\$1,463,538	\$231,796	\$2,414,278
		N/A	Placeholder for future NH projects	MDT	NH	\$5,360,290	\$5,360,290			\$177,219	\$1,845,825	\$292,343	\$3,044,904
		N/A	Placeholder for future UPP projects	MDT	UPP	\$10,349,263	\$10,349,263			\$524,178	\$3,381,769	\$864,693	\$5,578,624
		N/A	Placeholder for future STPX/STPS/SFCN projects	MDT	STPX/STPS/SFCN	\$7,221,873	\$7,221,873			\$365,779	\$2,359,850	\$603,396	\$3,892,848
		N/A	Placeholder for future MACI projects	MDT	MACI	\$26,750,217	\$26,750,217			\$1,354,867	\$8,741,013	\$2,235,012	\$14,419,325

Table 29. Committed and Recommended transit projects/programs

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
Committed Projects					CMAQ, 5307, TRANSADE, Mill Levy,								
	Transit	Operations		MUTD	Other	\$218,277,627	\$218,277,627	\$23,849,127	\$9,332,491	\$51,112,526	\$19,216,589	\$84,011,649	\$30,755,246
	Transit	Capital purchases (buses, paratransit vans, other)		MUTD	5339	\$3,556,196	\$3,556,196	\$109,956	\$439,823	\$229,907	\$919,626	\$371,377	\$1,485,507
				MUTD, ORI,									
	Transit	Paratransit capital purchases (paratransit vans)		AWARE	5310	\$4,001,941	\$4,001,941	\$123,738	\$494,952	\$258,724	\$1,034,895	\$417,926	\$1,671,705
	Transit	Capital purchases (buses, paratransit vans, other)		MUTD	CMAQ	\$5,574,901	\$5,574,901	\$82,439	\$531,861	\$218,146	\$1,407,380	\$447,567	\$2,887,508
	Transit	Marketing & Education		MUTD	CMAQ	\$142,200	\$142,200	\$19,083	\$123,117	\$0	\$0	\$0	\$0
Rec Proj	Transit	Transit bus purchase - 15 buses to expand service and implement MUTD Phase 3 (service on Brooks Street)		MUTD	STPU	\$15,200,000	\$15,200,000					\$2,039,840	\$13,160,160

Funding summary

Based on the funding allocations and recommended projects described above, the following charts (Figure 53 and Figure 54) provide a simplified illustration of the amount of discretionary and total funds allocated to each project category. Given the amount of funding committed to projects like Russell Street reconstruction and limits on some funding sources such as transit revenue, even relatively large shifts of discretionary funds to different categories like non-motorized projects only have a small effect on the overall distribution of funds.

IV. Plan Performance

The recommended plan and projects support the overall goals and objectives of the Activate Missoula 2045 LRTP, as well as the National Performance Goals and Planning Factors outlined in Chapter 4. Table 30 provides a summary of how the recommended plan is consistent with the goals and objectives, both from a system-wide and project specific perspective.

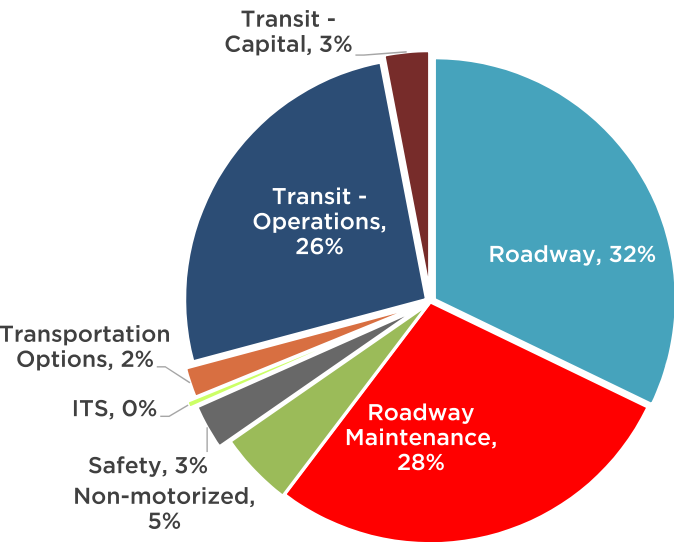


Figure 53. Project categories, as a percentage of all funding (committed + recommended projects)

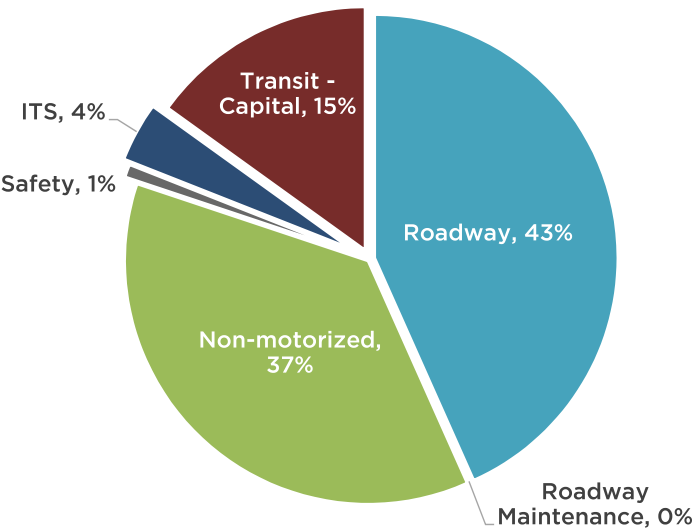


Figure 54. Project categories, as a percentage of available discretionary funding (recommended projects only)

Table 30. Recommended plan consistency with goals and objectives

Activate Missoula 2045 Goals	Performance Objectives (System-level and Project-level)	Recommended Plan Consistency
Goal 1: Maintain our existing transportation system	a. Maintain & repair existing roads, bridges, sidewalks and trails to good or better condition	Adequate Federal/State and local funding is projected to continue maintaining existing facilities, including roadways, bridges, trails, bike facilities, etc. at existing levels, however as infrastructure is constructed, maintenance needs will continue to grow. The plan recommends no new roads or significant roadway expansions, instead focusing on efficiency improvements, complete streets, and investments in bicycle, transit and pedestrian infrastructure.
	b. Promote complete streets and increase access to additional modes by replacing & retrofitting existing system to allow for wide range of transportation options	
Goal 2: Improve the efficiency, performance and connectivity of a balanced transportation system	a. Optimize Efficiency	The plan recommends investment in intelligent transportation systems as a means of improving efficiency of the existing roadway network, as well as via non-motorized connectivity.
	b. Minimize increases in travel times by methods such as providing direct routes between destinations, use of intelligent transportation systems and transportation demand management tools, and/or providing information to the public to allow them to make informed transportation decisions.	
Goal 3: Maximize cost effectiveness of transportation	a. Plan for a system that is affordable, sustainable, and makes best use of public funds	The plan attempts to balance investments in all modes and prioritizes projects that benefit multiple users, such as through complete street projects. Preservation of the existing system, with limited investment in new and expanded infrastructure was also prioritized.
	b. Reduce cost of travel to users	
	c. Construct projects with capital cost that produces a corresponding benefit to travelers	
	d. Reduce project costs and expedite the movement of people & goods by accelerating project completion	
Goal 4: Promote consistency between land use and transportation plans to enhance mobility & accessibility	a. Provide a transportation network which supports City and County Growth Policies with an emphasis on “Focus Inward” for Missoula’s urban area and providing a range of transportation options for the region’s community centers	The plan is consistent with the City Growth Policy and “Focus Inward” emphasis. Project ranking prioritized projects within the urban core, serving mixed-use and other activity centers, as well as infill areas. The plan also supports providing transportation options for the region’s community centers such as Lolo, East Missoula and Bonner.
	b. Develop mixed use activity centers including infill & redevelopment areas	
	c. Provide travel choice along multimodal corridors (complete streets)	

Activate Missoula 2045 Goals	Performance Objectives (System-level and Project-level)	Recommended Plan Consistency
Goal 5: Provide Safe & Secure Transportation	a. Support transportation programs and design improvements which reduce crashes & improve safety of all modes	The plan includes major improvements, including specific safety improvements which will increase safety for all travel modes and reduce crashes, injuries and fatalities.
	b. Facilitate rapid movement of first responders & support incident management during emergencies	The proposed LRTP maintains or attempts to improve local and regional transportation system security in terms of emergency and incident response times by improving system efficiency, reducing VMT and congestion, and improving ITS.
Goal 6: Support Economic Vitality	a. Support new & existing commercial/ industrial development by ensuring multi-modal access	The plan provides critically needed national highway system and freight network improvements for distribution and delivery of goods and commerce. The active transportation plan elements and transit will increase affordable transportation modes for low income and minority population and increase employment opportunities.
	b. Provide attractive & convenient transp. facilities that attract & retain businesses, youth, professionals, older adults	
	c. Facilitate the movement of goods and freight to commercial and industrial centers	
Goal 7: Protect the Environment & Preserve resources	a. Reduce fossil fuel consumption by minimizing travel time and providing access to alternative modes and fuels	The recommended plan reduced daily VMT and hours of delay over the future base network, resulting in reduced fuel usage.
	b. Maintain air quality attainment by minimizing air pollution related to vehicle emissions by reducing congestion and vehicle miles traveled	The transportation plan continues the ongoing street sweeping program to aid in attaining regional air quality conformity. Additionally, increased emphasis in shifting mode share to non-motorized and transit modes will continue to contribute to air quality improvements.
	c. Minimize sediment, nutrients, and litter entering surface water via roads and drainage	New curb and gutter will be added with committed and proposed roadway projects to reduce storm water impacts. New projects will mitigate potential stormwater impacts.
	d. Minimize impacts to the natural environment by taking opportunities to couple transportation projects with protection and enhancement of environmental resources	There are no recommended projects that are known to have a potential impact to natural or cultural resources. Projects that may impact environmental resources will mitigate impacts.

Activate Missoula 2045 Goals	Performance Objectives (System-level and Project-level)	Recommended Plan Consistency
Goal 8: Promote Community Health & Social Equity through the transportation system	a. Improve multi-modal access to parks and trails to support active and healthy lifestyles	The plan recommends increased investment in active transportation modes, including expansion of Mountain Line services, the creation of a neighborhood greenway network, and additional bicycle and pedestrian infrastructure - focusing on connectivity to in the urban core and to major destinations. Project ranking incorporated consideration of benefits to vulnerable populations and connections to public and social services, as well as parks and schools.
	b. Improve multi-modal access to schools, healthcare and social services	
	c. Reduce overall household transportation costs, particularly for under-served and/or vulnerable populations by providing safe and affordable transportation options	
	d. Reduce impacts on neighborhoods and cultural and historic resources through evaluation of assets and involvement of neighbors in the planning process with special attention to areas with typically under served and/or vulnerable populations	

Implementation



I. Delivering Our Transportation Future

Moving from the planning stage to the action and implementation stage is key to reaching the desired outcomes of the Activate Missoula 2045 plan. Success is contingent upon working with our partners cooperatively and continuously to make incremental improvements to all transportation modes, while continuing to maintain the system. This requires not only investment in infrastructure, but also investment in tracking and monitoring performance, implementing additional policies to further support the efficient use of resources (mode share, etc.), and actively exploring new funding opportunities.

Infrastructure

- Low-hanging fruit – continue to take advantage of opportunities as they arise. For example, exploring the implementation of bike facilities with maintenance projects as part of the City's Complete Streets policy.
- Multimodal corridors “complete streets” – focusing on transforming existing corridors that lack multimodal facilities into complete streets will ensure more equal access for all ages and abilities.
- Implement ITS – MDT and the City should work cooperatively to implement ITS in the form of advanced signal systems as soon as possible following MDT's completion of their statewide signal operations plan.
- Continue to make needed ADA improvements – ADA access improvements benefit all citizens, but particularly people with disabilities and helps to ensure access for all ages and abilities.



CHAPTER CONTENTS

- I. Delivering Our Transportation Future
- II. The Community's Role

- Assess the effectiveness of the City's sidewalk subsidy program to determine if the rate of sidewalk completion can be improved.

Performance Monitoring and Measurement

- Continue to implement improved non-motorized data collection techniques – continue to install permanent automatic trail counters and supplement with temporary counters, as well as volunteer counts.
- Improve pavement condition monitoring – pavement condition data collection at the local level is currently lacking. The City of Missoula and Missoula County should explore options to ensure pavement data is collected regularly and accurately and is consistent with MDT methodology.
- Utilize crash data to target safety improvements – recent improvements in crash data accessibility have allowed for added ability to analyze potential safety issues and prioritize safety improvements.

- Implement improved infrastructure tracking – currently there is no streamlined and consistent process for tracking and “digitizing” the completion of various transportation infrastructure, including the completion of sidewalks, signage, striping, parking, curb ramps, and other improvements. Proper tracking of infrastructure and its condition is imperative to measuring and monitoring performance, but more importantly for planning and budgeting for improvements.

Funding

- Actively pursue outside funding – continue to apply for grants, including annual TA grants from MDT, TIGER grants through US DOT, etc. Pursue additional opportunities for public-private-partnerships.
 - Leverage existing funding sources – continue to utilize local funds to leverage state and federal funds, including city impact fees, MRA funds, etc.
- Pursue additional options to execute projects locally – oftentimes local agencies are able to streamline projects at lower administrative costs than state and federal agencies.
 - Consider development of a bicycle facility and maintenance funding program, similar to the City Sidewalk Subsidy program, and/or a neighborhood traffic calming/active transportation funding program.
 - Pursue additional opportunities to raise transportation funds locally – consider options to increase locally-derived revenue for local transportation projects (e.g. local option gas tax, local option sales tax, increased development impact fees, etc.), which appears to have modest support among Missoula-area voters (Figure 55 and Figure 56).

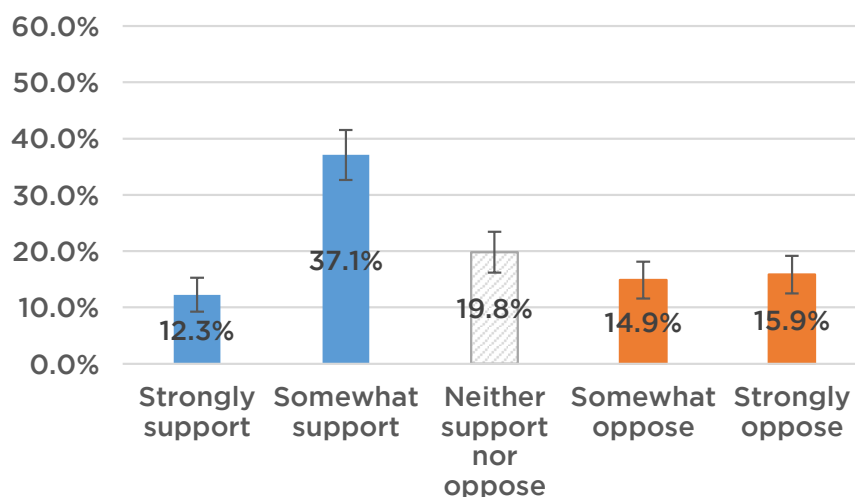


Figure 55. Registered voter support/opposition to paying new taxes or fees for transportation system improvements (2015 Missoula Area Transportation Survey)

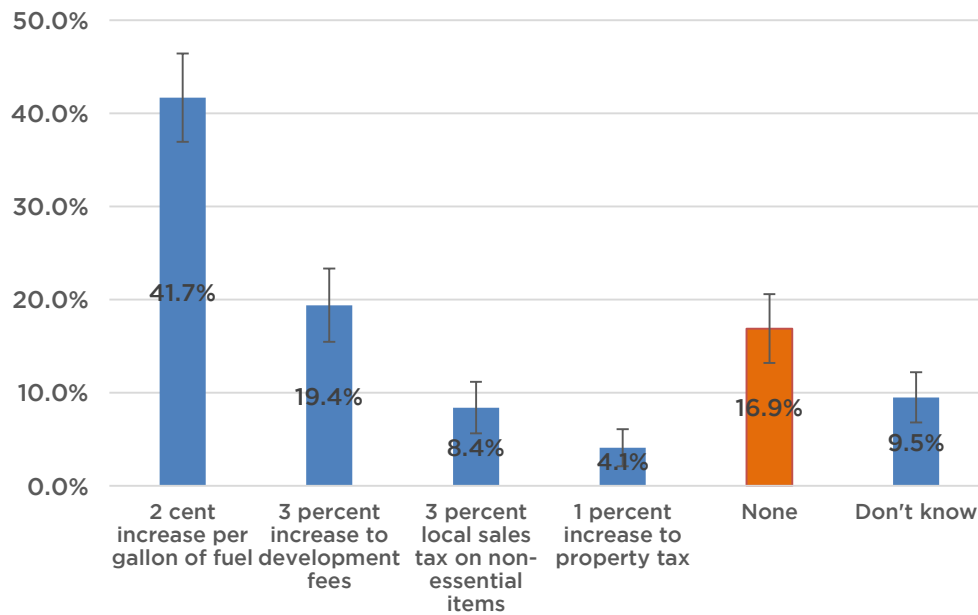


Figure 56. Registered voters preference for type of new tax or fee (2015 Missoula Area Transportation Survey)

Policy and Planning

- Future updates to the City and County Growth Policies and annexation, zoning, and subdivision regulations and policies should consider the adoption of the Activate Missoula 2045 “Ambitious” mode share goal and incorporate (or strengthen) policies and guidelines that support achievement of the goal.
- Vulnerable and under-represented populations - give special consideration to areas with concentrations of students, seniors, low-income families, or others that are more dependent on modes other than the automobile to provide a safe, accessible environment.
- Require multimodal transportation impact analysis of local development projects – as developments are proposed, it is necessary to assess the impact that they may create to the existing network and to identify necessary mitigation. Without comprehensive analysis of a development’s potential impacts, future impacts become the responsibility of the local jurisdiction, which can take precious funds to mitigate.
- Create a standard multimodal transportation impact analysis methodology and requirements - it is imperative that all jurisdictions have clear and defined transportation impact study guidelines and requirements that assess the true impact of new development and appropriate mitigation to reduce impacts.
- Require needed multimodal infrastructure concurrent with development – allowing development to defer infrastructure improvements sometimes creates network deficiencies that are difficult to address following a project’s development.
- Update and adopt a City Sidewalk Master Plan – consider updating the 2006 draft Sidewalk Master Plan (never adopted) and consider the needs of vulnerable population and under-represented demographics in the prioritization process.
- Consider development of a “Missoula Trails Master Plan” to complement the Missoula Bicycle Facilities Master Plan and an updated Sidewalk Master Plan. A critical component of this plan will be developing a plan for pavement preservation and trail lighting maintenance.

- **Level of Service** – work with MDT to consider emphasizing multi-modal Level of Service rather than focusing exclusively on vehicular LOS standards for development and transportation planning, particularly in urban corridors. Shifting to multi-modal LOS will also help to address anticipated congestion-related performance measures that will require reviewing the number of people moving through a corridor rather than the number of vehicles.
- **Strengthen education and encouragement related to Transportation Options** – provide additional resources and/or funding to help bolster existing education and encouragement of non-SOV infrastructure, safety, programs and projects.

II. The Community's Role

As described throughout the document, Activate Missoula 2045 is meant to serve the community, and the community played a role in shaping the plan itself. It is intended to represent and fulfil the role of transportation in the community's overall goals and objectives with respect to supporting the movement of people of all ages and abilities, supporting economic growth and vitality, protecting the natural resources of the Missoula valley, and providing a high quality of life to all citizens.

While all transportation agencies and partners, as well as local jurisdictions, have a role in implementing the vision of Activate Missoula 2045, it is also clear that the community can help achieve this – whether that be through engagement in public planning processes and policy development, providing feedback to the MPO and its partners, or by changing individual travel behaviors – everyone has a real interest in helping to reach Missoula's community goals.

Appendix A: Community Outreach



I. APPROVED ACTIVATE MISSOULA 2045 PUBLIC PARTICIPATION PLAN

The following Activate Missoula 2045 LRTP Public Participation Plan was approved by the Transportation Policy Coordinating Committee on September 15, 2015 in the initial phase of the Activate Missoula 2045 Project. The public participation plan is consistent with the MPO's overall public outreach requirements. MPO staff worked with LSA and Alta (project consultants) to develop a Public Participation Plan that outlined the general approach and methods to meaningfully involve the public in the 2016 LRTP update. This plan was used as a guide for all outreach activities.

PUBLIC PARTICIPATION PLAN

INTRODUCTION

The Missoula Metropolitan Planning Organization (MPO) is the agency tasked with developing a Long Range Transportation Plan (LRTP), which sets at least a 20-year vision for the Missoula region's transportation system. The long-range transportation plan is updated every four years to reflect the changing dynamics of the area and was last updated in 2012 and looked at a 2040 horizon-year. The MPO has already started to work on creating a plan for the year 2045.

Developing a long range plan requires two key elements: technical work and community engagement. Ultimately, the LRTP is only adopted after considering public input and recommendations from professional transportation planners. Public involvement is a critical element in the development and adoption of the 2045 Long Range Transportation Plan, given the significant sociocultural, economic, health, and environmental impacts of transportation on all citizens in the region.

This Public Participation Plan creates widespread opportunities for citizens to be informed and engaged throughout the development of the 2045 Long Range Transportation Plan. The purpose of the Public Participation Plan is to provide a roadmap to systematically achieve goals and objectives for public involvement, ensuring diverse and inclusive public input.

REQUIREMENTS

This Public Participation Plan complies with the objectives outlined in the Missoula Urban Transportation Planning Process Public Participation Plan last revised in January of 2015. The Public Participation Plan also meets the federal requirements for public involvement as identified in 23 CFR 450.316 and 23 CFR 450.324.

ELEMENTS

The following elements will be integral components to a comprehensive Public Participation Plan:

BRANDING

A brand and tagline for the LRTP have been developed as an initial step. The plan will be branded as "Activate Missoula" and will have the below logos and banners utilized throughout the project and beyond.



The project brand will make the planning effort immediately recognizable during public presentations and meetings, special events, and in plan materials. Branded Activate Missoula materials will be clear and concise and will connect key messages with targeted audiences. QR codes can be provided in printed materials, which will lead the recipient directly to the project website.

ELECTRONIC OUTREACH

The following means of electronic public outreach will be provided as part of the 2045 LRTP.

Website

Throughout the life of the 2045 LRTP update process and beyond, a project website will be maintained by the Missoula MPO. The site will be separate from any City, County or MPO website and will have the URL: <http://www.activatemissoula.com> The consultant team will design and build the website, however the MPO will maintain the domain registration and hosting so that the site may be used in future updates and the MPO will always be in control of public feedback, survey results and other information collected by the website. In addition to the main website there will be several key features oriented at gathering public participation with greater flexibility than at a conventional public workshop or open house. A link to the LRTP update website will be maintained on both the City and County websites.

Interactive Mapping

The project website will include an interactive mapping portal which will be in operation from before the first public workshop until the existing conditions analysis phase of the project is complete. It is expected that this feature will be enabled for at least two months. The interactive mapping portal will allow the public to leave map based feedback much as they would with a marker at a traditional public meeting. Visitors to the website will be able to leave points which clarify needs or concerns they have for the existing system as well as lines to denote routes that need improvement or routes that they utilize in their daily lives. Comments will be configured to be left in relation to motor vehicle, transit, bicycling or walking. The project team will download the results and combine them with the forms of in-person hard copy participation for analysis.

Surveys

At least two surveys will be conducted for the LRTP project. The Bureau of Business and Economic Research (BBER) at the University of Montana has been contracted by the MPO to administer a statistically valid survey of a random sampling of Missoula area residents regarding the region's transportation issues and how residents travel throughout the valley. The survey will be administered in late September through October, with final results expected in November. The information gathered from the BBER survey will supplement information gathered through other public input opportunities, including the interactive mapping, public meetings, and community events.

An additional survey is expected to be created in coordination with the interactive mapping exercise that will be posted on the project website. This survey will seek to obtain additional more detailed information from Missoulians about their issues, concerns, travel habits, priorities for transportation funding and projects, and their future vision for Missoula and the region as it pertains to transportation. It is intended that this survey will be administered through November, prior to and following the first Public Meeting, and the information gathered will be analyzed and presented, in addition to the results of the BBER survey. All information will be available on the project website and shareable via weblink and promoted through the various distribution outlets and media.

Social and Electronic Media

The 2045 LRTP will utilize the existing social and electronic media outlets of the Missoula MPO, such as through the MPO's Facebook page and Constant Contact account. Other agencies and partners will also be asked to assist with disseminating information and encouraging public participation, such as Missoula in Motion, the Bike Walk Alliance of Missoula, Missoula Institute for Sustainable Transportation, and others. The objective will be to leverage the existing user base who already follow the MPO and other groups tied to transportation in the Missoula region.

Leveraging these resources may have the added benefit of increasing the number of individuals who follow the Missoula MPO through Facebook throughout the process. Ideally, informational items that are posted to the project website will also be posted to Facebook and sent out via Constant Contact. Additionally, reminders of upcoming public meetings or other events will be published through these electronic media outlets.

Project Newsletter

A periodic newsletter will be produced that describes work in progress, results achieved, preliminary recommendations, and other related topics. The newsletters would be published and distributed to all members of the MPO's Transportation Policy Coordinating Committee (TPCC) and Transportation Technical Advisory Committee (TTAC), as well as the committees that will be set up specifically for the 2045 LRTP, including the Citizen's Advisory Committee (CAC) and the Technical Advisory Committee (TAC). The newsletter will also be available for agency staff, elected officials, and members of the public via electronic media and the project website.

IN-PERSON OUTREACH

The following means will be utilized to conduct in-person public involvement at specific points during the planning process:

Stakeholder Outreach

The project team will meet with up to ten (10) stakeholder groups for detailed discussions about the transportation system, policy and potential improvements. These meetings will take place during the first week in November 2015.

Public Meetings/Open Houses

The Missoula LRTP planning process will feature three larger-scale public meetings/open houses. Each of the public meetings/open houses will use an assortment of the public outreach techniques listed in Table 1 of the Missoula Transportation Public Participation Plan. These will include printed notification, newspaper advertisement (paid for by the MPO-if desired), notices on the Development Services Website, the project website (www.activatemissoula.com), Facebook and other MPO-driven social media, project and other email lists, and a press release sent to local media outlets suitable for pickup by local TV and radio stations. All project related informational releases will include:

- Project description;
- Meeting or other participation process purpose;
- Location, time, date(s), and details regarding the involvement opportunity
- Sources for additional documentation (if applicable); and
- Contact name and information for further questions.

Communication methods at these public meetings will include poster displays, PowerPoint presentations including various graphics, photos and videos, and takeaway written materials.

Public Meeting #1

The first will occur during the first week in November and will be focused on the existing conditions and deficiencies within the study area. It would begin with a short presentation by the project team, followed by questions and answers, and then ending with informal one-on-one discussions between the public and members of the project team. Additionally, as part of this phase of the project, a separate bicycle facilities specific workshop will be scheduled using the membership of BWAM and other local groups to advertise.

Public Meeting #2

The second public meeting will occur during the needs assessment in Task 5 and take place after the consultant has met with any identified groups and after completion of initial field studies and defined transportation-related problems. The transportation needs will be identified through data-drive analysis of the existing transportation network (motorized and non-motorized) as well as public input from Meeting #1, surveys and web-based outreach (website, social media, email). This meeting would review the identified problems with the public to ensure that all of the major transportation problems have been included in the analysis.

Public Meeting #3

The third public meeting would occur toward the end of the planning process, either at, or just prior to the draft plan deliverable in Task 9 after a preliminary set of recommendations had been developed. The meeting would allow for discussion of the types of recommended improvements and to receive initial feedback from the community.

Responsibilities:

The Missoula MPO will assist the project team by locating and reserving venues, assisting with press releases, and providing light refreshments at events.

Community Events

Traditional public involvement strategies rely on asking members of the public to take time out from their lives to attend meetings or events. This approach can generate interest in the project, but it will only appeal to a certain spectrum of the population. As the project progresses, both the project team and the MPO will look at event calendars to determine if there are opportunities to build outreach for the Missoula LRTP within existing events that people are already going to. Consultant team attendance at these events would be planned around staff or committee meetings, fieldwork, and other project tasks in order to make the best use of the project budget; we do not anticipate making individual trips to Missoula for the attendance of a community event. Missoula MPO staff will also look for opportunities to represent the LRTP project at community events or meetings without consultant participation, such as community forums and councils, neighborhood meetings, farmer's markets, sporting events, cultural and art festivals, etc. The goal will be to attend a broad spectrum of events sponsored by organizations that represent the community's diverse demographics.

Committee Meetings

Throughout the project the Missoula MPO and the project team will provide regular updates and seek approval/adoption of interim and final deliverables. Regular meetings of the CAC and TAC will occur throughout the plan process in order to seek input on plan deliverables and help to develop recommendations. Meetings related to approval of deliverables, recommendations, and of the plan itself will take place through the TTAC and TPCC and will be publicly noticed as required through various means. The updates will be included in the agendas for these meetings and open to the public. Consultant team staff will attend up to four (4) committee meetings (TTAC, TPCC, TAC, and/or CAC) throughout the plan process. Where possible, the project team will try and combine these meetings with public meetings or other activities that make project related travel efficient.

GETTING THE WORD OUT

Successful public outreach is dependent on project news reaching a wide variety of stakeholders, including typically underrepresented members of the community, including young people and people with disabilities. The project will collect the email addresses of interested members of the community through the project website and at project related events. Information regarding the project will be sent to these individuals. In addition, the project will make use of the combined potential contained within other civil, social service, faith-based, or other entities to get critical project related entities. These groups will be asked to circulate public workshop notices and to point interested parties to the project website. The Missoula MPO is required to keep a roster of these organizations.

PUBLIC COMMENT

In addition to public comment received through the project website and through in-person means, the Consultant team will make its lead staff available to all interested parties for the purposes of receiving comments and answering questions. This will be accomplished by several methods, including:

- An 800 telephone number to LSA (published in all materials);
- Email access to our lead staff (published in all materials);
- A Post Office box for written comments to the team; and
- Attendance at select committee meetings including the TPCC, TTAC, CAC, boards and commissions, and other local group meetings.

ACCESSIBILITY

Project related meetings and outreach events will be held in locations and at times of day that are accessible to residents of low and moderate income neighborhoods and that are accessible to people with disabilities (in compliance with 23 CFR 450.316, Title VI, and Americans with Disabilities Act (ADA) requirements).

II. ADVERTISING AND PUBLICITY

The following tables summarize the various methods and outlets the MPO used to advertise and publicize the Activate Missoula 2045 plan and process, including opportunities for public involvement.

Television and Radio Interviews

Outlet	Date	Interview
KVGO	10/23/2015	Interview with Peter Christianson
103.3	11/2/2015	Interview with Craig
MCAT	10/17/2015	Interview with Joel B.
MCAT	5/16/2016	Interview with Joel B.
KVGO	5/16/2016	Interview with Peter Christianson
103.3	5/23/2016	Interview with Craig
MCAT	10/17/2016	Interview with Joel B.
103.3	10/19/2016	Interview with Craig
KPAX	11/18/2016	Interview with Dennis Bragg

Radio Ads

Outlet	Date	Type
103.3	10/26/2015 – 11/2/2015	30-sec
103.3	5/16/2016 – 5/23/2016	30-sec

Newspaper Ads

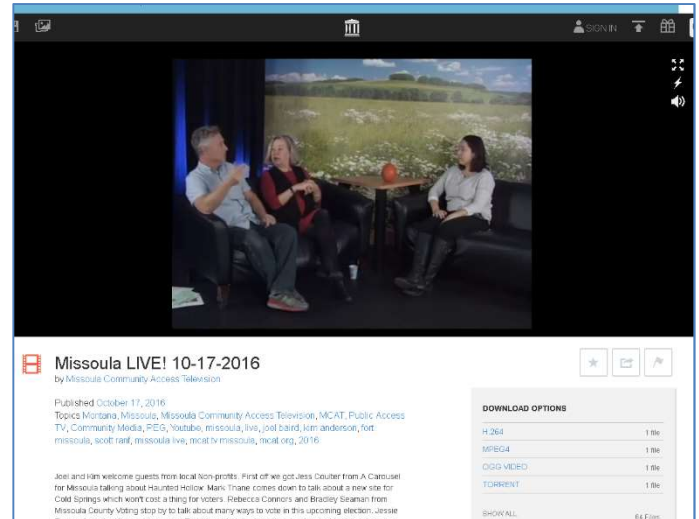
Outlet	Date	Type
Indy	10/23/2015	2/5 vertical
Missoulian	11/1/2015	Front page of Montana section
Indy	5/18/2016	2/5 vertical
Missoulian	5/22/2016	Front page Montana section

Press Releases

Outlet	Date	Type
City	10/22/2015	Sent to media by City Communications Director
City	5/16/2016	Sent to media by City Communications Director

Letter to the Editor

Outlet	Date	Type
Missoulian	10/31/2015	From TPCC Chair to Community encouraging participation



Sample Radio Ad Script for Summit #2

You're invited to get involved, share your ideas and shape Missoula's future for next 30 years of walking, bicycling, transit and driving projects at the 2nd Long Range Transportation Plan Summit.

Join us on Tuesday, May 24th at the Missoula Children's Theater. Discuss different transportation challenges that impact Missoula and explore how goals and improvements are prioritized and funded through an interactive session. We'll also have an update on the developing Bike Master Plan.

The May 24th meeting starts at 5:30pm. Visit activatemissoula.com for more information.



The Missoula Metropolitan Planning Organization is embarking on a federally mandated update to its Long Range Transportation Plan (LRTP). Dubbed, "Activate Missoula," the 2016 LRTP is a 30-year plan that sets the direction and strategies that will shape our region's transportation network.

The plan will identify future priorities for projects and funding and encompasses all modes of transportation: walking, biking, transit, and driving. Freight, rail, and air will also be discussed.

Public input is critical to the plan's success.

We invite everyone to get involved and stay informed through the project website and public forums. Activate Missoula kicks off in earnest this November. Looking ahead, the project team will host a second Public Open House in late winter or early spring 2016 to share analyses of existing transportation conditions and needs, and to continue the conversation with the community about our local transportation network.

For more information about the Long Range Transportation Plan update, please contact Jessica Morris, Transportation Planning Manager at 532.6670 or jmorris@ci.missoula.mt.us



www.activatemissoula.com

Visit the **Participate** page on the project website to sign up for updates and meeting notices. With one click, you can also tour the "Virtual open house" and submit your comments and ideas on the interactive wiki map.

public workshops & forums

Bicycle Facility Planning Workshop
Wednesday, November 4th - Missoula Public Library, lower level. Sign in 5pm. Workshop 5:30-7:30pm Coffee and light snacks provided.

Participate in an in-depth review of our current bicycle network and help envision its future. The workshop will cover regional bicycle travel, as well as "neighborhood greenway" connections, using mapping exercises.

Activate Missoula Transportation Summit
Thursday, November 5th - Holiday Inn Missoula Downtown. Sign in 5pm. Workshop 5:30-7:30pm Coffee and light snacks provided.

Learn about the planning process, project goals and previous recommendations during a short presentation. Visit interactive stations to learn about transportation projects and identify your priorities for Missoula's transportation network.

Newsletters		
Outlet	Date	Message
MPO Newsletter	10/7/2015	Advertise project launch, website and kick-off meetings
Missoula Downtown Association	10/20/2015	Advertise project launch, website and kick-off meetings
Missoula County Community Planning Services	10/15/2015	Advertise project launch, website and kick-off meetings
Sustainable Business Council	10/29/2015	Advertise project launch, website and kick-off meetings
MPO Newsletter	11/13/2015	Summarize kick-off, invite public to visit website, take survey
MPO Newsletter	12/16/2015	*Update on website/online survey, reminder for Dec. 31 deadline for comments
MPO Newsletter	5/10/2016	Update on website, new online surveys, next public meeting
MPO Newsletter	6/15/2016	Request to take survey on Goals and performance measures
MPO Newsletter	10/17/2016	Advertising the 3rd summit
MPO Newsletter	10/26/2016	Request to take survey on mode split goal and scenarios

Community Listserve Posts	
Outlet	Date
Development Services Newsflash	10/22/2015
Weekly City News Digest	10/23/2015
Missoula gov	12/15/2015
Weekly City News Digest	5/12/2016
Missoula Community Listserve	10/11/2016
Missoula Community Listserve	10/19/2016



Facebook posts				
Post	Date	People reached	Shares	Description
Website link	10/14/2015	198	1	Link and information about the LRTP Update website posted
Bicycle facility workshop graphic	10/19/2015	439	4	Information posted on the Bicycle Facility Workshop, including date, time and location
Wiki-map info & link	10/21/2015	203	0	Posted a link and information about the website's wikimap to encourage people to comment on the transportation network
Bicycle Facility Workshop	10/26/2015	2193	1	Inviting public to attend workshop
active transportation summit post	10/29/2015	569	5	Inviting public to discuss local transportation at workshop
wiki-map link	11/19/2015	38	0	Posted a link and update about the online wikimap
thank-you post and info about public workshops	11/6/2015	124	0	General info about the Transportation Summit kick-off event, with photos
bike workshop post	11/5/2015	99	0	Highlight success of bike workshop during kick-off week
bike workshop reminder	11/4/2015	199	1	reminder about the bike facility planning workshop
kick-off week reminder	11/3/2015	38	0	Reminder about two public input workshops happening this week
Missoulain editorial	11/2/2015	278	1	Missoulain article encouraging public to help set transportation

link				priorities
transportation summit reminder	10/27/2015	154	0	Advertised as exciting opportunity to help give feedback on transportation needs
wiki map reminder	12/15/2015	51	1	post reminding people to participate in the online, interactive wiki map prior to Dec. 31
Reminder for wiki map	12/16/2015	23	0	Shared from transportation planning page
Survey reminder	12/17/2015	76	1	Reminder to complete survey by Dec 31st
wiki map reminder	12/31/2015	215	1	Final reminder to add comments to the wiki map
L RTP website reminder	3/28/2016	124	1	Article about equitable active transportation with reminder to visit the activate Missoula website.
Public Summit #2	4/28/2016	12		Updating people that the next public meeting is may 24th
Press Release for Summit	5/16/2016	308	2	Inviting people to identify and prioritize transportation projects at the next public meeting
Public Summit #2	5/18/2016	1718	6	description of summit, including update on the bicycle master plan
Public Summit #3	10/11/2016	1147		Detailed invitation to 3rd public summit, open house style
Transportation summit #3 kick off	10/17/2016	1664	12	20 likes! Another detailed invite to open house
Missoulain article about L RTP	10/19/2016	239	1	Missoulain article about open house
Summit 33 Final Reminder	10/20/2016	967	1	final reminder for summit
Missoula Current Article	10/24/2016	63		Post w/ article thanking everyone for coming

Other advertising and publicity	
Type	Where
Posters	Distributed to multiple locations for Summit 1 # 2
Business cards w/ website info	Approx. 100 distributed to various locations and partners throughout the process



III. INTERAGENCY CONSULTATIONS

Introduction and Purpose

Pursuant to the requirements of the FAST Act, the Missoula MPO consulted with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation, and safety and security concerning the development of the 2016 LRTP Update.

With respect to natural resources, environmental protection, conservation, and historic preservation, the consultation involved (a) comparison of the LRTP with available State conservation plans and maps, and (b) comparison of the LRTP to available inventories of natural or historic resources.

With respect to safety and security, the consultation involved input from safety and security agencies regarding (a) identification of critical facilities and transportation elements; (b) clarification of the role of transportation operators, the MPO, and MDT in ensuring the safety of the transportation system; and (c) discussion of how to address the statewide Comprehensive Highway Safety Plan.

Who Was Contacted and Who Participated

To encourage agency input, the MPO conducted two separate meetings on September 8, 2016, the first with safety and security agencies and the second with resource agencies. The MPO contacted 12 resource agencies and 14 safety and security agencies by e-mail. Agencies in each group were invited to attend the meetings or send comments. Three agency representatives attended the resource agency meeting and a fourth e-mailed comments. Six representatives attended the safety and security meeting. Table 1 lists the agencies and representatives contacted and invited to participate in the consultation process, and notes those agencies that participated.

How Information Was Obtained

Consultation Meetings: At the two meetings on September 8, 2016, representatives from resource agencies and safety and security agencies asked questions and provided comments about potential impacts of various LRTP projects on their respective areas of expertise.

Online Interactive Map: To facilitate agency review and comment, the e-mail invitations provided links to the interactive *2016 LRTP Update - Agency Consultation* map which contains multiple layers of environmental, resource and safety and security data. The map illustrated collector and arterial streets that involve the use of Federal transportation funds. Information on the map was displayed under two tabs – Natural Resource Agencies and Emergency Response & Safety Agencies. The map also included a Comments tab to an online form that allowed users to provide any additional considerations that have not been identified. Figure 1 and 2 provide a snapshot of the data provided in the online interactive maps.

Table 2 summarizes input that the MPO received from agencies that participated in the consultation process. The table lists e-mail comments, interactive map entries and comments, and questions and comments from agency representatives present at the September 8, 2016 meetings.

Table 1: Interagency Consultation Contacts

Natural Resource Agencies		
Participated	Agency	Representative
	Montana Dept. of Natural Resources & Conservation	Liz Mullins
	U.S. Environmental Protection Agency Region 8	Tim Russ
	Montana Dept. of Environmental Quality	Mindy McCarthy
*	City of Missoula Historic Preservation Office	Leslie Schwab
	US Bureau of Land Mgt.	Jim Sparks
	Montana Fish, Wildlife and Parks	Ladd Knotek
*	U.S. Fish Wildlife Service	Mike McGrath
	U.S. Army Corps of Engineers	Christina Schroeder
	U.S. Army Corps / Engineers	Brenda Christensen
	U.S. Forest Service	Edward Butler
†	Confederated Salish & Kootenai Tribes	Gabe Johnson
*	Montana Dept. of Transportation - Helena	Vicki Crnich
Safety and Security Agencies		
Participated	Agency	Representative
*	Missoula Police Department	Sgt. Greg Amundsen
	Missoula County Sheriff's Dept.	Capt. Bill Burt
*	Montana Highway Patrol	Capt. Jim Kitchin
*	Missoula Fire Dept.	Chief Jason Diehl
	MDT Helena	Ed Toavs
	MDT- Missoula	Shane Stack
	FHWA Helena	Brian Hasselbach
*	Missoula County Office of Emergency Services	Adrian Beck
*	Missoula Emergency Services	Don Whalen
	Missoula Public Works	John Wilson
	Missoula County Public Works	Erik Dickson
	Missoula Airport Authority	Cris Jensen
	Montana Rail Link	Steve Werner
*	Mountain Line	Jeff Logan
*Attended September 8, 2016 Meeting		
†Sent comments		

Table 2: Interagency Consultation Comments

Resource Agencies				
Date	Input Type	Agency	Representative	Input
9/8/16	Map Comment	U.S. Fish & Wildlife Service	Mike McGrath	9 bull trout habitat locations.
9/8/16	Meeting Comment	U.S. Fish & Wildlife Service	Mike McGrath	Grant Creek bike/pedestrian bridge requires consultation with USFWS office because the bridge crosses a creek designated as bull trout critical habitat
9/8/16	Meeting Comment	U.S. Fish & Wildlife Service	Mike McGrath	Stressed need to notify USFWS early after start of news project
10/25/16	E-mail	U.S. Fish & Wildlife Service	Mike McGrath	Confirmed 9 bull trout and 2 yellow-billed cuckoo habitat areas.
9/12/16	E-mail	City of Missoula Historic Preservation Office	Leslie Schwab	Map of Missoula's National Register Historic Districts (OPG, 2010)
10/17/16	E-mail	City of Missoula Historic Preservation Office.	Leslie Schwab	The Fairgrounds are also an historic district but are not on the map.
8/31/16	E-mail	Confederated Salish & Kootenai Tribes	Gabe Johnson	1. CKST will continue to pursue funding for a path along US 93 from St. Ignatius to the Wye (intersection of I-90 and US 93 despite a previous unsuccessful TIGER grant application. 2. CSKT and Missoula County should discuss how the Mullan Road Trails/Frenchtown Trails and the US 93 Path might mesh at some point.
9/8/16	Meeting Comment	Montana Dept. of Transportation	Vicki Crnich FW to Shane Stack	Suggestion for the MPO to provide a scoring sheet that would indicate whether there is a need for a cultural resource inventory, e.g., for Goal 7 or Goal 8
Safety & Security Agencies				
Date	Input Type	Agency	Representative	Input
9/8/16	Meeting Comment	Missoula Police Department	Sgt. Greg Amundsen	Question about the LRTP's role regarding traffic calming devices. The LRTP includes a general traffic calming "project" but no Federal funds are planned to be spent on these devices.
9/8/16	Interactive Map	Missoula Fire Dept.	Chief Jason Diehl	The Fire Code prohibits traffic calming devices (including roundabouts) unless approved by the fire code official."
9/8/16	Meeting Comment	Missoula Fire Dept.	Chief Jason Diehl	Provided Fire Bureau contact list, which includes the fire marshal's office/fire prevention bureau and the fire department administration and requested their inclusion in the MPO's notification list.
9/8/16	Meeting Comment	Missoula Fire Dept.	Chief Jason Diehl	The Fire Department is concerned about neighborhood access where traffic calming devices are installed,
9/8/16	Meeting Comment	Missoula County Office of Emergency Services	Adrian Beck	Asked whether snowplow routes have been mapped. The City has in fact mapped the routes.

10/20/16	E-mail	MDT, Missoula	Shane Stack, forwarding message from Vicki Crnich	Whatever is discussed in the LRTP regarding safety does not contradict Missoula's CTSP, e.g., if the Missoula LRTP emphasis areas aren't the same as those in the CTSP. From a FAST Act perspective, the performance measures for safety have been published.
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Figure 1: Resource Map

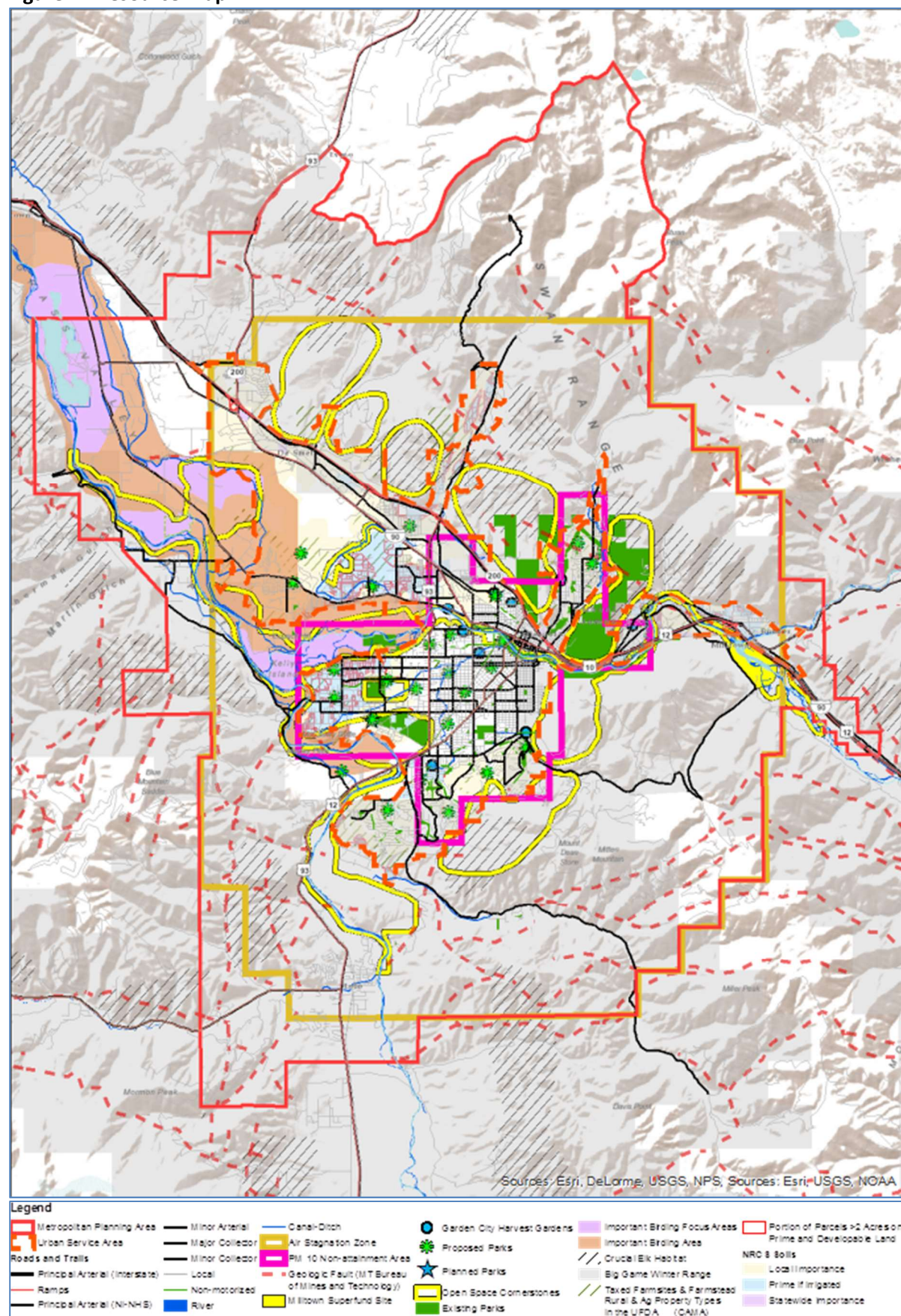
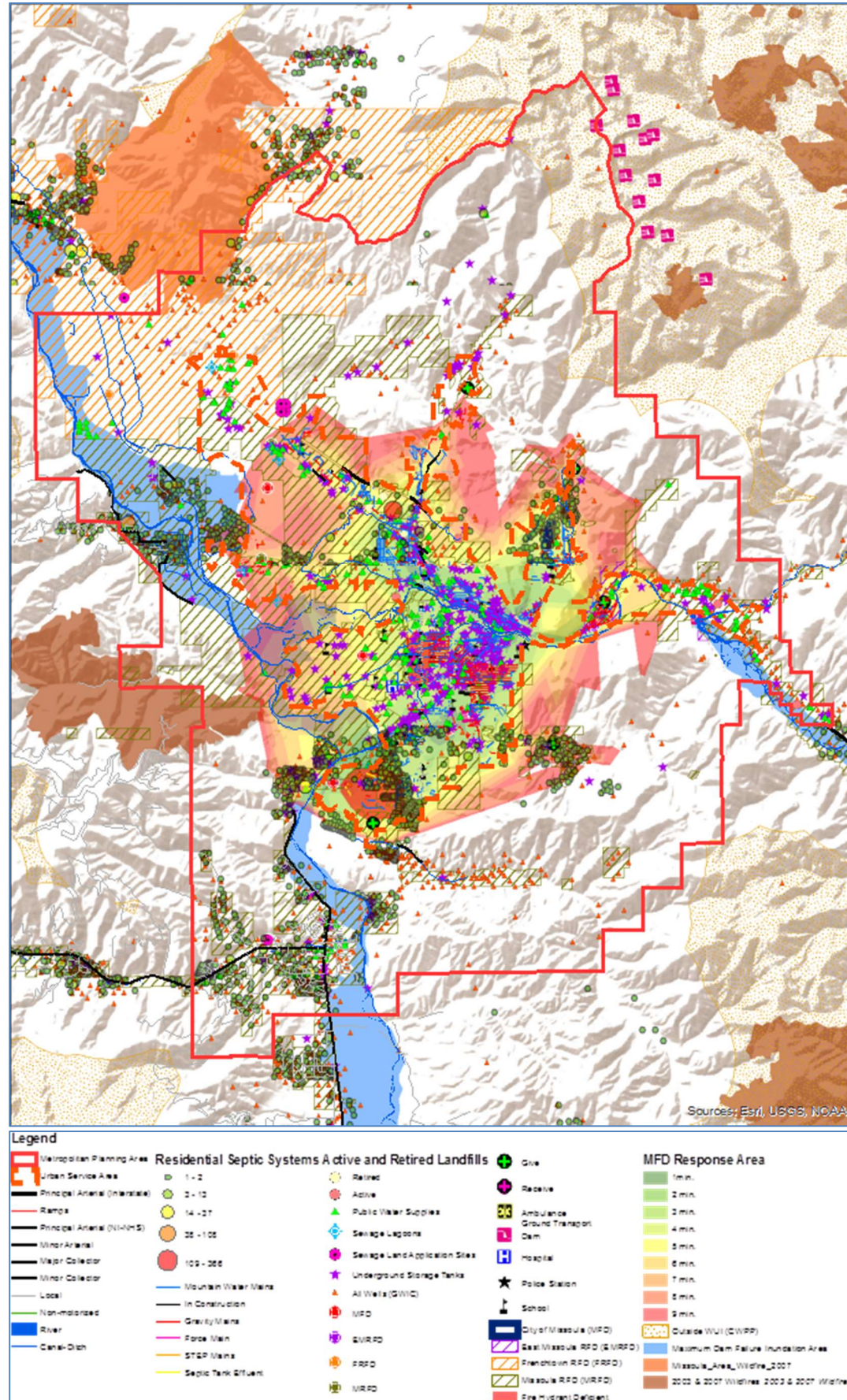


Figure 2: Safety and Security Map



IV. PUBLIC MEETINGS (SUMMITS, COMMITTEES, BOARDS, ETC.)

The following summarizes the dates and topics of various public meetings where the Activate Missoula 2045 LRTP was discussed, including large-scale public meetings (summits), Community Advisory Committee and Technical Advisory Committee meetings, MPO Transportation Technical Advisory and Transportation Policy Coordinative Committee meetings, and other agency/organization board or committee meetings. While this list is meant to capture all publicly held meetings, it may be possible that some have not been noted.

Group/meeting/event	Date	Staff attended	Description of agenda/discussion
TTAC	7/2/2015	Jessica Morriss	Jessica provided an update regarding the status of contracting with the selected consultant
TPCC	7/21/2015	Jessica Morriss	Jessica provided an update regarding the status of contracting with the selected consultant
Bike Ped Advisory Board	8/4/2015	Jessica Morriss	Jessica provided an update to the BPAB regarding the status of contracting with the selected consultant
TTAC	8/6/2015	Jessica Morriss	Jessica provided an update regarding the project team's work
TPCC	8/18/2015	Jessica Morriss	Jessica provided an update regarding the project team's work
Bike Ped Advisory Board	9/1/2015	Jessica Morriss	Jessica provided an update to the BPAB regarding the status of the LRTP, branding, website, and anticipated kick off dates
TTAC	9/3/2015	Jessica Morriss	Jessica provided an overview of the draft public participation plan; TTAC approved
Development Community Meeting w/ Development Services	9/11/2015	Jessica Morriss	Jessica provided an update to those in attendance from BIA, MOR, etc. about the upcoming LRTP update
TPCC	9/15/2015	Jessica Morriss	Jessica provided an overview of the draft public participation plan; TPCC approved
Downtown Master Plan Committee	9/17/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting.
Bike Walk Alliance of Missoula	9/23/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting; Jessica also requested the board assign someone to the CAC.
Mountain Line Board	9/24/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting.
Target Range HOA	9/30/2015	Aaron Wilson	Aaron provided an update, including information about the website and kick-off events
Parking Commission	10/1/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting.
Bike Ped Advisory Board	10/6/2015	Aaron Wilson	Aaron provided an update, including information about the website and kick-off events; also requested the board appoint a member to the CAC.
Planning Board	10/6/2015	Dave Prescott	Dave provided an update, including information about the website and kick-off events
Missoula County Open Lands Committee Meeting	10/15/2015	Aaron Wilson	Aaron provided an update, including information about the website and kick-off events
Community Forum	10/22/2015	Jessica Morriss	Jessica provided an update, including information about the kick off events and website; requested community forum members to serve on CAC.
STAC	10/23/2015	Dave Prescott	Dave provided an update, including information about the website and kick-off events
River Road Neighborhood	10/26/2015	David Gray	Dave provided an update, including information about the website and kick-off events
County Parks & Trails	10/26/2015	Aaron Wilson	Aaron sent email info to CAPS staff to distribute info about the kick off

Board	5		events to board members
Public Meeting	11/3/2015	All	Bicycle Network Planning Public Meeting - Public Library
Public Meeting	11/4/2015	All	Transportation Summit #1 - Holiday Inn Downtown
TTAC	12/3/2015	All	Staff provided a general update
TPCC	12/15/2015	All	Staff provided a general update
TTAC	1/7/2016	All	Staff provided a general update
TPCC	1/19/2016	All	Staff provided a general update
TTAC	2/4/2016	All	Staff provided general update; presented final BBER Transportation Survey Report
TPCC	2/16/2016	All	Staff provided general update; presented final BBER Transportation Survey Report
CAC meeting 1	2/23/2016	All	Staff introduced the LRTP process and purpose of CAC and discussed group priorities
TTAC	3/3/2016	All	Staff provided a general update
TPCC	3/15/2016	All	Staff provided a general update
City Council Public Works Committee	3/16/2016	Jessica Morriss	Jessica provided overview of purpose and role of MPO, LRTP, and an overview of 2015 BBER Transportation Survey
CAC meeting 2	3/22/2016	All	Staff reviewed results of Goals/objectives survey and presented information about mode split
TTAC	4/7/2016	All	Jessica provided an update and presented information about goals/objectives, performance measures and mode split
TPCC	4/19/2016	All	Jessica provided an update and presented information about goals/objectives, performance measures and mode split
Technical Advisory Committee meeting 1	4/25/2016	All	Review goals, objectives, performance measures, and ranking criteria; review draft project list
Community Forum	4/28/2016	Dave Prescott	Provided update on LRTP status and upcoming public meeting
Bicycle Pedestrian Advisory Board	5/10/2016	Jessica Morriss	Provided update on LRTP status and upcoming public meeting
Parks and Trails Advisory Committee	5/12/2016	David Gray	Provided update on LRTP status and upcoming public meeting
Downtown Master Plan Committee	5/19/2016	Jessica Morriss	Provided update on LRTP status and upcoming public meeting
TTAC/TPCC joint meeting	5/24/2016	All	Provided an overview of that evening's Transportation Summit #2
Public Meeting	5/24/2016	All	Transportation Summit #2 - Missoula Children's Theatre
TTAC	6/9/2016	Aaron and Jessica	Provided an overview of Transportation Summit #2 results and other public input information; funding allocation discussion
TPCC	6/21/2016	Aaron and Jessica	Provided an overview of Transportation Summit #2 results and other public input information; funding allocation discussion
Technical Advisory Committee meeting 2	7/21/2016	All	Review goal ranking, goal 8 results; review proposed goal weighting and scoring; review refined project scoring criteria
CAC meeting 3	8/2/2016	All	Discussed goal weighting and goal 8 inclusion; discussed refined project scoring criteria; reviewed public involvement; discuss scenario development
Joint TTAC/TPCC meeting	8/16/2016	All	Discussed goal weighting and goal 8 inclusion; discussed refined project scoring criteria; reviewed public involvement; discuss scenario development
Mode Split Subcommittee	8/26/2016	All	Discussed options and parameters for setting a mode split goal; approved 3 mode split goal options
Technical Advisory Committee	9/2/2016	Aaron and Jessica	Review/approve mode split options and develop funding allocations for each (Scenarios)
TTAC	9/8/2016	Aaron and	Review/approve mode split and funding allocation options

		Jessica	
TPCC	9/20/2016	Aaron and Jessica	Review/approve mode split and funding allocation options
Technical Advisory Committee	10/4/2016	All	Review preliminary project rankings and new funding allocation option
Bicycle Pedestrian Advisory Board	10/4/2016	Jessica and Aaron	Provided update on LRTP status and upcoming public meeting
Planning Board	10/4/2016	Jessica Morriss	Provided update on LRTP status and upcoming public meeting
City Council Public Works Committee	10/5/2016	Jessica and Aaron	Provided update on LRTP status and upcoming public meeting
Final Public Meeting/Open House - Summit 3	10/20/2016	All	Open house with interactive stations of plan process, feedback on mode split goals and scenarios sought
CAC meeting 4	10/25/2016	All	Presented results of public input from Open House and obtain feedback on mode split goal and scenario preferences
TTAC	11/3/2016	Jessica and Aaron	Presented results of public input from Open House and CAC, and obtain recommendation on mode split goal and funding scenario
TPCC	11/15/2016	Jessica and Aaron	Presented results of public input from Open House and CAC, and obtain recommendation on mode split goal and funding scenario
Bicycle Pedestrian Advisory Board	12/6/2016	Aaron and Ben Weiss	provided overview of draft Bike Master Plan
TPCC	12/13/2016	Aaron and Ben Weiss	provided overview of draft Bike Master Plan
City Council Public Works Committee	12/21/2016	Aaron and Ben Weiss	provided overview of draft Bike Master Plan
TTAC	1/5/2017	All	present draft bike master plan and draft LRTP
TPCC	1/17/2017	All	present draft LRTP and adopt bike master plan
Planning Board	1/17/2017	All	present draft LRTP
Community Forum	1/26/2017	All	present draft LRTP
Missoula Downtown Association Board	2/7/2017	Aaron and Ben	Present draft BFMP and draft LRTP
TTAC	2/9/2017	All	recommend adoption of LRTP
TPCC	2/21/2017	All	adopt LRTP

DRAFT Activate Missoula 2045 Comments

Online Comments

Name	Timestamp	General Comment	Specific project comment	Response
Kathleen Shepherd	1/4/2017 19:20:06	I think this is a great plan! This kind of forward attitude is why my family settled in Missoula. The only complaint I have is that so few city services are available to all the families up on South Hill. I would really like to see expansion in that area in the future.		Noted.
	1/4/2017 23:19:43		I am a homeowner in the Linda Vista area and am disappointed and disheartened that we the tax payers were not offered a discussion or furthermore an explanation of the bike lanes in this residential neighborhood. Did you do a study to determine the bike use in this area? It is minimal at best! To eliminate parking for the sake of a few is irrational and ludicrous! I am against this waste of money, NO BIKE LANES!!	Noted.
Julie Kies	1/19/2017 15:35:26	I am very impressed with the maps, data, tools and expertise going into this planning. I have only had a chance to review part of it, and will review more later. My family has been thinking of moving to a different part of town largely to avoid traffic, and utilize the safest bike route to/from home/work/recreational spaces. These maps provide great insight into where growth in development and traffic will occur.		Noted.

Email Comments

Name	Date	Comment	Response
Caleb Kasper (Riverfront Neighborhood Leadership Team)	1/11/2017	Dear Members of the Missoula Metropolitan Planning Organization, On behalf of the Riverfront Neighborhood Leadership Team, I Respectfully ask you to update the current Long Range Transportation Plan Update to reflect the following comments. We would really like to see more specificity added to project number 360–Bike Lanes on 5th St and 6th St between Higgins and Russell. In light of the recent Public Works Committee Discussion and vote to have Alta Planning+Design complete its work by doing a partial design based on Option 1C as laid out in the Transportation Function and Safety Memo, we feel the following would be appropriate: 1. Add detail to the project list to include design elements from Option 1C, 2. Create A new illustrative project to either convert, or study conversion of these streets to 2-way as a long-term goal	Update project in LRTP to reflect the memo and Council adopted preferred option.
MDT	2/2/2017	Page 4: Vicki is listed twice in the “Special Thanks” list. Should delete the second entry.	Noted
MDT	2/2/2017	Pages 5 – 8: In the references where the title is listed on one line but the page number is listed on the left side of the column in the next line, suggest moving the page number to the right side of the column so that it lines up with the page numbers in the other references. Typical comment for multiple references where this is the situation.	Will adjust text size and formatting
MDT	2/2/2017	Page 7: The Page listing for Figure 50 is confusing. It looks like “2045” and page number “93” are squeezed together into one number “204593”. They should be separated.	Noted, see above
MDT	2/2/2017	Page 11: In the right side column of text, the text “the City and County of Missoula” probably should be split into two different listings “the City of Missoula, Missoula County, ...”.	Noted
MDT	2/2/2017	Page 11: Figure 1 is missing the right and bottom border. Is this a stylistic choice?	Noted, graphic adjusted
MDT	2/2/2017	Page 12: In the List of Goals, in the 5th bullet, what is “secure transportation”?	“Secure Transportation” is directly from federal law.
MDT	2/2/2017	Page 13: Consider adding the years to “Winter”, “Spring”, “Summer/Fall”, and “Winter” so that all the headings are consistent with the “February 2017” heading which does list the year.	Noted
MDT	2/2/2017	Page 13: Consider changing “TPCC Adoption” to “Adoption by TPCC”.	Noted
MDT	2/2/2017	Page 13, Figure 2: Please change “principals” in Technical Tasks, Spring bubble to “principles”	Noted
MDT	2/2/2017	Page 14: In the Multimodal Vision Plan section, the name of Chapter 2 listed here as “State of the System” does not match the name listed on the Chapter 2 cover page which says “Existing & Future Conditions”.	Noted
MDT	2/2/2017	Chapter 2: In the footer of all odd numbered pages, the name of the chapter listed as “Existing Conditions” should be changed to “Existing & Future Conditions” so that it matches the chapter name on the Chapter 2 cover page.	Noted
MDT	2/2/2017	Page 16; 1 st ¶-Consider removing “(if not over a century)” or revising sentence. As written, the phrase seems superfluous.	Noted
MDT	2/2/2017	Page 16; 1 st ¶-Please remove hyphen between “Long” and “Range”	Noted
MDT	2/2/2017	Page 16; Section I; 1 st ¶; last sentence-Consider removing “of course”.	Noted
MDT	2/2/2017	Page 17, Streets and Highways, 2nd paragraph, 2nd sentence – To be eligible for federal funding the roadway must be functionally classified as a major collector or above <u>and</u> on-system.	Will clarify in text
MDT	2/2/2017	Page 18: Consider changing the color of the MPO Planning Area lines. The first two things that stick out when looking at the figure are the thick reddish-brown colored lines of the major roadways in the map and then next looking at the legend and seeing the same thick reddish-brown colored box outline that says “MPO Planning Area”.	Noted

MDT	2/2/2017	Page 19: The paragraph that starts with “Overall ...” contains statements that probably could use further clarification (maybe something about percentage of lane miles congested, or in 2015 as compared to 2010), because when looking at the map in Figure 5, there is a lot of red and orange which wouldn’t seem “pretty good” and “very few areas” upon initial reaction. Figure 6 does show a substantial improvement as compared to Figure 5.	Noted
MDT	2/2/2017	Also, what is the cause of the congestion at the little dot on S 93?	Will review travel model for clarification
MDT	2/2/2017	Is the line in the upper right-hand corner of Figures 5 & 6 the MPO planning area boundary? Suggest removing since the rest of the boundary isn’t part of the figure.	Noted
MDT	2/2/2017	Page 19-Table 2 is not referenced in the text. Suggest including a reference, where appropriate.	Noted
MDT	2/2/2017	Page 22: Regarding the sentence “Unfortunately, sufficient pavement condition data for City of Missoula roadways is currently not available.”, which roadways is this statement referring to? MDT has been collecting and recording pavement condition data for the Interstate, National Highway routes, and Primary routes for quite some time. The City of Missoula has been doing the same for the Urban route designated roadways (and Missoula County has been collecting data on the Urban route designated roadways outside of the City limits). If the sentence is referring to the local streets in the City of Missoula, then the sentence should be modified accordingly. Otherwise, the statement is incorrect. Additionally, is this true for streets located in Missoula County?	Noted. Will clarify in text
MDT	2/2/2017	Page 24; Bicycle Section: Any proposed SUP within State Highway System R/W must meet the criteria of MDT’s Shared use Paths in MDT Right-of-Way policy as well as the Highway State Special Revenue Account Management – Non Federal Match & Maintenance Impact to the Account Policy (HSSRA).	Noted
MDT	2/2/2017	Page 24: In the first paragraph of the Bicycle Section, the word “adolescence” in the first paragraph doesn’t seem to make sense based on the language in the second sentence that says “decades of development” and “a robust network”. The first sentence should probably be reworded to clarify the intent of the statement.	Noted
MDT	2/2/2017	Page 24; last sentence: This sentence isn’t finished until page 27. Suggest completing the sentence on one page.	Noted. Will adjust layout
MDT	2/2/2017	Page 25: In the Buffered Bike Lanes section, the way that the second sentence is written implies that the only buffered bike lane in Missoula is the one on East Spruce Street. The pavement preservation project that MDT did on Arthur Ave from Beckwith Ave to 6th St should also have one now (verify with Kevin Slovorp if the final striping has been completed). There may be others too.	Noted, will clarify
MDT	2/2/2017	Page 29: In the second paragraph, at the end of the sentence, change “crashes an improve” to “crashes and improve”.	Noted
MDT	2/2/2017	Page 29: In the fourth paragraph, in the last sentence, change “an increase the number” to “an increase in the number”.	Noted
MDT	2/2/2017	Page 33: What are the Total Cost numbers referring to? Insurance damage claims paid?	Will clarify this total
MDT	2/2/2017	Page 33: What does the cross symbol in the Reserve & I-90 row signify?	Will add reference for cross
MDT	2/2/2017	Page 33; Table 4: There is no reference or discussion of this table in the text. Please revise accordingly.	Noted
MDT	2/2/2017	Page 35: In the list of organizations, the statement currently listed for the Missoula Parking Commission doesn’t really indicate how this organization is involved in the transportation options listed in the section. The statement should be clarified.	Noted
MDT	2/2/2017	Page 37, Intermodal; 1 st ¶-The description of what Figs 17 and 18 represent doesn’t seem to match the actual captions on the Figures. For example, Figure 17 is a projected flow of truck travel and Figure 18 only shows the western portion of the state. Please clarify.	Noted

MDT	2/2/2017	Page 39; Environmental Issues: There are no references or discussion pertaining to Tables 5 & 6. Please revise accordingly.	Noted
MDT	2/2/2017	Page 43; Section II; 3 rd ¶: Is the Missoula County Growth Policy based on a similar approach?	Noted
MDT	2/2/2017	Page 43; Section II; 6 th ¶: Should “are” and “they” be flipped in the first sentence?	Noted
MDT	2/2/2017	Figures 24 & 25-It isn’t clear the extent of the MPO planning area-based on the symbols in the legend.	Noted
MDT	2/2/2017	Page 44: In the Legend, should change “50 DUs (2045 – 2015)” to “50 DUs (2015 – 2045)”.	Fixed
MDT	2/2/2017	Page 45: In the Legend, should change “100 New Total Employees (‘45 – ‘15)” to “100 New Total Employees (‘15 – ‘45)”.	Fixed
MDT	2/2/2017	Page 46; Section III; Committed Projects: Consider re-ordering the figure numbers so Figure 28 is not referenced prior to Figures 26 and 27.	Will work on layout options
MDT	2/2/2017	It isn’t clear what the reference is for committed and completed projects. 2012 LRTP update? Current TIP? Please clarify.	Noted
MDT	2/2/2017	Page 46: In Section IV, in the first paragraph, in the last sentence, add a space between “8” and “presents”.	Noted
MDT	2/2/2017	Page 47: In the map, the text for the “Rattlesnake Dr” label is cut off.	Noted
MDT	2/2/2017	Page 48: In Table 8, in the 2015 column, why are the values listed here not the same as the values listed in the 2015 column of Table 2 on Page 19?	Noted, will check on numbers for consistency
MDT	2/2/2017	Page 48: In Table 8, the VMT for 2015 listed here as 1,697,201 doesn’t match the 3,727,982 VMT listed in Table 15 of Appendix F. Are the areas different? Verify.	Will check for consistency
MDT	2/2/2017	Page 48: In Section V, in the third sentence, the “\$508.6 million” listed here needs to be updated based on the comments listed for Appendix B. Also, this \$ amount doesn’t match the \$ amount shown in Table 9.	Noted
MDT	2/2/2017	Page 48: In Table 9, Change the Table heading from “Cost estimates for anticipated transportation need in 2045” to “Cost estimates for anticipated discretionary-funded transportation need through 2045”.	Noted
MDT	2/2/2017	Also, please revise “(current year \$)” to “(2016 \$)” in order to avoid future confusion.	Noted
MDT	2/2/2017	Page 48: In Section VI, in the fourth sentence, change “will available” to “will be available”.	Noted
MDT	2/2/2017	Also, please revise “(current year \$)” to “(2016 \$)” in order to avoid future confusion.	Noted
MDT	2/2/2017	Page 48: In Section VI, in the last sentence, change “with greatest” to “with the greatest”.	Noted
MDT	2/2/2017	Pages 49 and 84: On the left side of the graphic, change “2016 Funding” to “2016 – 2045 Funding”.	Noted
MDT	2/2/2017	Pages 49 and 84: On the left side of the graphic for the 2016 – 2045 Funding, the sum of the Discretionary and Non-discretionary funding listed here is \$691,819,455. It appears that this number was calculated using the allocations. It instead should be calculated based on the available funding which is the sum of the Federal Revenue in Table 13 and the Local Revenue in Table 14.	Noted
MDT	2/2/2017	Page 52: In the first paragraph, in the third sentence, change “and mobility report card” to “and the mobility report card”.	Noted
MDT	2/2/2017	Page 52 and Appendix A: Text indicates that detailed accounts of PI input, etc. is included in Appendix A. This information is not included in Appendix A.	Will update to reflect contents of Appendix A
MDT	2/2/2017	Page 53: There is no reference to Table 30 in the text. Please revise accordingly.	Noted
MDT	2/2/2017	Page 56: In Figure 34, why are the percentages in the “Very Good” section circled?	Legacy from BBER report, will remove circles
MDT	2/2/2017	Page 56: In Figure 35, why are the top portions of the bar depictions in the “Good” and “Fair” sections circled?	Will remove circles
MDT	2/2/2017	Page 60: At the top of the right-hand column of text, delete the second duplication of the text “the survey”.	Noted
MDT	2/2/2017	Page 61: In the first paragraph, change “in City Council Chambers” to “in the City Council Chambers”.	Noted

		Page 65: In Table 11, what does “increase the security of the transportation system” mean? Keep it from being vandalized? Keep it from being destroyed by terrorists? Prevent signs from being stolen? It is unclear what this is as a goal and needs a little more clarification.	Transportation security is directly from federal goals and planning factors, included in this plan for consistency and to ensure compliance with federal requirements
MDT	2/2/2017		
MDT	2/2/2017	Page 66; System Performance Goals...: Why is “factors” in quotes?	Noted, remove quotes
		Page 66: In the National Goals and Planning Factors section, in the second sentence, change “FAST ACT” to “FAST Act”. Also, why is “factors” in quotes?	
MDT	2/2/2017		Noted, will revise
		Page 66: In the Activate Missoula 2045 Goals and Objectives section, in the last sentence, change “CAC, TAC, and TTAC and TPCC” to “CAC, TAC, TTAC and TPCC”.	
MDT	2/2/2017		Noted
		Page 67: Label the page number for this page.	
MDT	2/2/2017		Graphic size prevents page number label
		Page 67: In Goal 3, in the third bullet, change “costs that produces” to “costs that produce”.	
MDT	2/2/2017		Noted
		Page 67; Goal 4-Does the County’s growth policy also emphasize “focus inward”?	
MDT	2/2/2017		Will review this goal for consistency with County Growth Policy
		Page 70: In the description of B.3, the word “corridors” is misspelled.	
MDT	2/2/2017		Noted
		Page 71: For C.1, in the description for earning 10 points, the word “project” is misspelled.	
MDT	2/2/2017		Noted
		Page 72: For E.1, in the description for earning 5 points, the word “frequency” is misspelled.	
MDT	2/2/2017		Noted
		Page 72: For E.3, the descriptions for earning 3 points and for earning 7.5 points are exactly the same.	
MDT	2/2/2017		Noted
		Page 72: For E.4, the descriptions for earning 3 points and for earning 7.5 points are exactly the same.	
MDT	2/2/2017		Noted
		Page 73: Label the page number for this page.	
MDT	2/2/2017		Graphic size prevents page number label
		Page 73: For F.2, trim the horizontal bar back to the 5 point mark.	
MDT	2/2/2017		Noted
		Page 74: Label the page number for this page.	
MDT	2/2/2017		Graphic size prevents page number label
		Page 74: Change “F.2 Streetscape” to “Bonus.2 Streetscape”.	
MDT	2/2/2017		Noted
		Page 75: In the second sentence, change “despite being scoring highly” to “despite being scored highly”.	
MDT	2/2/2017		Noted
		Page 75: In the title of Figure 41, add “Non-motorized” at the beginning before “Project ranking”.	
MDT	2/2/2017		Noted
		Page 75, Page 103, and Appendix C: In Figure 41, for Project ID #198, the word “Trail” is misspelled.	
MDT	2/2/2017		Noted
		Page 75 and Appendix C: In Figure 41, Project ID #515 listed here doesn’t match the ID #534 listed in Table 24 and Appendix B for the same project (Bike/Ped Bridge from Riverfront Triangle to McCormick Park). Verify which is correct and modify accordingly.	
MDT	2/2/2017		Will review project # assignments
		Page 75 and Appendix C: In Figure 41, Project ID #516 listed here doesn’t match the ID #535 listed in Appendix B for the same project (Shared-use path connection through the fairgrounds). Verify which is correct and modify accordingly.	
MDT	2/2/2017		Will review project # assignments
		Page 79: In the first paragraph, change “as means of” to “as a means of”.	
MDT	2/2/2017		Noted

		Page 80: In the second paragraph, though the reason currently described could very well be one factor, it's probably not the only reason. The text should probably also recognize and discuss that it seems that another very significant factor for people who live in the higher single-occupancy vehicle use areas per the map is that these areas appear to be where people have further to travel to get to their destinations, thus making walking, biking, and to a lesser extent transit much more inconvenient due to the substantial additional time required to commute using these modes as opposed to using a single-occupancy vehicle, regardless of whether there are good bike/ped facilities in place or not. Once the trip length gets more than a mile or two, the additional time it takes to bike or walk versus driving is not worth it to some as their time is much more valuable. Then there are numerous other reasons why biking and walking can be inconvenient – fitness level, needing to shuttle family members, needing to carry large or heavy items, bad weather conditions, darkness, etc.	Noted. Will review this paragraph and consider additional qualification
MDT	2/2/2017		
		Page 80: In the Comparison Cities section, in the first sentence, add a comma after “and if so”.	Noted
MDT	2/2/2017		
		Page 84: In the last paragraph, in the last sentence, change “for Mountain Line’s to operate” to “for Mountain Line to operate”.	Noted
MDT	2/2/2017		
		Page 85: In Section II, in the second paragraph, in the first sentence, change “projects will eligible funding” to “projects with eligible funding”.	Noted
MDT	2/2/2017		
		Page 85: In Section II, in the third paragraph, in the second sentence, the word “discretionary” is misspelled.	Noted
MDT	2/2/2017		
		Page 86: In the second paragraph, in the second sentence, change “discussed in earlier” to “discussed earlier”.	Noted
MDT	2/2/2017		
		Page 89: In the second paragraph, in the first sentence, change “each scenarios” to “each scenario”.	Noted
MDT	2/2/2017		
		Page 89: In the title of Table 12, the word “measures” is misspelled.	Noted
MDT	2/2/2017		
		Page 89: In Table 12, in the third row beneath the column headings, in the first column, the word “Change” is misspelled.	Noted
MDT	2/2/2017		
		Page 93: Figures 49 and 50 are not referenced in the text. Please revise accordingly.	Noted
MDT	2/2/2017		
		Page 94: In the Federal funding section, in the second paragraph, the word “primary” is misspelled.	Noted
MDT	2/2/2017		
		Page 94: In the title of Table 13, the word “estimated” is misspelled.	Noted
MDT	2/2/2017		
		Page 94: In Table 13, all of the zeros in the 2021-2030 and 2031-2045 columns (except for the zeros in the Earmarks row) need to be changed to the appropriate projected estimates based on historical averages for each of those funding sources. Update the totals and all text within the report referencing these values.	Will add estimates for future years to this table, with the understanding that due to the lack of certainty and that these funding sources are programmed by MDT, and so are not included in other funding analysis in the plan
MDT	2/2/2017		
		Page 94: In Table 13, many of the values as currently listed don’t match the values listed in Appendix D. Revise so that Table 13 and Appendix D match.	Noted, will review for consistency
MDT	2/2/2017		
		Page 95: In Table 14, in the TRANSADE and MUTD rows, in the 2016-2020, 2021-2030, and 2031-2045 columns, increase the font size to match the rest of the text size in the table.	Noted
MDT	2/2/2017		
		Page 95: In Table 14, in the footnotes below the table, increase the size of the % and # symbols to be the same size as the symbols used in the table.	Noted
MDT	2/2/2017		
		Page 96: In Table 15 (both the Federal section and the St/Local section of the table), all of the blanks in the 2021-2030 and 2031-2045 columns (except for the blanks in the Earmarks row) need to be changed to the appropriate projected estimates based on historical averages for each of those funding sources. Update the totals and all text within the report referencing these values.	Noted, see response above for Table 13
MDT	2/2/2017		

MDT	2/2/2017	Page 97: In Table 16 (both the Federal section and the St/Local section of the table), the blanks in the 2021-2030 and 2031-2045 columns for the TA funding source need to be changed to the appropriate projected estimates based on historical averages for that funding source. Update the totals and all text within the report referencing these values.	Noted, see response above for Table 13
MDT	2/2/2017	Page 97: In Table 17 (both the Federal section and the St/Local section of the table), in the 2016-2020, 2021-2030, and 2031-2045 columns, the column totals don't add up using the values listed above. It appears that the values in the 5311 row are missing and need to be added.	Noted
MDT	2/2/2017	Page 98: In Table 19 (both the Federal section and the St/Local section of the table), the blanks in the 2021-2030 and 2031-2045 columns need to be changed to the appropriate projected estimates based on historical averages for this funding source. Update the totals and all text within the report referencing these values.	Noted
MDT	2/2/2017	Page 99: In Table 20 (both the Federal section and the St/Local section of the table), all of the blanks in the 2021-2030 and 2031-2045 columns need to be changed to the appropriate projected estimates based on historical averages for each of those funding sources. Update the totals and all text within the report referencing these values.	Noted
MDT	2/2/2017	Page 100: Label the page number for this page.	Noted
MDT	2/2/2017	Page 100: In Table 21 (the Federal section of the table), in the 2021-2030 and 2031-2045 columns for the 5310 row, fix the number formatting of the values to match the rest of the values in the table.	Noted
MDT	2/2/2017	Page 102: Label the page number for this page.	Noted
MDT	2/2/2017	Page 102: In Table 23, in the Committed Project #37 (Bitterroot River – W of Missoula) row, in the Cost (\$) Future Year column, the \$825,000 currently listed should be changed to \$13,959,653 based on the values listed to the right.	Revise \$ amount
MDT	2/2/2017	Page 102: In Table 23, add rows, one for each funding source, for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using IM, NH, STPX/STPS/SFCN, UPP, and BR funding (see previous comments).	Noted
MDT	2/2/2017	Page 102: In Table 23, in the Recommended Projects list, Project #336 (Johnson Street: Extend from South Avenue to Brooks Street) is not listed in the rankings list in Appendix C. Also it has the same Project ID number (336) as the Mary Street project listed in the Committed Projects section. Verify what is correct and modify accordingly.	Noted
MDT	2/2/2017	Page 103: Label the page number for this page.	Noted
MDT	2/2/2017	Page 103: In Table 24, in the Committed Project #100 (Bitterroot Trail) row, fix the justification of "100" in the ID column.	Noted
MDT	2/2/2017	Page 103: In Table 24, add a row for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using TA funding (see previous comments).	Noted
MDT	2/2/2017	Page 104 and 105: Figures 51 and 52 are not referenced or discussed in the text. Please revise accordingly.	Noted
MDT	2/2/2017	Page 106: Label the page number for this page.	Noted
MDT	2/2/2017	Page 106; Table 25-Please remove TDM references from table.	Noted
MDT	2/2/2017	Page 106: In Table 25, in the two Vanpool rows, in the Total Cost (\$) Current Year column, the appropriate value for each row is missing and needs to be added.	Noted
MDT	2/2/2017	Page 106: In Table 25, in the Committed Project – Vanpool Capital purchases row, in the Cost (\$) Future Year column, the appropriate value (the sum of the values to the right) is missing and needs to be added.	Noted
MDT	2/2/2017	Page 106: In Table 25, in the Committed Project #386 (TDM Placeholder MRTMA) row, the value of \$3,896,200 listed in the Total Cost (\$) Current Year column shouldn't be larger than the \$3,036,000 listed in the Cost (\$) Future Year column. According the amounts listed to the right, the \$3,036,000 in the Cost (\$) Future Year column is the correct value and the value in the Total Cost (\$) Current Year column needs to be revised.	Noted

MDT	2/2/2017	Page 106: In Table 27, add a row for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using HSIP funding (see previous comments).	Noted
MDT	2/2/2017	Page 106: In Table 28, add a row for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using MACI funding (see previous comments). Additionally, ID #59-should there be another agency before the slash?	Noted
MDT	2/2/2017	Page 106: In Table 29, in all rows, in the Total Cost (\$) Current Year column, the appropriate value for each row is missing and needs to be added.	Noted
MDT	2/2/2017	Page 106: In Table 29, in the Committed Project – Capital purchases (5339 funding source) row, in the Cost (\$) Future Year column, the appropriate value (the sum of the values to the right) is missing and needs to be added.	Noted
MDT	2/2/2017	Page 106: In Table 29, in the Committed Project – Paratransit capital purchases row, in the Cost (\$) Future Year column, the appropriate value (the sum of the values to the right) is missing and needs to be added.	Noted
MDT	2/2/2017	Page 106: In Table 29, increase the row height for the Recommended Project so that the text does not get cut off.	Noted
MDT	2/2/2017	Page 108: In the Funding summary section, in the second sentence, the “\$595 million” value listed doesn’t match the \$692 million (or the \$698 million) as discussed in a previous comment.	Will review for consistency
MDT	2/2/2017	Page 109, Table 30; Goal 4-Does the County’s growth policy also emphasize “focus inward”? This doesn’t seem inclusive of entire planning area.	Noted
MDT	2/2/2017	Page 110: In Table 30, for Goal 7a, in the Recommended Plan Consistency column, change “which results reduced” to “which results in reduced”.	Noted
MDT	2/2/2017	Page 113; Performance Monitoring and Measurement; 2 nd bullet; 2 nd sentence-what about Missoula County?	Noted
MDT	2/2/2017	Pages 114 and 115-There are no references in the text for Figures 55 and 56. Please revise accordingly.	Noted
MDT	2/2/2017	Page 115: Isn’t the 5th bullet essentially the same as the 3rd bullet?	Noted
MDT	2/2/2017	Page 115: The 8th bullet about pursuing a consideration to de-emphasize vehicular Level of Service seems to run counter to the LRTP Goal #2 of improving efficiency and performance (which was ranked the highest of the 8 goals according to Figure 39). It also seems to be in contradiction to the #1 ranked response by the public listed in Figure 31 regarding the desire to reduce traffic congestion, and in contradiction to Figure 36 which shows the largest number of the respondents saying that adding and improving roadways for vehicles is a very high priority. This action item seems to be coming out of left field because it doesn’t appear to relate to any of the other discussion in this document. This action item either needs a lot more discussion as to why it is pertinent to this document or it should be removed.	Will revise to recommend Multi-modal level of service, which is consistent with plan goals by increase the efficiency and access for all modes. Increased efficiency can reduce congestion in a more cost-effective way, further supporting plan goals. Multi-modal level of service is also a better measure when considering mode split goals in this plan
MDT	2/2/2017	Page 116; Section II; 2 nd ¶; 1 st sentence-Suggest deleting the second use of “also”.	Noted
MDT	2/2/2017	Appendix A-based on text included on page 52, this appendix is incomplete. Additionally, this isn’t presented in what was done, but more like a scope of work and what will be done.	Noted
MDT	2/2/2017	Appendix A; Page 2; Requirements-Please revise 23 CFR 450.322 to .324.	Noted
MDT	2/2/2017	Appendix A; last page-Please change TTAC date.	Noted
MDT	2/2/2017	Appendix B: Revise all tables based on all comments noted previously for Tables 23 – 29 in the main document.	Noted
MDT	2/2/2017	Appendix B: At the bottom of each table (except the Safety Projects table which is already shown correctly), for the Federal row and the State/Local row, move the total amount from the Total Cost (\$) Current Year column to the Cost (\$) Future Year column. The sum of these two amounts will equal the Total Cost (\$) Future Year amount listed directly above for the Committed and Recommended projects.	Noted

		Appendix B, Roadway Improvement Projects: Increase the row height for Project ID #13 in the Illustrative Projects section so that it matches the text shown for this project in Appendix C.	Noted
MDT	2/2/2017	Appendix B, Non-motorized Projects: Increase the row height for Project ID #525 in the Illustrative Projects section so that it matches the text shown for this project in Appendix C.	Noted
MDT	2/2/2017	Appendix B, Transportation Options-Please remove reference to TDM	Noted
MDT	2/2/2017	Appendix B, Transit – Capital Projects: The Total amount for the Total Cost (\$) Current Year is missing and needs to be added.	Noted
MDT	2/2/2017	Appendix C, Roadway Project Ranking: The vertical grid lines do not appear to correspond with the locations of the point headings at the top of the list and do not appear to correspond to the point totals for each project listed in Table 23 or Appendix B.	Noted
MDT	2/2/2017	Appendix C: Project ID #517 listed here doesn't match the ID #536 listed in Appendix B for the same project (Post Siding Road shared-use path connection). Verify which is correct and modify accordingly.	Noted
MDT	2/2/2017	Appendix C: For Project #96 (Grant Creek Trail to Snowbowl Rd), the score listed here doesn't appear to match the score listed in Appendix B for this same project. Verify which is correct and modify accordingly.	Noted
MDT	2/2/2017	Appendix D: Add in yearly historical average projections for years 2021 – 2045 for the IM, NH, MACI, STPS/STPX/SFCN, HSIP, TA, UPP, and Bridge funding categories.	Noted
MDT	2/2/2017	Appendix D: Can delete the STPP row seeing as there are no longer any Primary routes in the MPO area that can use this funding category.	Noted
MDT	2/2/2017	Appendix D: Change "SFPX" to "STPX".	Noted
MDT	2/2/2017	Appendix D: The Total amount of FTA 5311 Capital funding on the right side of the sheet is missing and needs to be added.	Noted
MDT	2/2/2017	Appendix D: Update the info highlighted in yellow and delete the highlighting.	Noted
MDT	2/2/2017	Appendix E: The information for this Appendix is missing.	Noted. Air quality appendix will be added when complete
MDT	2/2/2017	Appendix F: The information appears to be incomplete. It only lists data for the existing time period. There is no information regarding the 2045 projected volumes, etc.	Noted
Vince Caristo	2/3/2017	Pg 23 – "The Missoula Urban Transportation District (MUTD) provides the region with fixed route transit, paratransit, and senior van services."	Noted
Vince Caristo	2/3/2017	Pg 35 – "Mountain Line – provides fixed route transit, paratransit, and senior van etc. transit services."	Noted
Vince Caristo	2/3/2017	Pg 100 – In Table 21, format the numbers as currency in row 5310 (\$1,034,895; \$1,671,705).	Noted
Vince Caristo (MUTD)	2/3/2017	Pg 100 – "While the transit operations costs listed in Table 22 represents represent all anticipated transit operations funding, the specific expenses are determined annually by the FTA and MUTD (compensation, fuel, parts, repairs, etc.). The MPO does not typically determine how these dollars are spent by the transit agency program specific projects in this category."	Noted
Vince Caristo (MUTD)	2/3/2017	Pg 106 – Table 29: Remove 'Capital' from the title, because operations costs are included here.	Noted
Vince Caristo (MUTD)	2/3/2017	Also, can you change the CMAQ allocations which aren't actually 'Committed' – i.e., those beyond the current TIP – to 'Recommended', rather than 'Committed'? The FTA non-discretionary sources are 'Committed' to us, but not the discretionary sources, unless they are in an active project or approved in the TIP. This is exactly the problem we ran into with the 2012 plan...	Noted - will review definitions and adjust accordingly
Vince Caristo (MUTD)	2/3/2017	Pg 108 – Figure 53 – I think you mixed up Transit Operations and Transit Capital?	Fixed chart

Vince Caristo (MUTD)	2/3/2017	Pg 89 – What is the forecasted mode share, in relation to the established goal, that will be achieved with the chosen mix of projects? I think it would be valuable for people to know. Table 12 shows that you have access to those calculations, so for an interested/astute reader it seems unusual for the plan to not make that direct connection.	Will consider ways to expand on mode split discussion with travel model results
Vince Caristo (MUTD)	2/3/2017	Pg 94 – Table 13 – What does ‘federal allocation only’ mean....are you including local match dollars for STPU? I think this would be a good place to exactly which sources are discretionary vs non-discretionary sources, since this is key concept in the plan, and I don’t think it’s broken down anywhere else (although it’s well explained on p 84).	Will review and clarify
Vince Caristo (MUTD)	2/3/2017	Pg 97 – “In lieu of dedicated federal dollars, and considering that STPU funds are committed to Russell Street through 2030 or beyond, more funding from local sources will be necessary to meet the goals of this plan.” This is speaking about non-motorized, but isn’t this sentence a key sentence that applies to the entire plan? If it’s true, it seems important to highlight this more.	Noted, will consider ways to highlight this point
Vince Caristo (MUTD)	2/3/2017	Pg 106 – This mirrors my comment above regarding Table 29 – programs are listed as ‘Committed’ that I don’t think technically are (maybe I’m wrong), in Table 25 and Table 28. Given what happened with MUTD’s ‘Committed’ funds in the 2012 plan, I think it’s especially important to be precise with the definitions in this plan.	Noted
Vince Caristo (MUTD)	2/3/2017	Pg 108 – “As can be seen, because the amount of non-discretionary and committed funding (\$595 million) is so large in comparison to the amount of funds that are discretionary (\$97 million), even relatively large shifts of discretionary funds to different categories only have a small effect on the overall distribution of funds.” This sentence is referring to Figure 46, not the figures immediately below it...it might be worth citing it, or reproducing it here. This is another really key finding of the plan - I think it would be worth breaking this down further for people, to show the amount of committed vs discretionary over time (2016-2020, 2021-2030, etc.).	Noted, will work on further explaining discretionary vs. non-discretionary challenges
Dave Strohmaier (County Commissioner)	2/6/2017	As I mentioned when we met, I’d very much like to see some language in Activate Missoula 2045 that acknowledges the potential of using the Bitterroot Spur as a future rail transit option (either within Missoula or as a commuter rail line to the Bitterroot). What is the process to make this change and might you be able to prepare amendment language for TPCC’s consideration? Places in the plan that seem appropriate insertion points include p. 37; Table 25 (unless this table reflects funded projects); Appendix A, Transit-Capital Projects table; and, possibly, one of the Federal Transit Administration tables in the TIP. Maybe there are other more appropriate spots for an unfunded project, as what I’m suggesting, but I think it is important to get this into the plan. Besides getting this into the LRTP, other important next steps would include: (1) preserving the ROW, perhaps getting mention of rail transit in MUTD’s Long Range Transit Plan, and developing a feasibility study. Let me know if you have any questions. Thanks!	Add section on passenger rail in Chpt 2 (Existing/Future Conditions) and add Illustrative Project under transit (note: will be unfunded, and have no cost estimate due to uncertainty of future project details and anticipated costs)
City Parks	2/7/2017	Pg. 14 - City and County park plan names and updates	Will adjust references
City Parks	2/7/2017	Pg. 28 - Fig 10 - add Hillview Way system	Noted
City Parks	2/7/2017	Pg. 40 - Fig 20 - proposed parks may not be accurate	Will review data for consistency with planned parks
City Parks	2/7/2017	Pg. 85 - Fig 47 - Please add trail/pathway and sidewalk maintenance under operational; under capital, I presume non-motor/active = trail/sidewalk	Will add sidewalk/trails maintenance to graphic
City Parks	2/7/2017	Pg. 99 - Please add trail maintenance - Parks can provide a list of projects. (Note - TA grant application prep for lighting, pavement preservation. Also, need to replace NS Ped x-ing decking @ \$750k)	Noted. Once projects and cost estimates are received, table can be updated.
City Parks	2/7/2017	Pg. 115 - Right column, 3rd bullet: ...a bicycle facility (and maintenance) funding program...	Noted. Make change in text.
City Parks	2/7/2017	Pg. 116 - Right column, 3rd bullet add "Missoula trails, <u>including maintenance</u> , plan.	Noted. Make change in text.

City Parks	2/7/2017	(??) edits from Parks & Rec in LRTP is inclusion of the mid/long term cyclical maintenance of commute pathways, including ped bridges and crossings	Noted. Include additional discussion of non-motorized facility maintenance over next 30 years.
Gillian Thornton	2/7/2017	On the bottom of page 35, under "Transportation Options", the document references the Missoula Ravalli Transportation Management Association. I think that it should be followed by its abbreviation in parenthesis, particularly since it is referred to by its abbreviation MRTMA in the image caption below.	Noted.
Gillian Thornton	2/7/2017	I found Figure 21 on page 41 to be somewhat unclear. Because the boundaries between neighborhood units (or whatever the unit being used) are not depicted, I found the image difficult to interpret. Perhaps more of a description (either in the caption or in the text on page 39) would help clarify? Or perhaps simply including the boundary lines in the image?	Noted. Add census tract/block group boundaries and additional clarifying text on graphic or as footnote
Gillian Thornton	2/7/2017	Figure 23 on page 42--I believe that all charts and tables should be able to stand alone outside of the document if needed. This means having very clear labeling. I suggest labeling your y-axis in this image so that it is clear that the numbers refer to percentages.	Noted. Review tables and graphs for clarity, labels, and other identifying information
Linda McCarthy (MDA)	2/10/2017	Comments on LRTP, <i>*see attached letter</i>	Noted.
Amy Cilimburg	2/10/2017	I think it would be appropriate to include both the City of Missoula Conservation and Climate Action Plan (2013) and Missoula's Community Climate Smart Action Plan (2015). Both are linked here: http://www.ci.missoula.mt.us/956/Energy-and-Climate-Action . I was thinking they should be included in the box on page 14. Reducing emissions from transportation, and using transportation together with smart growth/land use planning in order to build a more resilient community with a smaller footprint are important to both these plans, and help support some of the ambitious goals within the LRTP	Noted. Cross-reference added to list of plans, and climate change reference added in text.
Amy Cilimburg	2/10/2017	I also wonder why climate change is not mentioned at all. I think it should be in this list: Activate Missoula 2045 also seeks to support and play a role in the implementation of Missoula's policies related to growth and development, environmental protection, economic development, neighborhood preservation, climate change, and community health. Climate change is broader than environmental protection, in my mind - it's more encompassing, addresses social equity and health in unique and different ways, etc. It seems small but I think important to include	Noted. Change made.
Kristin Kenyon (FTA)	2/13/2017	Figure 7 (transit routes), is a bit difficult to read. Perhaps the image could be improved or perhaps enlarged to an 11x17 sheet?	Noted.
Kristin Kenyon (FTA)	2/13/2017	If transit ridership has doubled recently, wouldn't that be shown as an increase in the yellow line (Mode of travel) in Figure 23?	Figure 23 is ACS commute data, so may not reflect riders who use the bus multiple times, or for different purposes than commute to work.
Kristin Kenyon (FTA)	2/13/2017	Suggest adding a column showing Population to Table 7 (in addition to households)	Noted. Population added to table.
Kristin Kenyon (FTA)	2/13/2017	In the forecast congestion section, it appears Reserve corridor will continue to be increasing congested. From the various maps showing development and transit-dependents, it appears this will continue to be a major corridor to consider for improved transit service	Noted. We agree that this will be an area for Mountainline to focus on during their long range planning and route planning processes.

Kristin Kenyon (FTA)	2/13/2017	Trying to reconcile the numbers in Figures 31 and 33 – not clear on how they differ...perhaps clarifying the titles...?	Noted. The questions tried to get at the same issue, but in different ways. One (q. 31) is more policy-focused (which mode) versus the kinds of improvements (q. 33)
Kristin Kenyon (FTA)	2/13/2017	Good section on Performance Based planning but it doesn't appear that transit measures are included. They are required to be in place starting next year related to transit performance measures and asset management. Please add a statement about the new FTA requirements so we know they are on the MPOs radar. (Let me know if you need more information ☺)	Noted.
Kristin Kenyon (FTA)	2/13/2017	CMAQ funds appear to go primarily for roadway projects – any consideration for future transit projects, especially since transit formula funds are not likely to increase in the future?	Noted.
Tom Zavitz	2/13/2017	DS Long Range Planning comments *See attached letter	Noted. Will consider additional language to draw attention to the land use/transportation linkages.
Vince Caristo	2/14/2017	Pg 68, Footnote 1: <i>'Projects in the following categories were not scored using the project scoring methodology: Safety, Intelligent Transportation Systems, Transportation Options, Transit, and Studies.'</i>	Noted, change made.



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Tom Snyder

Five on Black

Heidi Starrett

Missoula Broadcasting

Ex-Officio Representatives

Corey Aldridge

Mountain Line

Rod Austin

Missoula Parking Commission

James Grunke

Missoula Economic Partnership

Shane Stack

Montana Dept. of Transportation

February 9, 2017

Aaron Wilson & Ben Weiss

City of Missoula Development Services

435 Ryman

Missoula, MT 59802

Aaron and Ben,

On behalf of the Missoula Downtown Association Board of Directors and staff, I want to thank you for taking the time to present the overview on the City of Missoula's Long-Range Transportation Plan and Bicycle Master Plan. We appreciate the quality of our planning staff and processes in Missoula, and your contributions are held in high regard.

In review of the LRTP, we appreciate the goals to shift mode and encourage biking, walking and busing. We support encouraging multi-modal options to improve community health, active lifestyle, and reduction of demand for parking spaces. We support the community's goal to reduce single-occupancy vehicle travel in exchange for other modes of transportation.

Unlike many others who have participated in this process, we believe economic vitality is directly linked to transportation infrastructure and services, and we prioritize economic vitality higher than most individuals in Missoula might. Generally speaking, we support Scenario 4 for both motorized and non-motorized transportation projects.

As a primary advocate for Downtown Missoula, we support and will advocate for these non-motorized projects noted in the LRTP:

- Bitterroot Branch Trail Connections and Riverfront Corridor trail improvements
- Citywide Bicycle Greenways and Complete Streets
- Additional river crossings for pedestrians and cyclists
- Bicycle and trail wayfinding
- Downtown streetscapes

With the goal of ensuring Downtown remains comfortably accessible for vehicles, we are strong supporters of converting Front & Main to two-way streets. However, we are cautious about converting Higgins Avenue to a third-lane roadway between Broadway and Brooks. Therefore, we will plan to be a primary participant in the planning around conversion of Higgins Avenue.

Noting that "Reconfiguring Broadway within the existing ROW from Orange to Madison as per the Downtown Master Plan" ranked among the top five roadway projects, we want to emphasize that the DTMP recommends, "Once conditions require and funding is available, **design Broadway as a four-lane street** between Russell and Van Buren streets with context-sensitive best practices and public involvement to ensure the pedestrian, bike, auto and business constituents are included in the planning, design and construction of the improvements."

Clay Street reconfiguration, Carousel Drive reconfiguration, and ADA parking enhancements are projects we will support.

In closing, we appreciate the time, talent and energy that went into to this planning process, and we appreciate the opportunities to participate in and consider the future of our community.

Thank You,

Linda

Linda K. McCarthy
Executive Director

February 13, 2017

RE: LRTP Public Comment

City of Missoula Transportation Planning Division:

Thank you for the opportunity to comment on the LRTP. As you know, the Planning Division of Development Services recently completed the Our Missoula 2035 City Growth Policy. It was created through active community involvement which included consideration of the intrinsic relationship between transportation and land use planning in setting goals for healthy connected “focus inward” community development.

The growth policy is based on the strategy of using efficient land use planning to create a more compact community and avoid urban encroachment into valuable agricultural and open lands around the city as well as limiting costly extensions of new infrastructure. So we are glad to see the concept of the relationship between transportation and community health and development discussed in the LRTP introduction.

Consistent with the LRTP revision process and our growth policy outreach and research, we have also seen the public need for more transportation options grow. National and local trends show that both older and younger citizens are looking for smaller affordable dwellings close to services, work, and transportation options. Compact development requires more integrated planning and will involve the comparison of transportation plans to other plans and, to some extent, coordinated framing of local and regional land use development strategies, policies, and plans with pertinent transportation studies and plans. Therefore interaction between transportation and other agencies involved with developing and implementing community planning should be a top priority.

Thanks again for the chance to comment.

Sincerely,

City of Missoula Development Services Planning Division

Appendix B: Full Project List



Roadway Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local	Federal	2021-2030 State/Local	Federal	2031-2045 State/Local	Federal
Committed Projects	7	N/A	Russell Street and Bridge Reconstruction (Broadway to Dakota)	MDT/City	STPU, BR, EARMARK	\$36,750,900	\$36,750,900	\$4,931,973	\$31,818,975				
	11	N/A	2nd half of Russell Street (Dakota to Mount Avenue)	MDT/City	STPU	\$19,640,309	\$19,640,309	\$208,200	\$1,343,000	\$2,427,558	\$15,661,551		
	30	N/A	Street Improvements: Wyoming (California to Russell)	City	Local	\$200,000	\$200,000	\$200,000					
	37	N/A	Bitterroot River - W of Missoula (South Ave Bridge - MacClay Bridge)	County	BR	\$10,900,000	\$9,657,980	\$110,700	\$714,300	\$1,185,386	\$7,647,594	\$577,285	\$3,724,388
	39	N/A	US 93: North of Desmet Interchange - North	MDT	NH	\$8,414,800	\$8,414,800	\$1,129,300	\$7,285,500				
	40	N/A	I-90: Missoula - East and West (Van Buran St, \$5,821,000 interchange)	MDT	IM	\$8,918,200	\$10,838,400	\$949,400	\$9,889,000				
	40.5	N/A	I-90: Missoula - East and West (Orange Street, \$1,969,000 interchange)	MDT	IM	\$3,925,800	\$3,932,700	\$344,500	\$3,588,200				
	49	N/A	Street Improvements: California (River Road to Dakota)	City	Local	\$400,000	\$400,000	\$400,000					
	54	N/A	Van Buren Street Reconstruction (Elm to Missoula Ave)	City	Local	\$345,000	\$345,000	\$345,000					
	122	N/A	Grant Creek Road right lane addition at I-90	MDT/City	IM, Local funds	\$604,200	\$604,200	\$235,400	\$368,800				
	131	N/A	Huson - East	MDT	STPS	\$3,271,300	\$3,271,300	\$439,000	\$2,832,300				
	347	N/A	Higgins Avenue Bridge Improvements - UPN 8807	City/MDT	BR	\$11,219,200	\$11,219,200	\$1,505,600	\$9,713,600				
	485	N/A	Intersection improvements - MT 200 and Old Hwy 10	MDT	NH	\$1,153,600	\$1,153,600	\$154,800	\$998,800				
	511	N/A	Madison Street Bridge Improvements - UPN 8806	MDT	BR	\$8,931,900	\$8,932,000	\$1,198,700	\$7,733,300				
	538	N/A	Mary Street - extend from Reserve over railroad to new Southgate Mall connector.	City	MRA	\$2,500,000	\$2,500,000	\$2,500,000					
	537	N/A	I-90 Bridge replacement - Bonner	MDT	IM	\$20,027,800	\$22,741,200	\$1,992,100	\$20,749,100				
		N/A	Placeholder for future IM projects	MDT	IM	\$24,084,053	\$24,084,053			\$796,252	\$8,293,383	\$1,313,511	\$13,680,907
		N/A	Placeholder for future NH projects	MDT	NH	\$9,954,825	\$9,954,825			\$329,120	\$3,427,960	\$542,922	\$5,654,822
		N/A	Placeholder for future STPX/STPS/SFCN projects	MDT	STPX/STPS/SFCN	\$37,914,836	\$37,914,836			\$1,920,342	\$12,389,210	\$3,167,829	\$20,437,454
		N/A	Placeholder for future BR projects	MDT	BR	\$10,269,362	\$10,269,362					\$1,378,148	\$8,891,214
Recommended Projects	528	132	Brooks St. (Reserve to Paxson) complete street	City	MRA	\$2,200,000	\$2,923,751			\$2,923,751			
			Complete Street Improvements: South Ave. (Reserve to 36th) including intersection										
	158	128	improvements at Old Fort and South Ave	City	Local	\$4,660,000	\$4,660,000	\$4,660,000					
	394	118.5	East Missoula - Highway 200 complete street reconstruction	County	STPU	\$1,835,000	\$3,544,792					\$475,711	\$3,069,081
			Reconfigure Broadway within existing ROW - Orange St. to Madison, as per the										
	469	113	Downtown Master Plan	City	MRA	\$2,500,000	\$3,322,445			\$3,322,445			
	152	104.5	Front/Main conversion to 2-way streets	City	MRA	\$5,000,000	\$6,644,889			\$6,644,889			
	154	103.5	Street Improvements: 3rd (Reserve to Hiberta)	City/County	STPU	\$1,400,000	\$2,704,474					\$362,940	\$2,341,533
	397	98	Reconstruct Curtis St to make it a complete street	City	Local	\$770,000	\$1,023,313			\$1,023,313			
	398	93.5	Reconstruct River Road from Russell to Reserve as a complete street	City	Local	\$1,210,000	\$1,608,063			\$1,608,063			
			Higgins Avenue: 3-Lane conversion from Brooks Street to Broadway as detailed in the										
	14	93	Downtown Master Plan (excluding bridge)	City	Local	\$2,500,000	\$3,322,445			\$3,322,445			
	370	88.5	Reconstruction to Complete Street standards - Russell St. from Mount to Brooks	City	Local	\$2,500,000	\$4,829,417					\$4,829,417	
	155	88	Street Improvements: California (3rd to Dakota)	City	MRA	\$1,000,000	\$1,931,767					\$1,931,767	
	336	87.5	Johnson Street: Extend from South Avenue to Brooks Street	City	MRA	\$2,500,000	\$2,549,932					\$2,549,932	
	379	83.5	Carousel Drive reconfiguration	City	Local	\$500,000	\$965,883					\$965,883	
	420	83.5	Intersection improvement at Mullan Rd & Mary Jane Blvd		Local	\$100,000	\$193,177					\$193,177	
	132	73.5	Intersection Improvements: Bancroft/South Ave	City	Local	\$300,000	\$579,530					\$579,530	
	468	67.5	Brooks St. (Stephens to Mount) reconstruct to complete street	City	MRA	\$500,000	\$965,883					\$965,883	
	421	66	Intersection improvement at Higgins Ave & Pattee Creek Rd	City	Local	\$100,000	\$193,177					\$193,177	
	126	65	Intersection Improvements: W. Broadway & George Elmer	MDT/City	Local	\$500,000	\$965,883					\$965,883	
	422	63.5	Intersection Improvements at Gharrett St & 39th St	City	Local	\$100,000	\$193,177					\$193,177	
	147	63	Intersection Improvements: Arthur & South	City	Local	\$300,000	\$579,530					\$579,530	

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
Illustrative Projects	13	109.5	Street Improvements: W. Broadway (Orange to Russell) road enhancements, may include complete street improvements or capacity expansion.	City		\$5,000,000							
	529	115	Brooks St. (Stephens to Paxson) reconstruct to complete street	City		\$15,000,000							
	161	87.5	Street Improvements: Stephens & Fairview Connection	City		\$2,000,000							
	128	86	Miller Creek Road widening and intersection improvements (Hwy 93/ Miller Creek, Old Hwy 93/ Reserve, Reserve/ Brooks)	FHWA/MDT/ City		\$16,000,000							
	29	82.5	Street Improvements: Mary Jane (England to Broadway)	City		\$900,000							
	530	81	Broadway - Orange to Toole 5-lane conversion and complete street improvements			\$15,000,000							
	395	80.5	Reconstruct South Ave W from 36th to Clements as a complete street	County		\$2,439,000							
	159	80	Street Improvements: Old Grant Creek/ Rogers/ Cemetery Rd.	City		\$2,500,000							
	156	76	Street Improvements: Rattlesnake Dr. (Missoula to Creek Crossing)	City		\$3,000,000							
	157	73.5	Street Improvements: Complete 5th & 6th Streets from Russell to Reserve	City		\$1,000,000							
	387	71	Russell Street extension to connect with I-90	City		\$15,000,000							
	531	71	New signal N. Reserve - per URD Master plan	City		\$2,100,000							
	35	70.5	Mullan Road: Widen to 2 Lanes plus Auxiliary	MDT/County		\$4,136,000							
	36	68.5	Wye/Mullan Plan Collector Routes	City/County		\$3,513,000							
	129	68.5	Duncan/Greenough Drive Reconstruction (Minckler - Mtn. View)	City		\$2,500,000							
	15	63	Intersection Improvements: W. Broadway& Mary Jane	MDT/City		\$500,000							
	124	62	Street Improvements: Mullan (Reserve to Mary Jane) Widening	City		\$10,000,000							
	153	59.5	Street Improvements: Complete Johnson St from 3rd to River Road	City		\$1,200,000							
	418	58.5	Intersection Improvement at Beckwith Ave & Arthur Ave			\$100,000							
	391	58	Old Highway 93 complete street reconstruction			\$809,000							
	38	57.5	Higgins Avenue: Widen to 3 Lanes from Brooks St. to South Ave. (with bike lane)	City		\$142,000							
	419	56	Intersection improvement at W. Broadway & Flynn Lane			\$100,000							
	135	55	14th St./Mount Avenue: Remove Parking and Restripe as 3-Lane Between Russell Street and Reserve Street	City		\$62,000							
	390	54.5	Widen South Ave from Arthur to Bancroft from 2 lanes to 4 lanes			\$3,484,000							
	16	48.5	Intersection Improvements: Miller Creek & Briggs	City		\$250,000							
	378	47	Clay street reconfiguration			\$235,000							
	381	47	New Jefferson Street Extension			\$196,500							
	46	45.5	Intersection Improvements: Grant Creek/ Prospect	City		\$50,000							
	385	45	Orange Street turn pocket at Alder intersection			\$1,500,000							
	532	45	Downtown ADA parking enhancement	City		\$100,000							
	533	43.5	Mullan Road multi-modal and street improvements from Pulp Mill Rd to Frenchtown	MDT		\$8,000,000							
	424	38.5	Street improvement: Grant Creek reconstruction (Prospect to Snow Bowl Rd)	County		\$6,058,000							
	127	37.5	Intersection Improvements: England & George Elmer	City		\$500,000							
	33	37	Street Improvements: England (Flynn to George Elmer)	City		\$1,500,000							
	376	37	Railyard street grid	City		\$1,098,000							
	31	34.5	Street Improvements: George Elmer (Cattle Dr to England)	City		\$2,000,000							
					Totals	\$377,873,584	\$266,526,192	\$21,304,673	\$97,034,875	\$25,503,564	\$47,419,698	\$21,765,703	\$57,799,399
					Federal		\$202,253,973						
					State/Local		\$68,573,940						

Non-Motorized Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local	Federal	2021-2030 State/Local	Federal	2031-2045 State/Local	Federal
Committed Projects	94	#N/A	Bitterroot Branch Trail Improved Crossing at Russell	City	STPU	\$1,500,000	\$2,897,650					\$388,865	\$2,508,786
	100	#N/A	Bitterroot Trail: Improve at-grade trail crossings to increase visibility/safety for bicyclists and pedestrians	City	TA	\$284,600	\$284,600	\$38,200	\$246,400				
	99	93.5	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South	City	MRA	\$1,000,000	\$1,000,000	\$1,000,000					
Recommended Projects	198	118.5	Bitterroot Branch Trail - Pine to Spruce	City	Local	\$45,000	\$59,804			\$59,804			
	175	112.5	Complete North Bank Riverfront Trail from Eastgate to Easy Street	City	Local, MRA	\$414,300	\$800,331					\$800,331	
	402	110.5	City-wide Bicycle Greenways	City	Local	\$1,950,000	\$2,591,507			\$2,591,507			
	184	104.5	Convert Orange St from 1st St to Sixth St into a complete street and increase bicycle and pedestrian access	City	Local	\$302,000	\$583,394					\$583,394	
	359	98	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks	City	Local	\$51,927	\$69,009			\$69,009			
	181	90	Reserve Street: Develop Buffered Bike Lanes to Allow for Two Foot Painted Divider - US 93 to S. 3rd Street	City	Local	\$50,000	\$66,449			\$66,449			
	360	90	5th/6th Street improvements for bike/pedestrian safety: lane reconfiguration on each street between Higgins and Russel to include a single vehicular travel lane, turn lanes at signalized intersections, parking, and buffered bike lanes	City	Local	\$159,643	\$212,161			\$212,161			
	534	90	Bike/Ped Bridge from Riverfront Triangle to McCormick Park	City	Local, MRA	\$2,500,000	\$3,322,445			\$3,322,445			
	399	88	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks	City	Local	\$17,700	\$34,192					\$34,192	
	488	88	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)	City	Local	\$12,500	\$24,147					\$24,147	
	188	86	Northbank Riverfront Trails per West Broadway Corridor Plan	City	Local, MRA	\$1,000,000	\$1,931,767					\$1,931,767	
	338	83.5	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	City	Local	\$172,586	\$333,396					\$333,396	
	361	83.5	Highway 200 Multi-use path - Sha-Ron to Tamarack	County	STPU	\$2,565,018	\$4,955,017					\$664,963	\$4,290,053
	365	83	Bike Lanes - N. 5th St., Worden, Cooley	City	Local	\$139,205	\$268,911					\$268,911	
	433	83	Bicycle Lane: Paxson St from the Southgate Mall to 39th St	City	Local	\$16,800	\$32,454					\$32,454	
	189	82.5	Northbank Riverfront Trail - Russell to Reserve	City	Local	\$1,000,000	\$1,931,767					\$1,931,767	
	388	80.5	Bike lane on Johnsons from South to 3rd st	City	Local	\$37,500	\$72,441					\$72,441	
	382	78.5	Reconfigure N. 2nd St to complete street	City	Local	\$360,000	\$695,436					\$695,436	
	183	78	Stephens Avenue: Add bike lanes from Brooks to South	City	Local	\$25,000	\$48,294					\$48,294	
	187	73.5	Construct Reserve Bike/Ped Crossings at Spurgin, 7th, and River Rd.	City	Local	\$3,000,000	\$5,795,300					\$5,795,300	
	353	73.5	North Avenue Bike Path: Clements - 37th	County	STPU	\$368,955	\$712,734					\$95,649	\$617,085
	179	71	Develop Whitaker Bike and Pedestrian Facilities to/from SW Higgins Avenue	City	Local	\$238,000	\$459,760					\$459,760	
	367	71	Trail - Scott St. to Interstate Greenway	City	Local, MRA	\$490,110	\$946,778					\$946,778	
	177	70	Install Sidewalk in the South Hills (Gharrett, 23rd, Hillview Way, 55th, Country Club)	City	Local	\$159,000	\$307,151					\$307,151	
	369	68.5	Shared-use path connection - Strand to Burlington	City	Local, MRA	\$47,333	\$91,436					\$91,436	
	536	68.5	Post Siding Road shared-use path connection	City	Local	\$368,000	\$710,890					\$710,890	
	431	68	Bicycle Lane: Beckwith/Walnut from Stephens to 1st St	City	Local	\$22,800	\$44,044					\$44,044	
	349	66	Bitterroot Branch Trail River Crossing	City	Local	\$1,500,000	\$2,897,650					\$2,897,650	
	355	66	Intersection improvements at: Clements & Mount, Clements & Spurgin, Clements & S. 7th W, South Ave. & 40th Ave.	County	STPU	\$300,000	\$579,530					\$77,773	\$501,757
	475	66	Mullan Road Trail – Flynn Lane to Reserve Street	City	Local	\$775,000	\$1,497,119					\$1,497,119	
	518	66	Milwaukee Trail connection to Hawthorne school	City/County	Local	\$100,000	\$193,177					\$193,177	
	519	66	Bike/Ped bridge - Missoula College to Kim Williams trail	City	Local, MRA	\$2,500,000	\$4,829,417					\$4,829,417	
	466	65.5	Intersection of Higgins and Brooks Bicycle Slip Lane	City/MDT	Local	\$15,000	\$28,977					\$28,977	
	371	93.5	Shared-use path connection - Madison Pedestrian Bridge to Front St	City/MDT		\$88,528							
	164	86	Street Improvements: Orange Street Underpass	City		\$15,000,000							

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local	Federal	2021-2030 State/Local	Federal	2031-2045 State/Local	Federal
Illustrative Projects	535	85	Shared-use path connection through the fairgrounds	City		\$2,500,000							
	372	73.5	Trail Connection - Madison St. underbridge to Arthur Street.	City/MDT		\$88,456							
	520	65	Bicycle Wayfinding			\$200,000							
	337	63.5	Inverness Place Trail Extension	City		\$84,455							
	340	63.5	Mountain View Dr. Bike/Ped facilities - Rattlesnake Drive to Duncan Dr.	City		\$83,000							
	435	63	Bicycle Lane: Gharrett St from 39th to Briggs St	City		\$6,600							
	521	60.5	Shared-use path from Bitterroot Trail/Hwy 93 to Blue Mountain Recreation Area	County		\$200,000							
	343	58.5	Bike/ped facilities parallel to Lincoln Hills Dr. from Rattlesnake to Applehouse.	City		\$202,407							
	352	58	Target Range Bike Paths: Tower: South Ave. to 3rd, 33rd: South to 3rd, 3rd: Reserve to Clements, Spurgin: Clements to Tower	County		\$3,101,561							
	432	58	Bicycle Lane: Briggs St from Miller Creek to South Reserve St	City		\$11,700							
	377	57.5	Pedestrian Undercrossing connecting downtown to the Northside neighborhood			\$25,000,000							
	522	57.5	Northside Riverfront Trail improvements - widen & connection at Bess Reed park	City		\$180,000							
	341	56	Bicycle/pedestrian facilities parallel to Creek Crossing to Tamarack.	City		\$50,000							
	434	55.5	Bicycle Lane: 23rd St from 39th St to Garland	City		\$20,000							
	101	55	River Road complete street - California St. to Russell St.	City		\$124,600							
	348	54.5	Downtown Streetscape	City		\$25,000,000							
	400	50.5	Add bicycle lane to Hiberta from Spurgin Rd north to S 3rd St W	County		\$12,500							
	380	50	North Riverfront Trail reconfiguration			\$86,500							
	523	50	Trail system wayfinding			\$0							
	93	48.5	Milwaukee Trail - Reserve to Mullan	City/County		\$4,250,000							
	196	48.5	Southbank Riverfront, Russell to Reserve	City		\$258,000							
	344	48.5	Bicycle/pedestrian facilities parallel to E side of Soccer Fields.	City		\$629,098							
	524	48.5	Milwaukee Trail lighting - California to Reserve			\$650,000							
	96	48.5	Grant Creek Trail to Snowbowl Rd. - County Phase II: Mellot to Snowbowl Rd.	County		\$285,000							
	342	47.5	Bicycle/pedestrian facilities parallel to Tamarack to USFS Trailhead	City		\$159,565							
	366	45	Trail - Ped. Bridge to Madison	City/MDT		\$537,033							
	197	43.5	Milwaukee Trail Mullan to Deschamps Ln.	County		\$887,000							
	180	43	Develop on-street bike system from Reserve Street to the Bitterroot River: Tower Rd	County		\$405,000							
	191	41	South Hills Trail to Pattee Canyon	City		\$2,940,000							
	345	40	Bicycle/pedestrian facilities parallel to Lincoln Hills Drive--Applehouse to Contour.	City		\$648,322							
	190	38.5	Wye Mullan Neighborhood Trails (excluding Milwaukee and Mullan Rd.)	City/County		\$2,793,600							
	351	35	Northside Greenway Trail between Northside Park and Scott Street	City		\$561,710							
	354	30.5	Clements Road Bike Path: Relocate segment between Mount & North Avenues from the east side of the street to west side.	County		\$187,119							
	193	28.5	Rattlesnake Dr. Trail from intersection of Rattlesnake and Creek Crossing to main FS Trailhead 6	City		\$640,000							
	194	26	Duncan Dr. Trail from Mountain View to end of Duncan Dr.	City		\$960,000							
	176	25	Fort Missoula to McClay Flats - including bridge over Bitterroot River	City		\$1,727,000							
	474	17.5	Kim Williams Trail Extension - Edgell Property to Clark Fork River			\$893,000							
	339	17	Bike/Ped Bridge from Mullan Rd. to Missoula Ready Mix site	City		\$1,251,650							
	392	15	Trail connection with Bridge over the Bitterroot River connecting Forest Hill Lane with Bigfork road			\$750,000							
	525	15	Kim Williams extension to Milltown Damn/ river confluence (including bridge over Clark Fork River	City/County		\$2,500,000							

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
	526	12.5	Miller Creek Trails			\$3,750,000							
	350	0	Westside Greenway Trail	City		\$2,027,639							
	383	0	Northside Bikeway			\$868,312							
	472	0	Trail Lighting - Bitterroot Branch Trail	City		\$2,500,000							
	539	#N/A	People's Way trail phase 1 - Wye (I-90 & Hwy 93 interchange) to Evaro	CSKT/MDT		\$6,469,195							
	527	0	Automated Bicycle & Pedestrian Counters			\$0							
					Totals	\$135,056,526	\$41,309,135	\$1,038,200	\$246,400	\$6,321,375	\$0	\$25,785,479	\$7,917,681
					Federal		\$8,164,081						
					State/Local		\$33,145,054						

Roadway Maintenance Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
Committed Projects								State/Local	Federal	State/Local	Federal	State/Local	Federal
	58	N/A	Purchase Street Cleaners - City and County	MPO	CMAQ	\$10,048,333	\$10,048,333	\$307,318	\$1,982,682	\$416,467	\$2,686,866	\$624,701	\$4,030,299
	59	N/A	Ongoing Roadway Operations & Maintenance	City/County/MDT	MACI, NH, STPS,	\$144,273,132	\$144,273,132	\$21,948,426	\$5,880,600	\$44,258,968		\$72,185,138	
	60	N/A	I-90: Frenchtown East and West	MDT	IM	\$991,000	\$991,000	\$86,800	\$904,200				
	102	N/A	Annual Sidewalk Installation/Replacement Program	City	Local	\$18,000,000	\$18,000,000	\$3,000,000		\$6,000,000		\$9,000,000	
		N/A	Missoula ADA upgrades	MDT	MACI	\$4,555,400	\$4,555,442	\$611,342	\$3,944,100				
		N/A	Reserve St Interchange - E & W pavement preservation	MDT	IM	\$5,606,200	\$5,606,200	\$491,100	\$5,115,100				
	516	N/A	Bridge Maintenance - Steel Bridge Rehabilitation (6 bridges in Missoula area)	MDT	BR	\$268,200	\$268,200	\$36,000	\$232,200				
		N/A	Placeholder for future IM projects	MDT	IM	\$4,250,127	\$4,250,127			\$140,515	\$1,463,538	\$231,796	\$2,414,278
		N/A	Placeholder for future NH projects	MDT	NH	\$5,360,290	\$5,360,290			\$177,219	\$1,845,825	\$292,343	\$3,044,904
		N/A	Placeholder for future UPP projects	MDT	UPP	\$10,349,263	\$10,349,263			\$524,178	\$3,381,769	\$864,693	\$5,578,624
		N/A	Placeholder for future STPX/STPS/SFCN projects	MDT	STPX/STPS/SFCN	\$7,221,873	\$7,221,873			\$365,779	\$2,359,850	\$603,396	\$3,892,848
		N/A	Placeholder for future MACI projects	MDT	MACI	\$26,750,217	\$26,750,217			\$1,354,867	\$8,741,013	\$2,235,012	\$14,419,325
Illust Proj	123	N/A	East Missoula Street/Alley Paving	County	Local	\$266,000							
	167	N/A	Reserve (Dowel Bar Retrofit) from US93 to 3rd Street 7	City	Local	\$2,200,000							
					Totals	\$240,140,037	\$237,674,079	\$26,480,986	\$18,058,882	\$53,237,994	\$20,478,860	\$86,037,079	\$33,380,278
					Federal		\$71,918,020						
					State/Local		\$165,756,059						

Intelligent Transportation System Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
Recom. Projects	437	N/A	Traffic Signal Controllers	MDT/City	CMAQ	\$500,000	\$664,489					\$89,174	\$575,314
	479	N/A	Advanced Signal Detectors	MDT/City	CMAQ	\$1,000,000	\$1,328,978					\$178,349	\$1,150,629
	480	N/A	Adaptive Signal Control System	MDT/City	CMAQ	\$1,000,000	\$1,328,978					\$178,349	\$1,150,629
	481	N/A	Transit Priority System for Signalized Intersections	MDT/City	CMAQ	\$500,000	\$664,489					\$89,174	\$575,314
					Totals	\$3,000,000	\$3,986,933	\$0	\$0	\$0	\$0	\$535,046	\$3,451,887
					Federal		\$3,451,887						
					State/Local		\$535,046						

Transportation Options Programs/Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
Committed Projects	119	#N/A	Bike and Pedestrian Program (30 Years @ \$30,000 per Year)	MPO	CMAQ	\$888,114	\$1,326,000	\$29,658	\$191,342	\$59,316	\$382,684	\$88,975	\$574,025
	120	#N/A	Missoula in Motion (30-Years @ \$320,000 per Year)	MPO	CMAQ	\$7,279,574	\$9,600,000	\$214,720	\$1,385,280	\$429,440	\$2,770,560	\$644,160	\$4,155,840
		#N/A	Vanpool Operations, Administration & Maintenance	MRTMA	5311	\$1,138,764	\$1,138,764	\$23,626	\$152,424	\$49,399	\$318,704	\$79,797	\$514,814
		#N/A	Vanpool Capital purchases (vans, carpool vehicles)	MRTMA	5311	\$5,993,150	\$5,993,150	\$210,415	\$716,111	\$439,957	\$1,497,317	\$710,679	\$2,418,672
	386	#N/A	MRTMA (28-Years @ \$125,700 per year)	MPO	CMAQ	\$3,036,000	\$3,036,000	\$67,905	\$438,095	\$135,810	\$876,190	\$203,716	\$1,314,284
Illust Proj	477	#N/A	Missoula Car Share Project phase I	City/MPO									
	478	#N/A	Missoula Car Share Project phase II	City/MPO									
					Totals	\$18,335,601	\$21,093,913	\$546,324	\$2,883,252	\$1,113,923	\$5,845,453	\$1,727,326	\$8,977,636
					Federal		\$17,706,341						
					State/Local		\$3,387,573						

Safety Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local	Federal	2021-2030 State/Local	Federal	2031-2045 State/Local	Federal
Com Proj	515	#N/A	Reserve Street Bridge safety barrier over Clark Fork River: Mullan Rd. to River Rd.	MDT	HSIP	\$1,101,370	\$1,101,370	\$110,137	\$991,233				
			Safety upgrades/maintenance improvements	MDT	HSIP	\$3,657,800	\$4,444,282	\$317,848	\$4,126,434	\$825,193	\$7,426,740	\$1,361,253	\$12,251,277
	517	#N/A	I-90 Safety Barrier near Frenchtown: MP 84.2-94.4	MDT	HSIP	\$700,700	\$700,700	\$70,100	\$630,600				
Rec Proj	48	#N/A	Intersection Improvements: George Elmer Drive & Mullan signal	City	Local funds	\$450,000	\$869,295					\$869,295	
Illust	42	#N/A	Intersection Improvements: Cregg Lane & Orange Street Traffic Signal	City	funds	\$400,000							
	47	#N/A	Intersection Improvements: England & Mary Jane	City	Local funds	\$500,000							
	136	#N/A	from Dixon to Buckhouse Bridge; Broadway from Reserve to Bitterroot Branch Railroad	MDT	STPU	\$450,000							
	138	#N/A	Intersection Improvements: Great Northern/ Railroad & W. Broadway	City	Local funds	\$300,000							
	139	#N/A	Intersection Improvements: 14th & Eaton	City	Local funds	\$200,000							
	140	#N/A	Intersection Improvements: Johnson & North Avenue	City	Local funds	\$300,000							
	141	#N/A	Intersection Improvements: Mary & Reserve	City	aid	\$500,000							
	143	#N/A	Intersection Improvements: Fairview & Russell	City	aid	\$500,000							
	144	#N/A	Intersection Improvements: River Road & Reserve	MDT		\$500,000							
	145	#N/A	Intersection Improvements: Spurgin & Reserve	MDT		\$500,000							
	146	#N/A	Intersection Improvements: 7th & Reserve	MDT		\$500,000							
	148	#N/A	Intersection Improvements: South & Higgins	City	Local funds	\$500,000							
	149	#N/A	Intersection Improvements: Lolo & Greenough	City	Local funds	\$300,000							
	150	#N/A	Intersection Improvements: Lolo & Rattlesnake	City	Local funds	\$300,000							
	363	#N/A	Intersection Improvement - N. 5th St./Worden/Stoddard	City		\$300,000							
	368	#N/A	Lighting - Northside Greenway	City	Local funds	\$150,000							
	407	#N/A	Install enhanced streetlighting on Russell Street at the YMCA location (between Benton Ave and Ernest Ave)	City		\$12,500							
	414	#N/A	Construct a pedestrian overpass of the Mullan and Reserve intersections	City		\$1,500,000							
	439	#N/A	SAFETY IMPROVEMENTS AT DICKENS ST & PALMER ST			\$20,000							
	440	#N/A	SAFETY IMPROVEMENTS AT GRANT ST & SOUTH AVE			\$145,000							
	441	#N/A	SAFETY IMPROVEMENTS AT CENTRAL AVE & SCHILLING ST			\$20,000							
	442	#N/A	SAFETY IMPROVEMENTS AT MAIN ST & RYMAN ST			\$145,000							
	443	#N/A	SAFETY IMPROVEMENTS AT MAIN ST & PATTEE ST			\$90,000							
	444	#N/A	SAFETY IMPROVEMENTS AT BROADWAY & SCOTT ST			\$90,000							
	445	#N/A	SAFETY IMPROVEMENTS AT BROADWAY & MAPLE ST			\$210,000							
	446	#N/A	SAFETY IMPROVEMENTS AT 5TH ST SOUTH & ORANGE ST			\$90,000							
	447	#N/A	SAFETY IMPROVEMENTS AT MOUNT AVE & RUSSELL ST			\$130,000							
	448	#N/A	SAFETY IMPROVEMENTS AT CLARK FORK LN & MULLAN RD			\$130,000							
	450	#N/A	SAFETY IMPROVEMENTS AT BROADWAY & RYMAN ST			\$145,000							
	451	#N/A	SAFETY IMPROVEMENTS AT JOHNSON ST & SOUTH AVE			\$145,000							
	452	#N/A	SAFETY IMPROVEMENTS AT CENTRAL AVE & RONALD AVE			\$25,000							
	453	#N/A	SAFETY IMPROVEMENTS AT GRANT ST & MCDONALD AVE			\$25,000							
	467	#N/A	Campus Street Crossings			\$0							
	514	#N/A	New signal at Mullan Rd & Flynn Ln			\$480,000							
					Totals	\$15,512,370	\$7,115,647	\$498,085	\$5,748,267	\$825,193	\$7,426,740	\$2,230,548	\$12,251,277
					Federal		\$25,426,284						
					State/Local		\$3,553,827						

Transportation Studies

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
Illustrative Projects	12	N/A	Reserve Street Corridory Safety Plan	MDT/City	HSIP, State	\$750,000							
	470	N/A	Planning and Feasibility Study - Missoula Bike Share	City	STPU, Local funds	\$50,000							
	471	N/A	Mid-Town and Missoula County Fairgrounds off-site Parking and Alternative Transportation Study	City/County	STPU, Local funds	\$50,000							
	476	N/A	South Ave. Bike/Ped Corridor Study	City	STPU, Local funds	\$75,000							
	487	N/A	Higgins Reconfiguration Study: To study feasibility of different treatments to improve access and safety for all modes, including conversion to three lanes.	City	STPU, Local funds	\$75,000							
	487.5	N/A	Broadway reconfiguration study: to study feasibility of different treatments to improve access and safety for all modes, including conversion to three lanes.	City	STPU, Local funds	\$75,000							
	487.5	N/A	Orange St reconfiguration study: to study feasibility of different treatments to improve access and safety for all modes, including conversion to three lanes.	City	STPU, Local funds	\$75,000							
					Totals	\$1,150,000							

Transit - Capital Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
Committed Projects	Transit		Operations	MUTD	CMAQ, 5307, TRANSADE, Mill Levy, Other	\$218,277,627	\$218,277,627	\$23,849,127	\$9,332,491	\$51,112,526	\$19,216,589	\$84,011,649	\$30,755,246
	Transit		Capital purchases (buses, paratransit vans, other)	MUTD	5339	\$3,556,196	\$3,556,196	\$109,956	\$439,823	\$229,907	\$919,626	\$371,377	\$1,485,507
	Transit		Paratransit capital purchases (paratransit vans)	MUTD, ORI, AWARE	5310	\$4,001,941	\$4,001,941	\$123,738	\$494,952	\$258,724	\$1,034,895	\$417,926	\$1,671,705
	Transit		Capital purchases (buses, paratransit vans, other)	MUTD	CMAQ	\$5,574,901	\$5,574,901	\$82,439	\$531,861	\$218,146	\$1,407,380	\$447,567	\$2,887,508
	Transit		Marketing & Education	MUTD	CMAQ	\$142,200	\$142,200	\$19,083	\$123,117	\$0	\$0	\$0	\$0
Rec Proj	Transit		Transit bus purchase - 15 buses to expand service and implement MUTD Phase 3 (service on Brooks Street)	MUTD	STPU	\$15,200,000	\$15,200,000					\$2,039,840	\$13,160,160
Illust Proj	417		Construct a transfer center located at the Southgate Mall	MUTD	Local, MRA, FTA	\$3,000,000							
			Brooks St - Transit stops	MUTD	STPU, Local	\$2,500,000							
			MUTD bus stop master plan implementation	MUTD	Local, MRA, FTA								
			Bitterroot to Missoula passenger rail	MUTD/other	Unknown								
					Totals	\$252,252,864	\$246,752,864	\$24,184,343	\$10,922,243	\$51,819,301	\$22,578,491	\$87,288,359	\$49,960,126
					Federal		\$83,460,860						
					State/Local		\$163,292,004						

Appendix C: Project Scoring & Ranking



Roadway Project Ranking

		Points by Plan Goal											
ID	Project Name	-10	10	30	50	70	90	110	130				
528	Brooks St. (Reserve to Paxson) complete street												
158	Complete Street Improvements: South Ave. (Reserve to 36th) including intersection improvements at Old Fort and South Ave												
394	East Missoula - Highway 200 complete street reconstruction												
529	Brooks St. (Stephens to Paxson) reconstruct to complete street												
469	Reconfigure Broadway within existing ROW - Orange St. to Madison, as per the Downtown Master Plan												
13	Street Improvements: W. Broadway (Toole to Mullan) road enhancements, may include complete street improvements.												
152	Front/Main conversion to 2-way streets												
154	Street Improvements: 3rd (Reserve to Hiberta)												
397	Reconstruct Curtis St to make it a complete street												
398	Reconstruct River Road from Russell to Reserve as a complete street												
14	Higgins Avenue: 3-Lane conversion from Brooks Street to Broadway as detailed in the Downtown Master Plan (excluding bridge)												
370	Reconstruction to Complete Street standards - Russell St. from Mount to Brooks												
155	Street Improvements: California (3rd to Dakota)												
161	Street Improvements: Stephens & Fairview Connection												
336	Johnson Street: Extend from South Avenue to Brooks Street												
128	Miller Creek Road widening and intersection improvements (Hwy 93/Miller Creek, Old Hwy 93/Reserve, Reserve/Brooks)												
379	Carousel Drive reconfiguration												
420	Intersection improvement at Mullan Rd & Mary Jane Blvd												
29	Street Improvements: Mary Jane (England to Broadway)												
530	Broadway - Orange to Toole 5-lane conversion and complete street improvements												
395	Reconstruct South Ave W from 36th to Clements as a complete street												
159	Street Improvements: Old Grant Creek/ Rogers/ Cemetery Rd.												

- Goal 1
- Goal 2
- Goal 3
- Goal 4
- Goal 5
- Goal 6
- Goal 7
- Goal 8
- Bonus

[illegible]

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Non-motorized Project Ranking

		Points by Plan Goal											
ID	Project Name	-10	10	30	50	70	90	110	130				
198	Bitterroot Branch Trail - Pine to Spruce												
175	Complete North Bank Riverfront Trail from Eastgate to Easy Street												
402	City-wide Bicycle Greenways												
184	Convert Orange St from 1st St to Sixth St into a complete street												
359	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks												
99	Complete Bitterroot Branch Trail between North and Livingston												
371	Shared-use path connection - Madison Pedestrian Bridge to Front St												
181	Reserve Street: Develop Buffered Bike Lanes - US 93 to S. 3rd Street												
360	5th/6th Street improvements for bike/pedestrian access and safety												
534	Bike/Ped Bridge from Riverfront Triangle to McCormick Park												
399	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks												
488	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)												
164	Street Improvements: Orange Street Underpass												
188	Northbank Riverfront Trails per West Broadway Corridor Plan												
535	Shared-use path connection through the fairgrounds												
338	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection												
361	Highway 200 Multi-use path - Sha-Ron to Tamarack												
365	Bike Lanes - N. 5th St., Worden, Cooley												
433	Bicycle Lane: Paxson St from the Southgate Mall to 39th St												
189	Northbank Riverfront Trail - Russell to Reserve												
388	Bike lane on Johnsons from South to 3rd st												
382	Reconfigure N. 2nd St to complete street												

Goal 1

Goal 2

Goal 3

Goal 4

Goal 5

Goal 6

Goal 7

Goal 8

Bonus

[illegible]

[illegible]

[illegible]

Appendix D: Revenue Projections



					2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045						
					Amounts include Federal + match																																			
					Amounts shown in \$000's																																			
					Primary					MATCH RATIO																														
					Recipient	Federal	Non-Federal	Carryover	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	TOTALS	
OTHER (Federal and State)									44,513.9																															
IM*	MDT	91.24%	8.76%		4,231.6	34,475.9	308.8	5,497.6		1,053.6	1,053.6	1,053.6	1,053.6	1,053.6	1,085.2	1,085.2	1,085.2	1,085.2	1,085.2	1,117.7	1,117.7	1,117.7	1,117.7	1,117.7	1,151.3	1,151.3	1,151.3	1,151.3	1,151.3	1,185.8	1,221.4	1,258.0	1,295.8	1,334.6		72,848.1				
NH*	MDT	91.24%	8.76%		6,099.3	1,277.7	7,253.2		569.5	569.5	569.5	569.5	569.5	569.5	586.6	586.6	586.6	586.6	586.6	604.2	604.2	604.2	604.2	604.2	622.3	622.3	622.3	622.3	622.3	640.9	660.2	680.0	700.4	721.4		29,945.3				
MACI*	MDT	86.58%	13.42%		440.5	3,559.0	2,000.0		994.7	994.7	994.7	994.7	994.7	994.7	1,024.5	1,024.5	1,024.5	1,024.5	1,024.5	1,055.2	1,055.2	1,055.2	1,055.2	1,055.2	1,086.9	1,086.9	1,086.9	1,086.9	1,086.9	1,119.5	1,153.1	1,187.7	1,223.3	1,260.0		32,749.7				
STPS/SFPX/SFCN	MDT	86.58%	13.42%		556.4	3,094.1	129.0	129.0		1,678.3	1,678.3	1,678.3	1,678.3	1,678.3	1,728.7	1,728.7	1,728.7	1,728.7	1,728.7	1,780.6	1,780.6	1,780.6	1,780.6	1,780.6	1,834.0	1,834.0	1,834.0	1,834.0	1,834.0	1,889.0	1,945.7	2,004.0	2,064.2	2,126.1		49,045.1				
HSIP*	MDT	90.00%	10.00%		2,103.5	1,338.2	2,018.2		813.0	813.0	813.0	813.0	813.0	813.0	837.4	837.4	837.4	837.4	837.4	862.5	862.5	862.5	862.5	862.5	888.4	888.4	888.4	888.4	888.4	915.0	942.5	970.8	999.9	1,029.9		27,324.3				
TA*	CI/CO	86.58%	13.42%		284.6																															284.6				
UPP*	MDT	86.58%	13.42%		972.4					384.8	384.8	384.8	384.8	384.8	396.4	396.4	396.4	396.4	396.4	408.3	408.3	408.3	408.3	408.3	420.5	420.5	420.5	420.5	420.5	433.1	446.1	459.5	473.3	487.5		11,321.7				
Bridge*	MDT	86.58%	13.42%		10,025.2	12,000.0	288.2	0.0	10,931.0	870.2	870.2	870.2	870.2	870.2	896.4	896.4	896.4	896.4	896.4	923.2	923.2	923.2	923.2	923.2	950.9	950.9	950.9	950.9	950.9	950.9	979.5	1,008.9	1,039.1	1,070.3	1,102.4		56,648.4			
Reconstruction/Maintenance	MDT	0.00%	100.00%		1,756.4	1,756.4	1,756.4	1,756.4	1,809.1	1,809.1	1,809.1	1,809.1	1,809.1	1,809.1	1,863.4	1,863.4	1,863.4	1,863.4	1,863.4	1,919.3	1,919.3	1,919.3	1,919.3	1,919.3	1,976.9	1,976.9	1,976.9	1,976.9	1,976.9	2,036.2	2,036.2	2,036.2	2,036.2	2,036.2	2,097.3		57,147.7			
Subtotal				0.0	26,469.9	57,501.3	13,753.8	7,383.0	12,740.1	8,173.2	8,173.2	8,173.2	8,173.2	8,227.5	8,418.4	8,418.4	8,418.4	8,418.4	8,418.4	8,474.3	8,671.0	8,671.0	8,671.0	8,671.0	8,671.0	8,728.6	8,931.1	8,931.1	8,931.1	8,931.1	8,931.1	8,990.4	9,199.1	9,413.9	9,635.3	9,863.2	10,159.1		337,314.9	
CMAQ																																								
CMAQ	MPO	86.58%	13.42%	754.7	1,312.6	1,312.6	1,312.6	1,312.6	1,352.0	1,352.0	1,352.0	1,352.0	1,352.0	1,352.0	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,434.3	1,434.3	1,434.3	1,434.3	1,434.3	1,477.4	1,477.4	1,477.4	1,477.4	1,477.4	1,521.7	1,521.7	1,521.7	1,521.7	1,521.7		43,416.2	
Subtotal				754.7	1,312.6	1,312.6	1,312.6	1,312.6	1,352.0	1,352.0	1,352.0	1,352.0	1,352.0	1,352.0	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,434.3	1,434.3	1,434.3	1,434.3	1,434.3	1,477.4	1,477.4	1,477.4	1,477.4	1,477.4	1,521.7	1,521.7	1,521.7	1,521.7	1,521.7		43,416.2	
STP (Annually Allocated)																																								
STPU	MPO	86.58%	13.42%	15,483.0	1,797.2	1,797.2	1,797.2	1,797.2	1,851.1	1,851.1	1,851.1	1,851.1	1,851.1	1,851.1	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,963.8	1,963.8	1,963.8	1,963.8	1,963.8	2,022.7	2,022.7	2,022.7	2,022.7	2,022.7	2,083.4	2,083.4	2,083.4	2,083.4	2,083.4	2,145.9		73,955.4
Subtotal				15,483.0	1,797.2	1,797.2	1,797.2	1,797.2	1,851.1	1,851.1	1,851.1	1,851.1	1,851.1	1,851.1	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,963.8	1,963.8	1,963.8	1,963.8	1,963.8	2,022.7	2,022.7	2,022.7	2,022.7	2,022.7	2,083.4	2,083.4	2,083.4	2,083.4	2,083.4	2,145.9		73,955.4
FTA																																								
5307 Operating & Capital†	MUTD	50.00%	50.00%		1,591.4	1,591.4	1,591.4	1,591.4	1,639.1	1,639.1	1,639.1	1,639.1	1,639.1	1,688.3	1,688.3	1,688.3	1,688.3	1,688.3	1,688.3	1,738.9	1,738.9	1,738.9	1,738.9	1,738.9	1,791.1	1,791.1	1,791.1	1,791.1	1,791.1	1,844.8	1,844.8	1,844.8	1,844.8	1,844.8	1,900.2		51,776.3			
5339 Capital†	MUTD	80.00%	20.00%		109.3	109.3	109.3	109.3	112.6	112.6	112.6	112.6	112.6	116.0	116.0	116.0	116.0	116.0	116.0	119.4	119.4	119.4	119.4	119.4	123.0	123.0	123.0	123.0	123.0	126.7	126.7	126.7	126.7	126.7	130.5		3,556.2			
5310 Capital†	VARIOUS	86.58%	13.42%		123.0	123.0	123.0	123.0	126.7	126.7	126.7	126.7	126.7	130.5	130.5	130.5	130.5	130.5	130.5	134.4	134.4	134.4	134.4	134.4	138.4	138.4	138.4	138.4	138.4	142.6	142.6	142.6	142.6	142.6	146.9		4,001.9			
TRANSADE	MUTD	0.00%	100.00%		28.3	28.3	28.3	28.3	29.1	29.1	29.1	29.1	29.1	30.0	30.0	30.0	30.0	30.0	30.0	30.9	30.9	30.9	30.9	30.9	31.9	31.9	31.9	31.9	31.9	32.8	32.8	32.8	32.8	32.8	33.8		920.8			
5311 Capital	MRTMA	86.58%	13.42%		35.0	35.0	35.0	35.0	36.1	36.1	36.1	36.1	36.1	37.1	37.1	37.1	37.1	37.1	38.2	38.2	38.2	38.2	38.2	39.4	39.4	39.4	39.4	39.4	40.6	40.6	40.6	40.6	40.6	41.8		1,138.8				
5311 Operating	MRTMA	54.00%	46.00%		19.2	19.2	19.2	19.2	19.8	19.8	19.8	19.8	19.8	20.4	20.4	20.4	20.4	20.4	20.4	21.0	21.0	21.0	21.0	21.0	21.6	21.6	21.6	21.6	21.6	22.3	22.3	22.3	22.3	22.3	22.9		624.7			
5311 Admin	MRTMA	80.00%	20.00%		142.2	142.2	142.2	142.2	146.5	146.5	146.5	146.5	146.5	150.9	150.9	150.9	150.9	150.9	155.4	155.4	155.4	155.4	155.4	160.0	160.0	160.0	160.0	160.0	164.8	164.8	164.8	164.8	164.8	169.8		4,626.6				
5311 Preventative Maintenance	MRTMA	80.00%	20.00%		22.8	22.8	22.8	22.8	23.5	23.5	23.5	23.5	23.5	24.2	24.2	24.2	24.2	24.2	24.2	24.9	24.9	24.9	24.9	24.9	25.7	25.7	25.7	25.7	25.7	26.4	26.4	26.4	26.4	26.4	27.2		741.8			
Subtotal					2,071.2	2,071.2	2,071.2	2,071.2	2,133.3	2,133.3	2,133.3	2,133.3	2,133.3	2,197.3	2,197.3	2,197.3	2,197.3	2,197.3	2,197.3	2,263.2	2,263.2	2,263.2	2,263.2	2,263.2	2,331.1	2,331.1	2,331.1	2,331.1	2,331.1	2,401.0	2,401.0	2,401.0	2,401.0	2,401.0	2,473.1		67,387.1			
LOCAL																																								
City Gas Tax	CITY		100.00%		1,085.8	1,085.8	1,085.8	1,085.8	1,118.4	1,118.4	1,118.4	1,118.4	1,118.4	1,152.0	1,152.0	1,152.0	1,152.0	1,152.0	1,186.5	1,186.5	1,186.5	1,186.5	1,186.5	1,222.1	1,222.1	1,222.1	1,222.1	1,222.1	1,258.8	1,258.8	1,258.8	1,258.8	1,258.8	1,296.6		35,329.1				
City Impact Fee**	CITY		100.00%		736.4	736.4	736.4	736.4	758.5	758.5	758.5	758.5	758.5	781.2	781.2	781.2	781.2	781.2	804.7	804.7	804.7	804.7	804.7	828.8	828.8	828.8	828.8	828.8	853.7	853.7	853.7	853.7	853.7	879.3		23,958.8				
City Road Maintenance District	CITY		100.00%		1,608.3	1,608.3	1,608.3	1,608.3	1,656.5	1,656.5	1,656.5	1,656.5	1,656.5	1,706.2	1,706.2	1,706.2	1,706.2	1,706.2	1,757.4	1,757.4	1,757.4	1,757.4	1,757.4	1,810.1	1,810.1	1,810.1	1,810.1	1,810.1	1,864.4	1,864.4	1,864.4	1,864.4	1,864.4	1,920.3		52,326.3				
County Gas Tax	COUNTY		100.00%		328.2	328.2	328.2	328.2	338.0	338.0	338.0	338.0	338.0	348.2	348.2	348.2	348.2	348.2	358.6	358.6	358.6	358.6	358.6	369.4	369.4	369.4	369.4	369.4	380.5	380.5	380.5	380.5	380.5	391.9		10,678.0				
MRA URD Improvements\$	MRA		100.00%		1,660.5	1,660.5	1,660.5	1,660.5	1,710.3	1,710.3	1,710.3	1,710.3	1,710.3	1,761.6	1,761.6	1,761.6	1,761.6	1,761.6	1,814.5	1,814.5	1,814.5	1,814.5	1,814.5	1,868.9	1,868.9	1,868.9	1,868.9	1,868.9	1,925.0	1,925.0	1,925.0	1,925.0	1,925.0	1,982.7		54,026.1				
MUTD Mill Levy	MUTD		100.00%		4,306.5	4,306.5	4,306.5	4,306.5	4,435.7	4,435.7	4,435.7																													

Appendix E: Air Quality Conformity





Missoula MPO Air Quality Conformity Analysis

Missoula, Montana

Draft - March 2017



TABLE OF CONTENTS

INTRODUCTION	1
CONFORMITY DETERMINATION	1
Carbon Monoxide Conformity.....	3
Particulate Matter Conformity.....	3
CONFORMITY PROCESS	5
LATEST EMISSIONS MODEL.....	5
TRAVEL DEMAND MODELING	5
EMISSION MODELING AND SUPPORTING DATA	6
MOVES 2014a Inputs	6
VTM Mix.....	6
Vehicle Registration Distribution	7
Meteorological Data	7
Fuel Data	7
Inspection and Maintenance Programs	7
Vehicle Hours Traveled Distribution by Speed	8
Vehicle Miles Traveled Distribution by Time of Day	8
Vehicle Weights	8
CONCLUSION	8

TABLE OF TABLES

Table 1: CO Conformity Determination for Missoula, 2016 LRTP	3
Table 2: PM ₁₀ Area Conformity Determination for Missoula, 2016 LRTP	3
Table 3: AP-42 Dust Rates for Missoula, 2016 LRTP PM ₁₀	4
Table 4: Seasonal Weekday VMT Estimate – CO Area	5
Table 5: Seasonal Weekday VMT Estimate – PM ₁₀ Area	6

TABLE OF FIGURES

Figure 1: Missoula Non-attainment and Maintenance Area Map.....	2
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INTRODUCTION

The 2016 Missoula Long Range Transportation Plan (LRTP or “Plan”) is required to demonstrate conformity with air quality regulations as reported in this Plan Document. The following elements in this appendix of the LRTP establish conformity:

- Conformity Determination
- Documentation of Conformity Process
- Transportation Modeling and Data supporting Conformity
- Emissions Modeling and Data supporting Conformity

Because different areas were used to model the carbon monoxide (CO) and particulate matter (matter less than or equal to 10 microns in aerodynamic diameter, also known as PM₁₀), the vehicle miles traveled (VMT) totals used to determine conformity are not comparable; the VMT with the CO area cannot be compared to the VMT within the PM₁₀ area. Figure 1 shows the CO maintenance area and PM₁₀ non-attainment area that were assumed in the analysis. Output from the air quality modeling supporting the conformity determination was provided to the Metropolitan Planning Organization (MPO) in electronic format. These analyses are understood to apply to the full set of projects as represented in Appendix B, with travel model results.

CONFORMITY DETERMINATION

The LRTP goals reflect planning factors outlined in Fixing America’s Surface Transportation Act (FAST Act), which was signed into effect on December 4, 2015. The goals guide the development of the projects, priorities and supporting policies of the LRTP Update.

The policies required to achieve many of the LRTP goals do not involve projects in the LRTP itself. Supporting policies and plans

such as the *Missoula Growth Policy*, the 2011 *Missoula Active Transportation Plan*, the 2012 *Mountain Line Comprehensive Operational Analysis*, the *Montana Comprehensive Highway Safety Plan*, and the *Missoula Greater Downtown Master Plan* will also play important roles in realizing the vision developed during the LRTP Update process.

An emissions analysis of the Recommended Projects listed in the Chapter titled “Our Transportation Future” shows that the Plan conforms to the emissions budgets for CO and PM₁₀. The VMT data were obtained in the form of Highway Performance Monitoring System (HPMS) data by arterial type for the base year 2015. The VMT data were disaggregated by arterial and vehicle classification using 2012 HPMS VMT data. Speed estimates from the travel model were used for CO and PM₁₀ boundary areas and for the years 2015 and 2045. Values for other years were estimated by linear interpolation for this analysis.

Carbon monoxide emissions were determined using the U.S. Environmental Protection Agency’s (EPA) MOVES 2014a (Motor Vehicle Emission Simulator model), the latest version of MOVES available. Total emissions (inventory analysis) were estimated using MOVES instead of deriving emission rates. Particulate matter emissions from tailpipes, tire wear, and brake wear were also determined using the MOVES 2014a model. Rates for road dust sources of particulate emissions were estimated using the procedures defined in the EPA publication AP-42 Chapter 13.2.1 (January 2011). The equation used in the estimation of re-entrained PM₁₀ dust emission rates is same as the equation used in the development of budgets for the region. This equation was derived from EPA publication AP-42 Chapter 13.2.1 (January 1995) but also includes all the updates identified through November, 2006 version of AP-42. This approach was used in the estimation of PM₁₀ emissions to perform a consistent comparison between the budgets and emissions.

Figure 1: Missoula Non-attainment and Maintenance Area Map

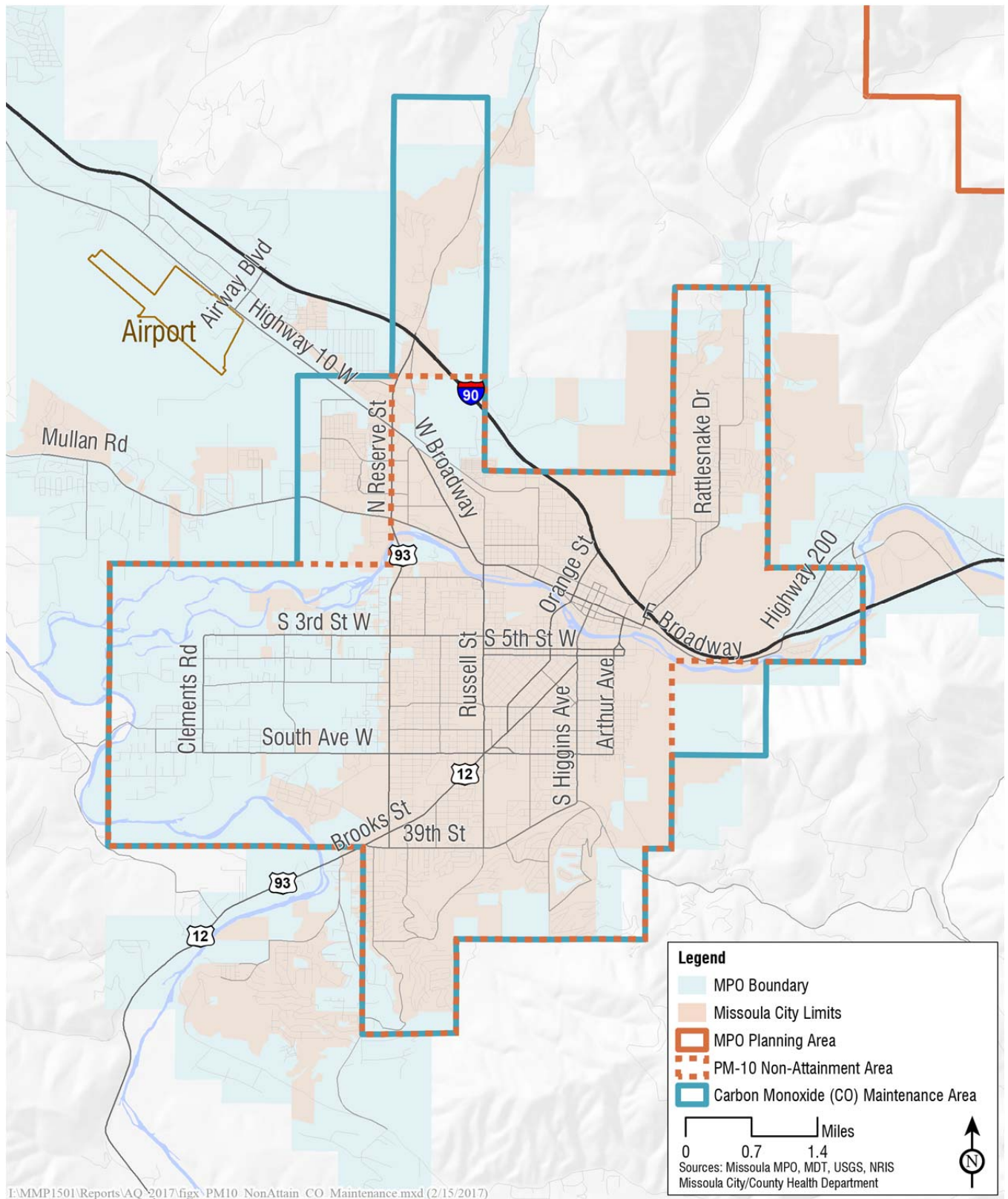


Table 1: CO Conformity Determination for Missoula, 2016 LRTP

Year	2015	2025	2035	2045
Budget (tons/day)	43.22	42.67	42.67	42.67
Seasonal Vehicle Miles Traveled	950,155	1,092,040	1,233,925	1,375,810
Projection (tons/day)	34.69	21.39	10.81	8.31
Conformity (Projection < Budget?)	Pass	Pass	Pass	Pass

Table 2: PM₁₀ Area Conformity Determination for Missoula, 2016 LRTP

Year	2015	2025	2035	2045
Budget (lbs/day)*	16,119	16,119	16,119	16,119
Seasonal Vehicle Miles Traveled	832,653	947,672	1,062,691	1,177,710
Road Dust rate (grams/mile)	4.5399	4.5154	4.4962	4.4807
Projection: Tailpipe Particulates (lbs/day)				
Gpm +Ec + Oc (gasoline particulates + diesel elemental carbon + diesel organic carbon)	645	185	89	68
Pbr (brake particulates)	483	552	622	694
Pti (tire wear particulates)	34	38	43	48
Total Tailpipe Particulates (lbs/day)	1,162	775	754	810
Projection: Road Dust Particulates (lbs/day) **				
Deicer Areas	5,689	6,501	7,313	8,125
Washed Sand Area	1,717	1,951	2,184	2,417
Unwashed Sand Area	929	984	1,039	1,094
Total Road dust Particulates (lbs/day)	8,336	9,436	10,536	11,636
Total Particulates (lbs/day)	9,498	10,211	11,290	12,446
Conformity (Projection < Budget?)	Pass	Pass	Pass	Pass

* Includes road dust, elemental carbon, organic carbon, gasoline exhaust particulates, tire wear, and brake wear.

** Projection = Emission Rate × Seasonal Vehicle Miles Traveled, then divide by 453.5 to convert to pounds

Note: Calculations in the above table may include rounding of values

Carbon Monoxide Conformity

Table 1 demonstrates conformity with the motor vehicle emission budgets for Missoula carbon monoxide. The emission budgets for Missoula carbon monoxide approved by the EPA in the June 1, 2006, *Federal Register Notice*, Vol. 71, No. 105 on pages 31181–31182. The 2006 *Federal Register Notice* lists the budgets only until 2021 and same budget was used for the horizon years 2035 and 2045 to demonstrate conformity. This is because the plan must demonstrate conformity to the last year in a maintenance plan that has the Motor Vehicle Emissions Budgets (MVEB). EPA also concurs with this assumption. The CO projections (tons/day) are less than budgets for 2015, 2025, 2035, and 2045.

Improved emissions standards for automobiles (implemented in 2004) and heavy duty trucks (implemented in 2007) will result in reduced CO emission rates in the future. As older vehicles are retired and replaced with new vehicles with lower emission rates, net vehicle emissions of CO will be lower in the future than they are today.

Particulate Matter Conformity

Table 2 demonstrates Missoula's conformity with the motor vehicle emissions budgets for PM₁₀. The EPA gave initial approval of the Missoula PM₁₀ nonattainment plan *State Implementation Plan* (SIP) submittal on January 18, 1994 (see *Federal Register* Vol. 59-2537). This approval contained the emissions inventory data from which the Missoula PM₁₀ budget of 16,119 pounds per

day was derived. The EPA gave a subsequent SIP approval of additional materials submitted by Montana, for the Missoula PM₁₀ nonattainment area, on December 13, 1994 (see Federal Register Vol. 59-64133) and the EPA gave final approval of the remaining elements of the Missoula PM₁₀ nonattainment plan SIP revision on August 30, 1995 (see Federal Register Vol. 60-45051). The Missoula PM₁₀ budget of 16,119 pounds per day was also documented on page 1 of the June 2004 *PM₁₀ Emissions Budget for Missoula, Montana, Montana Transportation Conformity Report* by James Carlin. Budget for PM₁₀ has not been updated as a part of this conformity analysis similar to CO.

PM₁₀ emissions in Missoula are predominantly from re-entrained road dust. Road dust emissions are sensitive to the type of anti-skid

treatment method used for winter driving conditions since the anti-skid material directly affects the amount of silt on the road surface that is present for re-entrainment. Roads treated with a chemical deicer solution have the lowest road dust emission rates, followed by roads treated with washed sand. Roads treated with unwashed sand have the highest road dust emission rates of the three types of anti-skid treatments used on roads in Missoula.

The projected total PM₁₀ (lbs/day) is less than the 2015, 2025, 2035, and 2045 budgets. Previous LRTPs were brought into conformity by switching some of the unwashed sand treated areas to washed sand. Improved model validation and trend of vehicle VMT reduction has helped in achieving conformity for this LRTP without any additional recommendations.

Table 3: AP-42 Dust Rates for Missoula, 2016 LRTP PM₁₀

AP-42 Dust Rates					
$E = [7.3 \times (sL/2)^{0.65} \times (W/3)^{1.5} - C] \times [1 - P/(4 \times 365)]$					
	sL= Silt Load (g/m ²) [a]	W= Vehicle Weight (tons)	C= Exhaust Brake & Tire (g/VMT)	P= Precipitation Days	E= Dust Emission Factor (g/VMT)
Deicer & Sweeping Conditions					
Freeway	0.10	3.22	0.21190	0	0.94380
Principal	1.82	2.32	0.21190	0	4.44655
Minor	1.82	2.30	0.21190	0	4.38842
Collector	2.14	2.27	0.21190	0	4.82271
Local	2.38	2.21	0.21190	0	4.96449
Washed Sand Only Conditions					
Freeway	0.10	3.22	0.21190	0	0.94380
Principal	5.80	2.32	0.21190	0	9.68328
Minor	5.80	2.30	0.21190	0	9.55979
Collector	3.80	2.27	0.21190	0	7.10043
Local	6.30	2.21	0.21190	0	9.53404
Unwashed Sand Only Conditions [b]					
Freeway	NA	NA	NA	NA	1.47468
Principal	NA	NA	NA	NA	15.13012
Minor	NA	NA	NA	NA	14.93717
Collector	NA	NA	NA	NA	11.09442
Local	NA	NA	NA	NA	14.89693

[a] PM₁₀ Emissions Budget for Missoula, Montana, Transportation Conformity, June 2004, p.5

[b] Washed Sand factor divided by (1-0.36), Missoula PM₁₀ Conformity 2008, p.4

Note: Calculations in the above table may include rounding of values

Paved road dust emission rates are calculated using EPA procedures given in the publication “AP-42, Chapter 13.2.1.” Table 3 summarizes these emission rate calculations. Road dust emission rates are a function of the silt load on the road surface and the average weight of vehicles traveling the road. Precipitation days “P” in the road dust emission rate formula in Table 3 was set to zero to be consistent with the road dust calculations used to establish the Missoula PM₁₀ budget for motor vehicles.

CONFORMITY PROCESS

This report summarizes the conformity analysis of the 2016 L RTP with the emissions requirements of the Montana SIP. This conformity analysis is subject to public and agency review, and requires the concurrence of the Federal Highway Administration and Federal Transit Administration.

Missoula is designated as a maintenance area for CO and a non-attainment area PM₁₀. Previously referenced Figure 1 depicts the maintenance and non-attainment areas.

LATEST EMISSIONS MODEL

The conformity analysis presented in this document is based on the EPA-approved MOVES 2014a mobile source emission model for tailpipe emissions and EPA-approved methods for estimating road dust emissions found in the document AP-42 Section 13.2.1 (January 2011 Update). The application of

these models will be discussed in greater detail later in this chapter.

TRAVEL DEMAND MODELING

Travel demand modeling of the transportation system was done using the 2015 Missoula MPO’s travel model as described in Appendix F. Tables 4 and 5 display the estimates of HPMS VMT based on the travel model results. As the VMT data used in the process reflect the traffic counts, no adjustments were deemed necessary. The travel model provides current and future estimates of VMT and travel speeds for each classification of roadway: freeways, principal arterials, minor arterials, collectors, and local streets. Tables 4 and 5 show the weekday VMT estimate for the Missoula CO and PM₁₀ areas, respectively. The weekday VMT estimate is different for CO and PM₁₀ because the areas for each are different, as demonstrated by previously referenced Figure 1.

Since fugitive paved road dust emissions vary by type of anti-skid treatment applied to the road surface during winter driving conditions (chemical deicer, washed sand, or unwashed sand), the PM₁₀ area VMT is tallied by anti-skid treatment area as well as facility type. The travel model estimates of VMT were prepared for model years 2015 and 2045 and the growth rate between the base and forecast years was applied to the HPMS data to arrive at forecast VMT for the region. The VMT estimates for intervening years (2025, and 2035) were derived by linear interpolation of the VMT results for 2015 and 2045.

Table 4: Seasonal Weekday VMT Estimate – CO Area

Facility	2015	2025	2035	2045
Freeway	226,207	259,986	293,765	327,544
Principal	345,920	397,576	449,231	500,887
Minor	99,095	113,893	128,691	143,489
Collector	96,026	110,366	124,705	139,045
Local	182,906	210,219	237,532	264,846
Total	950,155	1,092,040	1,233,925	1,375,810

Note: Calculations in the above table may include rounding of values

Table 5: Seasonal Weekday VMT Estimate – PM₁₀ Area

Facility	2015	2025	2035	2045
Deicer Area				
Freeway	164,036	187,449	210,862	234,274
Principal	250,848	286,651	322,454	358,258
Minor	71,860	82,117	92,373	102,630
Collector	69,635	79,573	89,512	99,451
Local	132,637	151,568	170,499	189,430
Washed Sand Area				
Freeway	25,400	28,849	32,299	35,749
Principal	38,842	44,117	49,393	54,669
Minor	11,127	12,638	14,150	15,661
Collector	10,782	12,247	13,711	15,176
Local	20,538	23,327	26,117	28,906
Unwashed Sand Area				
Freeway	8,797	9,317	9,837	10,358
Principal	13,452	14,248	15,044	15,839
Minor	3,854	4,082	4,310	4,537
Collector	3,734	3,955	4,176	4,397
Local	7,113	7,534	7,954	8,375
Total VMT				
Freeway	198,233	225,616	252,998	280,381
Principal	303,142	345,016	386,891	428,765
Minor	86,841	98,837	110,832	122,828
Collector	84,151	95,775	107,400	119,024
Local	160,287	182,428	204,570	226,711
Total	832,653	947,672	1,062,691	1,177,710

Note: Calculations in the above table may include rounding of values

EMISSION MODELING AND SUPPORTING DATA

MOVES 2014a Inputs

Most of the required MOVES inputs were based on the 2012 conformity data and were updated to reflect local 2015 existing conditions. These inputs are summarized below. The complete MOVES run specification file used for this analysis was provided to the MPO in digital format.

VMT Mix

(HPMSVTypeDay Data)

The VMT mix describes how much a particular vehicle type travels on public roads. Total

VMT by the 6 HPMS vehicle types is the required input for both CO and PM₁₀ areas. The HPMS VMT mix was obtained for the County by arterial type from the Montana Department of Transportation for 2015. The VMT was disaggregated by vehicle classification based on the 2012 distributions. For forecast years, growth in VMT from the travel model was used to extrapolate the HPMS VMT at county level. As the HPMS VMT mix was available for the County, VMT for CO and PM₁₀ areas was computed using the distribution of VMT between the areas and the County. A constant distribution of VMT, same as the base year, was assumed for the forecast years by vehicle types. Total VMT by roadway functional classification was provided by MDT.

Vehicle Registration Distribution

*(SourceTypeAgeDistribution &
SourceTypePopulation)*

Missoula County vehicle registration data for the year 2015 were used for the vehicle age profile and source population for MOVES. In order to estimate the number of vehicles by MOVES vehicle types, common vehicle types from the registration database and MOVES vehicle types were identified. Only two categories, passenger cars and motorcycles, were found common between MOVES and registration data. Vehicle weight and fuel type were also available from the database. Four different weights were recorded in the database: Gross Vehicle Weight (GVW), Gross Curb Weight (GCW), Vehicle Weight, and Declared Gross Vehicle Weight (DGVW). Only certain groups of weight data were available for different vehicles. Vehicles were grouped into 16 MOBILE6 categories based on the maximum available weights. They were further divided into 28 vehicle categories based on the fuel type and 16 MOBILE6 categories. Once the vehicle data from the database were grouped into the 28 vehicle categories based on maximum available weight and fuel type, they were disaggregated into MOVES vehicle types using data from the vehicle converter spreadsheet available on the EPA's website.

The registration database contained the model year for each vehicle in the database. Data were grouped by age into the MOBILE6 vehicle categories. The converter spreadsheet was used to convert the age distribution from MOBILE6 format to MOVES format. The database used in the conversion process was provided to MPO.

The registration data were geocoded based on the addresses available in the database. The geocoded information was used to identify the age distribution and vehicle population separately for the CO and PM₁₀ areas.

Meteorological Data (zoneMonthHour)

MOVES requires temperature and relative humidity by hour and by month as inputs. Information from the Mobile 6.2 inputs was converted using the EPA's conversion tools. Minimum temperature (25.1°F), maximum temperature (44.3°F), and absolute humidity (20%) for the month of January, from the previous Mobile 6.2 inputs were used for the conversion process. The conversion spreadsheets are included in the dataset provided to the MPO.

Fuel Data (FuelSupply & FuelFormulation)

Share of different fuels and their formulations used in the region is an input for MOVES. To this extent, information about quantities (number of gallons) of fuel by type and by month for 2015 was provided by DEQ. Two fuel subtypes are currently being used in the region, gasoline and diesel. Gasoline fuels were subdivided into gasoline and reformulated gasoline with ethanol. For diesel, even though information was available for three different categories, only one category was used in the MOVES input, which represents the average sulfur level for all three diesels, which was 15 ppm for the region.

Inspection and Maintenance Programs (IMCoverage)

No Inspection and Maintenance (IM) programs are currently present or planned for the Missoula MPO. No IM credits or Anti-tampering programs are present in Missoula.

Vehicle Hours Traveled Distribution by Speed

(AverageSpeedDistribution)

The fraction of total Vehicle Hours Traveled (VHT) that occurs in each of 16 speed categories (i.e., speed bins) is a required input for MOVES. VHT data are also broken down by time of day, roadway type, and vehicle type. This information is available from the County's travel model as an output. Distribution of VHT by speed, time of day, and roadway classification is obtained from the travel model, whereas the distribution by vehicle type is assumed to be uniform for all the vehicle types.

Vehicle Miles Traveled Distribution by Time of Day

(HourVMTFraction)

The fraction of total VMT that occurs by hour on a typical weekday is an input for MOVES. VMT by time of day is also available from the travel model. VMT is further broken down by roadway facility type and vehicle types. VMT is available by time of day and facility type. It is assumed to be uniform for all the vehicle types, as is the VHT distribution.

Vehicle Weights

Mean vehicle weight by facility type is one of the inputs required to determine road dust emissions rates using the AP-42 method recommended by the EPA. Mean vehicle weight by facility is calculated as the sum of the products of vehicle type percentage for a given facility and the mean vehicle weight, respectively, for each of the 16 vehicle types used in MOBILE6. As no new data were available to determine the VMT mix by the 16 MOBILE 6 vehicle categories, mean vehicle weight data from the 2008 conformity analysis were used.

CONCLUSION

Through travel demand and emissions modeling, the *2016 Missoula Long Range Transportation Plan* is found to be in conformity with air quality standards with respect to all pollutants.

Appendix F: Travel Demand Model



I. INTRODUCTION

The Missoula MPO recently updated its Long Range Transportation Plan (LRTP) (ACTIVATE Missoula 2045). As a part of the 2045 LRTP development, the MPO's travel model was updated as well. The trip based travel model was initially developed in 2010 using Caliper's TransCAD 5.0 and was calibrated and validated to 2010 base year. The MPO travel model includes both Missoula and Ravalli counties as the modeling area. During this model update, the model was upgraded to TransCAD 7.0 (Build 12205) and was validated to a base year of 2015. The Missoula MPO provided input data and validation data such as traffic counts and transit boarding reflecting 2014 ground conditions. No inputs or changes were conducted in Ravalli County as there was no growth in that time period. Even though the model inputs reflected 2014 conditions, the base year for the model was referred to 2015 as there were no significant differences between 2014 and 2015 in the modeling area. The model update effort also included development of 2045 socioeconomic data for the LRTP purposes. The structure of the travel model or the model components have not been modified for this update. The model refresh included modification of inputs, and calibration of model parameters for validation. This technical memorandum identifies only the changes that were conducted as a part of the 2015 validation. However the model structure and component details can be obtained from the 2010 model documentation.

II. ROADWAY NETWORK

The TransCAD roadway network from the 2010 model is a legacy network which contains multiple scenarios in the same geographic file. The 2015 network was developed using the existing and committed network from the 2010 model. The existing and committed improvements from the 2010 network were reviewed by the MPO and appropriate changes were incorporated to develop the base year network. The following

roadway network map identifies the network changes between 2010 and 2015. It should be noted that the map only includes changes that would affect the model such as roadway widening, construction of new roads, or closure of a road, etc.

Traffic counts were obtained from the MPO and Montana Department of Transportation (MDT) and were included on the roadway network for model validation purpose.

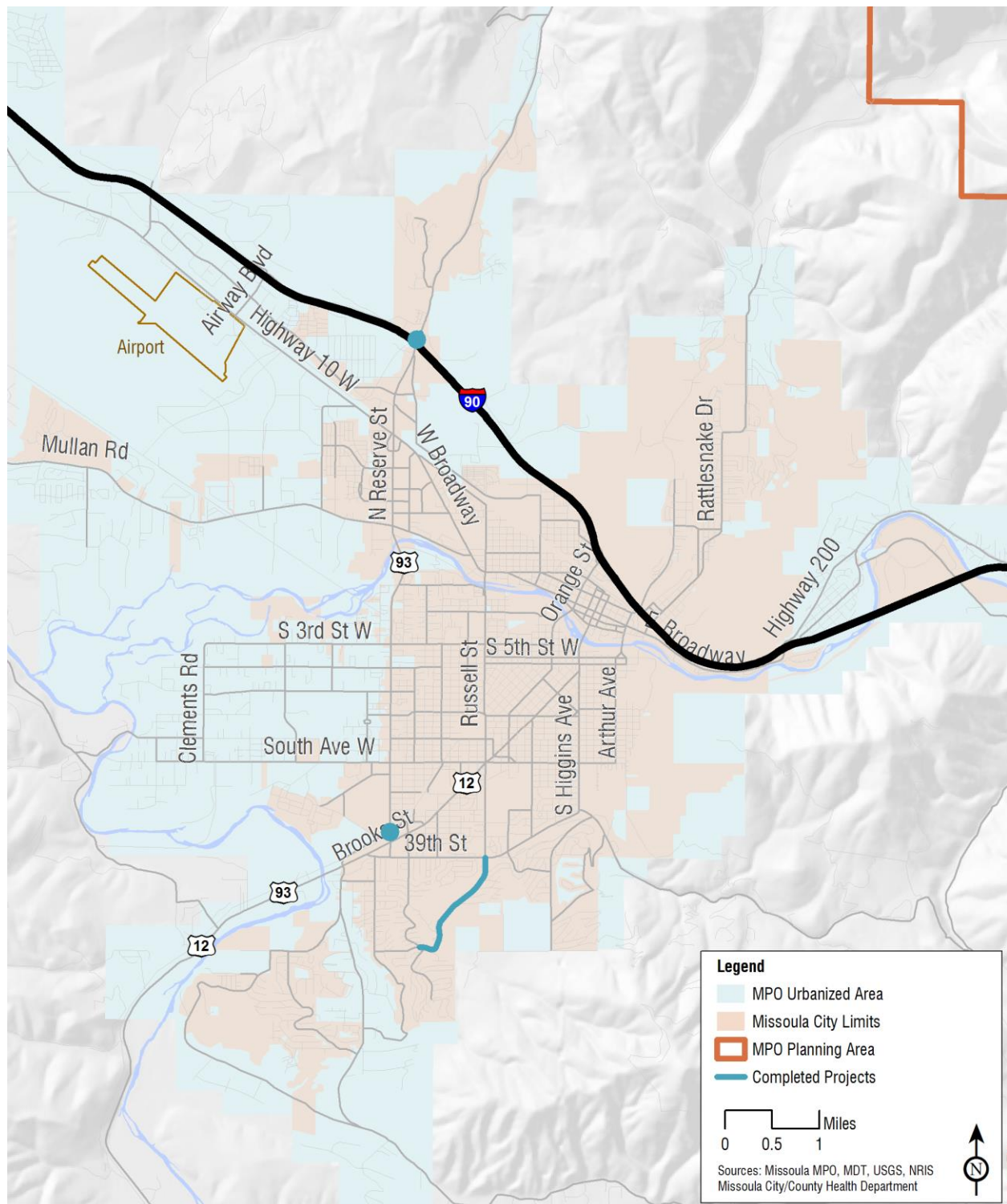
III. TRANSIT NETWORK AND NON-MOTORIZED NETWORKS

The Missoula MPO Model uses information stored on the roadway network layer and a TransCAD route system to represent the transit and non-motorized networks. For non-motorized path building, a bicycle and pedestrian scoring system represents the varying levels of facility quality. For transit path building, the Missoula MPO model uses the "Pathfinder" method provided in the TransCAD software. The travel model uses transit and non-motorized networks to build shortest paths between each zone pair for pedestrian, bicycle, and transit trips. The resulting shortest paths are used along with paths built for vehicle trips as inputs to the mode choice model.

Transit Route System

Transit routes and stops are represented within the TransCAD route system. No changes were proposed to the route system attributes during this model update. Mountain Line provided GIS shape files of the 2015 routes and stops along with their schedules. Transit route alignments, stop locations, and peak and off-peak headways have been updated to reflect the existing conditions for 2015. The headway for each transit route is calculated separately for the peak and off-peak time periods. As discussed in the Trip Assignment chapter of the original

Figure 1: 2015 Roadway Network Map with Completed Improvements



2010 model documentation, the peak time period includes 7:00 AM through 8:00 AM and 5:00 PM through 6:00 PM. For the transit system, Headway is defined as the average headway for all busses starting a route within 15 minutes of the peak period. Similarly, off-peak headway is calculated as the average headway for all remaining busses. Updated 2015 headway assumptions are listed in Table 1. These changes also included changes in route alignments and headways for the University of Montana (UM) transit systems as well.

During the 2015 model update, Mountain Line was in the process of a pilot study of Zero Fare across all of its system where the riders can use transit for free. The duration of the pilot was estimated to be for 3 years. Since the purpose of a travel model is for planning forecast conditions and due to uncertainty of this program, it was decided not to include this change in the travel model.

Table 1: 2015 Route Headway Assumptions

Mountain Line Route	Peak Headway (minutes)	Off-peak Headway (minutes)
Route 1	15	15
Route 2	15	15
Route 3	30	30
Route 4	60	60
Route 5	60	60
Route 6	30	30
Route 7	30	60
Route 8	60	60
Route 9	60	60
Route 11	60	120
Route 12	30	60
Route 14	60	60
Red Line	10	10
Purple Line	30	30
Blue Line	15	15
East Broadway Park and Ride	20	20

Non-motorized Network

The Missoula MPO Model roadway network includes attributes that describe the presence and quality of non-motorized facilities on roadway links within the MPO. In addition, multi-use paths are included in the roadway network file to allow inclusion of these facilities in the non-motorized path building process. Non-motorized paths are used to build non-motorized shortest paths for use in Mode Choice. The non-motorized network was also updated to 2015 conditions. Majority of changes to the non-motorized network involved inclusion of recently built off-street trails or improvements to the existing trails e.g., Bitterroot trail, as well as new on-street bike facilities. The scoring system that was used in 2010, to rate the travel utility and attractiveness of a non-motorized facility has been retained without any changes during this model refresh.

IV. TRIP GENERATION

Traffic Analysis Zones

Traffic analysis zones (TAZs) are small areas containing the land use data that is used as the foundation for trip-making in the travel model. For the Missoula MPO Model, the TAZ layer is identical to the 2000 Census block geography which was established as a part of the 2010 update. No changes were proposed to the TAZ structure due to the level of detail already available in the 2010 TAZ structure.

2015 Socioeconomic Data

The calibration and validation of the MPO travel model to 2015 base year requires 2015 estimates of household and employment data. Since 2015 data was not readily available due to the project time line, data from 2014 was used. Updated household and employment data was available for Missoula County whereas growth was interpolated for Ravalli County based on the 2010–2040 household data.

Missoula MPO provided the 2014 household data in GIS polygon format and included the number of dwelling units which was aggregated to the model TAZs. Dwelling unit

information as converted to household data using occupancy rates. Various quality control checks were conducted to the household data for reasonableness, such as comparing the 2014 household data to 2010 data at a TAZ level, 2014 ACS data, and also by reviewing the annual growth rates by TAZ.

2014 Employment data was provided by the MDT as a GIS point layer. The employment data contained North American Industry Classification System (NAICS) code which was used to classify the employment into modeling categories. This approach is consistent with the 2010 employment data development efforts. The employment data by employment type was aggregated to TAZs and multiple quality control checks similar to household checks were conducted to verify the reasonableness of the 2014 employment data.

Separate maps were created to illustrate the household and employment changes between 2010 and 2014. The maps were reviewed in detail with MPO for locations where the changes seemed questionable. Household and employment for 2014 was modified

appropriately based on information from the MPO to establish the base year household and employment data for the model.

The trip generation model also includes average household size and income for each TAZ to determine the general trip making characteristics of a household. The average household size and income has been obtained from US Census data during the 2010 model development. The model uses household disaggregation models to estimate the univariate distribution of households by size and by income group for each TAZ. Once these distributions have been estimated, the model uses an iterative proportional factoring process to develop bivariate distributions of households by income and size for each TAZ. Since this data is available from the Decennial census data at a block level and not available from the ACS data, no modifications were made to the univariate or bivariate distributions of household size and income. The average household size from 2010 was used with the number of households to estimate the total population of the county which was confirmed with ACS population data as a reasonableness check.

Table 2: 2010 and 2015 Household and Employment by County

County	Socioeconomic Data Variable	2010	2015	Growth
Missoula County	Households	39,847	40,537	2%
	Population	92,158	96,245	4%
	Retail Employment	8,839	9,955	13%
	Service Employment	20,684	21,800	5%
	Basic/Production Employment	13,536	12,069	-11%
	Educational Employment	5,204	4,774	-8%
	Healthcare Employment	10,274	11,457	12%
	Leisure/Hospitality Employment	7,670	9,155	19%
Ravalli County	Households	22,975	24,438	6%
	Population	55,050	58,197	6%
	Retail Employment	3,185	2,920	-8%
	Service Employment	7,146	6,555	-8%
	Basic/Production Employment	8,336	5,741	-31%
	Educational Employment	1,699	1,718	1%
	Healthcare Employment	2,257	2,302	2%
	Leisure/Hospitality Employment	2,395	2,608	9%

Production Rates

Trip purpose is used in travel models to categorize various types of household-based trips that have similar characteristics, such as location of production or attraction end, trip length, auto occupancy, and others. The 2010 travel model consisted of the following 6 trip purposes

- **Home-Based Work (HBW):** Commute trips between home and work and vice versa (e.g., includes trips between work and home).
- **Home-Based Shop (HBS):** Trips between home and shopping locations for the purpose of shopping.
- **Home-Based University (HBU):** Trips between home and the university campus for school related purposes by people not employed by the University (i.e., students and visitors).
- **Home-Based Other (HBO):** All other trips that have one end at home. These can include trips between home and appointment, home and recreation, etc.
- **Work-Based Other (WBO):** Work-related trips without an end at home.
- **Other-Based Other (OBO):** Trips with neither an end at home nor a work-related purpose.

All of the trip purposes were retained for this model update and no modifications were proposed.

2010 Missoula model used a bivariate trip production model with household size and income as the two variables. Production rates from 2010 model were used as an initial estimate and the production rates were adjusted during the 2015 model validation to represent the trip activity (traffic counts) in the region.

Attraction Rates

Attraction rates are used to identify the ends of trips that occur at locations other than the trip-maker's home. For home-based trips, the attraction end of a trip occurs at a non-residential location, or occasionally at another person's home. For WBO trips, trip productions occur at the trip maker's workplace and the trip attraction occurs at the non-work end of the trip. For OBO trips, the trip production and attraction are synonymous with trip origin and destination. For non-home-based trip purposes, allocation models and special procedures are used to properly locate the production and attraction end of each trip. Similar to production rates, attraction rates from 2010 model were used as an initial estimate but adjusted during model validation.

Special Generator

Missoula is home to the University of Montana (UM) which was represented as a Special Generator in the 2010 model due to its unique trip patterns with a majority of students living on the campus. The travel model uses a production allocation model to represent the geographical distribution of the trips made by the university students. The special generator inputs include the student enrollment and the total number of employees at the university which determine the magnitude of university trips whereas the student address information was used in the calibration of the production allocation model mentioned earlier.

Missoula MPO obtained the enrollment data, employment data, and student addresses from the University of Montana. The 2014 enrollment and employment data suggested a decrease from 2010 values which were confirmed by both the University and the MPO. The special generator values in the model were updated to represent 2014 data.

Table 3: 2015 Trip Production Rates

Trip Purpose	Household Income	Household Size				
		1	2	3	4	5+
HBW	Low Income (\$0 - \$19,999)	0.41	0.74	1.49	1.49	1.49
	Medium Income (\$20,000 - \$74,999)	0.95	2.62	2.28	2.57	3.45
	High Income (\$75,000 -more)	1.07	2.62	3.03	2.51	3.37
HBO	Low Income (\$0 - \$19,999)	1.39	1.90	4.09	5.53	9.98
	Medium Income (\$20,000 - \$74,999)	1.39	2.03	4.39	7.53	9.91
	High Income (\$75,000 -more)	1.61	2.16	5.49	8.17	17.01
HBS	Low Income (\$0 - \$19,999)	0.49	1.28	1.40	1.40	1.40
	Medium Income (\$20,000 - \$74,999)	0.61	1.61	0.86	1.71	1.71
	High Income (\$75,000 -more)	0.80	1.61	1.25	1.70	1.70
OBO	Low Income (\$0 - \$19,999)	1.43	1.43	2.09	2.09	2.09
	Medium Income (\$20,000 - \$74,999)	1.29	1.54	2.75	4.15	4.15
	High Income (\$75,000 -more)	1.29	1.53	3.17	4.70	4.70
WBO	Low Income (\$0 - \$19,999)	0.31	0.59	0.69	0.69	0.69
	Medium Income (\$20,000 - \$74,999)	0.52	0.65	1.10	1.10	1.10
	High Income (\$75,000 -more)	0.91	1.14	1.20	1.58	1.64
HBU	Low Income (\$0 - \$19,999)	0.86	0.86	0.86	0.86	0.86
	Medium Income (\$20,000 - \$74,999)	0.86	0.86	0.86	0.86	0.86
	High Income (\$75,000 -more)	0.86	0.86	0.86	0.86	0.86

Table 4: 2015 Trip Attraction Rates

Socioeconomic Variable	HBW	HBS	HBO	WBO	OBO	HBU	WBO_PA
Basic Employees	1.41	0.01	0.23	0.05	0.13	0	0.80
Retail Employees	1.15	2.59	2.25	1.77	5.60	0	0.54
Service Employees	1.20	0.05	1.40	0.27	0.69	0	1.01
Education Employees	1.16	0.36	12.84	0.91	3.03	0	0.88
Health Employees	1.06	0.01	2.43	0.40	0.96	0	0.74
Leisure Employees	0.99	1.91	1.11	2.02	2.87	0	0.38
Total Households	0.00	0.01	0.53	0.08	0.29	0	0.00

No changes were suggested to the university allocation model parameters as a review and comparison of the student address information with 2010 data did not reveal significant differences in spatial distribution.

Table 5: UM Employment and Enrollment

Faculty	771
Staff	1,300
Total Faculty and Staff	2,071
On-Campus Students	3,730
Off-Campus Students	9,628
Total Enrollment	13,358

External Trips

In addition to the internal-internal trips that occur entirely within the modeling area, the model must include external travel from outside of the region. Trips with one end inside the modeling area and the other outside of the area are called Internal-External (IE) and External-Internal (EI) trips. Through trips, or External-External (EE) trips, are those that pass through the modeling

area without stopping (or with only short convenience stops).

External travel is modeled explicitly at the external stations where roadways cross the model boundary. The seven (7) external stations in the MPO model are consistent with the 2010 travel model. The external trips were determined using the 2014 traffic counts at these external stations which were obtained from the MDT. IE/EI and EE volumes were developed using the 2014 traffic counts and an approach consistent to the 2010 approach.

Sub-Region Trip Rate Factors

During the model validation in 2010, sub-region trip rate factors were used to properly represent the differences in trip making characteristics between different jurisdictions of the modeling area. 2010 trip rate factors were updated to the following values during the 2015 model validation.

Table 6: 2015 University Special Generator Values

Trip Purpose	Trip Rate	Unit	Initial Special Generator Value
HBW Productions	0.22	On Campus Students	821
HBW Attractions	1.6	FTE Employment	3,314
HBS Productions	0.2	On Campus Students	746
HBS Attractions	n/a	n/a	0
HBU Productions	n/a	n/a	0
HBU Attractions	3.8	Off Campus Student	36,586
HBO Productions	0.5	On Campus Students	1,865
HBO Attractions	n/a	n/a	0
WBO Production	0.37	FTE Employment	766
WBO Attractions	0.19	Off Campus Student	1,829
OBO Productions	0.25	Off Campus Student	2,407
OBO Attractions	0.25	Off Campus Student	2,407

Table 7: 2014 External Travel Assumptions

External Station	Location	Total Volume	% EE	% IE/EI	EE Trips	IE/EI Trips
5001	Hwy 93 S	540	6%	94%	31	509
5002	I-90 East	8,190	48%	52%	3,961	4,229
5003	I-90 West	7,120	48%	52%	3,434	3,686
5004	Hwy 93 N	7,370	7%	93%	485	6,885
5005	Hwy 200 E	2,540	6%	94%	153	2,387
5006	Hwy 83 N	1,020	0%	100%	0	1,020
5007	Hwy 12 W	790	6%	94%	46	744

Table 8: 2014 24-hour EE Trip Table

		5001	5002	5003	5004	5005	5007	TOTAL
		Hwy 93 S	I-90 East	I-90 West	Hwy 93 N	Hwy 200 E	Hwy 12 W	
5001	Hwy 93 S	0	0	0	0	16	0	16
5002	I-90 East	0	0	1,660	243	0	21	1,924
5003	I-90 West	0	1,709	0	0	59	0	1,768
5004	Hwy 93 N	0	250	0	0	0	0	250
5005	Hwy 200 E	16	0	57	0	0	1	74
5007	Hwy 12 W	0	22	0	0	2	0	24
TOTAL		16	1,980	1,717	243	76	23	4,055

Table 9: Jurisdictional Trip Rate Factors

Subregion		HBW		HBS		HBU		HBO		WBO		OBO		WBO _PA
		P	A	P	A	P	A	P	A	P	A	P	A	
1	CBD	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Urban MPO	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Suburban MPO	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Rural MPO	0.64	0.75	0.64	0.64	1	1	0.64	0.64	0.75	0.64	0.75	0.64	0.75
5	Missoula County (Non-MPO)	0.61	1	0.61	0.61	1	1	0.61	0.61	1	0.61	1	0.61	0.61
6	Ravalli County	0.75	0.96	0.53	0.86	1	1	0.53	0.64	0.86	0.53	0.96	0.53	0.53
99	Regional Commercial	1	1	1	3.75	1	1	1	3.12 5	1	3.75	3.75	3.75	1

V. TRIP DISTRIBUTION

Trip distribution is the second phase of the traditional 4-step demand model. Trip distribution is the process through which balanced person trip productions and attractions from the trip generation model are apportioned among all zone pairs in the modeling domain by trip purpose. The resulting trip table matrix contains both intrazonal (e.g., trips that don't leave the zone) on the diagonal and interzonal trips in all other zone interchange cells for each trip purpose.

The Missoula MPO Model uses a standard gravity model equation and applies friction factors to represent the effects of impedance between zones. As the impedance (e.g., travel time, spatial separation) between zones increases, the number of trips between them will decrease as represented by a decreasing friction factor. The frictions factors for HBW trip purpose of the 2010 model were calibrated using reported work time from 2000 Census Transportation Planning Package and the friction factors for other trip purposes were calibrated on a pivot-point analysis using data from the Colorado North Front Range (NFR). During the 2015 model validation and calibration no new data was available in regards to the average trip times. Hence, the friction factors for all the trip purposes were calibrated to the 2010 model data.

Table 10: Friction Factor Gamma Parameters

Trip Purpose	Alpha	Beta	Gamma
HBW	1000	-0.301	0.096
HBS	1000	-0.776	0.205
HBO	1000	-0.776	0.205
HBU	1000	-0.776	0.205
WBO	1000	-0.550	0.200
OBO	1000	-0.900	0.300

VI. MODE CHOICE

The Missoula model produces and distributes all person trips including non-motorized, carpool, and transit trips. The mode choice

model separates the resulting person trip tables into the drive alone, shared ride (i.e., carpool), transit (walk access and drive access), and non-motorized (bicycle and walk) modes. Information about transit routes and the quality of bicycle and pedestrian facilities provides important input to the mode choice model. The mode choice model also considers trip lengths produced by the gravity model, resulting in sensitivity to higher density and mixed use areas. Such areas will produce shorter trips which are more likely to be made using non-motorized modes.

The Missoula mode choice is a nested logit model and no modifications were conducted to the structure of this model. The 2010 Missoula mode choice component was calibrated to reproduce observed mode shares. The observed mode share for transit is based on the number of boardings from Mountain Line's Automatic Passenger Counts (APC) data whereas the non-motorized shares were obtained from the 2000 Census Transpiration Planning Package (CTPP). No observed data or data from Census was available for the 2015 model update. Mode share percentages from 2010 model update were used as targets for the calibration of mode choice. 2014 average daily transit boardings were provided by Mountain Line for transit calibration. The percentage distribution of transit trips by trip purpose were derived from the 2010 model. A similar approach was used for vehicle trips (Drive Alone, Shared Ride2, Shared Ride2+), bicycle and walk modes. No modifications were made to the auto occupancy rates from the 2010 model. However, the 2015 mode choice calibration involved changes to the alternative specific constants and did not involve any modifications to the mode choice coefficients, value of times, or any of the cost variables.

Table 11: 2015 Fixed Route Boardings

Route	Average Weekday Boardings
Mountain Line Route 1	542
Mountain Line Route 2	484
Mountain Line Route 3	67
Mountain Line Route 4	170
Mountain Line Route 5	84
Mountain Line Route 6	319
Mountain Line Route 7	255
Mountain Line Route 8	134
Mountain Line Route 9	67
Mountain Line Route 11	120
Mountain Line Route 12	292
Mountain Line Route 14	63
UM Transit - Red Line	1,342
UM Transit - Purple Line	500
UM Transit - Blue Line	789
UM East Broadway Park and Ride	500

Table 12: 2015 Transit Trip Targets

Transit Provider	Boardings	Boardings per Trip	Total Trips
Mountain Line	2,596	1.46	1,778
UM Transit	3,131	1	3,131
Total	5,727	1.2	4,909

VII. TRAFFIC ASSIGNMENT

The traffic assignment involves the time of day component where the vehicle trip tables are distributed into AM peak, PM peak, and off peak periods. The model uses time of day factors developed using the traffic count that is available. Time of day factors was developed during the 2010 model development. The time of day factors and the peak period definitions for the 2015 model were kept consistent with 2010.

No modifications were deemed necessary for assignment algorithms, closure criteria, or roadway volume delay parameters for the 2015 model update. The 2015 model also

included the speed feedback procedure that was implemented during the 2010 model development. The speed feedback methodology and speed feedback convergence criteria remained same as well.

VIII. TRAFFIC ASSIGNMENT VALIDATION

Roadway volumes resulting from traffic assignment were compared against traffic count data. This process, called traffic assignment validation, ensures that the model is reasonably representing observed traffic patterns. Traffic count data was obtained from various sources and placed on the roadway network. Travel model results were then compared to traffic count data using a variety of techniques, including regional comparisons, screenline comparisons, and visual inspection of individual link data.

While the model should accurately represent the overall level of activity, it is also important to verify that the model has an acceptably low level of error on individual links. It is expected that the model will not perfectly reproduce count volumes on every link, but the level of error should be monitored.

The model validation for this update did not involve any changes to the structure of the model or its individual components but only modifications to the model parameters. The validation of the 2015 model included modifications to the free flow speed factors, trip generation rates, sub-region trip rate factors, gamma parameters for average trip time/length, and alternative specific constants. The following tables and figure show various validation checks or statistics that were used as a guideline for the model validation.

Table 13: 2015 Alternative Specific Constants

Trip Purpose	Drive Alone	Shared Ride	Walk to Transit	Drive to Transit	Walk	Bike
HBW	0	-1.948	-1.916	0	-0.586	-0.801
HBS	0	-0.206	-2.292	0	0.189	-1.695
HBU	0	-1.201	-0.101	-1.384	0.746	0.266
HBO	0	0.144	-2.090	0	2.046	-0.957
WBO	0	-1.737	-2.965	0	-0.177	-1.966
OBO	0	0.129	-2.845	0	0.443	-2.043

Table 14: 2014 Regional Activity Validation

Link Type	Number of Counts	Model Volume/Count Volume	Model VMT/Count VMT	Target
Freeway	12	21.1%	15.7%	+/- 10%
Principal Arterial	81	2.0%	9.0%	+/- 10%
Minor Arterial	71	-15.7%	-9.7%	+/- 15%
Collector	179	-19.2%	-18.5%	+/- 25%
Local	63	-16.2%	-16.4%	n/a
CBD	18	-8.2%	-12.0%	n/a
Urban	198	-9.8%	-9.8%	n/a
Suburban	132	3.1%	14.1%	n/a
Rural	61	18.1%	15.5%	n/a
Total	406	-4.90%	7.20%	+/- 5%

Table 15: 2014 VMT and VHT Totals

	VMT	VHT
Freeway	764,881	10,544
Principal Arterial	1,399,432	31,058
Minor Arterial	392,235	9,701
Collector	416,923	11,794
Local	602,602	19,219
CBD	25,844	1,216
Urban	674,267	24,186
Suburban	820,016	19,750
Rural	2,207,856	42,787
Total	3,727,982	87,939
Total per Household	57	1.4
Total per Person	24	0.6

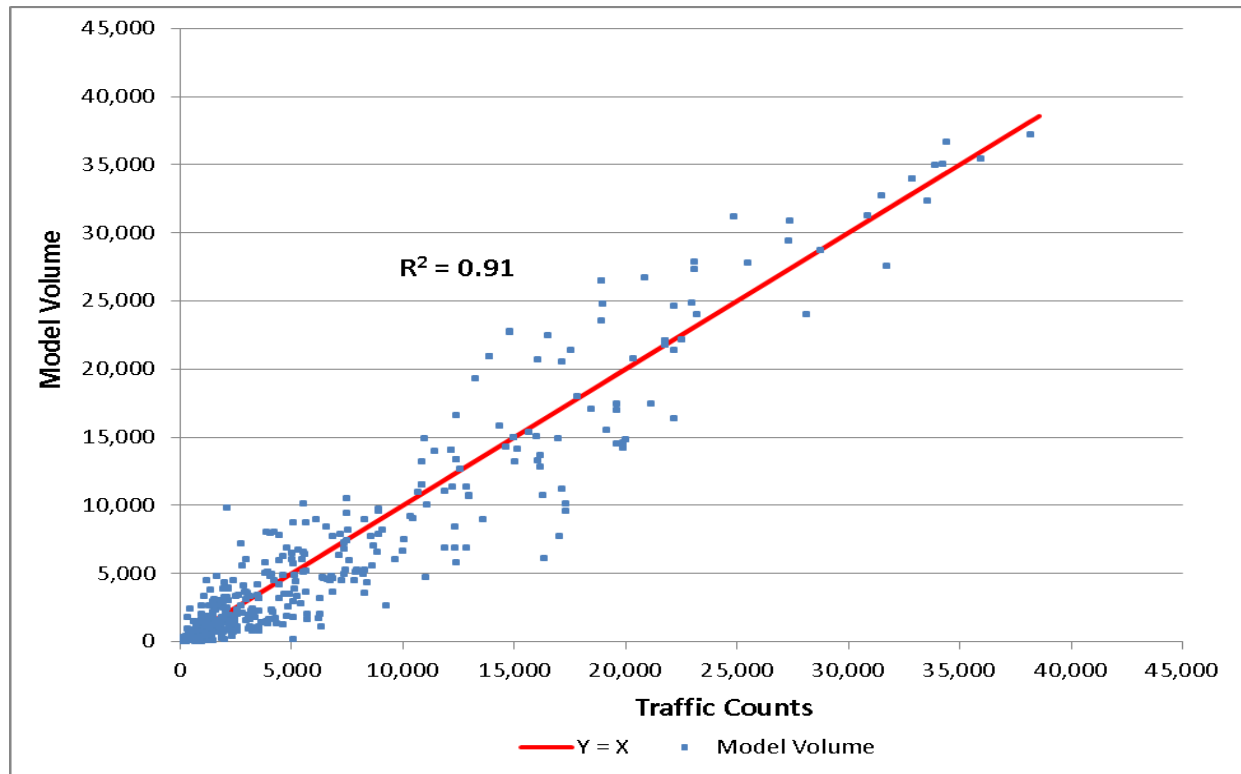
Table 16: Model % Root Mean Square Error

	Number of Counts	%RMSE	Validation Target
Freeway	12	29.5%	30%
Principal Arterial	81	20.5%	40%
Minor Arterial	71	36.2%	40%
Collector	179	59.1%	n/a
Local	63	133.1%	n/a
CBD	18	40.8%	n/a
Urban	198	32.5%	n/a
Suburban	132	40.1%	n/a
Rural	61	49.9%	n/a
Total	406	36.8%	40%

Table 17: Root Mean Square Error by Volume Group

Low	High	Mid-Point	Number of Counts	% RMSE
0	5,000	2,500	242	74%
5,000	10,000	7,500	67	39%
10,000	20,000	15,000	69	30%
20,000	30,000	25,000	20	14%
30,000	40,000	35,000	11	5%
40,000	50,000	45,000	0	n/a

Figure 2: Model Count/Volume Comparison



Appendix G: Amendment #1





Appendix G

DATE: 29 September 2017
 SUBJECT: 2016 Long Range Transportation Plan Amendment #1

Background

Project 540 – Gerald Avenue Sidewalk Improvements (UPN 9445)

This safety project will enhance pedestrian crossings along Gerald Avenue between Connell and S 4th St W, including replacement of ADA ramps, installation of curb bulb-outs, rectangular rapid flashing beacons, and improved signing and striping at S 5th St and S 6th St. The Gerald Ave Sidewalk Improvement Project will also add improved pedestrian crossings at Hellgate High School between Connell and S. 6th Street, and will potentially improve pedestrian streetscape elements on the east side of Gerald near the high school. The project is estimated to cost approximately \$511,600 and was selected for Transportation Alternatives funding for the 2018 and 2019 fiscal years.

Long Range Plan Amendment

The Long Range Plan is amended to include Project 540 – Gerald Avenue Sidewalk Improvements (UPN 94445), in the “Committed” project list (Table 1). This amendment serves as an update to Appendix B and all additional tables and references in the 2016 Long Range Transportation Plan that are affected by the amended project.

Table 1 – Amended Committed Roadway Projects in Appendix B

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$) Current Year	Cost (\$) Future Year	2016-2020 State/Local	Federal	2021-2030 State/Local	Federal	2031-2045 State/Local	Federal
Committed Projects	94	#N/A	Bitterroot Branch Trail Improved Crossing at Russell	City	STPU	\$1,500,000	\$2,897,650					\$388,865	\$2,508,786
	100	#N/A	Bitterroot Trail: Improve at-grade trail crossings to increase visibility/safety for bicyclists and pedestrians	City	TA	\$284,600	\$284,600	\$38,200	\$246,400				
	99	93.5	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South	City	MRA	\$1,000,000	\$1,000,000	\$1,000,000					
	540	#N/A	Hellgate Pedestrian Corridor Safety Improvements	MCPS	TA	\$511,662	\$511,662	\$68,662	\$443,000				
Recommended Projects	198	118.5	Bitterroot Branch Trail - Pine to Spruce	City	Local	\$45,000	\$59,804			\$59,804			
	175	112.5	Complete North Bank Riverfront Trail from Eastgate to Easy Street	City	Local, MRA	\$414,300	\$800,331					\$800,331	
	402	110.5	City-wide Bicycle Greenways	City	Local	\$1,950,000	\$2,591,507			\$2,591,507			
	184	104.5	Convert Orange St from 1st St to Sixth St into a complete street and increase bicycle and pedestrian access	City	Local	\$302,000	\$583,394					\$583,394	
	359	98	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks	City	Local	\$51,927	\$69,009			\$69,009			
	181	90	Reserve Street: Develop Buffered Bike Lanes to Allow for Two Foot Painted Divider - US 93 to S. 3rd Street	City	Local	\$50,000	\$66,449			\$66,449			
	360	90	5th/6th Street improvements for bike/pedestrian access and safety	City	Local	\$159,643	\$212,161			\$212,161			
	534	90	Bike/Ped Bridge from Riverfront Triangle to McCormick Park	City	Local, MRA	\$2,500,000	\$3,322,445			\$3,322,445			
	399	88	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks	City	Local	\$17,700	\$34,192					\$34,192	
	488	88	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)	City	Local	\$12,500	\$24,147					\$24,147	
	188	86	Northbank Riverfront Trails per West Broadway Corridor Plan	City	Local, MRA	\$1,000,000	\$1,931,767					\$1,931,767	
	338	83.5	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	City	Local	\$172,586	\$333,396					\$333,396	
	361	83.5	Highway 200 Multi-use path - Sha-Ron to Tamarack	County	STPU	\$2,565,018	\$4,955,017					\$664,963	\$4,290,053
	365	83	Bike Lanes - N. 5th St., Worden, Cooley	City	Local	\$139,205	\$268,911					\$268,911	
	433	83	Bicycle Lane: Paxson St from the Southgate Mall to 39th St	City	Local	\$16,800	\$32,454					\$32,454	
	189	82.5	Northbank Riverfront Trail - Russell to Reserve	City	Local	\$1,000,000	\$1,931,767					\$1,931,767	
	388	80.5	Bike lane on Johnsons from South to 3rd st	City	Local	\$37,500	\$72,441					\$72,441	
	382	78.5	Reconfigure N. 2nd St to complete street	City	Local	\$360,000	\$695,436					\$695,436	
	183	78	Stephens Avenue: Add bike lanes from Brooks to South	City	Local	\$25,000	\$48,294					\$48,294	
	187	73.5	Construct Reserve Bike/Ped Crossings at Spurgin, 7th, and River Rd.	City	Local	\$3,000,000	\$5,795,300					\$5,795,300	
	353	73.5	North Avenue Bike Path: Clements - 37th	County	STPU	\$368,955	\$712,734					\$95,649	\$617,085
	179	71	Develop Whitaker Bike and Pedestrian Facilities to/from SW Higgins Avenue	City	Local	\$238,000	\$459,760					\$459,760	
	367	71	Trail - Scott St. to Interstate Greenway	City	Local, MRA	\$490,110	\$946,778					\$946,778	
	177	70	Install Sidewalk in the South Hills (Garrett, 23rd, Hillview Way, 55th, Country Club)	City	Local	\$159,000	\$307,151					\$307,151	
	369	68.5	Shared-use path connection - Strand to Burlington	City	Local, MRA	\$47,333	\$91,436					\$91,436	
	536	68.5	Post Siding Road shared-use path connection	City	Local	\$368,000	\$710,890					\$710,890	
	431	68	Bicycle Lane: Beckwith/Walnut from Stephens to 1st St	City	Local	\$22,800	\$44,044					\$44,044	
	349	66	Bitterroot Branch Trail River Crossing	City	Local	\$1,500,000	\$2,897,650					\$2,897,650	
			Intersection Improvements at: Clements & Mount [Clements & Spurgin]										
	355	66	Clements & S. 7th W, South Ave. & 40th Ave.	County	STPU	\$300,000	\$579,530					\$77,773	\$501,757
	475	66	Mullan Road Trail - Flynn Lane to Reserve Street	City	Local	\$775,000	\$1,497,119					\$1,497,119	
	518	66	Milwaukee Trail connection to Hawthorne school	City/County	Local	\$100,000	\$193,177					\$193,177	
	519	66	Bike/Ped bridge - Missoula College to Kim Williams trail	City	Local, MRA	\$2,500,000	\$4,829,417					\$4,829,417	
	466	65.5	Intersection of Higgins and Brooks Bicycle Slip Lane	City/MDT	Local	\$15,000	\$28,977					\$28,977	

Air Quality Conformity

The 2016 LRTP air quality conformity analysis remains valid and no further air quality analysis is necessary/required.

Fiscal Constraint

The amended “committed” projects are fully funded through the funding sources indicated in Appendix G. The Transportation Alternatives funding is a competitive grant program managed by the Montana Department of Transportation, and will increase the funding received by the MPO by the amount of the estimated project costs.

Appendix H: Amendment #2



Appendix H: Performance Measures and Targets

1. Background

The Moving Ahead for Progress in the 21st Century Act (MAP-21) transformed the Federal-aid highway program by establishing requirements for performance management to promote the most efficient investment of Federal transportation funds. The Fixing America's Surface Transportation (FAST) Act continues this performance-based approach to increase the accountability and transparency of this program and to support improved investment decisions through a focus on performance outcomes for national transportation goals.

Establishing performance measures encourage Metropolitan Planning Organizations (MPOs) and State Transportation Departments to maximize the allocation of resources in their respective areas, as well as monitor the performance of the system for eventual use of future resources. The required performance-based approach establishes the following performance goals with respect to decision-making processes in support of 23 U.S.C. 150(b) and 49 U.S.C. 5301:

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

2. Performance Measures and Targets

Performance measures and targets are established at both State and local levels and both State and local agencies are required to set performance targets for national performance measures. MPO's may also choose to adopt additional performance targets to support local goals and priorities. Through the federal rule-making process, the USDOT established performance measures pertaining to national highways and transit, for which both MDT and the Missoula MPO are responsible for establishing performance targets. Local authorities may choose to forgo establishing individual targets and adopt state targets, as well as decide to adopt additional targets related to national highways.

Performance measures and targets must be included in existing and future transportation planning and programming processes and documents such as the Missoula Long Range Transportation Plan (LRTP) and

the Transportation Improvement Program (TIP) as a part of the performance-based planning process. The inclusion of projects and programming that help forward performance goals in transportation planning documents ensure that Federal transportation goals are integrated into local planning processes.

Performance measures highlight priorities and desired trends in transportation planning and help to provide target metrics for comparison when tracking the progress towards Federal, State, or local goals. They also help to identify the effectiveness of individual programs, plans, or projects in achieving those goals.

2.1 National Performance Measures

National performance measures are identified by the USDOT and include three main Federal-aid Programs, in addition to Transit Asset Management measures: the Highway Safety Improvement Program (HSIP), the National Highway Performance Program (NHPP), and the Congestion Management and Air Quality (CMAQ) Program. MDT and the Missoula MPO must use the information provided by the USDOT and FHWA to inform local transportation planning and programming decisions, and must align with the following performance measures established by FHWA in accordance with 23 U.S.C. 150(c):

- Serious injuries per vehicle miles traveled (VMT)
- Fatalities per VMT
- Number of serious injuries
- Number of fatalities
- Number of combined non-motorized fatalities and non-motorized serious injuries
- Pavement condition on the Interstate System
- Pavement condition on the non-Interstate National Highway System (NHS)
- Bridge condition on the NHS
- Traffic congestion
- On-road mobile source emissions
- Freight movement on the Interstate System
- Performance of the Interstate System
- Performance of the non-Interstate NHS
- The percentage of non-revenue, support-service and maintenance vehicles that have either met or exceeded their useful life benchmark (ULB)
- The percentage of rolling stock vehicles that have either met or exceeded their ULB
- The percentage of track segments with performance restrictions for rail fixed guideway, track, signals, and systems
- The percentage of facilities rated below condition 3 on the Transit Economic Requirements Model (TERM) scale

2.2 State Performance Measures

As required by federal rules, state DOTs were required to establish performance targets for each performance measure under the federal aid categories. MDT has established the following performance targets, consistent with national performance measures:

SAFETY PERFORMANCE

Performance Measure	2018 Target (5-Year Average)
Number of Fatalities	192.6
Fatality Rate	1.527
Number of Serious Injuries	925.5
Serious Injury Rate	7.338
Number of combined non-motorized fatalities and non-motorized serious injuries	72.5

PAVEMENT AND BRIDGE CONDITION

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

SYSTEM PERFORMANCE AND FREIGHT MOVEMENT

Performance Measure	2-Year & 4-Year Targets
Interstate Travel Time Reliability (% Reliable – person miles)	98%
Non-Interstate Travel Time Reliability (% Reliable – person miles)	80%
Interstate Truck Travel Time Reliability (Truck Travel Time Reliability Index)	1.30

CMAQ ON-ROAD EMISSIONS SOURCES

Performance Measure	2-Year & 4-Year Targets
CO Emissions	> 0 kg/day
PM10 Emissions	
PM2.5 Emissions	

*Targets for each criteria pollutant are based on quantitative emissions benefits reported in the CMAQ Public Access System – Missoula’s mandatorily funded projects. This limits future performance to certain projects funded in the Missoula MPO area.

2.3 Missoula Metropolitan Planning Organization Performance Measures

MPOs are required to establish performance measure targets within 180 days of the date that the state DOT sets targets, consistent with the performance measures listed in 23 U.S.C. 150 and following the framework outlined in 23 U.S.C. 490. Each MPO has the option to either support the state-determined targets or establish local targets for each performance measure. The Missoula MPO, as directed by the

Transportation Policy Coordinating Committee, supports the State targets for applicable performance measures for safety, pavement and bridge condition, system performance, freight, and CMAQ.

The Missoula Urban Transportation District (MUTD) has until October 1, 2018 to set performance measure targets related to transit system assets, and the Missoula MPO will have an additional 180 days to adopt these asset management targets.

3. Missoula Area LRTP Performance Measures

The Activate Missoula 2045 Long Range Transportation Plan was developed and adopted in March of 2017. Performance-based planning requirements were in effect under the FAST Act at that time, however, final rule-making to establish and adopt State performance targets for each measure was still underway. Despite a lack of final targets, LRTP goals were developed in relation to the adopted performance measures. Therefore, project scoring using LRTP goals has, and will continue to support State performance targets. The following table illustrates how each of the LRTP's eight goals interacts with adopted performance measures.

		MISSOULA AREA LRTP GOALS							
		Maintain our existing transportation system	Improve the efficiency, performance, and connectivity of a balanced transportation system	Maximize the cost-effectiveness of transportation	Promote consistency between land use & transportation plans to enhance mobility & accessibility	Provide safe and secure transportation	Support economic vitality	Protect the environment	Promote community health and social equity through the transportation system
Pavement & Bridge Condition	Percentage of pavements on the Interstate System in Good condition	X		X					
	Percentage of pavements on the Interstate System in Poor condition	X		X					
	Percentage of pavements on the NHS (excluding the Interstate System) in Good condition	X		X					
	Percentage of pavements on the NHS (excluding the Interstate System) in Poor condition	X		X					
	Percentage of NHS bridges classified as in Good condition	X		X					
	Percentage of NHS bridges classified as in Poor condition	X		X					
Safety Performance	Number of fatalities					X			
	Rate of fatalities per vehicle miles traveled (VMT)					X			
	Number of serious injuries					X			
	Rate of serious injuries per VMT					X			
	Number of combined non-motorized fatalities and non-motorized serious injuries					X			X
System Performance/ Freight Movement/ Convection/CMAQ	Percent of reliable person-miles traveled on the Interstate	X	X				X		
	Percent of reliable person-miles traveled on the non-Interstate NHS	X	X				X		
	Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)	X	X				X		
	Total emissions reductions for applicable pollutants				X			X	X
Transit Asset Management	Percentage of non-revenue, support-service and maintenance vehicles that have either met or exceeded their useful life benchmark (ULB)	X	X						
	Percentage of rolling stock vehicles that have either met or exceeded their ULB	X	X						
	Percentage of facilities rated below condition 3 on the Transit Economic Requirements Model (TERM) scale	X	X						

Table G. 1: Performance Measures & LRTP Goals

4. Evaluation of Performance Targets

The Missoula MPO will include performance measures in the TIP and explain how they will be incorporated and prioritized amidst federal funding sources. Evaluation of performance measures will occur through target tracking and ongoing data sharing with MDT. LRTP project selection supports the performance-driven process through prioritizing the goals of the LRTP and scoring projects based on criteria established alongside performance measures and associated adopted targets.

Appendix I: Amendment #3



DATE: June 17, 2019
SUBJECT: 2016 Long Range Transportation Plan Amendment #3

Background

Project 360

In 2015, City Council instructed staff to investigate residents' concerns and complaints regarding safety issues along 5th and 6th Street between Higgins and Russell, especially regarding speeding, crashes, and a lack of safe/comfortable facilities for biking and walking. Council also allocated funding to study potential solutions to these issues, including multiple options for lane reduction and two-way conversion. Because these streets are on the federal aid system, MDT provided guidance on the study proposal, including requirements that LOS not be significantly reduced and that any signal timing changes be coordinated with the surrounding signals and submitted to MDT for approval. Studies showed that the streets were operating at 24-39% of their capacity and those rates were relatively stable for the past 30 years, that 277 occurred over an 8 year window (2007-20014), and that speeding is occurring at a staggering rate.

In 2016, Alta Planning + Design developed and considered five alternative roadway configurations for 5th and 6th Street. From the five alternatives, Option 1C – a lane reduction that maintains turning lanes at the signalized intersections – proved most feasible (the other single lane options did not perform as well for vehicular LOS and the two-way conversion will require greater analysis and a much higher project cost to implement properly).

On December 3, 2018 City Council decided to move forward with the 5th and 6th street reconfiguration project following configuration Option 1C. With this reconfiguration, both 5th and 6th Street will be reduced to a single lane to accommodate a buffered bicycle lane and wider on-street parking. The road configuration also includes turn lanes at signalized intersections. It is expected that the street improvements will significantly enhance actual and perceived safety for all users along this corridor, especially bicyclists and pedestrians.

Long Range Plan Amendment

The LRTP Amendment #3 proposes that the existing description of Project #360, "5th/6th Street improvements for bike/pedestrian access and safety," be changed to "5th/6th Street improvements for bike/pedestrian safety: lane reconfiguration on each street between Higgins and Russel to include a single vehicular travel lane, turn lanes at signalized intersections, parking, and buffered bike lanes" (Table 1). The purpose of the adjustment to the project description is to better explain the road reconfiguration associated with the project. This amendment serves as an update to Appendix B and all additional tables and references in the 2016 Long Range Transportation Plan that are affected by the amended project.

Table 1: Amended Recommended Projects in Appendix B

2016 Status	ID	Score	PROJECT	Agency	Funding Source
Committed Projects	94	#N/A	Bitterroot Branch Trail Improved Crossing at Russell	City	STPU
	100	#N/A	Bitterroot Trail: Improve at-grade trail crossings to increase visibility/safety for bicyclists and pedestrians	City	TA
	99	93.5	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South	City	MRA
Recommended Projects	198	118.5	Bitterroot Branch Trail - Pine to Spruce	City	Local
	175	112.5	Complete North Bank Riverfront Trail from Eastgate to Easy Street	City	Local, MRA
	402	110.5	City-wide Bicycle Greenways	City	Local
	184	104.5	Convert Orange St from 1st St to Sixth St into a complete street and increase bicycle and pedestrian access	City	Local
	359	98	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks	City	Local
	181	90	Reserve Street: Develop Buffered Bike Lanes to Allow for Two Foot Painted Divider - US 93 to S. 3rd Street	City	Local
	360	90	5th/6th Street improvements for bike/pedestrian safety: lane reconfiguration on each street between Higgins and Russel to include a single vehicular travel lane, turn lanes at signalized intersections, parking, and buffered bike lanes	City	Local
	534	90	Bike/Ped Bridge from Riverfront Triangle to McCormick Park	City	Local, MRA
	399	88	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks	City	Local
	488	88	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)	City	Local
	188	86	Northbank Riverfront Trails per West Broadway Corridor Plan	City	Local, MRA
	338	83.5	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	City	Local
	361	83.5	Highway 200 Multi-use path - Sha-Ron to Tamarack	County	STPU
	365	83	Bike Lanes - N. 5th St., Worden, Cooley	City	Local
	433	83	Bicycle Lane: Paxson St from the Southgate Mall to 39th St	City	Local
	189	82.5	Northbank Riverfront Trail - Russell to Reserve	City	Local
	388	80.5	Bike lane on Johnsons from South to 3rd st	City	Local
	382	78.5	Reconfigure N. 2nd St to complete street	City	Local
	183	78	Stephens Avenue: Add bike lanes from Brooks to South	City	Local
	187	73.5	Construct Reserve Bike/Ped Crossings at Spurgin, 7th, and River Rd.	City	Local
	353	73.5	North Avenue Bike Path: Clements - 37th	County	STPU

Air Quality Conformity

The revised project lane configuration was modeled and included in a revised MOVES analysis for the proposed amended plan. The results of this analysis demonstrate that the Long Range Transportation Plan as amended continues to meet the regional budget for CO and PM-10.

Fiscal Constraint

The amended “recommended” projects are fully funded through the approved City funding sources, as indicated in Appendix B.



Appendix J

DATE: April 28, 2020
SUBJECT: 2016 Long Range Transportation Plan Amendment #4

Background

Project 36 – Wye/Mullan Plan Collector Routes

This amendment recategorizes the project from Illustrative to Committed and includes construction and extension of George Elmer Boulevard, England Boulevard and Mary Jane Boulevard to improve internal connectivity and connectivity to Highway 10 West (West Broadway), Mullan Road and Reserve Street. The project will include complete multi-modal roadway facilities and, to the extent possible, additional dedicated bicycle and pedestrian facilities.. Funding for the project would be provided through a Federal Highway Administration (FHWA) Better Utilizing Investments to Leverage Development (BUILD) grant for \$13,000,000 and approximately \$2,600,000 in local City and County funding.

Long Range Plan Amendment

The Long Range Plan is amended to include Project 36 – Wye/Mullan Plan Collector Routes, in the “Committed” project list (Table 1). This amendment serves as an update to Appendix B and all additional tables and references in the 2016 Long Range Transportation Plan that are affected by the amended project.

Table 1 – Amended Committed Roadway Projects in Appendix B

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost (\$)	Cost (\$)	Future Year	2016-2020	2021-2030	2031-2045			
						Current Year			State/Local	Federal	State/Local	Federal	State/Local	Federal
Committed Projects	7	N/A	Russell Street and Bridge Reconstruction (Broadway to Dakota)	MDT/City	STPU, BR, EARMARK	\$36,750,900	\$36,750,900	\$4,931,973	\$31,818,975					
	11	N/A	2nd half of Russell Street (Dakota to Mount Avenue)	MDT/City	STPU	\$19,640,309	\$19,640,309	\$208,200	\$1,343,000	\$2,427,558	\$15,661,551			
	30	N/A	Street Improvements: Wyoming (California to Russell)	City	Local	\$200,000		\$200,000	\$200,000					
	37	N/A	Bitterroot River - W of Missoula (South Ave Bridge - MacClay Bridge)	County	BR	\$10,900,000	\$9,657,980	\$110,700	\$714,300	\$1,185,386	\$7,647,594	\$577,285	\$3,724,388	
	39	N/A	US 93: North of Desmet Interchange - North	MDT	NH	\$8,414,800	\$8,414,800	\$1,129,300	\$7,285,500					
	40	N/A	I-90: Missoula - East and West (Van Buran St, \$5,821,000 interchange)	MDT	IM	\$8,918,200	\$10,838,400	\$949,400	\$9,889,000					
	40.5	N/A	I-90: Missoula - East and West (Orange Street, \$1,969,000 interchange)	MDT	IM	\$3,925,800	\$3,932,700	\$344,500	\$3,588,200					
	49	N/A	Street Improvements: California (River Road to Dakota)	City	Local	\$400,000	\$400,000	\$400,000						
	54	N/A	Van Buren Street Reconstruction (Elm to Missoula Ave)	City	Local	\$345,000	\$345,000	\$345,000						
	122	N/A	Grant Creek Road right lane addition at I-90	MDT/City	IM, Local funds	\$604,200	\$604,200	\$235,400	\$368,800					
	131	N/A	Huson - East	MDT	STPS	\$3,271,300	\$3,271,300	\$439,000	\$2,832,300					
	347	N/A	Higgins Avenue Bridge Improvements - UPN 8807	City/MDT	BR	\$11,219,200	\$11,219,200	\$1,505,600	\$9,713,600					
	485	N/A	Intersection improvements - MT 200 and Old Hwy 10	MDT	NH	\$1,153,600	\$1,153,600	\$154,800	\$998,800					
	511	N/A	Madison Street Bridge Improvements - UPN 8806	MDT	BR	\$8,931,900	\$8,932,000	\$1,198,700	\$7,733,300					
	538	N/A	Mary Street - extend from Reserve over railroad to new Southgate Mall connector.	City	MRA	\$2,500,000	\$2,500,000	\$2,500,000						
	537	N/A	I-90 Bridge replacement - Bonner	MDT	IM	\$20,027,800	\$22,741,200	\$1,992,100	\$20,749,100					
		N/A	Placeholder for future IM projects	MDT	IM	\$24,084,053	\$24,084,053			\$796,252	\$8,293,383	\$1,313,511	\$13,680,907	
		N/A	Placeholder for future NH projects	MDT	NH	\$9,954,825	\$9,954,825			\$329,120	\$3,427,960	\$542,922	\$5,654,822	
		N/A	Placeholder for future STPU/STPS/SFCN projects	MDT	STPU/STPS/SFCN	\$37,914,836	\$37,914,836			\$1,920,342	\$12,389,210	\$3,167,829	\$20,437,454	
		N/A	Placeholder for future BR projects	MDT	BR	\$10,269,362	\$10,269,362					\$1,378,148	\$8,891,214	
	36	#N/A	BUILD GRANT - Wye/Mullan Plan Collector Routes	City/County	BUILD	\$15,600,000	\$15,600,000			\$2,600,000	\$13,000,000			
Recommended Projects	528	132	Brooks St. (Reserve to Paxson) complete street	City	MRA	\$2,200,000	\$2,923,751			\$2,923,751				
			Complete Street Improvements: South Ave. (Reserve to 36th) including											
	158	128	Intersection Improvements at Old Fort and South Ave	City	Local	\$4,660,000	\$4,660,000	\$4,660,000						
	394	118.5	East Missoula - Highway 200 complete street reconstruction	County	STPU	\$1,835,000	\$3,544,792					\$475,711	\$3,069,081	
			Reconfigure Broadway within existing ROW - Orange St. to Madison, as per the											
	469	113	Downtown Master Plan	City	MRA	\$2,500,000	\$3,322,445			\$3,322,445				
	152	104.5	Front/Main conversion to 2-way streets	City	MRA	\$5,000,000	\$6,644,889			\$6,644,889				
	154	103.5	Street Improvements: 3rd (Reserve to Hiberata)	City/County	STPU	\$1,400,000	\$2,704,474					\$362,940	\$2,341,533	
	397	98	Reconstruct Curtis St to make it a complete street	City	Local	\$770,000	\$1,023,313			\$1,023,313				
	398	93.5	Reconstruct River Road from Russell to Reserve as a complete street	City	Local	\$1,210,000	\$1,608,063			\$1,608,063				
			Higgins Avenue: 3-Lane conversion from Brooks Street to Broadway as detailed in											
	14	93	the Downtown Master Plan (excluding bridge)	City	Local	\$2,500,000	\$3,322,445			\$3,322,445				
	370	88.5	Reconstruction to Complete Street standards - Russell St. from Mount to Brooks	City	Local	\$2,500,000	\$4,829,417					\$4,829,417		
	155	88	Street Improvements: California (3rd to Dakota)	City	MRA	\$1,000,000	\$1,931,767					\$1,931,767		
	336	87.5	Johnson Street: Extend from South Avenue to Brooks Street	City	MRA	\$2,500,000	\$2,549,932					\$2,549,932		
	379	83.5	Carousel Drive reconfiguration	City	Local	\$500,000	\$965,883					\$965,883		
	420	83.5	Intersection improvement at Mullan Rd & Mary Jane Blvd		Local	\$100,000	\$193,177					\$193,177		
	132	73.5	Intersection Improvements: Bancroft/South Ave	City	Local	\$300,000	\$579,530					\$579,530		
	468	67.5	Brooks St. (Stephens to Mount) reconstruct to complete street	City	MRA	\$500,000	\$965,883					\$965,883		
	421	66	Intersection improvement at Higgins Ave & Pattee Creek Rd	City	Local	\$100,000	\$193,177					\$193,177		
	126	65	Intersection Improvements: W. Broadway & George Elmer	MDT/City	Local	\$500,000	\$965,883					\$965,883		
	422	63.5	Intersection Improvements at Garrett St & 39th St	City	Local	\$100,000	\$193,177					\$193,177		
	147	63	Intersection Improvements: Arthur & South	City	Local	\$300,000	\$579,530					\$579,530		
					Totals	\$393,473,584	\$282,126,192	\$21,304,673	\$97,034,875	\$28,103,564	\$60,419,898	\$21,765,703	\$67,799,399	
					Federal		\$215,253,973							
					State/Local		\$71,173,940							

Air Quality Conformity

The 2016 LRTP air quality conformity analysis remains valid and no further air quality analysis is necessary/required.

Fiscal Constraint

The amended “committed” projects are fully funded through the funding sources indicated in Appendix I. The BUILD Grant funding is a competitive grant program managed by the Montana Department of Transportation, and will increase the funding received by the MPO by the amount of the estimated project costs.