Office of Planning & Grants



2011 Missoula Active Transportation Plan

An amendment to the 2005 Missoula County Growth Policy









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List of Acronyms

AADT--Annual Average Daily Counts (Traffic)

AARP--American Association of Retired Persons

AASHTO--American Association of State Highway and Transportation Officials

ADA--Americans with Disabilities Act

ASUM--Associated Students of the University of Montana

BCN--Bicycle Commuter Network

BIS--Business Improvement District

BWA--Bike/Walk Alliance for Missoula

CB--Central Business District

CIP--Capital Improvement Program

CMAQ--Congestion Mitigation and Air Quality. A special Federal transportation provision that directs funds towards projects in Clean Air Act non-attainment areas for ozone and carbon monoxide.

CPTE--Crime Prevention Through Environmental Design

CTEP--Community Transportation Enhancement Program A program of the TEA21 legislation that funds bicycle-pedestrian trails, among other things.

CSS--Context Sensitive Solutions

EIS--Environmental Impact Statement. A document addressing proposed actions, alternatives and impacts. An EIS is, required when an action will significantly affect the physical or human environment.

FHWA--Federal Highway Administration. The federal agency responsible for the administration of federal highway funds. FHWA does not have a direct role or responsibilities in the formation of urban transportation plans or their development. However, its role in administration of federal funds and in the issuance of policy for implementation of federal legislative directives is important.

FTA-- Federal Transit Administration. The federal agency responsible for the administration of federal transit funds.

LOS--Level of Service. A qualitative measure describing operational conditions within a traffic stream in terms of speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. At intersections, level of service relates to delay and wait time through one or more cycles of the signal.

LRTP--Long Range Transportation Plan. MPOs are required to undergo a comprehensive long-range (minimum of 20 years from current year) analysis of the transportation network every four years as a condition of using federal funds. The process identifies priority projects and programs and projected funding sources for all transportation projects.

MATP-- Missoula Active Transportation Plan

MBPAB-- Missoula Bicycle Pedestrian Advisory Board (see glossary of Terms for more information)

MCPS-- Missoula County Public Schools

MDT-- Montana Department of Transportation

MIM--Missoula In Motion. Interagency consortium responsible for attaining a reduction in vehicle miles traveled in the urban area through voluntary measures, including employer outreach, incentives programs and media campaigns.

MPO--Metropolitan Planning Organization. An agency established to coordinate planning and development activities within a metropolitan region. Establishment of the MPO is required by law in urban areas with populations of over 50,000 if federal funds are to be used. The MPO has effective control over transportation improvements within the area, since a project must be a part of the MPO's adopted plan in order to receive federal funding. In Missoula, the Office of Planning and Grants is the MPO and the policy body of the MPO is TPCC (*see TPCC and TTAC*).

MRA--Missoula Redevelopment Agency

MR-TMA--Missoula Ravalli Transportation Management Association. develops transportation alternatives to reduce traffic and parking congestion, protect the environment and improve quality of life

MUTD--Missoula Urban Transportation District (Mountain Line transit)

NACTO--National Association of City Transportation Officials

NMTP-- Non-Motorized Transportation Plan

ROW--Right Of Way. The land dedicated in a community for public access, normally the corridor in which the street boulevard and sidewalk system is located, as well as alleyways. Right of way has special status distinguishing it from other land designations, requiring review and approval of the governing body to abandon, sell or change use. Other rights of way may be privately owned and controlled, such as irrigation ditch rights of way and railroad rights of way.

SAFETEA-LU--Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SID--Special Improvement District

SRTS--Safe Routes to School

STAC--Specialized Transportation Advisory Committee

STPE--Surface Transportation Project Enhancement

STPU--Surface Transportation Project Urban

TAC--Technical Advisory Committee

TDM--Transportation Demand Management. TDM strategies reduce traffic congestion and pollution by influencing changes in travel behavior. Rather than building or widening roads or improving signal timing, TDM increases the passenger capacity of the transportation system by reducing the number of vehicles on the roadway. TDM

is accomplished through a variety of strategies aimed at influencing mode choice, frequency of trips and trip length. Convenience, cost and timing of alternative modes of travel are among the issues addressed in a TDM program. Missoula's TDM program is overseen by Missoula In Motion.

TIP--Transportation Improvement Program. The TIP is a three to five-year prioritized program of transportation projects covering a metropolitan planning area which is consistent with the Long Range Transportation Plan. This program is required for a locality to receive federal transit and highway grants. The TIP also contains an annual or biennial element listing all transportation project activities that will receive federal funding for a given one or two-year period.

***TPCC*--**Transportation Policy Coordinating Committee. The policy body of the MPO composed of representatives of county, city and state agencies. TPCC is the final decision-making body for the Long-Range Transportation Plan, the TIP and the Unified Planning Work Program (UPWP)..

TTAC--Transportation Technical Advisory Committee. TTAC is the advisory body that provides technical information and recommendations to TPCC.

UOP--Universe of Projects

US DOT--United States Department of Transportation

UFDA--Urban Fringe Development Area

VMT--Vehicle Miles Traveled A measurement of travel made by a private vehicle, such as an automobile, van, pickup truck or motorcycle. Each mile traveled is counted as one vehicle mile, regardless of the number of persons in the vehicle.

Executive Summary

I. Purpose and Need

Missoula has consistently supported and invested in its active transportation system, trail networks and public spaces. Especially since the adoption of the 2001 Missoula Non-Motorized Transportation Plan, the City and the County have significantly expanded the Missoula area's active transportation system. The City has committed to enhancing both the existing and future system in a Complete Streets Resolution[1], and through the 2008 Envision Missoula process, the Metropolitan Planning Organization (MPO) area has a community supported vision for how Missoula should grow and develop.[2] Through these varied efforts the League of American Bicyclists has recognized Missoula as a bicycle friendly community with a silver level award.

The 2011 Missoula Active Transportation Plan (MATP) replaces the previous 2001 Non-Motorized Transportation plan. It provides guidance for the public and private development of active transportation facilities in the Missoula Metropolitan Planning Area within the context of the Missoula County Growth Policy. It also informs the MPO's Long Range Transportation Plan, which addresses all modes of transportation over a twenty-five year time horizon. The MATP lays out the community's vision for the bike and pedestrian components of the larger, multi-modal transportation system, recommends new policies and designs and provides a list of proposed projects from which the MPO can draw in prioritizing federal aid transportation funding for bike and pedestrian infrastructure. This purpose is in keeping with the MPO's mission to "plan and program a safe and efficient transportation system for the Missoula area that increases access and mobility through multimodal options."[3]

The 2011 Missoula Active Transportation Plan fills the need for current policy and planning recommendations for an active transportation system that helps meet that community vision. As used in this Plan, "active transportation" means any form of human-powered transportation—walking, travel by wheelchair or other assistive device, biking (assisted by transit as needed)—and a host of strategies that are supportive of these modes, including connectivity, street design and the proximity of trip origins and appealing destinations.

II. Vision, Guiding Principles and Goals

The Vision Statement, Guiding Principles and Goals for the MATP directed the development of all Plan concepts and recommended projects, policies and action items.

[1] Appendix A

[2] *Envision Missoula Report*, Missoula Office of Planning and Grants & Wilbur Smith Associates.

[3] http://www.co.missoula.mt.us/Transportation/

A. Active Transportation Vision

Missoula envisions a community where citizens can safely and conveniently reach any destination using active/non-motorized modes of transportation. Missoula intends to further develop an interconnected, continuous and universally accessible system of sidewalks, bike facilities and trails throughout the Missoula area, and we look to the City and County to provide leadership in the promotion, education, enforcement and development of this active transportation system. The City of Missoula has been recognized as a Silver-level Bicycle Friendly Community by the League of American Cyclists and will continue to work towards a Gold Level designation.

B. Guiding Principles

The development of Missoula's active transportation system will be guided by the following principles:

Livability— A livable community has a high environmental and social quality of life. Its infrastructure emphasizes human scale and sustainability with streetscapes that are attractive, safe and suitable for all active transportation modes. Traffic safety, traffic noise and local air pollution, preservation of environmental and cultural resources, opportunities to interact with other citizens and opportunities for recreation are all livability factors often affected by transportation policies and practices.

Connectivity— A well-connected road, sidewalk or path network is essentially continuous with many short, interconnected links, numerous intersections, and minimal dead-ends (cul-de-sacs). As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations and creating a more accessible and resilient system.

Safety— A safe active transportation system is one in which users of all ages and abilities and across all modes can travel with as minimal a risk of personal or bodily harm as possible, especially where multiple modes occupy a shared space.

Equity—Transportation policies are equitable when they consider the needs and rights of all users.

Accessibility— A transportation system with a high degree of accessibility allows users of all ages, abilities, and levels of mobility to reach multiple destinations and activities quickly, safely, and easily.

C. Goals

The following goals will help to achieve Missoula's active transportation vision:

- Increase non-motorized trips and the percentage of residents and visitors who choose non-motorized modes of transportation for work and school commutes, social and recreational trips.

- Further develop and maintain a well connected on-street and off-street non-motorized network that is safe, convenient, well maintained and universally accessible.

- Complete the sidewalk system throughout the City of Missoula

- Identify and secure more sustainable sources of funding to complete construction of needed sidewalks, curbs, and gutters within the City of Missoula and other MPO-area communities.

- Raise awareness of and encourage respect for the rights and responsibilities of all motorized and non-motorized transportation users through the use of education, outreach, and the enforcement of traffic laws.

- Further develop and maintain a trails/greenway network connecting Missoula to surrounding public open spaces and waterways.

- Protect the Missoula area's natural resources and environment during the design and construction of new facilities.

- Ensure that the design of new and reconstructed facilities meets or exceeds national design standards for accessibility wherever site conditions make it possible.

- Identify and preserve non-motorized transportation corridors for future development.

- Decrease the number of bicycle and pedestrian related accidents by identifying and correcting existing unsafe conditions using the 4E approach to focus on Education, Enforcement, Engineering and Emergency Medical Services.

III. Document Outline

Chapter 1: The Case for Active Transportation

Chapter 1 addresses the question of why the Missoula region has and should continue to invest in its active transportation system. It summarizes a wide body of research on the diverse community benefits of investing in active transportation facilities and programming. Examples of community benefits include economic vitality, public health and wellness, reduced household transportation costs and congestion mitigation.

Chapter 2: Community Characteristics

Chapter 2 provides an overview of the Missoula MPO area's demographics, general characteristics of the existing transportation system and bicycling and walking trip characteristics, including bike and pedestrian crash data from 2005-2010.

Chapter 3: Existing Conditions and Challenges

Chapter 3 describes the existing conditions of the Missoula area's active transportation system, including levels of connectivity, system capacity and existing gaps and barriers to use, an in-depth examination of high bike and pedestrian crash areas and a description of the current interface between the active transportation and public transit systems.

Chapter 4: Existing Plans, Programs and Policies

Chapter 4 details the existing land use and transportation plans and development guidelines currently adopted and in use in the Missoula area, as well as ongoing programs and initiatives that support the active transportation system. It also describes the local agencies responsible for the construction and maintenance of physical facilities, as well as the institutional and policy framework in which they operate.

Chapter 5: Design Strategies for Enhancing Missoula's Active Transportation System

Chapter 5 is the heart of the Active Transportation Plan. It describes design concepts and new or revised policies that will move Missoula towards a safer, more convenient and connected on and off-street active transportation system. Private developers, local government planners and community groups can look to Chapter 5 for examples of the types of new facilities, upgrades and retrofits that the community desires to see. Chapter 5 also suggests new or improved programming, outreach and enforcement initiatives to complement and strengthen those that already exist.

Chapter 6: Active Transportation Projects

Chapter 6 contains the list of specific active transportation projects drawn from existing plans and developed through the MATP public involvement process. It describes the process of soliciting project ideas and the methodology developed to rank projects in terms of their priority to the community and alignment with the MATP's Vision, Guiding Principles and Goals. The MATP project list is not required to be fiscally constrained, and thus many projects generated through the public input process do not include cost estimates, as none are currently available.

Chapter 7: Future Education, Outreach and Enforcement Initiatives

Chapter 7 discusses potential new initiatives to support Missoula's active transportation system and its users. Developed with assistance from the MATP Technical Advisory Committee, the potential new initiatives cover both expansions of existing programs and creating partnerships with new organizations.

Chapter 8: Plan Implementation

Chapter 8 outlines the process for adoption of the MATP as a Missoula County Growth Policy Amendment and an official MPO document, describes initiating actions needed to implement the Plan and then focuses on a set of action items assigned to local agencies to pursue in order to implement the MATP.

Appendices and Maps

IV. Public Involvement Process

The MPO involved stakeholders and the community at every stage in the process of developing the Missoula Active Transportation Plan.

A. MATP Technical Advisory Committee

A technical advisory committee (TAC) made up of local agency and advocacy group representatives met monthly to develop ideas, consult on the design of public events and review the draft Plan. The following were members of the TAC

Adventure Cycling Association
ASUM Transportation
Bike Walk Alliance Missoula
Business Improvement District
City Bike and Pedestrian Advisory Board
City Bike and Pedestrian Office
City Parks and Recreation Department
City Public Works Department
City-County Health Department
City Office of Neighborhoods

Missoula Advocates for Sustainable Transportation
Missoula Chamber of Commerce
Missoula Community Forum
Missoula County Parks and Recreation
Missoula County Public Schools
Missoula County Public Works
Missoula Downtown Association
Missoula Institute for Sustainable Transportation
Missoula to Lolo Trail Alliance
Missoula Police Department
Missoula Redevelopment Agency
Montana Department of Transportation
Specialized Transportation Advisory Committee

B. Community Workshops

Staff and the TAC hosted three community workshops during the Plan Development period. The process kicked off with a large community gathering at the University Center in January 2010. Participants formed small groups and marked maps to illustrate how they use the existing system, identify barriers, and propose new projects.

The community was invited to a second open house in October 2010 to provide feedback on the Vision, Guiding Principles and Goals, as well as proposed projects. They indicated where resources should be directed in the system and proposed additional projects for the official MATP project list.

A final open house will be held during Bike Walk Bus Week 2011 to share the final draft document with the public and accept final comments.

For a detailed summary of all public involvement activities for the MATP, please see Appendix E.

Chapter 1: The Case for Active Transportation

The evidence for investing in our active transportation system is diverse and well documented. Construction and promotion of high quality active transportation facilities can address a wide variety of community issues in the Missoula area. Investing in the *Envision Missoula* Focus Inward scenario with its emphasis on mixed land uses and a multi-modal approach to transportation and street design compliments the goals of active transportation and supports a whole slate of public goods.

This chapter summarizes six community benefits of active transportation that particularly address needs in Missoula. All residents of the MPO area can benefit from investments in our active transportation system, although those who cannot drive or lack access to a vehicle and populations at risk for obesity and its related diseases present the greatest need. For sources and more in-depth information on current research findings on these benefits, please see Appendix A.

I. Active Transportation Benefits

A. Economic Development by Creating a Sense of Place

Active transportation can drive economic development by promoting local businesses, creating well-paying jobs, and ensuring that residents have multiple options for access to work, health care, educational opportunities, shopping, and other destinations. The more people are out and about on foot and bike—creating a vibrant street life—the more appeal the community has for both existing and future businesses. This results in a healthier local economy and a stronger tax base.

Missoula's progressive planning policies and investments in bike and pedestrian infrastructure have contributed to a reputation for creativity, citizen involvement, and innovation. The North Higgins Streetscape project is a prime example. Additionally, there is strong citizen support for maintaining and expanding our off-street trail system, as evidenced in a recent Missoula County/City Parks and Trails survey[4]. This reputation not only attracts green industry practitioners and entrepreneurs, but also highly-educated newcomers in other industries and professions collectively known as the "Creative Class," [5] who choose to live in Missoula because of its commitment to building a safe and comfortable community with strong neighborhoods and a vibrant economy.

[4] *When asked what facilities they need the most, 64% Missoula City and County residents chose paved commuter trails (hiking/biking trails ranked #1.*

[5] Florida, Richard. *The Rise of the Creative Class*. Basic Books, 2004.

B. Active Lifestyles, Healthy Communities, General Wellness

In 2009, 41% of Montana adults did not meet the minimum guidelines for physical activity and 62% were identified as being overweight or obese.[6] Providing active transportation and recreational facilities like trails, especially close to residential areas, furnishes Missoulians with a low-cost option for incorporating more physical activity into their daily routine. Creating a built environment with accessible, convenient bike and pedestrian infrastructure can also help people incorporate more physical activity into their day. Being able to accomplish lunch hour tasks on foot or by bike gets a person up and out of his chair, even if just for 30 minutes, and is a preferable alternative to making all those trips by car during the short noon "rush," or during the PM peak hour of travel between 5 and 6PM.

Children need to be *twice* as active as adults, yet the Missoula City County Health Department reports that 26% of Missoula 3rd graders are overweight or obese. School students demonstrate better concentration following physical activity and opportunities to by physically active also provide children with opportunities to connect with their social world and the natural environment[7]. Traveling to school, a friend's house or the park on foot or by bike can address each of these developmental needs.

C. Congestion Mitigation

Traffic congestion is a primary issue for any urban area in the twenty-first century. One of the most cost-effective means to address mobility challenges is to shift a portion of trips made by car to other modes. While multiple strategies exist to address congestion, developing a comprehensive active transportation system supported by innovative programs offers a good return on investment of transportation funding as compared to adding new lane miles to the system. The Missoula MPO area can already identify $185.8 million in unfunded need to expand and modernize its roadway system over the next twenty years. Providing for and supporting other travel options can address this unfunded need at a lesser cost.

D. Local Air Quality and Global Carbon Footprint

Shifting more vehicle trips to walking, biking, and transit helps Missoula meet its air quality goals for reducing the presence of transportation-generated pollutants in the air, particularly PM_{10} and increasingly $PM_{2.5}$ particulate matter. The transportation sector accounts for nearly 30% of our country's greenhouse gas emissions and

[6] National Center for Chronic Disease Prevention & Health Promotion Behavioral Risk Factor Surveillance System

[7] Gaskill, Steve (2008). "Physical Activity in Missoula County 2nd-12th grades." UM HHP http://www.co.missoula.mt.us/healthpromo/ActiveKids/pdfs/PAMslaCoYouthMar2008.pdf

nearly 70 percent of our oil use. As recognized by the City of Missoula's 2007 Greenhouse Gas-Energy Efficiency Plan, investments in the bike and pedestrian system will help Missoula meet goals for greenhouse gas reduction today and in the future when such measures may be required as part of the federal transportation planning and funding process. Missoula can focus on realizing a mode shift for short trips—those three miles or less in length. Especially in denser parts of Missoula, many daily trips are less than three miles in length and could be made on foot or by bike if the experience of walking and biking is safe and enjoyable.

E. Reduced Household Transportation Costs

The average American household spends 50% or more of its monthly income on housing and transportation expenses, while 45% or less is considered affordable.[8] When even one member of a household can make some trips on foot or by bike (or use transit for assistance with longer trips), that household's financial stability can improve. These money-saving alternatives to driving alone will become increasingly important to households if the price of gas continues on its trajectory over $4.00/gallon.

F. Increased Property Values

Studies have shown that access to community trail systems and other active transportation infrastructure is a community feature that homebuyers rank second only to highway access in terms of location choice. When housing is built near existing trails, the trails add value to the new property—as much as fifteen percent[9], and according to The 2011 Community Preference Survey by the National Association of Realtors, 56 percent of respondents prefer smart growth neighborhoods over neighborhoods that require more driving between home, work and recreation.[10] A neighborhood or community following "smart growth" or livability principles requires fewer trips to be made by car, not only because different destinations are located nearby, but also because those destinations are easily reached via an on-street grid with pedestrian and bike facilities or by commuter trail. Compact, mixed use development becomes *livable* when it is easily accessible by all modes of transportation.

The Missoula Active Transportation Plan proceeds from these documented community benefits to provide guidance on how we should strategically connect and expand the active transportation network. It describes the types of bike and pedestrian facilities that will attract a broad range of users, but particularly focuses on locations and designs that will attract people who may be interested in making

[8] Center for Neighborhood Technology Housing + Transportation Index http://www.cnt.org/tcd/ht

[9] Portland Trails Newsletter, Volume 15, Number 1. "Residential Realtors Love Portland Trails, or Do They?" and National Association of Home Builders and National Association of Realtors Study, 2002. http://www.americantrails.org/resources/benefits/homebuyers02.html

[10] http://www.realtor.org/press_room/news_releases/2011/04/smart_growth

trips on foot or by bike, but encounter or perceive a barrier to making that choice. Creating facilities that are safer, more accessible, and more convenient is the best way to realize the full benefit of our active transportation system.

Chapter 2: Community Characteristics

This chapter examines factors that shape the needs for Missoula's active transportation system. Physical characteristics such as geography and climate not only create the conditions in which people will walk, cycle, and ride the bus, but also influences the design of active transportation facilities. Demographic information provided by census data offers insight on the people that the active transportion system will serve. Finally, the region's existing transportation network provides the basis for determining which facilities require improvement and where new facilities are needed.

I. Physical characteristics

The land area of the City of Missoula is 26 square miles, and the County is 2,615 square miles. The Metropolitan Planning Area is 261 square miles in area. The MPO is the official planning area for the Active Transportation Plan. The Missoula area is 3,209 feet above sea level, and the area now occupied by neighborhoods, shops and the University rests on the floor of the former Glacial Lake Missoula. As the Clark Fork River flows through Missoula, it is fed by Grant and Rattlesnake Creeks and the Bitterroot and Blackfoot Rivers.

Often called Montana's "banana belt," Missoula has a relatively mild climate when compared with other Rocky Mountain cities. Average seasonal temperatures range from 29.2°F in winter to 62.8°F in summer. Spring and fall temperatures average 52°F and 33.3°F respectively. The annual normal precipitation for Missoula for the latest available 30-year period was 13.82 inches. The average snowfall for the same period was 41.4 inches.

II. Demographics

The second largest city in Montana, the City of Missoula is located in the center of Missoula County. Missoula is the home of the University of Montana, with an enrollment of over 14,000 students. A mild climate and excellent recreational opportunities contribute to Missoula's national reputation for livability. Missoula's Metropolitan Planning Area includes all of the City of Missoula and the urbanized portions of Missoula County, with a population of approximately 87,000 people.

Table 2-1: Total Population and Population by Race, 2000-2009

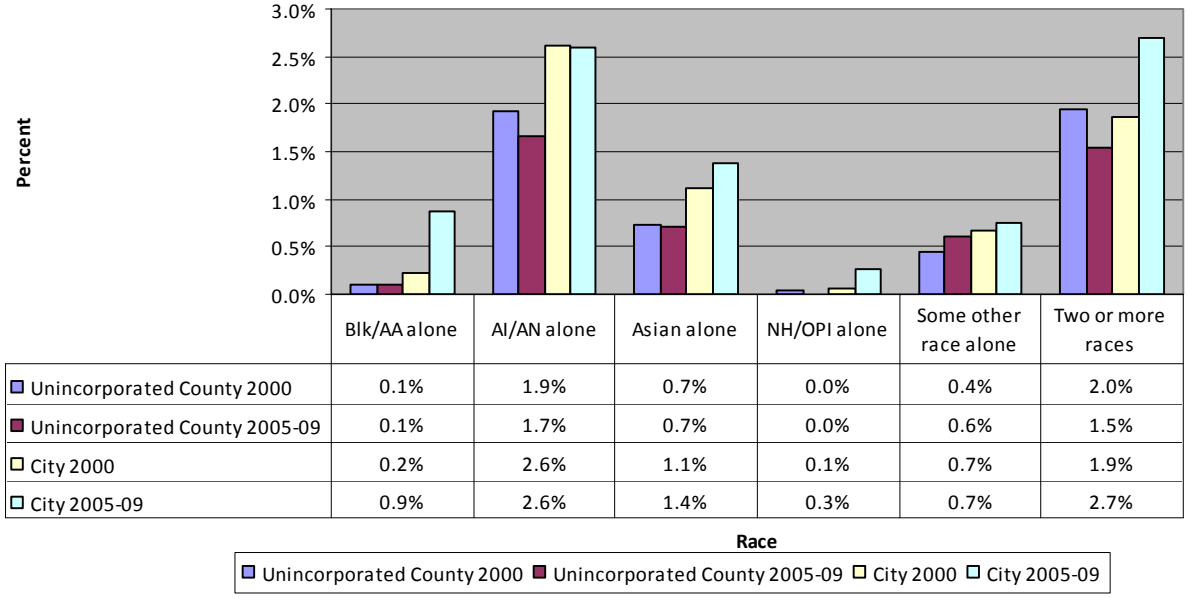
	Missoula County			Unincorporated County within MPO			Missoula City		
	2000	2005-09	Change	2000	2005-09	Change	2000	2005-09	Change
Total:	95,802	105,637	10.3%	38,834	38,786	-0.1%	56,968	66,851	17.3%
White alone	90,060	98,137	9.0%	36,816	37,004	0.5%	53,244	61,133	14.8%
Blke/AA* alone	169	619	266.3%	42	38	-9.5%	127	581	357.5%
AI/AN** alone	2,235	2,376	6.3%	746	641	-14.1%	1,489	1,735	16.5%
Asian alone	919	1,195	30.0%	283	272	-3.9%	636	923	45.1%
NH/OPI*** alone	47	178	278.7%	16	2	-87.5%	31	176	467.7%
Some other race alone	549	730	33.0%	172	235	36.6%	377	495	31.3%
Two or more races	1,823	2,402	31.8%	759	594	-21.7%	1,064	1,808	69.9%

Abbreviations: *Black/African American, **American Indian/Alaska Native, ***Native Hawaiian/Other Pacific Islander

Source: U.S. Census Bureau- Census 2000, American Community Survey 2005-2009 5-Year Estimates

Table 2-1 shows total population and population by racial group in the City of Missoula and Missoula County between 2000 and 2009. Total population grew by over 17 percent in the City and decreased 0.1 percent in the unincorporated portion of the County. This negative growth rate is likely due to annexations by the City during that time period since the overall County population growth was 10.3 percent.

Increases in population among the non-white groups occurred almost exclusively within the City while populations in unincorporated County dropped. The decreases in non-white populations within the MPO but outside the City are also likely due to annexation. The number of Native Hawaiians and other Pacific Islanders showed the greatest rate of increase, growing by 468% and 279% in the City and County, respectively. The number of African Americans grew by 358% and 266% in the City and County, respectively.



	Blk/AA alone	AI/AN alone	Asian alone	NH/OPI alone	Some other race alone	Two or more races
Unincorporated County 2000	0.1%	1.9%	0.7%	0.0%	0.4%	2.0%
Unincorporated County 2005-09	0.1%	1.7%	0.7%	0.0%	0.6%	1.5%
City 2000	0.2%	2.6%	1.1%	0.1%	0.7%	1.9%
City 2005-09	0.9%	2.6%	1.4%	0.3%	0.7%	2.7%

Source: U.S. Census Bureau- Census 2000, American Community Survey 2005-2009 5-Year Estimates

Figure 2-1: Percent of Population by Race, 2000-2009

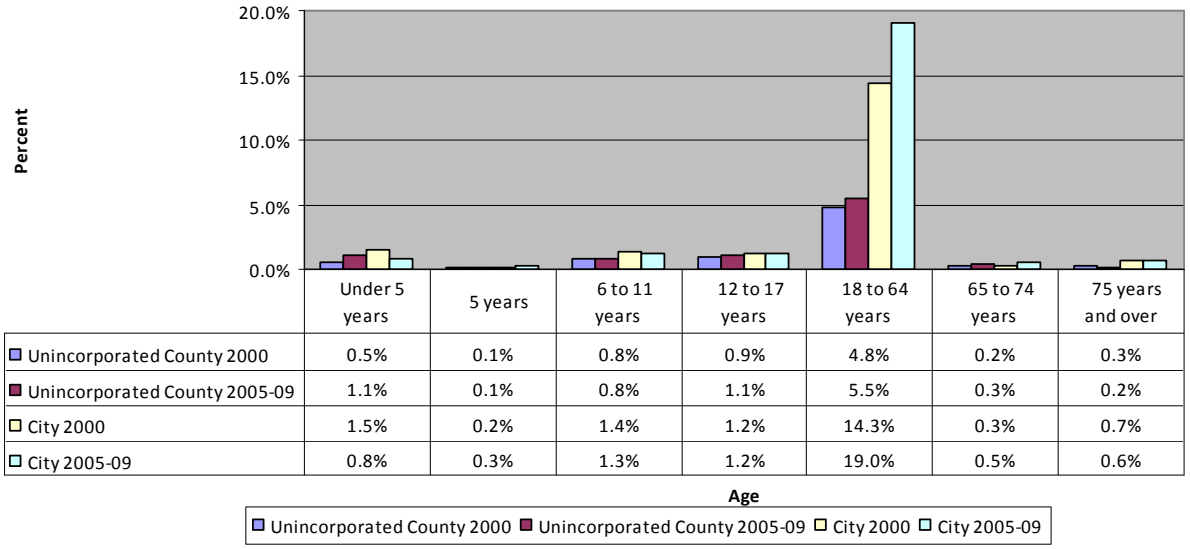
Figure 2-1 shows the percentage of population by racial groups from 2000 to 2009. While non-white population percentages account for 8.6 percent of total population in the City of Missoula as opposed to 4.6 percent in Missoula County, the total percentages of population among various non-white groups are relatively low.

Table 2-2: Change in Population Below Poverty Status, 2000-2009

	Missoula County			Unincorporated County			Missoula City		
	2000	2005-09	Change	2000	2005-09	Change	2000	2005-09	Change
Total (Population for whom poverty status is determined):	92,656	102,905	11.1%	38,372	38,737	1.0%	54,284	64,168	18.2%
Income in 1999 below poverty level:	13,691	18,770	37.1%	2,988	3,546	18.7%	10,703	15,224	42.2%
Under 5 years	1,028	965	-6.1%	193	430	122.8%	835	535	-35.9%
5 years	160	216	35.0%	54	39	-27.8%	106	177	67.0%
6 to 11 years	1,096	1,115	1.7%	322	297	-7.8%	774	818	5.7%
12 to 17 years	997	1,193	19.7%	355	429	20.8%	642	764	19.0%
18 to 64 years	9,640	14,350	48.9%	1,851	2,141	15.7%	7,789	12,209	56.7%
65 to 74 years	277	450	62.5%	92	134	45.7%	185	316	70.8%
75 years and over	493	481	-2.4%	121	76	-37.2%	372	405	8.9%

Source: U.S. Census Bureau- Census 2000, American Community Survey 2005-2009 5-Year Estimates

Table 2-2 shows the total population of individuals with incomes below poverty level by age group in 2000 and 2009 for the City and County. The overall percentage of people with incomes below poverty level increased more rapidly in the City of Missoula than in Missoula County between 2000 and 2009, increasing by 42 percent in the City and 19 percent in the unincorporated portion of the County.



	Under 5 years	5 years	6 to 11 years	12 to 17 years	18 to 64 years	65 to 74 years	75 years and over
Unincorporated County 2000	0.5%	0.1%	0.8%	0.9%	4.8%	0.2%	0.3%
Unincorporated County 2005-09	1.1%	0.1%	0.8%	1.1%	5.5%	0.3%	0.2%
City 2000	1.5%	0.2%	1.4%	1.2%	14.3%	0.3%	0.7%
City 2005-09	0.8%	0.3%	1.3%	1.2%	19.0%	0.5%	0.6%

Source: U.S. Census Bureau- Census 2000, American Community Survey 2005-2009 5-Year Estimates

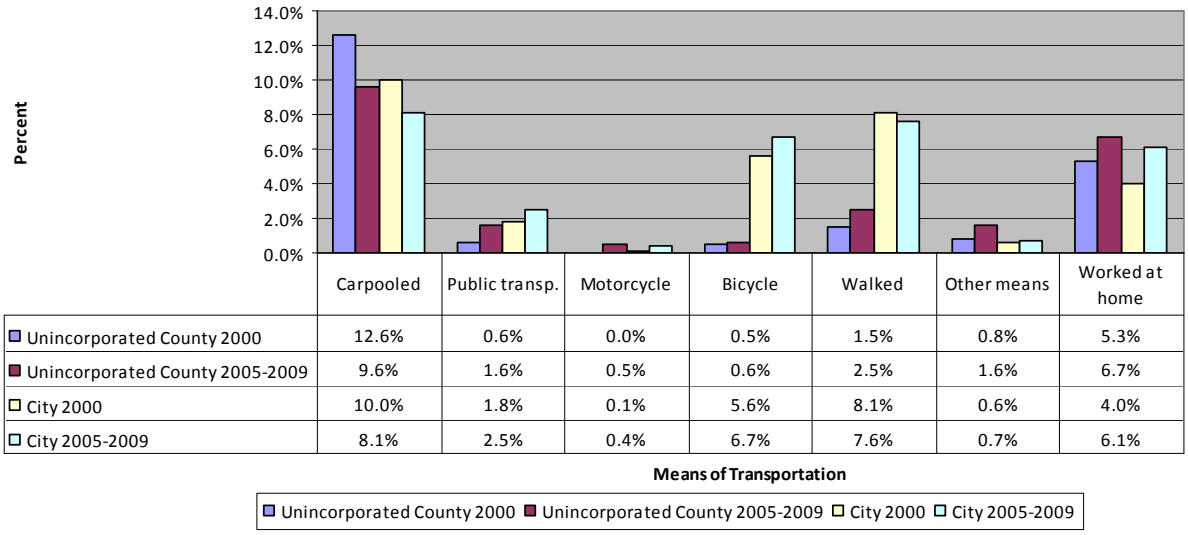
Figure 2-2: Percent of Population Below Poverty Status, 2000-2009

Figure 2-2 shows the overall percentages of the number of persons below poverty level, by age group, in the City and County of Missoula in 2000 and 2009. Overall, the percentages are relatively stable except for the 18-64 age group which increased by approximately 4 percent. The increase in population below poverty level indicates a likely increase in the number of people who rely on means of transportation other than private automobile.

Table 2-3: Change in Means of Transportation to Work, 2000-2009

	Missoula County			Unincorporated County			Missoula City		
	2000	2005-09	Change	2000	2005-09	Change	2000	2005-09	Change
Total (Workers 16 years and over):	49,448	54,742	10.7%	19,643	19,968	1.7%	29,805	34,774	16.7%
Car, truck, or van:	41,697	43,678	4.8%	17,922	17,280	-3.6%	23,775	26,398	11.0%
Drove alone	36,236	38,963	7.5%	15,450	15,367	-0.5%	20,786	23,596	13.5%
Carpooled	5,461	4,715	-13.7%	2,472	1,913	-22.6%	2,989	2,802	-6.3%
Public transp.	657	1,197	82.2%	123	326	165.0%	534	871	63.1%
Motorcycle	37	230	521.6%	2	97	4750.0%	35	133	280.0%
Bicycle	1,776	2,453	38.1%	94	110	17.0%	1,682	2,343	39.3%
Walked	2,717	3,128	15.1%	304	493	62.2%	2,413	2,635	9.2%
Other means	326	574	76.1%	159	317	99.4%	167	257	53.9%
Worked at home	2,238	3,482	55.6%	1,039	1,345	29.5%	1,199	2,137	78.2%

Source: U.S. Census Bureau- Census 2000, American Community Survey 2005-2009 5-Year Estimates

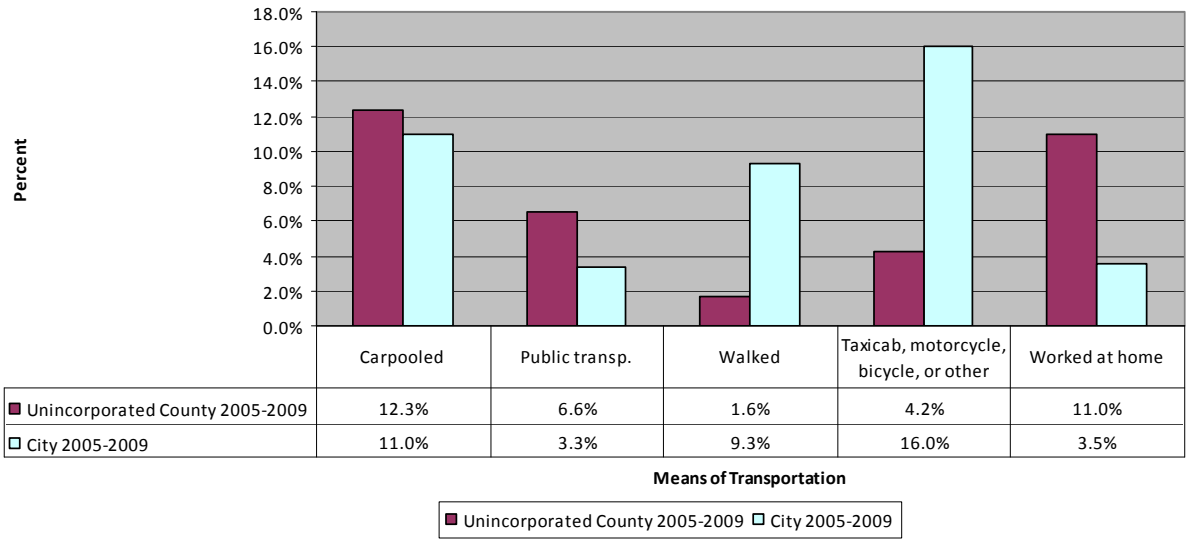


	Carpooled	Public transp.	Motorcycle	Bicycle	Walked	Other means	Worked at home
Unincorporated County 2000	12.6%	0.6%	0.0%	0.5%	1.5%	0.8%	5.3%
Unincorporated County 2005-2009	9.6%	1.6%	0.5%	0.6%	2.5%	1.6%	6.7%
City 2000	10.0%	1.8%	0.1%	5.6%	8.1%	0.6%	4.0%
City 2005-2009	8.1%	2.5%	0.4%	6.7%	7.6%	0.7%	6.1%

Source: U.S. Census Bureau- Census 2000, American Community Survey 2005-2009 5-Year Estimates

Figure 2-3: Percent of Means of Transportation to Work, 2000-2009

Table 2-3 and Figure 2-3 show the change in mode and percent of mode share for means of transportation to work from 2000 to 2009, respectively. Generally, there have been increases across all modes from 2000 to 2009. Mode share percentages show modest increases in public transportation, bicycles and those choosing to work at home.



	Carpooled	Public transp.	Walked	Taxicab, motorcycle, bicycle, or other	Worked at home
Unincorporated County 2005-2009	12.3%	6.6%	1.6%	4.2%	11.0%
City 2005-2009	11.0%	3.3%	9.3%	16.0%	3.5%

Source: U.S. Census Bureau- American Community Survey 2005-2009 5-Year Estimates

Figure 2-4: Percent of Means of Transportation to Work – Population Below 100 percent of poverty level, 2000-2009

Table 2-4 shows the percentage of mode share chosen by the population that falls below the poverty level. These data indicate that this population tends to rely more heavily on alternative means of transportation relative to the population at large.

Bicycling and Walking Trip Characteristics

According to the American Communities Survey, a significant portion of Missoula's workers walk or bike to their jobs as compared to other metro areas around the nation. United States Census and American Community Survey data indicate that the percentage of commuters aged 16 and over who biked to work rose from 4 percent in 1990 to 5.6 percent in 2005 and again increased to 6.7% by 2009.. While walking dropped from 8.25 to 7.6 percent by 2009, total non-motorized commuting rose from 12.2 to 13.3 percent.

III. The Transportation Network

A. On-Street Facilities

The City of Missoula has approximately 338 total miles[11] of streets and highways including approximately 3 miles of Interstate highway, 37 miles of arterials, 37 miles of collectors and 261 miles of local streets. The unincorporated Missoula County portion of the Plan Area has approximately 644 total miles of streets, roads and highways including approximately 22 miles of Interstate freeway, 37 miles of arterial streets, 72 miles of collectors and 513 miles of local streets.[12]

There are approximately 394 linear miles of sidewalks (counting both sides of a street) in the City of Missoula and 7.9 miles in the unincorporated Missoula County portion of the Plan Area.[13] Current Missoula City and County regulations require sidewalks in subdivisions, with new commercial and multi-family construction, and major remodeling. However, some areas lack sidewalks because they were developed before adoption of current regulations. As a result, there are approximately 220 miles of missing sidewalks in the City,[14] which accounts for 49 percent of the City of Missoula's total street miles.[15] Chapter 4 describes programs such as the Master Sidewalk Plan, Capital Improvements Program (CIP), Special Improvement Districts (SID's) and other strategies for adding sidewalks in developed areas.

There are a total of 38 miles of bike lanes and bike routes in Missoula. City policy is to require bike lanes on new and rebuilt collector and arterial streets.

Five bridges carry people over the Clark Fork River in Missoula at Higgins Avenue, Reserve, Russell, Orange, and Madison Streets. Three bridges cross the Bitterroot River including the Buckhouse Bridge (U.S. Highway 93), the Maclay Bridge (North Avenue) and the Kona Ranch Road bridge. Cyclists and pedestrians use all of these bridges. There are three bicycle/pedestrian bridges over the Clark Fork at California Street, Madison Street (under the vehicular bridge) and Van Buren Street (at one time a vehicular bridge). A ramped and covered bicycle/pedestrian overpass spans the railroad yard and connects downtown Missoula with the Northside residential area.

[11] All mileage numbers are expressed in road miles or centerline miles and not lane miles.
[12] OPG Transportation Division, Missoula MPO Travel Demand Model - 2010 Existing Roads
[13] Sidewalk mileage figures are based on linear feet of sidewalks.
[14] OPG Transportation Division, Missoula MPO Travel Demand Model - 2010 Existing Roads
[15] OPG Transportation Division, Missoula MPO Travel Demand Model - 2010 Existing Roads

B. Off-Street Facilities (Trails)

There are approximately 100 total miles of trails throughout the Plan Area. Of these, the City of Missoula's Bicycle Commuter Network includes four major interconnected trails:

The Kim Williams Trail runs from Hellgate Canyon along the right-of-way of the former Milwaukee Road rail line to the gate east of the University of Montana campus, where it becomes the South Shore Trail.

The South Shore Trail is a segment of the Ron McDonald Riverfront Trail system and continues west from the UM campus to Orange Street, where it splits into the Milwaukee Trail and a continuation of the South Shore Trail.

The Milwaukee Trail continues west from Orange Street along the old railroad right-of-way and stops at Russell Street. The trail resumes at Davis Street and runs west, crossing under Reserve Street and continues to Grove Street. Construction is scheduled to begin in spring of 2011 to complete the Milwaukee Trail from Russell Street to Davis Street.

The Bitterroot Branch Trail parallels the Montana Rail Link railroad branch of the same name. The trail begins at McDonald Streets and runs northeasterly until it connects with the Milwaukee Trail except for a gap between Livingston and North Avenues — a distance of approximately five blocks. Completion of the trail in the block between Livingston and South Avenue is expected in 2011.

C. Recreational Trail and Open Space Connections

Public lands and recreational opportunities for many Missoula area residents are literally just out the back door. There are also a number of points in the region where Missoula's urban system of sidewalks, bike lanes and trails connect to public open spaces, wilderness areas and trail systems. For example, the Kim Williams Trail provides access to Mount Sentinel and the Lolo National Forest, and will soon connect to a new state park, Silver Park via the Millsite Trail. Trails in the Rattlesnake provide access to Mount Jumbo and Waterworks Hill. Other regional opportunities for non-motorized recreation include the Pattee Canyon Area, Blue Mountain, Grant Creek, Rattlesnake Recreation Area and points farther south in the Bitterroot Mountains. This Plan will explore other opportunities to link urban bicycle and pedestrian infrastructure with public recreational areas.

Chapter 3: Existing Conditions and Challenges

This chapter describes existing conditions in Missoula's active transportation system in terms of the extent of the system, how efficiently and safely it functions, the most dangerous locations and how well non-motorized facilities connect with the transit system.

I. The Existing System

The on-street active transportation network within the Missoula MPO includes approximately 394 miles of sidewalks and 38 miles of bike lanes and bike routes in the City of Missoula. There are approximately 8 miles of sidewalks and 45.8 miles of other non-motorized trail facilities in the unincorporated Missoula County portion of the MPO including 11.7 miles of primary commuter trails and 30 miles of recreational trails.[16] The City of Missoula has 54.2 total miles of off-road trails including trails inside of parks. Of this total, 13.6 are primary commuter trails and 28 miles are recreational.

Please reference Map 3.1 for a map showing existing Missoula sidewalks, signalized intersections and various traffic calming devices.

A. Connectivity

1. Sidewalks

Connectivity is greatest in the older neighborhoods of the City where sidewalks have been required since the 1890's (one of the first City resolutions was a sidewalk order). Sidewalk connectivity is poorer in areas that were partially developed prior to annexation into the City, and most sidewalks in these areas are part of developments built after annexation. Areas with the least connectivity are generally west of Russell Street in the Franklin to the Fort and Emma Dickinson/Orchard Homes neighborhoods, but also include portions of the Northside, Westside, South Hills, and the Rattlesnake neighborhoods. In those areas, many subdivisions and blocks were platted and developed without sidewalks. Although the City of Missoula has been more aggressive in requiring sidewalks with new development in recent years, variances from sidewalk requirements were granted for some developments built after annexation.

2. Bike Lanes

City and County subdivision regulations require on-street bike lanes on streets functionally classified as arterials and collectors. City and County policy is to include bike lanes as part of the reconstruction of existing arterials and collectors.

[16] Missoula County Public Works Department

Approximately 49 percent[17] of City arterials and collectors lack bike lanes or bike routes altogether. Filling the gaps where bike lanes end suddenly is a high priority in creating greater connectivty.

Please reference Map 3.2 for existing bike lanes and routes as well as Missoula's trail system.

3. Trails

At over 40 miles of primary and secondary trails, the MPO's off-road trail network is extensive and growing. However, significant gaps exist in several locations; filling in the gaps in the system will greatly increase overall connectivity. For example, the planned completion of the Milwaukee Trail between Russell and Davis Streets will enable cyclists and pedestrians to travel from the Hellgate Canyon on the east side of Missoula to Grove Street — a distance of approximately 3 miles.

Filling in the gaps remaining in the Bitterroot Branch Trail between its junction with the Milwaukee Trail and McDonald Streets would make continuous off-road travel possible for a distance of approximately 3 miles. The extension of a trail from McDonald Street to the town ofLolo would enable people to bike or walk from the Milwaukee Trail to just south of the Stevensville Cutoff, a distance of approximately 29 miles. The section of the trail between Stevensville and Victor was completed in the fall of 2010. MDT expects to have the section through Victor completed sometime during the summer or fall of 2011, linking with a path that continues to Hamilton. Completion of the Bitterroot Branch Trail from Missoula to Lolo would make it possible to travel on foot or by bicycle from Missoula to Hamilton—a distance of approximately 47 miles.

4. Street Crossings and Intersection Treatments

a) Signalized Intersections

There are a total of 67 signalized street intersections in the City of Missoula. The signals at seven of these intersections do not have pedestrian buttons because the "walk" phase is set for a fixed time. The 60 other signals have pedestrian buttons that make it possible to either cross the main street or cross both the main street and the side street. Seven of the intersections do not have pedestrian crossings on all sides, either for safety reasons or because there is nowhere for a pedestrian to go after crossing the street. By fall of 2011, all pedestrian signals in Missoula will have count-down displays as part of the City's conversion from incandescent bulbs to LED (light-emitting diode) technology for its traffic signals.

[17] OPG Transportation Division, Bike Infrastructure GIS layer

b) Non-signalized Intersections

Beyond signalized intersections and four-way stops, Missoula integrates several non-signalized intersection designs into the street network. Three intersection designs – roundabouts, traffic circles, and intersection bulb-outs – have been implemented throughout Missoula as design solutions to safety, traffic flow, and calming needs. Traffic circles have been used as a means of slowing down motor vehicle traffic and constructed within the interior of neighborhoods along local streets to discourage through-traffic. The University District, Rose Park, River Front, and Southgate Triangle neighborhoods all have traffic circles installed on local streets. All together there are 50 traffic circles that exist in the City of Missoula.

Unlike traffic circles, the majority of bulb-outs are installed along collector and arterial streets rather than on local streets. Bulb-outs primarily serve the purpose of providing pedestrians with an extension of sidewalk into the roadway that shortens crossing distances, provides motorists with an additional visual cue, and a reduced turning radius that results in lower speeds. A total of 86 intersections have bulb-outs in the City. Roundabouts are also largely located on main streets and serve the purpose of improving traffic flow and improving intersection safety by eliminating traffic conflicts arising from turning movements that cross the flow of traffic.

Six intersections currently have roundabouts:

- Higgins/Hill/Beckwith Avenues
- Upper/Lower Miller Creek Road;
- Connery Way/England Boulevard
- Union Pacific Avenue at Hellgate Meadows
- Cattle Drive/George Elmer
- Siren's Road near Hellgate Elementary

B. System Functionality and Safety

The number of people who use sidewalks, bike lanes, and other parts of the active transportation system – and how often they use them – will depend on factors such as connectivity, design, and safety of the system. Facilities that are properly located, well designed, and safe will attract more users.

1. Functions of the System

The bicycle and pedestrian network serves two main functions. First, people use the system as a primary means of transportation for commuting to work or for visiting, shopping or other errands. The second function of the system is to provide a means for people to access recreation opportunities such as parks and scenic areas or to simply enjoy the exercise of biking or walking. Gaps in the bicycle or pedestrian network may not cause people to forgo recreational biking and walking, but those

who use the system for basic transportation may choose to drive instead of using an incomplete bicycle/pedestrian system.

2. Gaps in the System

The more sidewalk gaps there are along any route, the less likely people will be to use existing sidewalks along that route. Gaps in bike lane segments not only cause cyclists to choose a different route but also make the route more hazardous for those who do use it. Gaps in trail systems force people to use streets for part of their trip. For example, a five-block gap in the Bitterroot Branch Trail between Livingston and North Avenues requires users to detour over local streets in an area with heavy vehicular traffic.

Please reference Map 3.3 for a map showing gaps in the existing sidewalks system within Missoula City limits.

3. Barriers to Bicycle and Pedestrian Travel

Pedestrians and cyclists encounter a variety of conditions that reduce comfort, convenience and safety. While natural circumstances create some barriers, the actions and decisions of humans create others.

a) Natural Barriers

Circumstances resulting from geography can reduce the ease of bicycle and pedestrian travel. Rivers and creeks create barriers for pedestrians and cyclists since bridges are needed to cross them. Steep terrain can require cutting and filling to create level travel surfaces. Such natural barriers do not prevent bicycle and pedestrian travel but add to infrastructure costs.

Seasonal variations in climate often make it uncomfortable or unsafe for pedestrians and cyclists to travel. Missoula typically experiences adverse weather conditions such as long, snowy and icy winters. Inclement weather has the effect of changing people's preferred mode of travel so as to avoid additional risk or inconvenience. Additionally, Missoula often suffers from bad air quality days resulting from forest fires in the summer and inversions in the winter that can prevent people from enjoying outdoor activities.

Winter weather hazards can be further exacerbated by the lack of winter maintenance. While a great deal of the facilities within the City limits are cleared and maintained during the winter, the County lacks the staff and financial resources to keep trails from of snow.

b) Design Barriers

Cul-de-sacs and other dead-end streets are common in subdivisions built in the last half of the 20th century. Unlike the grid pattern of traditional urban streets, cul-de-sacs limit the ways in and out of neighborhoods and require taking long and circuitous routes to reach close destinations. Such designs lessen the ease, speed and convenience of biking and walking because of the increased distance between destinations and cause many to choose driving instead. Figure 3-1 compares two areas of equal size, the first with a typical cul-de-sac layout and the second with streets arranged in a traditional grid pattern.

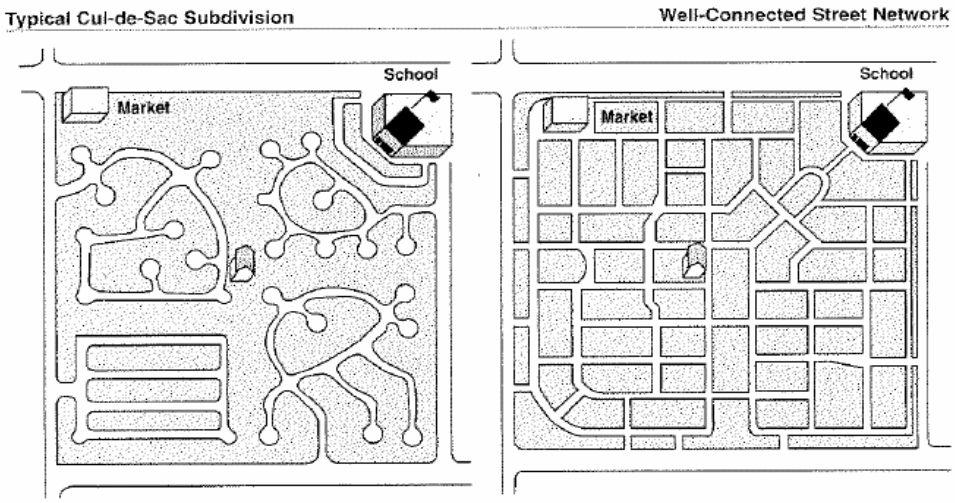


Figure 3-1: Cul-de-sac versus a grid layout

Additional design barriers include "pinch points" like freeways and other limited access roads require bridges or underpasses for safe crossing by cyclists and pedestrians. Businesses in shopping malls and other commercial developments are separated from streets by large parking lots that discourage easy bike and pedestrian access. Railroads can also create safety hazards for all modes of travel. Irrigation ditches that criss-cross many areas of Missoula have existed for years and enjoy legal restrictions that limit the ability to cover or remove them. Older sidewalks at some locations were built with stairs but without any ramps, making cycling difficult at best and wheelchair or walker travel impossible.

c) Safety Hazards

Unlike automobile drivers and passengers, pedestrians and cyclists have little protection against bodily injury from falls or collisions. Hazards due to conditions, design, system operation, and human behavior pose challenges to safe bike and pedestrian travel.

Sidewalk Hazards

Trip-and-fall hazards develop when sidewalk sections break from tree root growth or ground shift during freeze-thaw cycles. City ordinances require property owners to either repair adjacent sidewalks or pay for repairs performed by the City. Snow and ice create slip-and-fall hazards for pedestrians. Although Missoula City ordinances require property owners to remove snow from adjacent sidewalks by 9:00 AM or pay the cost for City crews to clear the sidewalks, compliance is not universal and enforcement is primarily complaint-based. The City can inspect sidewalks along major roadways and walk-to-school routes without receiving a complaint.

Bicycle Hazards

Loose gravel, broken glass, and other debris in bike lanes make travel hazardous while certain roadway design elements such as sunken drain grates and grate bars running parallel to the roadway can cause falls. During heavy snowfalls, plowing often pushes snow into bike lanes or onto sidewalks. Railroad crossings can cause bike wheels to swerve and fall into the tracks, especially those that run diagonally to the roadway. "Audible road delineators" or "rumble strips" are a well-documented hazard to bicyclists, especially if the rumble strips are deep and continous with no gaps for cyclsists to easily cross the stips. Accepted practice nationwide dictates that rumble strips be used only sparingly on roads that permit cycling. There are rumble strips on US Highway 93 from I-90 north to Evaro and on Highway 200 from I-90 almost to the Clearwater Junction. There are no rumble strips on City or County streets in the Plan Area.

d) System Hazards

Inadequate Bike Lanes and Sidewalks

Bicycle lanes in some locations have narrower widths that those recommended by the American Association of State Highway and Transportation Officials (AASHTO). Substandard lane widths increase the danger of collisions between cyclists and parked car doors or mirrors. In some locations, bike lanes disappear without warning, causing confusion for both cyclists and drivers. Narrow sidewalks can increase the difficulty for pedestrians to pass in opposite directions or to walk two abreast. Non-existent or substandard curb ramps can prevent or hinder wheelchair access.

Sight Obstructions

Structures, trees and other landscaping can hinder safe bicycle travel if bike routes are designed and located so that cyclists cannot see around them. Utility poles, mailboxes and other structures and shrubbery can impede pedestrian travel on sidewalks.

e) Operational Hazards

Vehicle speeds above 35 mph and heavy traffic volumes discourage bicycle and pedestrian travel due to safety concerns and noise and air pollution. While a bike/pedestrian crash can happen anywhere, busier roadways are also the sites of the largest number of crashes involving cyclists and pedestrians. Table 3-1 lists the busiest locations on the five busiest roadways and related bicycle and pedestrian crashes within the MPO in 2008, based on averaged daily traffic volumes recorded at approximate locations in and around Missoula.

Table 3-1 demonstrates that high volume roadways have a tendency to have a significant number of crashes involving a pedestrian or cyclist. The traffic volume numbers displayed in Table 3-1 are the annual average daily traffic (AADT) and represent the highest traffic volume count along the roadway. Figure 3-2 shows a relationship between traffic crashes involving non-motorized users and roadway average daily vehicle volumes when a linear regression analysis was performed. The linear regression does not take into account other roadway characteristics such as number of lanes, speed limits, lane widths, and roadway design features that have been shown to affect roadway safety.

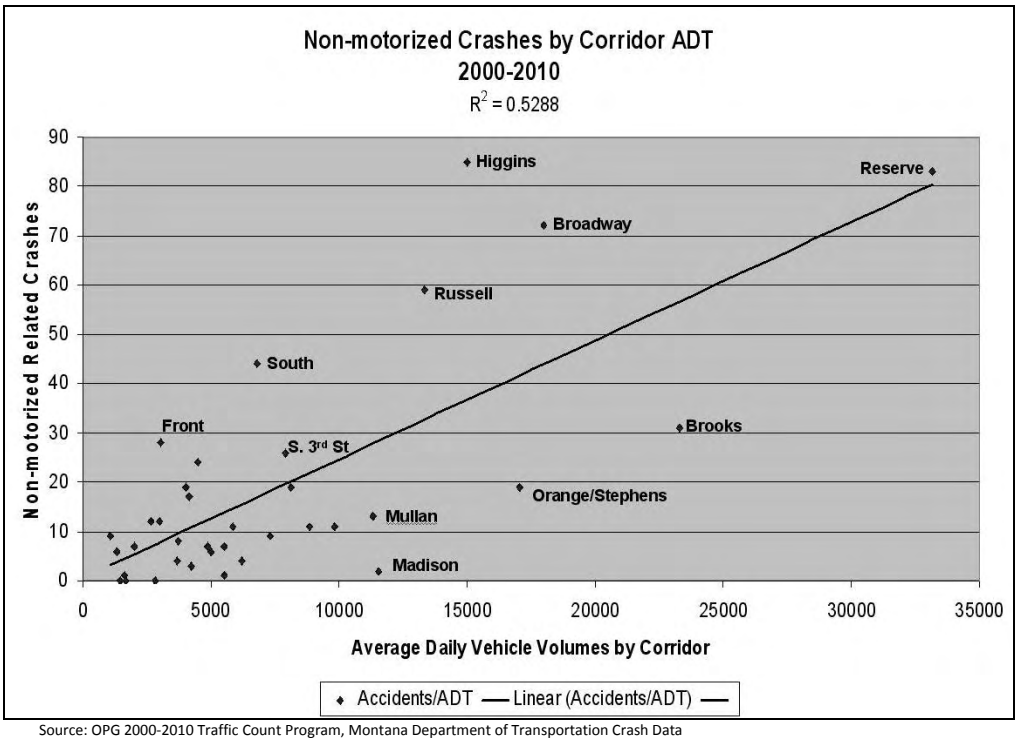
Higgins Avenue has the highest number of non-motorized crashes along its length, but also has the most bicycle and pedestrian traffic of any corridor in Missoula. This is especially true in Downtown and along the Hip Strip just south of the Clark Fork River. Brooks Street is an outlier in this group of streets with a much lower number of bicycle and pedestrian crashes. Reserve, even with relatively low bicycle and pedestrian activity has the second highest number of crashes.[18]

Table 3-1: Highest Traffic Count Station & Total Bike/Ped Crashes by Corridor

Rank	Location	AADT 2009	Bike/Ped Crashes Along Corridor 2005-2010
1	Reserve Street north of River Road	46,060	45
2	Brooks Street northeast of Miller Creek Rd.	33,730	15
3	Higgins Avenue south of South S 6th Street	24,020	48
4	Broadway East of Mullan Rd.	26,360	44
5	Russell Street just south of Broadway	22,650	39

Source: OPG 2009 Traffic Count Program, Montana Department of Transportation

[18] Montana Department of Transportation crash data, 2005-2010.



Source: OPG 2000-2010 Traffic Count Program, Montana Department of Transportation Crash Data

Figure 3-2: Rlationship Between Roadway Volumes and Non-Motorized Crashes

High Crash Areas and Statistics

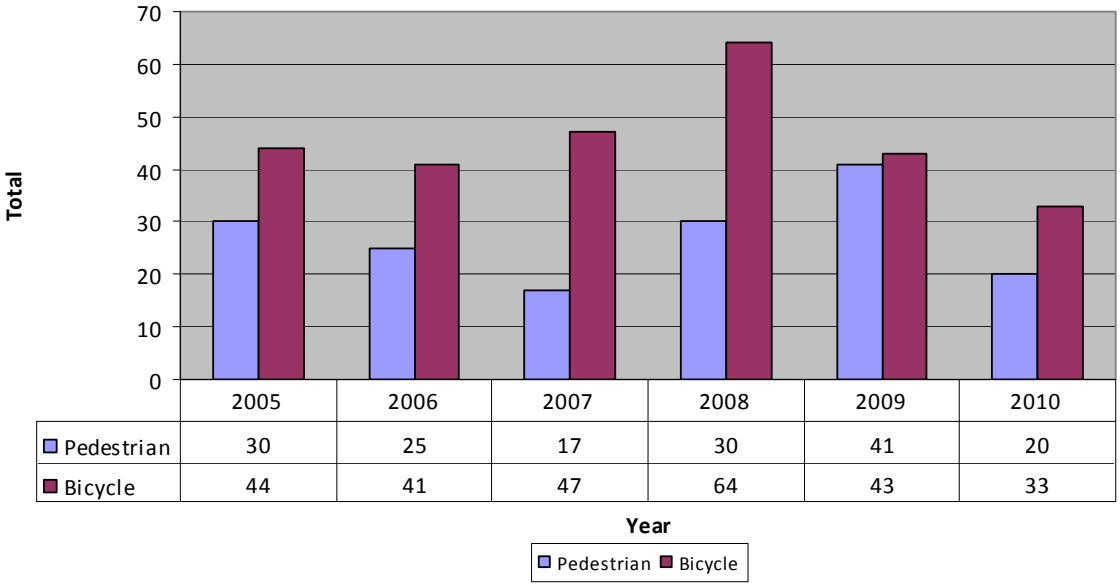
The majority (56.6%) of bicycle and pedestrian crashes and fatalities in Missoula have occurred at intersections. Of these crashes, a majority have occurred on roadways with average daily volumes above 9500 and intersections where pedestrians have an extended distance to cross. Most fatalities have occurred on roadways with volumes above 17000 average daily vehicles and speed limits in excess of 35 mph.

Table 3-2 displays bicycle and pedestrian crash data from the Montana Department of Transportation (MDT) for the years 2005 through 2010, The majority of Missoula County pedestrian and bicycle crashes took place within Missoula City limits, 69% and 91% respectively. The high concentration of crashes within the City is more indicative of the higher density of people choosing these modes and higer vehicle volumes within the City rather than an indication that roads are generally more dangerous.

Table 3-2: Total Bicycle and Pedestrian Crashes, 2005-2010

	Total Crashes		Injuries		Fatalities	
	Number	Percent	Number	Percent	Number	Percent
Missoula County						
Bicycle	272	100%	242	89.0%	5	1.8%
Pedestrian	163	100%	135	82.8%	11	6.7%
Missoula County - Weekday						
Bicycle	224	82.4%	199	88.8%	5	2.2%
Pedestrian	123	75.5%	105	85.4%	5	4.1%
Missoula County - Weekend						
Bicycle	48	17.6%	43	89.6%	0	0.0%
Pedestrian	40	24.5%	30	75.0%	6	15.0%
Missoula City Limits						
Bicycle	250	91.9%	219	87.6%	3	1.2%
Pedestrian	113	69.3%	98	86.7%	7	6.2%

Source: Montana Department of Transportation



Source: Montana Department of Transportation

Figure 3-3: Bicycle and Pedestrian Crashes per Year in Missoula County, 2005-2010

High volume roadways that likewise exhibit relatively large volumes of foot and bicycle traffic allow for the opportunity of greater interaction between travel modes and thus a greater opportunity for conflicts to occur. This is evidenced by the fact that approximately 75% of traffic crashes between 2005 and 2010 involving a pedestrian or bicycle took place on arterials or collectors rather than local streets. Additionally, the greatest concentration of crashes involving a pedestrian or cyclist occur along roadways with the highest traffic volumes.

Intersections have a considerable impact on roadway safety in general and pedestrian and bicycle safety in particular. Many of the intersections most prone to

traffic crashes involving a pedestrian or cyclist are located at junctions of higher volume arterials and collectors. The three intersections with the most crashes involving pedestrians are all located within the Missoula Central Business District; Higgins and Main, Higgins and Front, and Broadway and Pattee. This doesn't necessarily make downtown Missoula more dangerous for pedestrians as compared to other parts of town, rather it is indicative of the nature of Higgins as the street with the greatest number of pedestrians in Missoula. Bicycle crashes take on a similar pattern as with pedestrian crashes, but at the same time exhibit a greater geographic distribution. Again, Downtown contains four of the five intersections with the greatest number of bicycle crashes.

Day light conditions at the time of a crash appear to be an important contributing factor in pedestrian fatalities. Approximately 38% of crashes involving a pedestrian occur after dusk, but those crashes account for 91% of all pedestrian fatalities. Additionally, 80% of pedestrian fatalities occuring at night happen along unlit portions of roadway.

The behavior of each individual driver, cyclist or pedestrian using the transportation system affects the system's overall safety. Careless, inattentive, impaired, speeding, or aggressive motorists as well as careless or unsafe behaviors among pedestrians and cyclists are all contributing factors in traffic crashes.[19] While some may perceive that streets are unsafe for reasons such as design or condition, the failure of roadway users to behave responsibly is a cause of injuries, fatalities, and property damage that design solutions alone can't successfully address.

Please reference Map 3.4 and Map 3.5 for more information regarding bicycle and pedestrian crash data and locations.

C. Transit Interface

An efficient and functional active transportation system is one that allows cyclists and pedestrians easy access to public transit. Good access to transit provides an opportunity for non-motorized trips to increase in number by allowing pedestrians and cyclists to cover longer distances conviniently without the need for a personal motor vehicle.

Map 3.6 displays bus routes serviced by both Mountain Line and ASUM Transportation.

[19] For example, a 14-year old cyclist wearing dark clothing while riding at night in 2006 was killed after riding off the sidewalk directly in front of a car.

1. Bikes on Bus

Buses equipped with bike racks permit a cyclist to take part of a trip by bicycle and switch to a bus in case of bad weather or to complete the hilly portion of a trip. Four of the newest Mountain Line buses have racks that accommodate three bikes. All remaining buses in the fleet can carry two bikes.

2. Sidewalk Access to Bus Stops

People are more likely to ride the bus if they do not have to walk in the street or on the shoulder of the road to reach a bus stop, especially during inclement weather. Users of wheelchairs or other assistive devices need sidewalks in order to use the lift equipment on buses. 59.7% of bus stops in the Missoula area have sidewalks leading up to the stop. Many of the bus stops without sidewalks are located outside the Missoula City limits or have been identified as high prioty for safety improvements.

Please reference Map 3.7 for a map of the Missoula transit interface and bus stops that lack access via sidewalks.

3. Shelters and Street Furniture

Bus stop signs, benches and shelters help to clearly identify locations where riders can board buses. Of the stops on Mountain Line's twelve routes, 342 are marked with bus stop signs, 54 have benches and 36 have shelters. There are 29 bus stops that have bus pull-outs.

4. Bike parking facilities

Similar to park-and-ride lots for those who combine driving with transit for some trips, bike parking racks, lockers and related facilities help cyclists who cannot or choose not to put their bikes on buses. As of the writing of this Plan, Mountain Line does not have bike parking facilities at any of its stops except for the Downtown Transfer Center.

5. Lighting

Providing lighting at or near transit stops not only creates a more inviting and comfortable location, but can also improve a person's sense of safety while waiting for a bus. Concerns over safety are often a major factor in people's reasoning for not taking transit, and lighting can help to alleviate such concerns.

Chapter 4: Existing Plans, Programs and Policies

The need for new active transportation infrastructure and for the improvement of existing facilities in the Missoula region is well documented by a host of plans, programs and policies. Several agencies and organizations contribute to the construction of new infrastructure. All of these resources provide information that supports the Active Transportation Plan. This chapter summarizes the plans that either identify needed active transportation facilities and/or contain goals and policies directed toward constructing those facilities.

I. Local, Regional and State Transportation Plans

A. Missoula County Growth Policy (2006)

The Missoula County Growth Policy is intended to meet the requirements outlined in state law and to provide a framework for continued planning efforts in Missoula City and County. Missoula County first adopted its Growth Policy in 2002. An update was adopted in 2006. According to State law, the Growth Policy provides guidance to the City Council and Board of County Commissioners in the:

- Authorization, construction, alteration or abandonment of public ways, public places, public structures or public utilities
- Authorization, acceptance or construction of water mains, sewers, connections facilities or utilities; and
- Adoption of zoning ordinances or resolutions

Through its adoption by both the Missoula City Council and the Missoula County Board of County Commissioners, the Active Transsportation Plan is an amendment to the Growth Policy. As such, the MATP is a document designated for state and local planners to reference during current and long range planning efforts. For example, the recommendation for approval of a local subdivision might include a condition requiring improvements consistent with a project or design guidelines recommended by the MATP.

B. Missoula Long Range Transportation Plan

Federal regulations require the Missoula MPO to adopt a Long Range Transportation Plan (LRTP) and then to update the Plan every four years. The 2008 Missoula Long Range Transportation Plan is the most recent update and was adopted in November of 2008. The LRTP contains a list of projects and programs representing all modes of surface transportation (roadway bike/pedestrian and transit) through 2035. Federal law requires the LRTP to be fiscally constrained. The total estimated cost of the

planned improvements cannot exceed anticipated levels of Federal, state and local funding for that time period.

Development of the LRTP included an extensive public involvement process known as “Envision Missoula.” Winner of a national planning award for innovation and coordination in the linking of land use and transportation planning, Envision Missoula included workshops where participants from the community developed alternative vision scenarios for regional development and supporting transportation infrastructure through 2035. Through a comparative synthesis of maps created in the visioning workshops, the results of these workshops were developed into scenarios representing different travel demand management and infrastructure investment for the LRTP. The preferred scenario, Focus Inward, seeks to manage travel demand by bringing together activities into one highly concentrated downtown area. Focus Inward scenario considers only one Multi-Modal Corridor from Lolo to the Montana Rail Link Apex located in downtown Missoula, and concentrates the remainder of investment into a densely developed In-town Mobility District. The In-town Mobility District would concentrate investment in the urban core to support a very high level of development in and around downtown.

C. Statewide Long Range Transportation Plan

Developed in 1994 and updated in 2002, TranPlan 21, Montana's long-range transportation policy plan, is part of an ongoing process that identifies transportation issues, evaluates public and stakeholder needs and priorities, and establishes and implements policy goals and actions. This process guides the Montana Department of Transportation (MDT) in the development and management of a multimodal transportation system that connects Montana residents and communities to each other and the world.

In early 2008, MDT completed a limited amendment of TranPlan 21 to ensure that the plan complies with the most recent federal transportation legislation−the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

D. Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is the list of all federally funded transportation projects and programs in the Missoula region. The projects included on this list are scheduled to receive Federal transportation funds within the next five years. Like the LRTP, the TIP must be fiscally constrained. In Missoula the TIP is generally updated annually.

E. 2001 Non Motorized Transportation Plan (NMTP)

The 2001 Non-Motorized Plan is the predecessor to the MATP and is a policy document intended to provide the City and County of Missoula, the Missoula Metropolitan Planning Organization, the Montana Department of Transportation and other agencies and organizations with a coordinated guide for change over a long period of time. The boundaries of the NMTP extend beyond the urban area to connect the City to surrounding recreation areas and other destinations in the greater Missoula area.

F. 2004 Master Parks and Recreation Plan for the Greater Missoula Area

Adopted in May of 2004, the Master Parks and Recreation Plan defines the 15- to 20-year vision for the Missoula Urban Area defined in the Plan as the City limits and three miles beyond. This plan includes an inventory of current park, trail, open space, and recreational resources and then analyzes the future needs within Missoula and an area approximately 3 miles beyond the City limits. The plan establishes the desired Level of Service for parkland acreage (2.5 acres/1000 residents), sets forth standards for developed parks, and adopts numerous goals, policies, and action items to increase the quantity and quality of parks. The plan also includes goals for extending the off-street trail system and filling in gaps for the Bitterroot Branch, Riverfront, Kim Williams and Milwaukee Trails. Where possible, the plan encourages connections to popular destinations, such as shopping districts, downtown, schools, employment centers, and parks

G. Missoula Urban Area Open Space Plan 2006 Update

This plan was first adopted by the City and County of Missoula in 1995 and was updated in 2006. The plan envisions a trail system "to provide recreational opportunities and help further facilitate non-motorized transportation as a viable option for more people in and around the City." The priorities listed include extending existing trails and filling in gaps and extending commuter/recreational trails up the Grant Creek and Rattlesnake Valleys and out west to the Mullan area and east to Bonner along the old Milwaukee Grade. It is important to note that both the 1995 and 2006 Open Space Bonds allow for expenditure of funds for "providing recreational and commuter trails." Thus far, these bond funds have been an important funding source for expanding the Bitterroot Branch and Milwaukee Trails.

Goal Three of the Plan is to “More fully connect urban area open spaces and link them to the other major open lands adjacent to the urban area.” A sub-goal is to “Provide appropriate public access to natural areas and open spaces including

improved opportunities for pedestrian and bicycle access and interaction throughout our community." [20]

H. Capital Improvement Programs (CIP's)

The CIP is an element of the City of Missoula's and Missoula County's annual budget process. By law it allows a municipality to set aside funds from its general all-purpose levy for replacement and acquisition of property, plant or equipment costing in excess of $5000 with a life expectancy of five years or more.

Projects in the CIP are classified as major improvements rather than routine maintenance or equipment replacement. The projects are reviewed and prioritized for the City Council or Board of County Commissioners. When funds are available, the elected body makes the final decision on what projects are implemented. The CIP project list is updated annually as projects are completed, new needs arise, and priorities change.

I. Downtown Plans

1. Missoula Downtown Streets Project (2005)

Prepared by WGM Group and adopted by the Missoula Redevelopment Agency (MRA) in 2005, the Downtown Streets Project grew out of the need for major improvement of Missoula's 1950s-era downtown street system which had experienced little improvement since the 1960s. Poor lighting, antiquated traffic signals, poor access and circulation, plus the need for more parking provided the impetus to plan for needed improvements. The Downtown Streets Project was modified by and partially incorporated into the Missoula Greater Downtown Master Plan, adopted as part of the Growth Policy in 2009. The City Council has approved the Streets Project as part of the City's Capital Improvements Program. Recommendations from the Downtown Streets Project are being implemented as funding becomes available.

2. West Broadway Corridor Community Vision Plan (2007)

The product of a visioning charrette and an intensive eight-month community-based planning process; the West Broadway Corridor Community Vision Plan (West Broadway Plan) grew out of a controversial reconfiguration of West Broadway between Orange Street and California Street/Toole Street that reduced the number of motor vehicle travel lanes on the roadway from four to three. While the impetus for a community charrette was controversial, the result of the planning process is a cohesive community vision for the West Broadway Corridor between Mullan Road and Orange Street that addresses not only transportation and public space, but a safe and more inviting corridor designed to attract additional business and social

[20] City of Missoula, *Missoula Urban Area Open Space Plan 2006 Update p. 6*

activity. Work on the West Broadway Plan was completed in 2007. Language regarding the West Broadway Plan was incorporated into the Missoula Greater Downtown Master Plan (Downtown Master Plan), which is described below. The Downtown Master Plan was adopted in 2009 by Resolution No. 7468.

3. Missoula Greater Downtown Master Plan (2009)

The Missoula Greater Downtown Master Plan is a comprehensive balanced-center strategy for strengthening and expanding downtown Missoula's role as the economic and cultural heart of the community. Transportation/circulation objectives in the Downtown Master Plan include the following:

- Bike/Pedestrian Off-Street System
- Enhance the pedestrian environment
- Improve bike facilities
- Streetcar
- Improve and expand public transportation options
- Two-way streets
- Manage traffic and improve downtown access

II. Development Guidelines

A. Street and Urban Design Guidelines

The Wye Mullan West Comprehensive Area Plan was adopted in 2005 to guide development of the area west of Reserve Street and north of the Clark Fork River. The Plan includes transportation guidelines that encourage planning for a cohesive streetscape along main travel corridors. The streetscape includes not only the area between structures on both sides of a street but also the overall character along a street segment depending on adjacent land uses.

The Missoula Downtown Streets Project was adopted by the MRA in 2005. The process that created the document included development of detailed streetscape guidelines, including treatment of sidewalks and bike facilities. Please see item H.1 on page 4-4 for more information.

B. Master Sidewalk Plan

Currently being updated by the City of Missoula, the Master Sidewalk Plan establishes a strategy for the systematic completion, repair, and upgrade of the City's sidewalk system. This plan:

- Identifies areas with high pedestrian concentrations
- Identifies areas with the highest need for the installation and repair of sidewalks
- Developed and select criteria for prioritization of sidewalk program

- Established project selection criteria
- Established criteria for sidewalk inventorying and problem identification

C. MUTD Transit Guidelines in Project Development

Currently in draft form, Missoula Urban Transportation District's Transit Guidelines encourage coordination of new development and the provision of transit services. As a design manual the document intends to provide guidance for the development of physical facilities in the region to assure that future development is supportive of transit services.

D. AASHTO Development Guidelines

The American Association of State Highway and Transportation Officials (AASHTO) is a nonprofit, nonpartisan association representing highway and transportation departments. AASHTO's "Green Book," A Policy on Geometric Design of Highways and Streets, (5th Edition) contains detailed standard and guidelines for all aspects of roadway design. The AASHTO Guide for the Development of Bicycle Facilities (3rd Edition) and Guide for the Planning, Design, and Operation of Pedestrian Facilities (1st Edition) are two obligatory guidelines for design standards in construction of both on-street and off-street bike facilities and all manner of pedestrian facilities. The Missoula City and County Public Works and Parks Departments utilize these national guidelines when designing bike and pedestrian facilities.

E. Neighborhood and Sub Area Plans

1. Lolo Regional Plan (2003)

The Lolo Regional Plan encompasses a 367-square-mile area in southwestern Missoula County, with particular focus on the community of Lolo, the North Bitterroot Valley, and the Lolo Creek Valley. Plan area residents cited the need for safe crossings, and the desirability of bicycle and pedestrian trails outside of the Highway 93 corridor. Other concerns included the lack of connectivity between different neighborhoods and between neighborhoods and schools, parks, and stores.

2. Wye Mullan West Comprehensive Area Plan (2005)

The Wye Mullan West Comprehensive Area Plan (Wye Mullan Plan) is a non-regulatory document that provides guidance on how growth and development should occur in a 21-square-mile area that includes the North Reserve Street corridor, Mullan Road to Deschamps Lane, and the Wye at the intersection of US Highway 93 and Interstate 90. As noted above under Street and Urban Design

Guidelines, the Wye Mullan Plan includes design guidelines for active transportation infrastructure elements in conjunction with new development.

3. Rattlesnake Valley Comprehensive Plan Amendment Update (1995)

The 1995 update of the Rattlesnake Valley Comprehensive Plan Amendment to the Missoula Urban Comprehensive Plan is a policy document intended to provide the City, County, other agencies and districts and citizens with a coordinated guide for change. The plan reflects support by area residents for construction of bicycle and pedestrian facilities within existing right-of-way and in a manner that maintains neighborhood character to the greatest extent possible.

The Rattlesnake Valley Transportation Summit Study was completed in May of 2010 by the Rattlesnake Valley Summit Group Citizens. With its mission to "provide safe and accessible transportation in the Rattlesnake Valley," the group developed guiding principles and criteria to identify and prioritize needs. The report contains a comprehensive list of 16 active transportation infrastructure projects including supporting maps and statistics on length and percentage of completed sidewalks.

4. Joint Northside/Westside Neighborhood Plan

Adopted in 2000 and updated in 2006, the Joint Northside/Westside Neighborhood Plan (Northside/Westside Plan) is designed to guide development and growth in the northern portion of the City lying generally west of the Rattlesnake Valley plan area, north of the railroad tracks and the Clark Fork River and east of a line running just west of North Russell Street and extending on a line parallel with North Russell Street to I-90.

Chapter 4 of the Northside/Westside Plan provides an extensive analysis of neighborhood transportation habits and needs, including goals to expand and improve existing sidewalk systems throughout the neighborhoods and to enhance neighborhood boulevards, medians, and street amenities.

5. River Road/Emma Dickenson Infrastructure Plan (2003)

Intended as an implementation tool for the Missoula County Growth Policy and the Reserve Street Area Plan 1995 Update, the River Road/Emma Dickenson Infrastructure Plan analyzed existing conditions, summarized citizen-defined infrastructure needs and provided recommendations for transportation/circulations elements including connectivity and non-motorized facilities.

Adoption of the Plan has helped generate neighborhood support both for development of the area's first city park and completion of the Milwaukee Trail from Russell to Reserve Street. Adoption of the Plan has brought a reduction in the

number of variances from sidewalk requirements in the City Subdivision Regulations resulting in more sidewalks in the neighborhood.

6. Franklin to the Fort Infrastructure Plan (2006)

The Franklin to the Fort Infrastructure Plan focuses primarily on the need for and ways to obtain and pay for specific types of infrastructure identified by neighborhood residents and property owners. Elements related to active transportation addressed by the Plan include sidewalks and curbs; parks and trails; streetlights and traffic (e.g. connectivity, traffic calming pedestrian safety etc.).

An enthusiastic group of neighborhood volunteers aided development of the Plan by gathering residents' opinions and by conducting a detailed sidewalk and curb inventory which became a model for a more extensive inventory conducted in other areas of Missoula. The neighborhood was successful in securing construction of two miles of new sidewalks, a portion of which were funded under the Federal Community Development Block Grant (CDBG) program.

7. Urban Fringe Development Area (UFDA) Project (2008)

The UFDA project was initiated in January of 2008 and has been updated twice, most recently in April of 2010. The purpose UFDA is to:

- Provide governing bodies with information for addressing growth inside the Urban Service Area within a regional context;
- Serve as a forum for government agencies to address concerns and issues related to growth with the eventual goal of a coordination of resources; and
- Open a dialogue with residents of the area regarding growth and the need to accommodate some degree of change within most of the Urban Service Area neighborhoods.
- Data in the MATP will inform future UFDA updates either directly or through the next update of the *Missoula Long Range Transportation Plan* and the Growth Policy.

8. Montana Comprehensive Highway Safety Plan (2006)

One of the stated intentions of the Plan is to "establish specific quantifiable safety-related goals, objectives and performance measures related to all modes of transportation, including highways, transit bicycle and pedestrian and commercial vehicles" (emphasis supplied). [21]

[21] Montana Department of Transportation & Cambridge Systems Inc. *Montana Comprehensive Highway Safety Plan* (2006) p. 9

9. Missoula Transit Development Plan

Prepared and updated annually by Mountain Line, the Transit Development Plan (TDP) is the strategic guide for public transportation in Missoula over the next 5 years and beyond. The TDP is Mountain Line's contribution to the Missoula Transportation Improvement Plan (TIP).

III. Programs and Initiatives Currently Underway

Several agencies and organizations conduct educational programs promoting bicycle and pedestrian safety.

A. Organizations and Programs

A convenient and accessible active transportation system depends not only on bricks-and-mortar infrastructure but also on the programs and organizations that support and encourage active transportation through education, advocacy and provision of services. The Active Transportation Plan Technical Advisory Committee (MATP TAC) discussed ways to improve the education and outreach efforts in our community. Through these discussions the TAC identified 21 programs, resources and other initiatives that currently support Missoula's active transportation system. Chapter 7 addresses 11 potential new programs, resources and initiatives also identified by the MATP TAC.

The ideas identified by the TAC focus on three larger themes:

1. Cyclist awareness and understanding of the rules of the road
2. Driver awareness and etiquette
3. Awareness and accessibility of active transportation facilities

Table 4-1 summarizes existing programs and the areas on which the programs focus.

Table 4-1: Current Programs & Areas of Focus

Agency/Organization	Education/Outreach Activities	Cyclist Awareness and Understanding of the Rules of the Road	Driver Awareness and Etiquette	Awareness and Accessibility of Active Transportation Facilities
Associated Students of the University of Montana-(ASUM)	Provides education about bike-ped safety to students.	◆		◆
Missoula Business Improvement District	Downtown Ambassadors who provide outreach and education about safety for cyclists and pedestrians	◆	◆	
City of Missoula Bicycle/Pedestrian	Provides outreach, education, and promotion	◆		◆

Program	of safe bicycle-pedestrian transportation in the City.			
Bicycle Benefits Program	Rewards individuals and businesses for their commitment to cleaner air and personal health through cycling. Membership bike helmet stickers entitle the holders to discounts currently available at 16 Missoula businesses			◆
Bike Walk Alliance of Missoula (BWAM) `	Promotes cycling and walking for everyday transportation and recreation	◆		◆
City of Missoula Bicycle and Pedestrian Advisory Board	Provides guidance on bike-ped issues for the City of Missoula	◆		◆
City of Missoula Office of Neighborhoods	Provides safety education and outreach on active living at neighborhood level in Missoula			◆
City of Missoula Police Department	Provide traffic safety enforcement for all modes.	◆	◆	
Missoula County Sheriff's Office	Provide bicycle pedestrian safety enforcement.	◆	◆	
City of Missoula Parks and Recreation Department	Provides the community with facilities and programs that further active living			◆
Free Cycles	Provides bicycles as well as safety education for cyclists in Missoula	◆		◆
Missoula Advocates for Sustainable Transportation (MAST)	MAST advocates for transportation projects that emphasize walking, biking and transit through letters, public testimony and encouraging government support for a multimodal transportation system			◆
Missoula In Motion-MIM	Provides outreach and education as well as promotion of alternative modes of transportation in Missoula	◆		◆
Missoula City-County Health Department				◆
Missoula Institute for Sustainable Transportation- MIST	Advocates for sustainable transportation practices and improving safety for	◆		◆

	bicyclists and pedestrians in Missoula			
Missoula Public Schools-Bike and Ped Safety Program	Bike & pedestrian safety curriculum taught by physical education teachers in all MCPS elementary schools, to grades K – 5.	◆		◆
Missoula Office of Planning and Grants Transportation Division	Provides information to the public about plans, documents and agencies that promote active transportation			◆
Missoula Safe Routes to School Program	Provides & advocates for facilities that improve safety for school-bound students.	◆		◆
Montana Disability and Health Program	Develops services to prevent secondary conditions and promote the health of people with disabilities.			◆
Montana State Bike Pedestrian Coordinator	Responsible for addressing non-motorized transportation considerations statewide			◆
St. Patrick Hospital Bike Helmet Program	Provides bike helmets at low cost through the hospital's injury prevention/trauma program.	◆		

1. Cyclist Awareness and Understanding of the Rules of the Road

a) Ambassador Programs

The **City of Missoula Bicycle/Pedestrian (Bike/Ped) Program** is part of the City of Missoula Public Works Department. The office provides outreach, education, and promotion of safe bicycle and pedestrian travel in the City. The office's Bicycling Ambassador Program places two individuals on the streets from mid-May to mid-September who talk with cyclists and motorists about sharing the roadways safely. They reinforce correct bicycle behavior in traffic and seek to educate those riding dangerously, illegally, or irresponsibly. The ambassadors encourage people to use bicycles more often, and help motorists understand how to share the road with bicyclists. They work with all ages, focusing on cyclists whose behavior creates risks to themselves or others.

The **Associated Students of the University of Montana (ASUM) Office of Transportation** provides education to students about bike-and pedestrian safety.

The ASUM Office of Transportation has a Bike Ambassador program to encourage safe cycling behavior.

The **Missoula Business Improvement District** employs Downtown Ambassadors year round to serve the businesses, employees, and patrons of Downtown with hospitality services for Downtown guests and help the Missoula Police Department with crime prevention. The ambassadors also provide outreach and education about safety for cyclists and pedestrians in the downtown area.

b) Advocacy Groups

The **Missoula Institute for Sustainable Transportation** (MIST) is a citizen-based non-profit organization that works mainly on local and regional transportation issues. MIST advocates for sustainable transportation practices with an emphasis on safety for bicyclists and pedestrians in Missoula.

Bike/Walk Alliance for Missoula (BWAM) is a non-profit, member-driven organization created to improve the safety, health and enjoyment of the Five Valley area by promoting and enhancing bicycling and walking for everyday transportation and recreation. In particular, BWAM supports:

- Allocation of a fair share of financial and other public resources to enhance the active transportation environment of Missoula
- Creation of streets throughout Missoula that include safe, comfortable and well-designed components for biking and walking
- Development of complete biking and walking networks using trails and roads to seamlessly connect every part of Missoula
- Building and maintenance of world-class facilities, including bike parking and boulevards, sidewalks, and traffic calming devices

c) Enforcement

The **City of Missoula Police Department** enforces traffic safety laws as they apply to motorists, cyclists and pedestrians. The Traffic Unit of the Patrol Division has primary responsibility for cyclist and pedestrian traffic enforcement. Primary enforcement actions involving cyclists include no bike light at night, stop sign violations and red light violations. Although traffic officers tend to be fairly aggressive in enforcing them, the Department reports that bicycle violations are a small portion of its enforcement actions.

The Police Department also conducts pedestrian crossing enforcement actions during the high pedestrian traffic times and warmer weather, but again they are not a significant portion of overall citations. Officers issue citations to both pedestrians and drivers to insure that pedestrians are crossing legally and drivers are yielding legally.

The **Missoula County Sheriff's Office** makes enforcement of traffic safety laws a general duty of all sheriff's deputies. Due to size and budget constraints, the department does not have a specific line item for traffic enforcement activities, but instead considers them "other duties as assigned."

d) Neighborhood and School Outreach

The **Missoula County Public School (MCPS)** Bike and Pedestrian Safety Program is a safety curriculum taught to students in grades kindergarten through fifth grade in the physical education units in all MCPS elementary schools.

The **City of Missoula Office of Neighborhoods** provides safety education and outreach on active living at the neighborhood level in Missoula.

Safe Routes to School (SRTS): This national program offers a means of reducing traffic congestion, increasing physical activity and encouraging community involvement in achieving safer walking/biking routes to schools. Seven Missoula elementary schools currently encourage their students to walk safely to school, a long-term effort recently supported by the Federal initiative. The City's Bicycle and Pedestrian Program coordinates these SRTS activities. The program establishes two distinct types of funding opportunities: infrastructure projects (engineering improvements) and non-infrastructure related activities (such as education, enforcement and encouragement programs). The City of Missoula has scheduled $201,842 in infrastructure funding and $143,700 in non-infrastructure funding during federal fiscal years 2008 through 2011 for a total of $345,542.

e) Government Boards and Agencies

The **Missoula Bicycle- Pedestrian Advisory Board** Provides guidance to City Council and the Mayor on bike-ped issues for the City of Missoula.

Missoula In Motion

Missoula In Motion Provides copies of City and State ordinances for bicycling in Missoula and promotes the use of helmets and lights for safe cycling in Missoula.

2. Driver Awareness and Etiquette

As noted above in subsection 2, the **Missoula Police Department** and the **County Sheriff's Office** are the primary public agencies that promote driver awareness and etiquette relative to cyclists and pedestrians.

3. Awareness and Accessibility of Active Transportation Facilities

a) Associated Students of the University Of Montana (ASUM)

The ASUM Office of Transportation operates a bus system with service between the campus and off-campus park and ride lots and connections with Mountain Line routes. Subsection 1 above describes ASUM's activities that promote cyclist awareness and understanding of the rules of the road.

b) City of Missoula Bicycle/Pedestrian Program

In addition to the Bicycling Ambassadors described in subsection 1, the program publishes maps of bike lane and route system in Missoula [See subsection 1 above]

c) Missoula Bicycle- Pedestrian Advisory Board

The Missoula Bicycle- Pedestrian Advisory Board Provides guidance on bike-ped issues for the City of Missoula. The MBPAB makes recommendations on capital improvement projects, transportation improvement plans, bicycle and pedestrian programs and other city programs and projects related to bicycling and walking in Missoula.

d) State Bike Pedestrian Coordinator

The Montana Department of Transportation's State Bike Pedestrian Coordinator is responsible for addressing non-motorized transportation considerations statewide. The coordinator provides technical assistance to state and local governmental agencies regarding justification, agreements and design standards for non-motorized infrastructure.

e) Safe Routes to School (SRTS)

Safe Routes to School (SRTS) is a Federal program that helps provide schools in Missoula with facilities that improve safety for school-bound students. Currently seven elementary schools participate in the program.

f) Missoula Public Schools-Bike and Ped Safety Program

The Missoula Public Schools-Bike and Ped Safety Program provides bike and pedestrian safety curriculum taught by physical education teachers in all district elementary schools to grades K through 5.

g) Bicycle Benefits Program

This program rewards individuals and businesses for their commitment to cleaner air and personal health through cycling. Membership bike helmet stickers entitle the holders to discounts currently available at 16 Missoula businesses.

h) City of Missoula Office of Neighborhoods

See subsection 1 above

i) The City of Missoula Parks and Recreation Department

The Parks Department provides the community with facilities and programs that further active living. The department coordinates the planning, construction and maintenance of the city's off-road trail system including the Bicycle Commuter Network and other trails within city parks.

j) Free Cycles

Operated by MIST, the Free Cycles Community Bicycle Program provides bicycles as well as safety education for cyclists in Missoula. Free Cycles employees teach individuals how to build their own bicycles, which they may keep free of charge when completed. Free Cycles also includes safety education for people who build bikes under the program and for cyclists throughout Missoula.

k) Missoula City-County Health Department

The Missoula City-County Health Department provides information to the public about programs and agencies that promote active living.

l) Missoula In Motion

Missoula In Motion maintains programs that encourage people to consider alternatives to driving alone. MIM sponsors the Way To Go Club, which promotes active transportation options by offering incentives for people to commute by means other than driving alone. MIM's Momentum program encourages active transportation choices for businesses and their employees.

m) Missoula Office of Planning and Grants Transportation Division

The Missoula Office of Planning and Grants Transportation Division provides information to the public about plans, documents and agencies that promote active transportation.

IV. Construction and Maintenance of Facilities

The City of Missoula and Missoula County have departments which provide for the construction and maintenance of physical facilities. The personnel, equipment, and other resources of these departments build many sidewalks, trails and other needed facilities. These departments include:

A. Montana Department of Transportation

MDT is responsible for construction and maintenance along state roadway facilities within the MPO as well as providing the funding for various local projects.

B. Missoula City Public Works Department

The department encourages, supports, and provides sidewalks and bicycle lanes on existing city streets, and on collector and arterial streets in new subdivisions.

C. Missoula County Public Works Department

The department oversees compliance with subdivision requirements for active transportation facilities in subdivisions in un-incorporated areas of Missoula County.

D. Missoula Bicycle Pedestrian Office

The office promotes development of safe bike and pedestrian facilities in the City in both new subdivisions and on existing streets, and provides bike racks.

E. Missoula City Parks and Recreation Department

The department manages development of the off-street trail system.

F. Missoula Redevelopment Agency (MRA)

The urban renewal agency of the City of Missoula, the MRA is responsible for administering various urban renewal districts in the City. The MRA sponsors projects and receives disburses tax increment funds generated by properties within the districts.

V. Policies And Institutional Framework

A. Land Development Guidelines

Some planning documents such as Missoula Downtown Streets Program and the Missoula Greater Downtown Master Plan contain guidelines for different infrastructure elements such as streets, sidewalks, streetscape elements, lighting and bike lanes, parking and sidewalks. Plans such as the River Road/Emma Dickinson Infrastructure Plan strongly recommend development patterns that discourage cul-de-sacs and dead end streets and encourage connectivity between adjacent developments.

B. Local Ordinances, Resolutions and Policies:

1. City and County Zoning and Subdivision Regulations

These regulations establish the legal requirements for installation of transportation infrastructure as part of new development. The regulations specify the location, type and dimensions of streets, sidewalks, boulevards, trails and bike lanes.

2. Complete Streets Resolution

The City of Missoula adopted a Complete Streets Resolution in 2009. Part of a national initiative, Complete Streets policies formalize a community's intent to plan, design, and maintain streets so they are safe for all users of all ages, abilities, and travel modes. Policies direct transportation planners and engineers to consistently design and construct the right-of-way to accommodate all anticipated users, including pedestrians, bicyclists, public transportation users, motorists, and freight vehicles. In chapter 8 the MATP recommends additional support for complete streets as an action item for the City and County.

3. TDM Congress Follow-up Draft Recommendations (2003)

Attendees at the event broke into small groups and considered ways to improve planning and development of transportation systems in Missoula. The draft recommendations were:

- Fully implement TDM strategies in the planning and project prioritization process
- Use all available techniques to complete the sidewalk system within the City limits by 2013
- Complete the bike lane system by 2010
- Provide a "schedule-free" transit system by 2006
- Develop and implement an information campaign utilizing all public media to disseminate information and raise awareness about transportation issues
- Implement land-use planning in a manner that minimizes VMT increases
- When reviewing projects and developments, mitigate impact on existing transportation system
- Adopt a "Fix it First" policy
- Create regional transportation and planning management body

C. Staffing and Committees Assigned to Active Transportation

The Missoula Office of Planning and Grants (OPG) Transportation Division staff reviews subdivisions and re-zoning applications to ensure compliance with transportation infrastructure requirements, including bicycle and pedestrian facilities. Transportation staff also tracks funding opportunities for active transportation infrastructure such as 2009 Transportation Investment Generating Economic Recovery (TIGER) grant program.

The City of Missoula's Bicycle/Pedestrian Program provides full-time staffing to carry out the program's mission to encourage and increase safe and responsible use of non-motorized transportation in Missoula. The office staff works to ensure that public works projects, subdivisions and other developments follow policies and plans to encourage and enhance safe active transportation.

D. Interagency Partnerships:

City, county, regional and state agencies frequently team up to implement projects whose size, cost and complexity exceed the resources of a single agency. Recent examples include:

Higgins Avenue/Hill Street/Beckwith Avenue Roundabout: (City of Missoula, MDT and Federal American Recovery and Reinvestment Act (ARRA) funding)

Lower and Upper Miller Creek Roads: Completion of roadway operational improvement projects (City of Missoula, MDT and Western Federal Lands Public Highways Division funding).

Arthur Avenue Reconstruction Improvements: City of Missoula, MDT, and The University of Montana, with total funding through a Special Improvement District with the University as the only property owner in the district.

E. Public / Private Partnerships:

One example of a public/private partnership beneficial for development of active transportation infrastructure is the Missoula Greater Downtown Master Plan. This plan was a cooperative effort between the Missoula Redevelopment Agency, a part of the City of Missoula, the Missoula Parking Commission and the Missoula Downtown Association, an organization of downtown businesses, and the Business Improvement District (BID). Public agencies also frequently contract private consulting firms to conduct studies, prepare plans and manage projects in order to reduce costs and take advantage of expertise often available from private firms with specialized experience.

F. Local Clubs and Organizations

A variety of local organizations encourage and advocate for biking and walking. The following are examples of such organizations:

Adventure Cycling Association: Adventure Cycling's nonprofit mission is to inspire people of all ages to travel by bicycle for fitness, fun, and self-discovery. Founded in 1974 as Bikecentennial, Adventure Cycling is the premier bicycle travel organization in North America with 44,500 members nationwide.

Bike Clubs:

Missoulians on Bicycles (MOBI) is a nonprofit organization established to promote cycling in western Montana. http://www.missoulabike.org/

The **Dirt Girls** are a group of women in the Missoula area that get together each Tuesday evening during Daylight Savings Time to mountain bike & hike.http://mtdirtgirls.tripod.com/index.html

The **El Diablo Mountain Bike Club** is a group of Missoula mountain bikers who meet each Thursday night weather and light permitting.
http://www.facebook.com/group.php?gid=112438728795090

The **Northern Rockies Cycling Team** is a is a USCF bike racing club based in Missoula that competes in Montana and select out of state races.
http://nrocycling.blogspot.com/

Mall Walkers: MallWalker.com™ is the unofficial guide to U.S. shopping malls. The site offers coupons for participating shops in Southgate Mall as well as other locations
nationwide. http://www.mallwalkers.com/

Stroller Striders: Stroller Strides is a total fitness program that new mothers can do with their babies, including power walking and intervals of body toning taught by specially trained instructors. http://www.strollerstrides.com/faqs.php

Chapter 5: Design Strategies for Enhancing Missoula's Active Transportation System

To achieve the vision of a safe and convenient active transportation system, this chapter uses data gathered from surveys, traffic counts, and extensive community input. From the information gained through those processes, a picture emerges of Missoula's active transportation wants, needs, and opportunities, both long- and short-term. This chapter:

- Identifies Missoula's major active transportation corridors
- Discusses opportunities for future sidewalk, bikeway, trail, and transit interface improvements
- Identifies areas of special focus, including:
- The interface between bike and pedestrian infrastructure and transit

I. Active Transportation Corridors

A. Activity generators and attractors

Missoulians walk and bike throughout the community, but particular locations and areas generate or attract large numbers of non-motorized travelers. Planners often refer to the origin and destination of a trip. A trip might begin at home and end at the grocery store or a place of work. When we understand where most trips begin (the generators) and end (the attractors), then we can predict which routes travelers tend to use and anticipate current and future demand for transportation facilities.

From information gathered through the May and September 2010 bike and pedestrian traffic counts, a set of active transportation generators and attractors emerged. While activity generators and attractors can sometimes overlap, generators most often are residential areas, places of work or the University.

Attractors are more diverse:

- University of Montana
- Downtown
- K-12 Schools
- Hospitals
- City, county and regional parks
- Trailheads (Waterworks, Grant Creek, Rattlesnake, "M," etc.)
- Fairgrounds
- Southgate Mall
- North Reserve Retail Area

Please refer to Maps 5.1 through 5.4. This series of maps illustrate active transportation origin and destination points for trips within Missoula. Information for these maps was gathered during the 2010 May and September bike and pedestrian traffic counts. The data is broken out by mode and differentiated between weekday and weekend.

B. Primary use and future corridors of travel

Information gathered through the MATP public process and the intercept surveys in broad strokes informs us that cyclists and pedestrians are traveling between residential areas, Downtown, the University, North Reserve, and the Brooks Street Corridor. Routes are predominately along roads that have a painted bike lane, existing sidewalk, or the network of commuter trails. Notable exceptions to the trend of people using routes with existing infrastructure include travel to and from portions of Target Range, the Rattlesnake Valley, and along West Broadway.

Missoula community members identified their most traveled non-motorized routes as well as perceived hazardous hot-spots and corridors that act as barriers to bicycle and pedestrian traffic. Much of the identified non-motorized traffic occurs east of Russell Street and is heavily concentrated around Downtown, the University district, and the Higgins Avenue corridor.

Please refer to Map 5.6 which includes feedback gathered during the January 2010 community workshop.

The Missoula County Growth Policy's Urban Fringe Development Area (UFDA) Plan identifies those portions of Missoula's urban area where future residential growth is best suited to occur. Considering these areas of future residential growth in conjunction with present day trip patterns help to identify future corridors of travel and prioritize new active transportation projects where inadequate or no infrastructure exists to support future need. The prioritized projects in **Chapter 6** were ranked, in part, based on the amount of growth planned for each part of the region, based on UFDA.

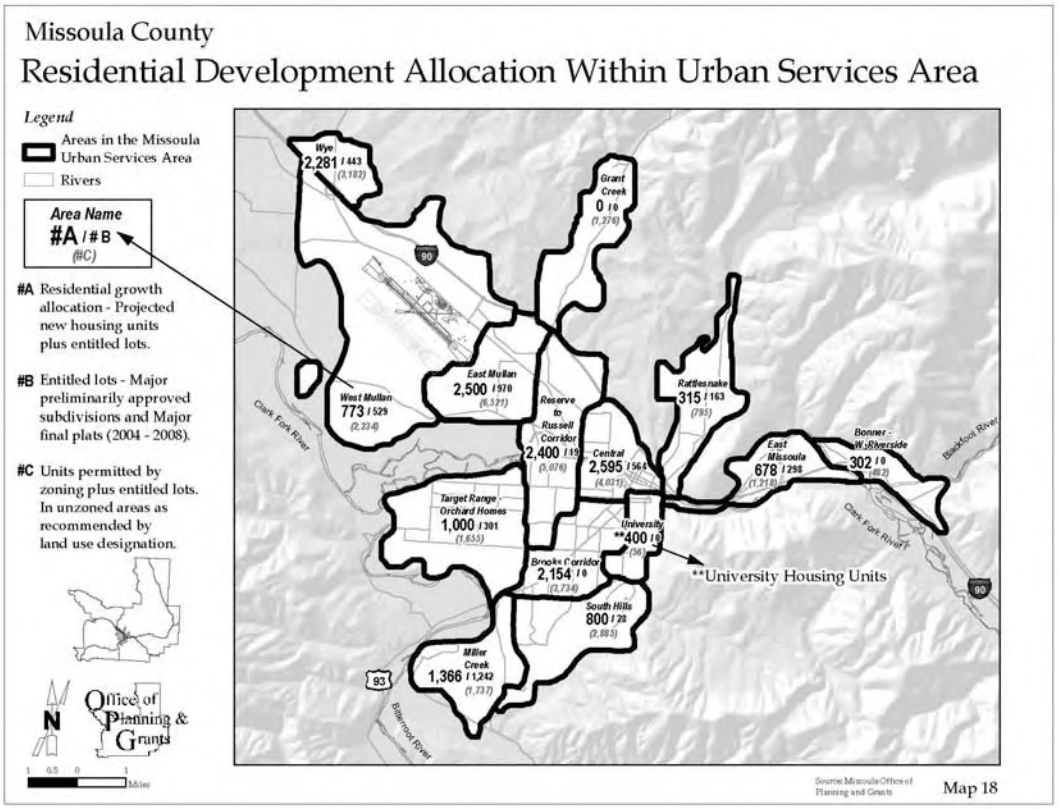


Figure 5-1: Map of UFDA Residential Development Allocations

Active transportation infrastructure supports the UFDA residential development allocation and the preferred scenario from the 2008 Envision Missoula process by providing multiple transportation options for those living in a denser central Missoula. The same concept can be applied to other communities in the MPO area, including East Missoula, Bonner/Milltown and Lolo. Having the option to walk, bike, or take transit to a destination instead of driving can significantly reduce a household's transportation costs, which have become the second largest expenditure for most households after direct housing costs.[22] Safe, convenient, and connected active transportation infrastructure makes denser land use a more attractive option and will help Missoula fulfill the UFDA land use goals.

Please reference Map 5.5, which identifies existing non-motorized travel corridors and suggests future on or off-street corridors based on anticipated area of growth in UFDA.

[22] http://www.completestreets.org/webdocs/factsheets/cs-individuals.pdf, http://www.htaindex.org/

II. The On-Street System

A. Sidewalks

Everyone is a pedestrian for some part of his or her trip, even if the majority of that trip is made by car or bus. Walking is the great common denominator for humans, and the basis of any community's transportation system is its sidewalks. The United Kingdom's Manual for Streets suggests considering the transportation system's design according to a user hierarchy:

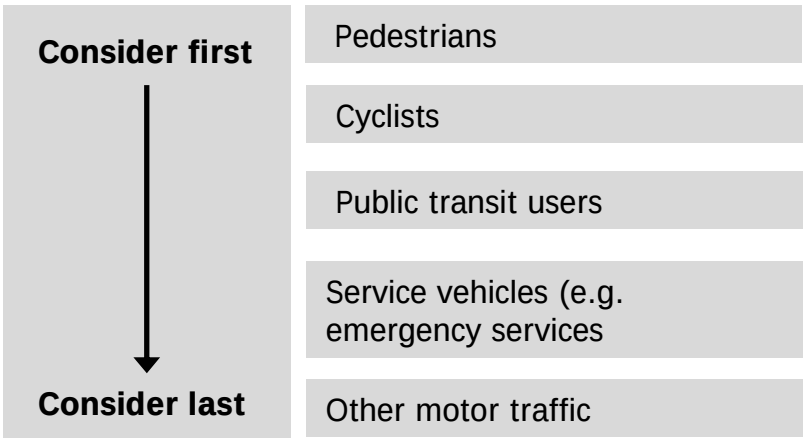


Figure 5-2: User Service Hierarchy, per the United Kingdom's *Manual for Streets*

The user hierarchy does not state that it is always more important to provide for pedestrians over other modes, but it does suggest that they at least be considered first in order to assure that the facility will serve all users in a balanced way. It is at the least unpleasant, and at the worst, unsafe for pedestrians to use a street designed solely for cars, trucks, and buses, or where pedestrian facilities were considered secondarily in the design process.

As discussed in Chapter 3, Missoula's existing sidewalk system is similar to many cities founded before the advent of the car that have grown and developed through the present day. Neighborhoods that developed prior to the dominant car culture (mid 20th-century) mostly have a complete sidewalk grid. Conversly, Missoula neighborhoods that developed during the mid- to late-20th century in what was then the County and considered rural still lack complete sidewalk networks today. Community feedback indicates that completing the neighborhood sidewalk network in Missoula is one of the highest priorities for our non-motorized transportation system (See Chapters 6 and the Public Involvement Report, Appendix E).

This sub-section will discuss both new sidewalk construction and retrofits, addressing design and policy solutions to completing and improving Missoula's sidewalks. Solutions are identified as being either short or long term opportunities.

1. New Construction

Since the early 1990s, the City of Missoula and Missoula County have required that roadway construction that accompanies new residential and commercial development include bike and pedestrian facilities of some type—either a sidewalk and on-street bike facilities or a parallel multi-use path.[23] While the requirements for providing active transportation infrastructure are central to fulfilling the vision of a community where a pedestrian can reach any destination, there are also design best practices that should be implemented to make travel on sidewalks a safe, convenient, and pleasant experience.

a) Roadways—Design Best Practices

Employ Context Sensitive Solutions (CSS) to roadway design. Roadways have a mobility function and a place function. Context sensitive roadways fit their physical setting and preserve scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility.[24] Context sensitive solutions require planners to think beyond the road's functional classification and consider its land use context and circulation needs, loosely categorized as "thoroughfare types" in Figure 5-3 below. For instance, a street in downtown Missoula (the urban core) might be classified as a collector, but in considering the surrounding densities and circulation needs of multiple modes, CSS might identify that road as an avenue.

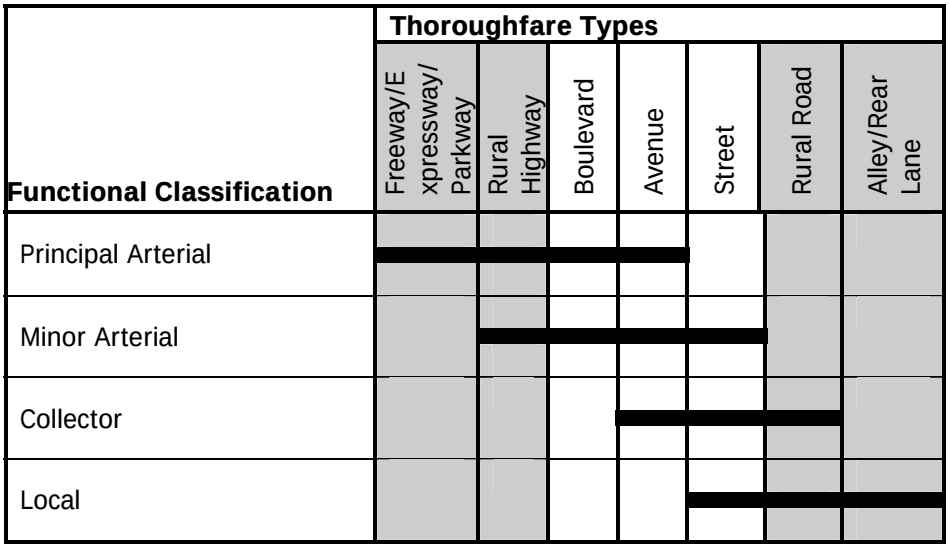


Figure 5-3: The relationship between functional classification and thoroughfare type. [25]

[23] ftp://www.co.missoula.mt.us/opgftp/Documents/CurrentRegulations/CitySubRegs/Subdivision_Regulations_Adopted062810.pdf p. 3-4. and ftp://www.co.missoula.mt.us/opgftp/Documents/CurrentRegulations/CoSub/Article3.pdf p. 15

[24] Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist." -- *Federal Highway Administration (FHWA)*

[25] Institute of Transportation Engineers' Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities http://www.ite.org/css/FactSheet4.pdf

While its functional classification as a collector gives us information about anticipated traffic volumes and levels of service, identifying the street as an avenue suggests the number of lanes, design and functional speeds, as well as the characteristics of the pedestrian environment. For example, an avenue's pedestrian environment would be between twelve and sixteen feet wide and would include space for shop frontage, the throughway, street furnishings, lighting and a defined edge area.

Different roadway designs have already been utilized in Missoula based on the context of given locations and the mix of use that surrounds the corridor. Within the CBD, North Higgins was reconfigured to give more space to non-motorized travel in recognition of the street's heavy use by pedestrians and cyclists. Stephens Ave. was reconstructed to complete streets standards with a center median, turn lanes and intersection bulb-outs, all of which helped to increase safety along the corridor while improving capacity and efficiency.

Figure 5-4: Rendering of North Higgins from the 2005 Missoula Downtown Streets Plan, an example of a context sensitive street design and an inviting pedestrian environment.

Recommended Policy: (CSS) can be employed and its use documented during the design phase of all road projects. CSS must include consideration of pedestrian and cyclist environments and the impacts of the various materials used.

Opportunity Type*:* Use of CSS in street design is a long-term opportunity during design, and construction, or reconstruction of a corridor because the planning, design, and implementation process can take several years. The 2010 North Higgins Streetscape project and the 2005 Missoula Downtown Streets Project in which it was originally conceived illustrate the use of context sensitive design in Missoula.

Create Inviting Pedestrian Environments using street trees and other sidewalk amenities. Street trees and boulevards provide green space that helps separate

pedestrian and auto traffic, provide welcome shade on warm, sunny days and create a sense of place. Street trees and boulevard strips also reduce the urban heat island effect created by extensive concrete and paved surfaces typically found in urban areas. Amenities such as benches, trash cans, drinking fountains and lighting help make sidewalks more inviting for pedestrians to use.

Figure 5-5: An unsafe and unwelcoming street for pedestrians

Figure 5-6: A welcoming street environment in Charlottesville, Virginia

Recommended Policy: Amenities that improve the pedestrian environment and experience along a street should be incorporated into all future street projects based on CSS and the user hierarchy.

Opportunity Type*:* This is typically a longer term opportunity as existing roads are retrofitted or reconstructed, although having projects designed and ready to "pull off the shelf" when funding becomes available can mean that streetscape projects are implemented in a shorter time frame.

Consider Short and Long-Term Environmental Impacts

New construction should consider alternatives to cement for surfacing sidewalks, including pervious concrete, pervious pavers or brick, which allow natural filtration of stormwater through percolation into the soil instead of letting road oils, chemicals and other pollutants enter the surface water system from storm drains. This is particularly important in areas adjacent to rivers and streams. Tree wells, boulevard strips, and vegetated swells can also function as green infrastructure and perform filtration functions for runoff from sidewalks and roadways.[26]

Figure 5-7: A pervious concrete sidewalk

Figure 5-8: A vegetated swale filters stormwater runoff from a parking lot

[26] For more information on green infrastructure, see http://www.gicinc.org/resourcesonlinelit.htm

Pavers, bricks, or similar materials may impede or preclude travel by rollerblades, skateboards, wheelchairs or assistive devices like walkers, so their use should be considered in context of compliance with the Americans with Disabilities Act (ADA) and the type of expected use.

Recommended Policy: Permeable cement and paving should be tested in pilot projects in order to study the feasibility of the use of permeable materials in all new sidewalks and trails projects.

Opportunity Type*:* This is a short to mid-term opportunity to be addressed as new sidewalks are constructed or existing sidewalks in disrepair are improved.

Intersections

Consider All Intersection Design Options

Planners and engineers should consider alternatives to signalized intersections as part of the hierarchy of considering pedestrians first. The New York State Department of Transportation has made it policy to consider a roundabout design first when constructing or reconstructing an intersection.[27] In the context of certain land uses and traffic volumes, single lane roundabouts can improve pedestrian safety by lowering vehicle speeds. However, pedestrian crosswalks must be properly sited and signed at intersections to assure that the free-flowing nature of a roundabout does not become a pedestrian hazard. In higher volume situations where a collector and arterial intersect, as with the intersection of Russell and South 3rd Street, a signalized intersection with a pedestrian crossing phase can, in fact, be safer for pedestrians by giving them a clear and defined opportunity to cross.

Roundabouts can be of particular concern to pedestrians with low or no vision. Blind pedestrians traveling alone with the aid of a white cane rely on audible cues to indicate when it is safe to cross an intersection. These audible cues are extremely difficult to detect at a free-flowing intersection like a roundabout. User actuated pedestrian signals should be considered in roundabout design and are required in instances of double lane roundabouts.[28]

The Missoula Specialized Transportation Advisory Committee (STAC) takes the following position on roundabouts and other intersection improvements:

"The STAC recognizes the important role that safe, functional, and accessible pedestrian facilities play in overall mobility and community participation for people with disabilities and seniors. The STAC will monitor improvements to or expansions of Missoula's street and trail systems and advocate that any proposed changes,

[27] https://www.nysdot.gov/divisions/engineering/design/dqab/hdm/hdm-repository/chapt_05.pdf
[28] *Public Right of Way Accessibility Guidelines*, United States Access Board

including roundabouts or other intersection improvements, provide the greatest level of safety, functionality and accessibility for all members of the community."

In addition to review by the STAC, according to the Federal Americans with Disabilities Act (ADA), all future roundabouts must make all reasonable accommodations for those with limited mobility due to a disability.[29]

Recommended Policy: Employ user hierarchy and CSS when designing intersections. Options researched should be documented and safety for each user type should be addressed. Roundabouts should be considered first, but may not be the safest solution for all locations. This consideration should be required of all intersection projects including those overseen by MDT.

Opportunity Type: Short to mid-term. Intersections are improved fairly frequently and a roundabout or traffic circle can always be considered as a context sensitive solution.

2. Upgrades and Retrofits

The City of Missoula and Missoula County add and upgrade active transportation facilities along existing routes each year. Whether re-striping bike lanes with longer-lasting epoxy paint, installing ADA-compliant curb ramps, or constructing a shared pathway parallel to a rural arterial, upgrading transportation facilities that were constructed prior to our current requirements for pedestrian and bike accommodations comprise a significant portion of local and state agency work programs. Upgrades and retrofits present opportunities to implement current best practices, but these opportunities can sometimes be challenging to achieve due to existing limited rights of way and parking and land use patterns.

a) Roadways

New Street Design Concepts—Home Zones

Neighborhood streets can be retrofitted to create environments where pedestrians and cyclists are the primary users and cars have a minimal presence. Known in The Netherlands as woonerfs (living streets) and home zones in the United Kingdom, these streets can employ a combination of very low speeds (7 mph), traffic calming installations, signage, and education to create a shared space for pedestrians, cyclists and vehicles. Typically no or limited on-street parking is allowed and a "shared surface" replaces the more typical curb and sidewalk configuration that physically separates vehicles from pedestrians. The street becomes a shared space where children can play and adults can congregate.

[29] http://www.access-board.gov/ada-aba/ada-standards-dot.cfm#a401

Figure 5-9: A residential home zone

This type of local street design is permitted within the City of Missoula and Missoula County, but typically a neighborhood or private developer would originate the concept and approach the City or County for approval and support to change the street's configuration. A home street retrofit would work best on a neighborhood street with already low traffic volumes, although some U.S. communities have created successful commercial woonerfs.

Figure 5-10: Home Zone Signage
Figure 5-11: A Commercial/Mixed Use Woonerf

Recommended Policy: Criteria should be developed for identifying appropriate locations where Home Zones or Woonerfs can be implemented and successful.

Opportunity Type: Home zones represent a long-term opportunity whose implementation requires consensus among stakeholders such as affected property

owners/residents, emergency service providers, utilities, and all responsible public agencies.

Complete Streets Upgrades: See sub-section 3) Policy Recommendations. The recommendations for context sensitive solutions, creating inviting pedestrian environments and considering short and long-term effects to the natural environment apply equally to new construction and retrofits of existing infrastructure.

New Street Design Concepts—Lane Conversions

Missoula has already completed two pilot projects where the number of driving lanes were reduced in order to create a safer and more accessible environment for pedestrians and cyclists. These projects included lane reductions on West Broadway between Orange and Toole and on Higgins between the XXX's and Broadway. Federal Highways Administration research has shown that in smaller urban areas, "road diets" have significantly reduced the number of crashes on road sections where four driving lanes were converted to two with a center turn lane and a bike lane.[30] Road diets improve pedestrian and cyclist safety by reducing vehicle speeds, reducing the distance and number of lanes to cross at intersections, and improving crossing visibility for both drivers and pedestrians and cyclists.

Projects where lane widths were reduced to make room for a center turn lane and bicycle lanes generally reduced all crash incidents by 24 to 53 percent. Such projects are also beneficial to drivers of motor vehicles through a reduction in the number of automobile crashes.

Figure 5-12: Before Road Diet Conversion

[30] "Evaluation of Lane Reduction "Road Diet" Measures on Crashes" FHWA-HRT-10-053 HRDS-06/06-10(1M)E

Figure 5-13: Road Diet in place

Recommended Policy: Previously implemented lane conversion projects should undergo additional data collection and analysis to better understand their local impacts. Additionally, create criteria for identifying roadways that may benefit from conversion of existing lanes to a different configuration.

***Opportunity Type*:** Mid- to long-term. A lane conversion affects all modes and can sometimes cause a "spillover effect" onto adjacent roadways. Consideration of additional lane conversions in Missoula will require additional analysis and modeling of the whole transportation system, as well as more extensive community engagement over proposed changes.

New Street Design Concepts—Shared Space

The concept of shared space design aims to integrate and facilitate – rather than separate – human activity in public. Shared space endeavors to increase safety and economic vitality by encouraging interactivity. In the realm of public streets, this design philosophy removes conventional traffic control devices such as traffic lights, curbs, signs, and the general idea of segregation of travel modes. Instead, separation is replaced with a design and layout where the public space is in balance with multiple functions. Traffic thus becomes dominated by human behavior and interactions rather than artificial traffic regulations, which results in slower vehicle speeds, socially responsible behavior, and encourages local economic activity.

Figure 5-14: An example of shared space design

Recommended Policy: Identify locations where shared space can be implemented and conduct planning for a future pilot project.

Opportunity Type*:* Any implementation of shared space in Missoula is a long-term opportunity. Downtown Missoula and other highly walkable areas that already exhibit heavy foot traffic would present the most logical opportunities for the application of shared space design. Any implementation of Shared Space would require a large amount of community engagement and educational outreach to be undertaken to ensure that any Shared Space areas would be implemented successfully.

b) Bridges

Ensure all bridges within the MPO include non-motorized access

Bridges are pinch points in a transportation system whether they cross water bodies, railroads or other streets. Missoula has a number of non-motorized bridges across the Clark Fork in Downtown, but in other areas of the City and in outlying areas, pedestrians share the bridge with cyclists and vehicles, as with McClay Bridge. The feeling of exposure when crossing a bridge on foot makes it especially important to create secure, well-lit and pleasant facilities for pedestrians during the design process. These accommodations can be readily seen in the designs for a new Russell Street bridge in Missoula.

Recommended Policy: Design pedestrian and bicycle access into new and upgraded bridges.

***Opportunity Type**:* This is a long-term opportunity since bridges are maintained by multiple jurisdictions and have long time-lines for reconstruction or replacement. With few exceptions (e.g., interstate freeway bridges) sidewalks and bike lanes should be included whenever space permits on new or retrofitted bridges.

c) Intersection Improvements

Safer Pedestrian Crossings

Intersections can be major barriers to pedestrian travel due a combination of several factors, including:

- Vehicle speeds
- Vehicle volumes
- Distance to cross
- Vehicle turning movements

The majority of pedestrian crashes (56.6%) and fatalities in Missoula have occurred at intersections. Of these crashes, a majority have occurred on roadways with average daily volumes above 9,500 and intersections where pedestrians have an extended distance to cross.[31] The majority of fatalities have occurred on roadways with volumes above 17,000 average daily vehicles and speed limits in excess of 35 mph. While intersection design and reconstruction should employ context sensitive solutions as discussed in the on-street section previously; planners, engineers, and decision makers alike should recall the British user service hierarchy from the Manual for Streets (see Figure 1). Pedestrians are always the most vulnerable users of an intersection, especially those users with limited mobility, children, and the elderly. Pedestrians are most at risk of being struck by turning vehicles, especially on left turns, when drivers have more difficulty seeing them from a great distance away. Permissive right turn lanes can also pose a hazard to pedestrians.

Possible Solutions

Vehicle speed is the most important determinant of whether a pedestrian or cyclist is likely to survive a collision with a moving vehicle. One solution to the issue of intersection safety would be lowering the citywide speed limit to 25 miles per hour and 15 miles per hour in neighborhoods, near schools, and in the heart of downtown Missoula. Denmark successfully introduced lower urban speed limits throughout the country in 1985. The lower speed limits resulted in a measurable reduction in average vehicle speed by approximately two mph with an associated drop in pedestrian fatalities by 31 percent and serious injuries by four percent.[32]

[31] Montana Department of Transportation 2005-20010 crash data

[32] Jensen, S.U. DUMAS: Safety of pedestrians and two-wheelers. Note No. 51, 68 pp.
Road Directorate, Division of Road Safety and Environment, Niels Juels Gade 13, P.O. Box 1569, DK-1020 Copenhagen K, Denmark, March 1998.

Lowering speed limits alone not the most effective solution in reaching the desired outcome of reducing pedestrian injuries and fatalities. The addition of several design solutions coupled with lower speeds limits would likely produce the best results. Narrower travel lanes have been shown to reduce vehicle speeds in certain situations and work best when paired with traffic calming devices or on-street parking.[33]

Recommended Policy: Lower speed limits to 25 mph and 15 mph along specific roadways as stated, reduce standard drive lane widths, employ traffic calming devices, use on-street parking, raise pedestrian visibility, include ped-actuated crossing signals, and reduce turning radii to make crossing safer for active users

Opportunity Type: This is a long term opportunity and can be complicated based on corridor jurisdiction. Lowering speed limits may require specialized speed studies and possibly involve multiple jurisdictions including the City, County, MPO, and the MDT. The City or County can initiate the process by sending a letter to MDT requesting a speed study to justify lower speed limits. Additional design measures would need to be funded and coordinated with the public works departments and traffic engineering. Such a reduction in posted speed would also initially require an increased level of traffic enforcement as well.

Intersection configurations that reduce the crossing distances and raise pedestrian visibility, including bulb outs and pedestrian refuges, can improve intersection safety where appropriate. The Institute for Transportation Engineers recommends a variety of design solutions for raising pedestrian visibility to drivers, including moving the vehicle stop line further back from the crosswalk and installing in-ground flashing lights at cross walks, which are especially helpful at night. In-ground lights can pose a challenge in cold climates like Missoula as snow plows scrape over them.

Most signalized intersections in Missoula are already outfitted with either a pedestrian-actuated or automatic crossing signal. However, many intersections in high volume pedestrian areas could be further improved with an automatic walk phase, or even a pedestrian-only phase where no vehicular traffic moves, allowing pedestrians to cross in any direction. Another option being piloted in San Francisco is a bike and pedestrian-only phase and an additional phase exclusively for left-turning vehicles to separate the two.

[33] Parsons Transportation Group, *Relationship Between Lane Widths and Speed*. Sept 2003.

Figure 5-15: A bike and pedestrian-only signal

Finally, one context sensitive design solution for intersections is **reducing turning radii**. This both slows vehicular traffic and increases pedestrian visibility to drivers. Reducing turning radii should be carefully considered in order for emergency vehicles and buses to still have adequate access, especially in more urban areas.

***Opportunity Type**:* The time and cost for changes in signal timing or phasing may vary depending on whether the changes require new equipment. Any of the suggested changes would require study, public input and governing body approval. This is a long-term opportunity.

3. Policy and Programmatic Recommendations

a) Implement a Complete Streets Ordinance

The Missoula City Council adopted a Complete Streets Resolution in August of 2009.[34] While the current subdivision regulations and municipal code support the Resolution by requiring the installation of non-motorized facilities as part of new construction or reconstruction along specific facility types, these requirements can still be waived through either an application for a variance (new construction) or via administrative waiver (reconstruction). While variances are an important tool in the development review process, a Complete Streets Ordinance would further strengthen the regulations already in place.

Missoula County has not currently adopted a Complete Streets Resolution, but within the MPO planning area, the communities of Lolo, East Missoula, Bonner, Milltown and Missoula's urban fringe have enough compact, urban form to suggest

[34] Res. No.. 7473, August 24, 2009.

that such a statement of intention by the Missoula County Commissioners would assure that future development and redevelopment in these areas does not take place without the inclusion of facilities for pedestrians and cyclists.

Opportunity Type: Short-to-midterm, requiring staff time to research, present to elected officials and shepherd through the review and approval process. A Complete Streets Ordinance could also be implemented within the City and County sub-division regulations

b) Increase Sidewalk Construction Requirements:

The City of Missoula requires sidewalk installation with the approval of a building permit for duplex, multi-family, commercial and industrial construction (if no sidewalk currently exists). Existing sidewalks can also be required to be repaired or brought up to current ADA standards. Currently the City Engineer has discretion to waive these requirements. Requiring that private developers request a variance and prove genuine hardship to be exempted from sidewalk construction before the City Engineer grants a variance would strengthen this regulation In addition, integrating sidewalk design and construction into the general development review process could help to ensure better sidewalk design.

Opportunity Type: A short-term opportunity through the 2010-2011 update of the subdivision regulations.

c) Develop a Connectivity Policy in Subdivision Regulations

As part of the 2010-2011 review and update of the City Subdivision Regulations, a connectivity policy for both vehicular and active transportation facilities would ensure that new development limits the number of cul-de-sac and dead-end streets. By increasing the number of street connections or local street intersections in communities, bicycle and pedestrian travel will be enhanced. A connected street grid provides multiple options for travel, rather than forcing all traffic onto larger collectors that subsequently funnel onto busy arterials at one access point. Where a cul-de-sac or stub-out is the only option, developers can be required to construct non-motorized facilities that make logical, convenient connections to existing or planned non-motorized facilities wherever possible, in keeping with this plan's goal to increase connectivity in the MPO area.

Opportunity Type: This is a short term opportunity given the upcoming review of the Sub-Division Regulations.

d) Maintenance Schedules

While Missoula already has an extensive system of sidewalks, bike lanes and off-street trails, maintaining them during inclement weather and over the long term is challenging due to the costs involved. The City of Missoula's recently adopted Road and Park Special Districts will help the City to keep up its ongoing maintenance responsibilities.

Ongoing and Long-Term Sidewalk Repair

Currently sidewalks are repaired at property owner expense either following a complaint about the sidewalk's condition or as part of a larger project involving multiple properties. Two issues can be identified with the current system: First, this is a heavy financial burden on some property owners. Whether through the additional revenues generated through the Roads Special District or via another funding mechanism, solutions should be explored that lessen the financial burden on property owners.

The Master Sidewalk plan includes a repair schedule and planning for future projects is very much driven by the Master Sidewalk Plan. Public Works has historically replaced 30-60 blocks of sidewalk annually. These numbers represent 30-60% of the annual sidewalk program. However, as with the installation of new sidewalks, the assessment program takes up approximately 50% of project staff resources. An alternative funding source would enable the present staff to effectively double the amount of sidewalks installed annually and increase the sidewalk replacement program by a factor of four times.

The first step in this process can be to develop a complete inventory of sidewalk conditions around the City. A geographic database consisting of sidwalk conditional, locational, and associated parcel data should be built and regularly maintained for the purpose of better planning and implementing future sidewalk construction. The initial phase of data collection could be handled by volunteers that have been trained and supervised by planning and City engineering staff. With a clearer picture of where the greatest needs exist, the City could work with property owners to plan well in advance for sidewalk repairs and upgrades.

B. Transit Interface

1. New Construction and Retrofits

Transit service is an integral element of any community's transportation network. However, transit service is often only as reliable and efficient as the weakest link in the system. The transit interface – the physical link between the transit service and a neighborhood, street, or other modes of transportation – can often be an afterthought when building and funding transit service. A poorly designed interface can act as a barrier to ridership for people who might otherwise view transit service

as a viable transportation option. Safety concerns, inferior lighting, poor accessibility, inadequate signage or visibility, and unsatisfactory space to comfortably wait can all negatively affect ridership. An inviting transit stop can make people feel more comfortable riding public transit and entice people to try a service they otherwise might have previously ignored. As of 2010, approximately 40% of Missoula bus stops are not directly accessible via sidewalks while 36.5% of stops do not feature a sign indicating the stops location. Transit becomes an even more appealing option for bridging the gaps in non-motorized trips with fifteen minute or essentially "schedule-less" service. Schedule-less service provides an increased sense of security, knowing that what was a walking or biking trip can easily change to transit if and when the need arises without a long wait.

Figure 5-16: Poor transit interface

In relation to walking and cycling, transit service provides a means for overcoming physical barriers such as long distances, poor connectivity, and bad weather that can make active transportation options less than ideal. Additionally, improved integration of cycling and transit can effectively extend the catchment areas of transit stops, thus making transit a viable option for a greater portion of the population.

Figure 5-17: A well designed and inviting transit stop

a) Create an Improved Transit Interface for Pedestrians & Cyclists

As of 2010, Missoula's transit stops range from covered benches with adequate room and integration into wide sidewalks to stops with absolutely no indication of the stop's existence. Investing in transit stops to improve consistency and access can potentially bring more riders to the service. Improved lighting in and around stops, shelters that are easily recognizable and provide adequate room, and consistent signage can all improve access to transit.

MUTD is currently developing a set of transit design guidelines that can be applied to future residential and commercial development within Missoula. The guidelines aim to ensure that transit is integrated into future development and growth early in the development process. The finalized guidelines will set a standard for enhancing the current transit interface.

Improved integration of transit with active transportation and the recognition of the needs of these users are important to ensure that all transit riders feel welcome and are comfortable using the service. Transit stops should be designed to meet ADA design standards. Sidewalks within a ¼ mile radius of transit stops should allow for wheelchair access and proper curb cuts.

Cyclists also have unique needs. Mountain Line buses already incorporates bikes on buses and several stops with bike racks, but further steps should be taken. Bike racks are already included at select stops, but additional bike racks at select transit stops can improve access for cyclists. The addition of a bicycle station integrated with Mountain Line's downtown transfer station (as seen in figure 18) could significantly increase the inter-connectivity between cycling and transit. Several cities have recently installed bicycle stations integrated with large transit stations that include long-term bicycle parking, lockers, bike repair and maintenance services, and showers with certain services provided on a paid membership basis.

Figure 5-18: Bicycle parking at a bus stop

Figure 5-19: Bicycle station integrated with transit

Recommended Policy: A study prioritizing cost-effective options for improving the transit interface should be conducted to establish a plan for effectively investing funds.

Opportunity Type*:* Improving Missoula's transit interface is a mid- to long-term opportunity. Improved signage, sidewalk completion around transit stops, additional lighting, and improved integration of bikes and buses are all worthwhile investments. Any improvements would require the coordination of Mountain Line transit agency, Office of Planning and Grants Transportation staff, City and County Public Works, and various other local and state agencies for the purpose of planning, budgeting and implementing proposed improvements.

C. Bicycle Facilities

Cycling has undergone an image transformation across America over the last decade and is becoming an ever more important component of the transportation equation in Missoula. Our transportation system faces increasing levels of stress due to continued population growth and the associated congestion. Moreover, the increase in vehicle miles traveled coupled with increased congestion contributes negatively to our environmental quality and community wide health due to increased vehicle emissions. Constructing new roadway miles to address congestion is an expensive solution that is often constrained due to the lack of available funds. By contrast, bicycle facilities have a relatively small land-use footprint and are a low-cost solution to both roadway congestion and air pollution mitigation through a reduction in the number of engine starts and particulate matter in the air.

Beyond helping to improve air quality and addressing congestion, bicycle facilities simultaneously encourage individuals to live a more active and healthy lifestyle. Cycling can play an important role in improving individual and community wide health and fitness levels. Obesity levels have increased in lockstep with increases in the number of vehicle miles traveled. The physical inactivity associated with commuting by car can contribute to multiple chronic health problems. Communities exhibiting a higher percentage of daily trips made by active transportation demonstrate significantly lower levels of obesity and cases of diabetes.[35] Preventing obesity rather than fighting the effects of obesity and the chronic diseases stemming from obesity can contribute to significant savings in long-term healthcare costs. Additionally, several studies have shown that regular physical activity can contribute positively to a person's mental health.[36]

More and more people in Missoula are choosing to use a bicycle as a practical transportation option. Between 1995 and 2009, the number of commuters choosing to bike to work increased by 67.5%. This growth was undoubtedly due to the dual efforts to expand the network of well designed bicycle facilities and increased education and outreach efforts. Such efforts have resulted in Missoula being awarded the Silver level designation as a Bicycle Friendly Community by the League of American Bicyclists in 2006. However, only 29.8% of Missoula arterials and collectors feature a bicycle lane, while that coverage increases to 43.3% when bicycle routes are included (see Map 3.2 for bicycle lanes and routes).

Whereas many improvements have been made to the bicycle infrastructure throughout Missoula, it is important to keep in mind that there are many levels of cyclist on the road and a one-size-fits-all design solution is not possible. Cyclists range anywhere from an advanced level cyclist who is comfortable riding among motor vehicles and operating at maximum speeds to beginners who would prefer to

[35] Pucher, John et al, *Walking and Cycling to Health: A Comparative Analysis of City, State, and International Data.*
[36] Atkinson, Mallory and Lynn Weigand, *The Mental Health Benefits of Walking and Bicycling*

avoid high volume streets and feel most comfortable on off-street facilities. For this reason it is imperative that bicycle facilities are designed to meet the needs of a spectrum of users. The following section identifies opportunities to continue to build a first class set of bicycle facilities for Missoula.

1. New Construction

New roadway construction is an opportunity to design and build active transportation facilities properly the first time. New residential and commercial developments that include new roadways are already required to accommodate active transportation that make logical and convenient connections to existing or planned active transportation facilities wherever possible. Any non-motorized plans that are a component of new development must undergo a review process by local planners and engineers.[37] Building it right the first time is ultimately a less costly process when compared to retrofitting already existing roadways with bike facilities later on.

a) Roadways

Employ Context Sensitive Solutions (CSS) to new roadway construction. CSS is a useful tool that allows for the surrounding physical and social environments, stakeholder input, and the unique character of a place to be considered during the design process. CSS is a flexible design concept that can provide solutions for meeting regional transportation needs while respecting adjacent land uses and all potential roadway users. Using such a design technique also assists in identifying conditional road factors – such as traffic volumes, average speeds, and intersection density – that can be helpful in determining the proper bicycle facility for a given roadway segment[38].

Opportunity Type: As in the case of sidewalks, use of CSS in street design is most likely a long-term opportunity. The 2010 North Higgins Streetscape project and the underlying 2005 Missoula Downtown Streets Project exemplify the use of context sensitive design for bicycle facilities. The upcoming reconstruction of Russell Street represents the perfect opportunity for using the CSS approach as well.

Create welcoming bicycle facilities whenever possible as part of new roadway construction. Installed facilities may vary depending on local conditions and the functional classification of the street being considered. Missoula should not limit the design of bike lanes to standard 5 foot striped lanes set forth by AASHTO, but should also consider buffered bike lanes, separated cycle-tracks, contra-flow bike

[37] ftp://www.co.missoula.mt.us/opgftp/Documents/CurrentRegulations/CitySubRegs/Subdivision_Regulations_Adopted062810.pdf p. 3-4.

[38] Cross-section elements: bicycles, contextsensitivesolutions.org http://www.contextsensitivesolutions.org/content/reading/cross-section-5/

lanes, and two-way bike lanes as outlined in the National Association of City Transportation Officials' bikeway design guide. While AASHTO guidelines are often adequate, given much of Missoula's unique urban nature and high level of cycling, innovative designs that aim to give cyclists a greater level of safety should be considered depending on the context of the location. As a general guideline, all new arterials and collectors in Missoula should include a standard 6 foot bike lane to provide cyclists with enough room to avoid foreseeable roadway hazards without having to swerve into a vehicle travel lane.[39]

Figure 5-20: A separated and raised cycle-track

New bike lanes should also be planned so as to connect into the existing Bicycle Commuter Network throughout Missoula. Signed bicycle routes that include such design elements as sharrows could be considered for roadways with lower traffic. Shared roadway markings can make bicycle routes more visible and improve safety by acting as a reminder to road users to share the limited space available.[40]

Recommended Policy: Design standards should be clarified and strengthened where regulations already exist, such as in the sub-division regulations, while new design standards should be adopted for facility types which are not already in existence in Missoula.

Opportunity Type: This is a short-term opportunity. When considering new roadway construction, the regulations already exist for the installation of bicycle lanes on arterial and collector level roadways. The opportunity is long term when newer design concepts are considered and when planning for future urban growth and how future growth patterns can be connected to the already existing Commuter Bicycle Network.

[39] National Association of City Transportation Officials, *Urban Bikeway Design Guide*
[40] Alta Planning + Design, *San Francisco's Shared Lane Pavement Markings: Improving Bicycle Safety*.

b) Intersection Improvements

Intersection design is an important component of improving the bicycle network throughout Missoula. Frequently, intersections can act as a hindrance to cyclist mobility because of the perceived vulnerability cyclists may feel in such environments. The exposure of a cyclist at intersections to numerous turning movements, unprotected left turns, sightline obstructions, and "right-hooks" – a crash that occurs at intersections where a bicyclist to the right of a motor vehicle is cut-off by a vehicle turning right – make intersections one of the more dangerous locations for cyclists and represent 33% of cyclist fatalities nationally. Improving safety at intersections through more careful design considerations can create safety improvements and induce more cyclists to take to the roads.[41]

Moreover, large four lane arterials often add barriers for both pedestrians and cyclists. If a street is wide with high traffic volumes and speeds in excess of 35 mph, many cyclists and pedestrians may choose to avoid such stretches of roadway and even take extended detours to find a suitably safe crossing location. A study of bicycle crashes from the late 70's found that half of all cyclist fatalities were on roads with posted speed limits greater than 35 mph, even though collisions on such roads accounted for only 20% of all collisions.[42] By more prominently placing cyclist and pedestrian considerations into the design of intersections, such friction barriers can be appreciably reduced, potentially reducing trip distance for active users.

Place bicycle lane to the left of right-turn lanes at high volume intersections where analysis proves it to be appropriate. By placing the bicycle lane to the left of a right-turn only traffic lane, the risk of a cyclist experiencing a right-hook crash can be reduced. Such a configuration can also remove some of the confusion regarding where a cyclist should be located when proceeding through an intersection.

[41] National Highway Traffic Safety Administration, Fatality Analysis Reporting System.
[42] Cross, K. D. (1978). *Bicycle-Safety Education: Facts and issues*

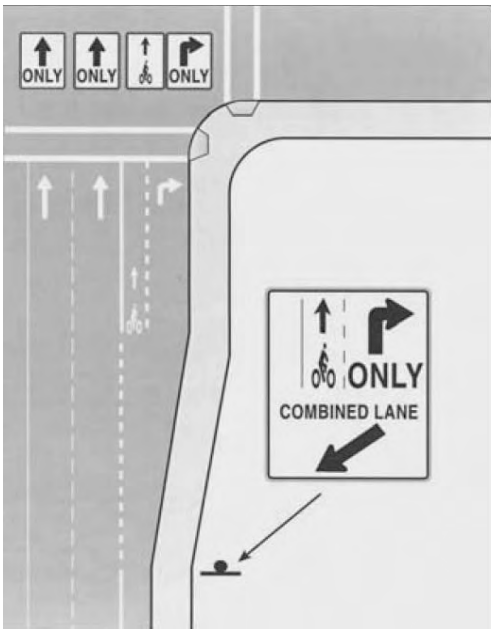


Figure 5-21: Combined Right-turn Bike Lanes

Recommended Policy: Identify signalized intersections with high vehicle and bicycle volumes with comparatively high crash rates where this solution is appropriate. Additional analysis and planning should be conducted along with the implementation of design standards. A good starting point would include signalized intersections that already have an existing right-turn lane pocket and a bicycle lane.

Opportunity Type*:* This is a mid to long term opportunity as implementation can only take place as funding and roadway reconstruction projects come up.

Incorporate bicycle boxes into high volume signalized intersections where appropriate. A bicycle box is an area at signalized intersections that is delineated with brightly colored paint and is meant to designate a space for cyclists at intersections. Bicycle boxes first appeared in several European cities during the 1980s. Bicycle boxes have recently been installed in many large American cities such as New York and Portland, Oregon and right here in Missoula on North Higgins and soon on portions of the 5th/6th/Arthur intersection improvements. The purpose of bicycle boxes is to provide cyclists with increased visibility and safety at intersections via an advanced stop bar in front of vehicles, improved access to left-turn movements, reduce bike-vehicle conflicts, crashes, and grant cyclists a slight head start at the beginning of a green light phase. Bicycle boxes have been shown to improve cyclist safety at signalized intersections and to reduce the incident of right-hook crashes.[43]

[43] Oregon Transportation Research and Education Consortium, *Evaluation of Bike Boxes at Signalized Intersections.*

Figure 5-22: Bike Box

Recommended Policy: Identify appropriate locations for the installation of bicycle boxes through site analysis and plan for the implementation of a set of pilot projects. Appropriate sites may include intersections within the CBD, the University District, and at intersections that already have striped bicycle lanes.

Opportunity Type*:* Installation of bicycle boxes is likely a long term opportunity. Additionally, it would be highly beneficial to match any eventual installation with an educational program given the fact that bicycle boxes would be a road facility not familiar to most people.

Consider bike signal heads at high volume signalized intersections where bicycle volume is already significant and bike lanes exist, such as within Missoula's Downtown core or University District. Many European cities integrate a separate set of traffic signals into intersections specifically for bicycles. Bicycle traffic signals could be set up at intersections to give cyclists their own phase or programmed to give cyclists several seconds of lead time before the vehicle phase starts. Such a signal could be similar to pedestrian signal heads and even coordinate the same lead time phase.

Opportunity Type*:* Implementation of separate bicycle signals is likely be a long term strategy due to the need for studies and trial periods prior to widespread adoption. An additional consideration is the cost of installing new traffic signals or retrofitting existing ones as well as the cost of programming phase times to be coordinated throughout the road network.

Consider bike-sensitive loop detectors or another method for bicyclists to trigger phase changes at signalized intersections. Currently, detector loops are installed in

the pavement at many intersections throughout Missoula. These loop detectors recognize when a vehicle comes to a stop at a light and activates the phase cycle of the traffic signals. The current detector loops are not sensitive enough to detect a cyclist coming to a stop at an intersection, forcing a cyclist to wait for a vehicle to trigger the phase cycle or to dismount and use a crosswalk. A detection system that includes cyclists would assure their safety and decrease cyclists' dependence on accompanying vehicular traffic to facilitate the signal changes. Optical or video detection devices could be an alternative to loop-detectors at signalized intersections.

Recommended Policy: The feasibility of different systems can be studied and a potential pilot project along a high volume bikeway planned.

Opportunity Type: This is most likely a long term strategy as replacing current loop detectors or implementing another possible design solution would be very costly and when compared with other potential investments in bicycle infrastructure not cost effective for benefit garnered.

2. Upgrade / retrofit of existing facilities

a) Roadways

Existing roadways play a large role in any future infrastructure improvements aimed at increasing cyclists' safety and bicycle facility connectivity. As stated in Chapter 3 of this document, many gaps currently exist in the on-street bicycle network throughout Missoula. Filling the gaps in the Bicycle Commuter Network and improving substandard facilities is important in creating connectivity for cyclists and arguably more beneficial than any new bicycle facilities on new roadways along the urban fringe of the city. With that stated, there are numerous challenges posed to any expansion of bicycle facilities on existing roadways in Missoula ranging from political and financial to right-of-way constraints.

Identify locations where additional right-of-way is needed to accommodate on-street bicycle facilities. Currently, many roadways do not have enough curb-to-curb space to include bicycle lanes along with on-street parking and sufficiently wide travel lanes. Locations where acquiring additional ROW might be appropriate could include roads with existing bicycle routes or bike lanes that are under the desired standard width. Because the removal of on-street parking is often a difficult political battle, acquiring additional right-of-way could be an alternative strategy that allows for the implementation of complete streets design standards.

Opportunity Type: Simple identification of needed right of way is a short term opportunity. However, acquisition of additional ROW is a long term opportunity

that would involve a significant investment of both time and resources in right-of-way acquisition, planning, design and eventual roadway reconstruction.

Increase minimum width requirements for bike lanes. AASHTO defines bicycle lane design standards for different roadway classes including bike lane widths.[44] Multiple bicycle lanes do not currently meet these AASHTO standards. At a minimum, bicycle lanes should meet AASHTO standards. However, bicycle facilities should aim to exceed AASHTO standards when the character of the street, ROW width, and CSS create an opportunity to install facilities such as the facilities emphasized in the NACTO Urban Bikeway Design Guide.

Recommended Policy: 6' bicycle lanes should become standard within the subdivision regulations and elsewhere. Roadways with the appropriate amount of ROW should be re-striped to reflect the 6'standard.

Opportunity Type: Adopting a new set of regulatory standards for bicycle lane minimum widths would be a mid term opportunity. However, implementation of wider minimums – upgrading currently deficient bike lanes – would be a long term opportunity available as roadways are repaved, re-striped or reconstructed.

Add sharrows to all designated bicycle routes. Missoula's Bicycle Commuter Network is a patchwork of bicycle lanes, multi-use trails, and bicycle routes. Bicycle routes often provide vital connections to more complete bicycle facilities but are often not easily recognized. Sharrows placed on the pavement delineating bicycle routes more clearly to all road users act both as an educational tool to encourage a 'share the road' mentality as well as reinforcing current rules of the road.

Figure 5-23: Sharrow pavement treatments

[44] American Association of State Highway and Transportation Officials, *Guide for the development of bicycle facilities.*

Recommended Policy: All roadways designated as bicycle routes should be striped with sharrows.

Opportunity Type: Adding sharrows to designated bicycle routes is a short term opportunity since bicycle routes already exist and all that is needed is the application of paint which can be worked into the re-striping schedule on a yearly basis and is expected in 2011.

Clarify re-striping prioritization regarding bike lanes. Evaluate the process by which priority is given to bicycle lane re-striping projects. Specifically identify ways in which striping can be made more durable and look for ways to improve public involvement so that lanes needing a re-application of paint may be more easily identified.

Recommended Policy: Longer lasting roadway paint should be utilized so that bike lanes are more durable and do not require re-striping on a yearly basis.

Opportunity Type: Ascertaining and clearly describing the current process for evaluation is a short term opportunity. If evaluation produces suggestions for improvement to the process, implementation could occur within a short time.

Establish connectivity between existing adjacent dead-end streets and cul-de-sacs where currently no connectivity exists. Missoula's sub-division regulations already require this type of connectivity; however many existing dead-end streets could accommodate improved connectivity. Connectivity can be accomplished by creating a simple multi-use path between two adjacent cul-de-sacs that currently do not have any form of connectivity. This could potentially reduce travel distance between destinations and increase travel options, thus lowering barriers to active transportation in neighborhoods that feature many cul-de-sacs.

Opportunity Type: This is likely a long term opportunity because complications with easements in existing residential developments could hold back building of such connections. Amending the subdivision regulations to require trail easements or construction would provide a tool for achieving better connectivity.

Consider alternative street designs on low volume streets in all neighborhoods throughout Missoula. Many alternatives to the street designs of the last half century are available and increasingly becoming prevalent around the United States. Alternative designs could include bicycle/pedestrian boulevards, green streets, or home streets as noted within the sidewalks section. These concepts give priority to pedestrians and cyclists over motor vehicles – as illustrated in Figure 5-23 – creating a public street that is characteristically calm, safe for children, and discourages

pedestrians and cyclists over motor vehicles – as illustrated in Figure 5-23 – creating a public street that is characteristically calm, safe for children, and discourages through vehicle traffic without disallowing local access to individual homes. Creating these calm and inviting streets is accomplished through design elements such as traffic calming devices, bollards, and low speed limits often less than 25 mph. The combination of lower speeds, traffic calming, and lower vehicle traffic volumes contribute to increased safety for all road users.[45]

Figure 5-24: Concept design of bicycle boulevard traffic diversion device.

Recommended Policy: A set of criteria should be developed for identifying local neighborhood streets where such designs would be appropriate. Planning and design of a pilot project should be undertaken at the local level.

Opportunity Type: This is a long term opportunity as planning for the conversion of a local neighborhood street to one of the above design alternatives would involve extensive study of the feasibility of such a project as well as considerable public outreach and education and an extended design process.

Improve bicycle facilities where deficiencies exist on bridges within the Missoula community. Many bridges around Missoula already function as choke points for the

[45] Alta Planning + Design, *Fundamentals of Bicycle Boulevard Planning & Design*.

local transportation network so bicycle and pedestrian facilities can help to alleviate this problem as well as increasing connectivity for active transportation facility users. Currently, the Russell Street Bridge is a good example of a bridge that is hazardous to cyclists. Additionally, the installation of non-motorized under-bridges could be an acceptable option if existing bridges meet the required engineering standards.

***Opportunity Type**:* This is a long term opportunity as securing funding for construction or replacement of a bridge is often a multi-year process involving multiple state and local agencies and requiring multiple levels of planning and environmental assessment.

b) Snow and Debris Removal and Sweeping

Winter Maintenance

The City of Missoula Public Works Department has a Snow Removal Plan that specifies clearing snow on roadways from curb to curb, but the plan does not specify how frequently snow removal occurs. On City streets, the issue arises when vehicles kick snow into a bike lane that has already been plowed.

Issue: Except for snow, the City of Missoula has no specific policy for clearing bike lanes of debris such as leaves, gravel, broken glass, etc.).

Issue: With respect to bridge clearing, the State of Montana is responsible for clearing many roadway bridges in the MATP plan area.

Reappraise current snow and debris removal policies implemented to identify policies for improving bicycle access during winter months. Currently, arterial roadways are the priority because these streets move the most vehicles. Most arterials also feature bicycle lanes that are plowed, but quickly fill up with snow pushed off the driving lane by cars, making it difficult for cyclists to use these facilities and take to the middle of the roadway, the sidewalk, or use another form of transportation. More frequent clearing of roadways – with the inclusion of clearing bicycle lanes – is the desired standard but financial constraints mean that this cannot always be attained.

Recommended Policy: Improved efforts should be undertaken to ensure that priority on-street bicycle facilities are maintained and cleared during adverse winter weather events.

***Opportunity Type**:* Improving the extent and frequency of snow and debris removal from bike lanes represents a long-term opportunity because implementation will require not only additional funding but also coordination among different

governmental agencies, as in the case of snow removal from a bridge that is located inside the city but maintained by the state. Improved clearing of bicycle facilities along arterials is mainly a budgetary issue and in the current state of limited funding this is most likely a long term opportunity. Additional snow plows, mechanical upgrades, and sufficient staffing all require a substantial investment in a service whose demand varies depending on the severity of the winter.

Consider snow and debris removal policies and funding specific to bicycle facilities. While snow plowing along arterials facilitates bikable roadways, the current plowing methods are not always adequate for clearing bicycle lanes, specifically when a heavy snow fall occurs. Therefore, alternative methods of snow removal, dedicated equipment for bicycle facilities, and alternative funding mechanisms should be studied to find the most effective and practical combination of options. With installation of new bicycle facility designs such as the North Higgins cycle tracks, it is important to think about how future maintenance on such facilities takes place.

Opportunity Type: Any investment in maintenance equipment specifically for bicycle facilities should be considered a long term strategy. Best practices should be studied from:

- Regions with climate conditions and bicycle facilities similar to Missoula;
- The experience of the Missoula Parks and Recreation Department regarding trail maintenance; and
- The University of Montana's campus program of maintaining debris free sidewalks and paths.

c) Bicycle Parking Facilities

A fully connected bicycle network must take into consideration the needs of cyclists once they reach their destination. For this reason, bicycle parking is an important element in building a well functioning and integrated network of bicycle facilities. Similar to how people would drive less if there was no provision for parking their vehicles, if bicycle parking is non-existent, such a condition acts as a barrier to making a trip by bicycle. A lack of bicycle parking also has the potential to act as a safety hazard when sidewalks become blocked and pedestrians can potentially trip over bicycles that have been improperly locked to trees, guard rails, or parking meters. Bicycle parking should be provided at both origin and destination points when appropriate.

As of the adoption of the Title 20 Zoning Ordinance for the City of Missoula, both short-term and long-term bicycle parking is a requirement of all new construction in accordance with Chapter 20.60.090.[46] However, such an ordinance stills leaves the

[46] ftp://www.co.missoula.mt.us/opgftp/Documents/CurrentRegulations/CityZoningTitle20/Title20Whole.pdf

possibility for a significant gap regarding bicycle parking at existing buildings. The following are opportunities for improving bicycle parking in Missoula.

Conduct a bicycle parking inventory across Missoula. As of 2010, the only inventories to be conducted regarding bicycle parking have taken place on the campus of The University of Montana and in downtown Missoula. Additional inventories could be helpful in the long-run in identifying where demand for bicycle parking exceeds supply of such facilities, or where such facilities are non-existent. An inventory would assist in formulating a bicycle parking policy outside the bounds of the Zoning Ordinance of the City of Missoula.

Opportunity Type: This is most likely a mid to long-term opportunity as conducting any type of extensive inventory has the potential to take up considerable staff time. However, efforts already underway can be used to help guide any future inventories. Bicycle traffic counts and surveying can be used to deduce where high volumes of bicycle trips originate and end to better pinpoint where parking inventories would be useful. Additionally, partnerships with the Missoula City Bicycle/Pedestrian Office, private businesses, social organizations, and property management companies could be cultivated to help undertake and expedite the inventory process.

Implement the installation of additional bike corrals. Bike corrals are on-street bike parking installations that can hold upwards of twelve bikes in the space of a single parked car. The advantage of this type of high-capacity bike parking is that it can store large numbers of bicycles out of the way of any street-facing businesses. Placing the corral in the street allows for sidewalks to be free from possible obstruction, therefore businesses can use sidewalks more freely for outside seating or displays. Additionally, cities such as Portland, OR are finding that adequate bicycle parking can increase economic activity in the surrounding area.

Recommended Policy: Additional bike corrals should be installed in high-traffic commercial areas such as Missoula's downtown where demand for all types of parking is high but space is limited.

Opportunity Type: Installation of bike corrals would be a long term opportunity. Taking advantage of this opportunity requires coordination with business owners, City Public Works, Parking Commission, cyclists, and organizations such as the Business Improvement District and the Missoula Downtown Association.

Partner with the City Parking Commission to ensure installation of bicycle racks in future parking structures. This is already a requirement of the new Zoning

Ordinance of the City of Missoula but further considerations as to placement, visibility, and design can be coordinated to ensure that bicycle racks installed in parking structures become actively used and are not simply token installations.

Opportunity Type: Getting bicycle racks installed in parking structures is a short term opportunity since the requirement is already in place. However, coordination and cooperation among local agencies and business partners will be increasingly important in the longer term as new parking structures are built.

Identify possible locations for a bicycle station integrated with transit that could function as future locations for high-quality, long-term bicycle facilities. In recent years, several American cities have installed bike 'stations' that function as hubs for commuting cyclists that offer parking and other varied services. Basic bike station design includes a permanent structure with enough available space for convenient short and long term indoor bicycle parking, lockers, and shower facilities. Additional services can be added to include bike rental, repair, and retail space. Bike station services could be provided based on the Washington D.C. model whereby people become members for a small fee to fully access all of the station's services, while a certain level of basic services remain open to the general public.

Opportunity Type: The actual identification of underutilized or abandoned parcels of property is a short term opportunity. However, the actual process of turning any such parcel into a usable bike station is a long term opportunity requiring the coordination and cooperation of numerous local agencies, business associations, and landowners. Another possibility would be a bicycke station on the campus of The University of Montana.

Utilize the ends of on-street diagonal parking for short-term bicycle parking. There already exists space at both ends of a block where strips are laid down as a buffer. This space could be used for additional short term bicycle parking without the loss of sidewalk space or parking spaces for vehicles.

Recommended Policy: Before any bicycle parking facilities could be installed, suitable locations would need to be identified as well as a practical set of design and placement guidelines developed.

Opportunity Type: Installation of this type of bicycle parking is a long term opportunity.

3. Policy and Programmatic Recommendations

a) Monitoring and Evaluation

Make bicycle facilities a priority in planning and building new residential and commercial development within the Missoula area. As illustrated in Figure 1 at the beginning of this chapter, when designing new developments, bicycle needs, behavior and movement should be considered according to the transportation hierarchy. Considering bicycles as a priority during design ensure that cyclists' needs are not an after-thought and a balance exists between all modes of transportation.

Opportunity Type: This is both a short term and a long term opportunity. In the short term OPG has the opportunity during the development review process to review design elements related to bicycle use and ensure that adequate bicycle facilities are present according to the context of the proposed development. However, in the longer term there is the opportunity for language in the Missoula subdivision regulations to be strengthened to enable stronger design standards in new developments.

Establish regular monitoring and evaluation of bicycle use and integration into the Missoula transportation network to better document and track the improvements in bicycle use, safety, and level of service throughout Missoula. Benchmark statistics should be established that would enable tracking of future bicycle-related implementation and their associated effects on safety and ridership.

Opportunity Type: The tracking of basic statistics such as crash data and ridership counts are already underway. However, a more comprehensive process of benchmarking additional statistics on a regularized basis could help in showing concrete improvements from the implementation of policies set out in this plan. This is a long term opportunity as the process of creating a benchmark data set takes several years of data collection to become established.

Undertake a safety audit of bicycle facilities throughout Missoula. The purpose of the safety audit would be to catalogue the presence of safety hazards along existing bicycle facilities. Missoula has many miles of bicycle facilities with diverse design characteristics. Differences in design relating to lighting, lateral clearance, sight distance, changes in grade, roadway width, and surface quality can potentially affect the safety and comfort level of cyclists. A safety audit could also assist in developing an improved assessment of regular maintenance needs and provide guidance for a more proactive maintenance program. Furthermore, a safety audit has the potential to be a tool in reducing the risk of litigation due to inadequately designed or maintained facilities.

Opportunity Type: This is potentially a short term opportunity. The biggest barriers to conducting a bicycle facilities audit are the dedication of staff time and the coordination between OPG and Public Works on setting up a system of data collection and maintenance. Because many of the issues dealt with in a safety audit need a level of engineering background to properly assess, employing volunteers to collect data would be of limited utility.

b) Bicycle Law Enforcement

Bicycle Licensing

Institute a bicycle licensing reform aimed at increasing participation, revenue, and ease of use. As of 2010, all bicycles within Missoula are required to be registered with the City. However, this requirement is lightly – if at all – enforced, giving individuals little incentive to register. Additionally, the licensing program does not bring in any sizable amount of revenue and is currently utilized mainly for the recovery of stolen bicycles. Requiring that licensing occur at the point-of-sale of would streamline the process and could operate much like a sales tax while ensuring that all new bicycles sold in Missoula become registered. Licensing already owned bicycles could likewise be handled at bicycle shops when maintenance occurs. Through increased participation and the levying of fines through enforcement, revenues could potentially be used to help fund new bicycle infrastructure or maintenance.

Opportunity Type: Any change to bicycle licensing would require the coordination of several City agencies, committees, and ultimately legislative approval by the City Council to be implemented. As a result, making changes to bicycle licensing would be a long term opportunity.

III. Trails

A. Purpose of Trails

Missoula's trail system is one of its most valued community assets, attracting residents and visitors alike to the riverfront, commercial centers, and further afield to public parks and open spaces. As a typically scenic, more relaxed option for pedestrians and cyclists than traveling on-street, trails are shared use facilities, attracting both commuters and recreational users. Trails meet many of the needs of the "interested but concerned" type of user, allowing them to be more confident in choosing active transportation. Whether a trail user's trip purpose is a commute, personal business, or exercise and recreation, trail systems offer more than just an off-street travel alternative. Traveling by trail provides enhanced access, safety for young users and those who have mobility limitations, and for cyclists who are not comfortable riding alongside cars.

When trails serve residential areas, they have been shown to promote healthy, active lifestyles.[47] Convenient, scenic options for active living play a key role in addressing our national obesity epidemic. Access and proximity to trails have also been shown to improve property values.[48] These facilities should be part of new developments where trail corridors have been identified and on existing lands where they improve connectivity.

Trails are part of the overall Active Transportation System and can be planned and designed to work seamlessly with the on-street bikeway and sidewalk network. Trails augment the on-street system by providing connectivity where street ROW does not exist or where other facilities are not as practical or desirable.

The City of Missoula and Missoula County have dedicated a significant amount of public investment to the trails network through the use of local Open Space Bond funds, City and County staff, general funds, the allocation of Federal transportation funds, and the dedication of easements from the private sector. Residents of the Missoula valley are very supportive of further development of the trails network. According to the recent survey conducted by consultants for Missoula County Parks Department, 64% of respondents (City and County residents) ranked paved commuter trails as their top priority for future investment. Of those households willing to pay for additional parks and trails facilities, developing a connected County-wide trail network ranked in the top five areas of investment.

[47] http://www.activelivingresearch.org/resourcesearch/summaries

[48] Portland Trails Newsletter, Volume 15, Number 1. "Residential Realtors Love Portland Trails, or Do They?" and National Association of Home Builders and National Association of Realtors Study, 2002. http://www.americantrails.org/resources/benefits/homebuyers02.html

At present, the community's focus is on expanding the existing trails system to augment the on-street bikeway and sidewalk systems. This sub-section addresses best practices and policy recommendations for trail planning, trail design, and trail maintenance to achieve this goal.

B. New Construction

New trail construction is typically the responsibility of local government agencies or private developers, although the Montana Department of Transportation has also constructed parallel bike and pedestrian pathways along state routes like Highway 93 through the Bitterroot Valley. Whatever entity is designing and constructing a new trail, it is imperative that the whole active transportation network be considered early in the design phase. New facilities play an important role in the expansion of a safe and seamless network of trails, bike lanes, bike routes, and sidewalks. New neighborhood trails can connect a new subdivision to the larger network of commuter trails or on-street facilities, or extend the existing trail network.

The following subsection describes siting of trails, how right of way for new trail construction can be acquired, general characteristics and design guidelines for different trail types and concludes with additional detail on good trail design—the types of surfacing, lighting, signage and landscaping that make trails safe and attractive.

1. Recommended Locations

Planning and locating trails properly is critical to their success. A context sensitive approach should be followed for both a trail's overall route as well as its detailed design. Routing of a trail should be responsive to surrounding land uses, development, vehicular and non-motorized circulation patterns, and natural features. Further, trails should be designed to fit well into the specific context in which they are built. A thorough public process must be followed when planning, designing and constructing trails. This is especially important when trails are planned to pass through residential developments. Public involvement leads to projects that better meet the needs of the community. Federal funding sources typically require public input.

A continuous system of parks or greenways is ideal for trails. There are several locations around Missoula where trail development has occurred in this fashion, such as the trails along the north and south banks of the Clark Fork River. The river corridor is relatively flat, passes through the heart of Missoula, and connects the City from east to west, creating accessible and convenient connections. Trails along rivers are highly desirable and popular with citizens. Access to rivers ranked high with both City and County residents in regards to "needed facilities" (68% of the City

survey respondents and 69% of County respondents). Access can be in the form of trails and parks along rivers or developed boat ramp facilities. In addition to the river corridors, the railroad corridors are a crucial route for east/west active travel and through much of central Missoula SW to NE. Trails should be planned to create connections between neighborhoods. In some instances, neighborhoods were designed with poor connectivity between them. Creating trails between dead-end streets and cul-de-sacs is the primary strategy to provide the public connections that would make active transportation easier for residents. In some situations, locating a trail in a street right-of-way is the only option. Careful design must be employed when routing trails in street right-of-way.

The Open Space Plan and the Master Parks & Recreation Plan both describe the need for expanding the Milwaukee Trail east to Bonner and west into the Mullan area and to fill in the gaps of the Bitterroot Branch Trail. Both plans also encourage continued expansion of trails to connect popular destinations, such as shopping districts, downtown, schools, employments centers, and parks. However, these plans do not contain a map showing desired future locations of trails nor do they contain criteria for trail locations. There is a need for an urban area Master Trails Plan to set forth a more comprehensive vision for continuing to expand the trail system through-out the urban area.

2. Right of Way Acquisition

The greatest challenge for constructing new public trails is the acquisition of land or right of way (ROW). Local and state agencies can acquire ROW through the outright purchase or donation of land, or the conveyance of an access easement across private property. The opportunities described below present future opportunities for acquiring ROW or access. Most commonly, acquisition of trail ROW happens through subdivision and development of property or government lead acquisition. Another option for acquisition is the use of Government Land Office ROW's.

a) Dedicated Developer Easements and Trail Construction

City and County Subdivision Regulations require the dedication of parkland or open space for major residential subdivisions (in which six or more lots are created). Land dedicated in the form of fee simple parkland as a trail greenway can count towards this parkland requirement whereas a simple trail ROW is not sufficient to meet these requirements. Dedication of trail ROW and construction of a public trail should be a condition of subdivision approval based on existing plans, site location and staff recommendations. When a subdivision or development is planned for a site which contains an identified trail corridor, the developer of the property is responsible for the dedication of ROW for the trail and development of the facility per City standards. This is much the same as a developer dedicating ROW for and constructing the streets and sidewalks associated with the development.

Trail facilities provided by development should make logical, convenient connections to existing or planned trail systems wherever possible in keeping with this Plan's over-arching goal of increasing the connectivity of our active transportation network in Missoula. City and County planning documents are available for developers to review when planning their projects. In addition, developers can consult with appropriate staff early on in the design process to ensure that plans for the site meet recommendations outlined by existing planning documents.

Recommended Policy: All new trail construction should take into account CSS concepts and must connect seamlessly with other active transportation facilities. City and County subdivision regulations can be strengthened to require the construction of trails at the outset of new development, rather than leaving it up to the new homeowners' association and clarify trail dedication requirements in regards to location and construction standards. Trail easements or construction could be required when a subdivision is adjacent to or within a certain distance from an existing trail.

Opportunity Type: Mid to long-term depending on the pace of private development in the City and County and whether trails are constructed immediately, or closer to subdivision build out.

b) Government-Led ROW Acquisition

When development does not occur along an identified trail corridor, the local government may choose to lead an acquisition process to secure ROW for a planned trail. Trail right-of-way acquisition may be pursued in order to close a major gap in the existing trail system. An example of this is the gap in the Bitterroot Branch Trail between North Avenue and Livingston Avenue. Easements would also be pursued if an important connection or extension could be added to a trail. This is most often necessary in parts of town that are already built out but lack sufficient bicycle and pedestrian infrastructure. New development creates new destinations that increase the need for greater connectivity in the active transportation system. Local government may require developers to make trail improvements on their property as part of subdivision conditions in order to link up to the greater system.

Recommended Policy: Purchase or donation of ROW would be pursued by the local government under certain conditions:

- Close a gap in the existing system
- Create an important connection
- Expand the system to a significant new destination
- Complete a project that is using publicly owned land

- Government-led acquisition is an important strategy because much of Missoula is built out already and there are several sections of the City not serviced by trails.

***Opportunity Type**:* Mid to long-term because the City and County must proceed carefully in working with private land-owners.

c) Government Land Office (GLO) Roads and ROW Retention

A GLO road is an existing public ROW located by the General Land Office (GLO) surveyors during the historic surveying of township lines and section lines of the Public Land Survey System. Many of these roads were in use prior to the time that most of the surveys took place (during the late 1800's and early 1900's for western Montana), and in some cases prior to the land being homesteaded, granted to the railroad, or reserved for forests or parks. Today, most are no longer in use, and in many cases no visible trace on the land remains.

These ROWs still exist on County survey maps. When reviewing a subdivision containing a GLO road, the remaining right-of-way must be addressed. The County Commissioners can vacate a GLO road, but typically developers request that the right of way be moved to another location for future use. The County can encourage, but cannot require, the subdivider to move the GLO right-of-way to a location more suitable for public access. GLO roads cannot currently exclude motorized vehicles, making it difficult to use them to expand a trail system. Caution and legal oversight must be employed when pursuing a GLO road as a means to acquire ROW for active transportation facilities.

Additionally, ROWs can often become vacated or relocated when development occurs on a previously undivided piece of land. Rather than outright vacation of existing but unused ROWs, a policy should be developed that aims to retain ROW access and takes into consideration potential connectivity, vehicle and trail access, and future uses that each individual ROW can serve.

Recommended Policy: Develop a long term strategy to utilize GLO roads to create a system of bike trail facilities that connects the urban core of the City to the outskirts, using the Milwaukee, Riverfront, and Bitterroot Branch Trails as the innermost system. When reviewing right of way vacations, the City and County should consider not only future needs for vehicular access, but also the need for public non-motorized access and connectivity to existing or future trails.

Opportunity Type: Mid- to long-term. Legislation would have to be introduced at the state level to permit GLO road right of way to be closed to motorized traffic in order to utilize these older easements for trails.

3. Trail Classification

Roads are classified by the FHWA based on the level of service they are intended to provide. Roads are classified as arterials, collectors, or local roads. Each of these functional classifications carries with it a different level of service, intended use, design standards and maintenance priorities.

In the same way, there are different classifications of trail facilities in Missoula, which are displayed in Map 3.2. Each trail classification is intended to provide a different level of service. It is important to note that one trail may have multiple classifications along its route based on the character of service it is intended to provide in a particular area. The following definitions describe each trail classification, its associated deign paradigm, and the intended level of maintenance.

a) Primary Commuter Trail

The intended use of a primary commuter trail is for long distance active transportation with the least number of street crossings possible. These trails are designed for continual high-volume use by all active transportation modes. Primary commuter trails provide connectivity to major destinations across town such as major parks, major public facilities, schools, downtown, shopping, and major centers of work and industry. These trails provide the backbone of the rest of the trails system connecting to other trails wherever possible. They should have the capacity to carry large volumes of users of all active transportation modes as appropriate. Primary Commuter Trails should connect well with the bike lane and sidewalk systems either via direct connection or via smaller trails. Current examples include the Milwaukee Trail and the Bitterroot Branch Trail.

The following are basic design criteria for a primary commuter trail:

- Fully ADA compliant
- 10’ wide minimum; 12’, 14’ and 16’ wide based on anticipated volumes
- 20’ wide corridor minimum; wider whenever possible to allow for amenities
- Separate-grade crossings where needed and feasible
- At-grade crossings must have adequate safety enhancements as necessary
- Paved surfacing with painted lines as appropriate
- Landscaping throughout corridor as possible
- Lighting wherever possible
- Wayfinding signage, pavement texturing/coloring and kiosks
- Seating where appropriate
- Incorporation of trailhead parking and availability of bike racks when possible

Level of Maintenance

Since primary trails serve the highest number of community residents throughout all seasons, they are a high priority for maintenance activities. Primary trails are the first to be plowed of snow during the winter and first to have major repairs

completed when needed. Maintenance of landscaping along these trails also takes priority over other trail facilities. These trails are first in line to receive trail amenities and upgrades such as lighting, landscaping, seating, etc. As user volumes increase, these trails are also first to be widened and/or striped, where necessary and possible, to accommodate higher numbers of active transportation users.

b) Secondary Commuter Trail

Intended use of a secondary commuter trail is for moderate distance transportation with a higher level of connectivity and interface with other facility types than primary commuter trails. These trails are designed for frequent, moderate-volume use by all active transportation modes. Secondary commuter trails provide connectivity between the primary commuter system and destinations or points of access. They can also provide important origin-destination connections on a more local scale than primary commuter trails. If use increases on a secondary commuter trail, it can be re-classified as a primary commuter trail and begin to receive the associated additional maintenance and amenities. For this reason, it is important that they are planned with the future of the entire network in mind. They are also designed to interface with the bike lane system and the sidewalk system on a regular basis. Current examples include the River Trail on the north side of the Clark Fork River and the Meadow Hill Trail in the 39th Street neighborhood.

The following are basic design criteria for associated with a secondary commuter trail:

- Fully ADA compliant
- 10’ wide standard; may be reduced to 8’ wide based on anticipated volumes, site constraints and other criteria outlined by AASHTO
- 20’ wide corridor preferred; wider whenever possible to allow for amenities and future expansion; may be narrower depending on site constraints
- Separate-grade crossings at streets with 4 lanes or more
- At-grade crossings must have adequate safety enhancements as necessary
- Paved surfacing with painted lines as appropriate
- Landscaping where possible
- Lighting wherever possible
- Wayfinding signage; kiosks may be used if the location is strategic to the rest of the trail system
- Seating where appropriate

Level of maintenance

These trails are high priority for maintenance activities, second only to primary commuter trails. They will be cleared of snow regularly during the winter and will have major repairs completed as needed. Maintenance of landscapes along these

trails will be completed on a regular basis, albeit with likely less frequency than primary commuter trails. These trails are upgraded with amenities such as lighting, landscaping, seating, etc as funding becomes available.

c) Neighborhood Connector

Intended use of a neighborhood connector trail is for short distance trips with a very high level of connectivity and interface with other facility types. These trails are designed for low-to-frequent, low-volume use by many active transportation modes. These trails are used where pedestrian traffic is anticipated to be the main mode and bicycle traffic is anticipated to be infrequent. Neighborhood connector trails provide origin-destination connections on a very local scale and are often intended to create connectivity within or between neighborhoods and/or parks. If use increases on a neighborhood connector trail, it could be widened or paved to better accommodate the increased traffic. It is unlikely that a neighborhood connector would be re-classified as a commuter type trail because they are often short in length and/or do not make a direct connection to a commuter trail. These trails are also designed to interface with the bike lane system and the sidewalk system on a regular basis.

The following are basic design criteria for associated with a neighborhood connector:

- ADA compliant as far as site constraints allow
- 6’ to 8’ wide depending on anticipated use
- 12’ to 20’ wide corridor depending on anticipated use and site conditions
- At-grade crossings must have adequate safety enhancements as necessary
- Paved or accessible natural surfacing
- Landscaping where possible; may be adopted by adjacent landowners
- Lighting may be used depending on site conditions and public request
- Wayfinding signage
- Seating where appropriate

Level of maintenance

These trails are lower priority for maintenance activities. Paved neighborhood connectors will be cleared of snow regularly during the winter after commuter trails are cleared. Natural surface trails will not be cleared of snow. Major repairs will be completed as needed and as funding is available. Maintenance of landscapes along these trails will be completed on a regular basis as staffing levels allow. Some landscapes may be adopted by interested citizens. These trails are upgraded with amenities such as lighting, landscaping, seating, etc as funding becomes available and as indicated by public requests.

d) Recreational Trails

Recreational trails are the only trail classifications dedicated for recreational use alone. These trails vary widely in their length, width and difficulty level. These trails are designed for all types of recreational use such as hiking, trail running, mountain biking, horseback riding and others. Recreational trails are found in publicly owned parks and open space. They are also used in some neighborhood common areas. Since some of the recreational trails in Missoula are on private lands, it is important for users to know the trail they are on and who owns the property. Complete information on recreational trails can be found in the Missoula Conservation Lands Management Plan.

4. Good Trail Design

A successful trail is one that is used often, accessible to users of all ages and abilities, convenient and safe. In short, successful trails require good design. All aspects of a trail must be planned carefully and strategically designed to ensure its success. The design professionals and public agencies involved in a trail project must consider safety, trail components, and crossing design when planning a new trail project.

Successful trails are more than a strip of gravel or asphalt. Successful trails have amenities that make them complete. These amenities include the type of surfacing, lighting, landscaping, wayfinding signage, seating and other furnishings. Amenities may be seen by some as unnecessary extras that only add cost to a project. In reality, amenities that complete a trail are very important to creating an inviting corridor that is welcoming to the public, feels safe, establishes a sense of place and encourages more people to choose active transportation options.

All public trails must be located on publicly held properties in order to maintain permanent public access. As discussed in the ROW Acquisition section above, this can be done by planning trails through existing public lands, or acquiring fee title to private property or acquire easements on private lands.

a) Designing for Safety

Trails must be designed to be safe and durable, especially when it comes to commuter and neighborhood trails. Recreational trails require a much lower level of design than other trail classifications. To ensure that trails are designed to be safe and durable, they must be designed by a professional who is qualified to ensure that the facility meets all federal, state, and city standards as much as they apply to the specific type of trail being designed. The basis for design for public trails is the MUTCD, AASHTO and ADA guidelines. Other State or City standards may expand on or build on the guidelines described in these more general design documents. These documents discuss the details of design such as widths, grades, cross slopes, materials, traffic signage, and other items.

In addition to being safe and durable, trails should be designed to give users a sense of safety. While design cannot address or control all human behaviors, there are several design related tools that can be used to make negative behaviors on a trail less likely to happen. A set of guidelines known as Crime Prevention Through Environmental Design (CPTED) should be followed to help keep trails feeling safe. Details on this approach to design can be found in Appendix B.

Recommended Policy: All trails must be designed by a qualified professional (applies to gvt. and developer led projects) and additionally meet MUTCD, AASHTO, ADA (list any other applicable standards)

Opportunity Type: Ongoing as existing trails are retrofitted and new trail connections are constructed.

b) Surfacing

The surfacing of a trail is the topmost layer that is exposed to users, the weather and maintenance vehicles. A trail's classification is the main determining factor for selecting the appropriate surface for a project. For example, commuter trails should have a surface that maximizes accessibility and caters to the widest range of users. Commuter trails also require a higher level of maintenance as compared to neighborhood connectors and recreational trails.

A paved surface meets these needs most efficiently. Paved surfaces improve air quality by preventing dust pollution, and they are easier to keep clear of snow in the winter months. In addition, if a trail is funded through federal transportation dollars, a paved surface would most likely be required.

While paved surfaces accommodate most typical trail users, they do not meet the desires of some user groups. Runners, joggers, walkers and the like, tend to prefer earth or gravel surfaces to lower the impacts to their bodies while using trails for exercise. Equestrians often will not use a paved trail due to impacts on their animals. In situations where specialized user interests exist, it is desirable to have more than one surface in a trail corridor given that sufficient widths are available. When a choice must be made between a paved commuter surface and a special interest surface, the paved commuter surface must take priority to maintain access for the greatest number of users.

Figure 5-25: Paved Trail Example between Bonner and Turah

Missoula is dedicated to developing a healthy built environment. Part of this is choosing construction materials that have fewer impacts on the natural environment. Alternatives to asphalt and concrete paving are often used for neighborhood connector trails, but recreational trails are rarely, if ever, paved. This meets their intended use and is appropriate for the functions they serve. These trail classifications often come with lower environmental impacts than paved commuter trails. While gravel and earth surfaces have a lower environmental impact compared to pavement, they are not practical for commuter trails. Some research has been put toward alternative surfacing for commuter trails, currently no solution that adequately meets the commuter trail's design criteria has been identified. Further research is needed to address this important topic.

***Opportunity Type**:* Mid-term based on availability of maintenance funding to pave existing gravel trails and construct new trails to standard as needed.

c) Lighting

Lighting is an important amenity for trails in urban areas for multiple reasons. Lighting allows a trail to be used during the twilight hours and provides users with an incresed sense of safety. Missoula sees very short days during the winter months. In the dead of winter, it is not uncommon for a typical person to arrive to work before the sun rises and to leave after it has set. Lighting along a trail may encourage users to continue to commute via the trail system well into or even through the winter season.

Lighting also provides an added measure of safety for trails. Users can navigate the trails more easily when they can see adequately in the twilight or the dark of night at any time of year. Lighting also allows for a trail corridor to be visually surveyed more easily (CPTED principle) making it less likely to be a location for negative behaviors.

Figure 5-26 Trail lighting for safer nighttime use

Lighting can also be an opportunity to protect Missoula's cultural and environmental resources. Decorative lighting can be used to celebrate Missoula's history by reflecting past architectural styles. This is one way to establish a unique sense of place. Trail lighting should also capitalize on new technologies that increase energy efficiency and alternative types of energy. For instance, technologies like induction florescent or LED lighting can be used to reduce electricity consumption. In addition, solar powered lights should be researched. Trail lighting can be expensive, but it is important for creating a complete trail corridor that meets the needs of most users.

Recommended Policy: Identify where lighting is currently inadequate and provide lighting on all Primary Commuter Trails, new and existing. Additionally, provide lighting on Secondary Commuter as deemed appropriate.

Opportunity Type: Mid to long-term as funding becomes available.

d) Landscaping

Landscaping is another component that can add a feeling of completeness to a trail corridor. People are affected emotionally by their environments. They can feel welcome and invited by the presence of a well-maintained landscape. They can also feel fearful and anxious when the surroundings are not well kept, even if no real

threat exists. For a trail to be successful and used by more people, it must be a pleasant place.

Well-planned and maintained landscaping adds softness and interest to a site that is attractive to people. People are more likely to use a trail surrounded by a landscape that is welcoming as opposed to one that is derelict barren, feels private or feels unsafe. Landscaping along a trail can create a park-like feeling even in a relatively narrow corridor. This setting is more likely to be less stressful for users. CPTED principles state that more people using a trail corridor will often make the corridor safer. In this respect, landscaping can provide an element of real safety.

Figure 5-27: Trail Landscaping

Landscaping can be used as an accent to important points along a trail corridor. Well-designed plantings at trail entrances or street crossings announce to users and approaching vehicles the location of the intersection. Plantings can also be used to accent the location of other trail amenities like benches, pull outs and interpretive signage.

As alluded to above, landscaping must be well maintained in order to have the desired effect. The best designed landscape could soon fail to do what it is intended to do and even do the opposite if not properly maintained.

Recommended Policy: Trail corridors must be landscaped for beautification and safety. Landscaping must be water-wise to reduce water consumption

Opportunity Type: Concurrent with trail construction.

e) Way finding, Signage and Interpretation

Wayfinding is a system that helps trail users successfully navigate unfamiliar surroundings. For example, wayfinding signage can provide visual cues to trail users of when to turn or cross a street in order to continue upon a trail. Signage can also direct travelers toward a district or destination and announce arrival.
The design of the trail itself can aid in wayfinding. Color and texture added to trail paving at strategic locations, such as where a trail turns sharply or merges with another facility, can add continuity and therefore make it much more apparent where the trail goes. Repeating patterns in landscaping can also aid in wayfinding by announcing entry points and accenting rest stops. For more information about the components of a wayfinding system, see Appendix B.

Figure 5-28: Wayfinding Signage
Figure 5-29: Wayfinding Trail Markings

Recommended Policy: Develop a comprehensive way-finding system to be employed on the entire AT system – bike lanes/routes, trails & sidewalks.

Opportunity Type*:* Developing an overall wayfinding sign program is a long-term opportunity in order to research format options and to obtain capture stakeholder input.

f) Rest Areas and Seating

Rest areas and seating are trail amenities that complete a trail by meeting several typical user needs. Commuter trails are accessible to users of all types and to all active modes, which means that people will need to periodically stop and/or move slowly. Rest areas with seating provide this kind of space.

Rest areas and seating should be located outside the flow of traffic. Benches, for instance, must be set far enough back from the edge of a trail that the feet or knees of the people sitting on them do not risk being hit by a passing bicycle or runner. These areas should also be designed with enough space to accommodate items such as assistive mobility devices, strollers and bike chariots. Waste receptacles are appropriate furnishings for rest areas but should be located close enough to be convenient but far enough from benches to not detract from the user's experience.

Rest areas present another opportunity to introduce elements that define and celebrate Missoula's character. Furnishings should be made of materials that represent Missoula in some way. Waste receptacles and benches are good items to design with a local theme. In addition, informational signs and interpretive signs fit well into a rest areas' design.

Recommended Policy: All Primary Commuter Trails must include seating and rest areas. Secondary Commuter and Neighborhood Connector Trails should have seating and rest areas as deemed appropriate by Parks.

Opportunity Type: Concurrent with trail construction and retrofits.

g) Street Crossings

At-Grade Enhancements

At points where trails cross streets with lower vehicular volumes and speeds, an at-grade crossing may be appropriate, as long as the design of the intersection highlights the visibility of trail users and vehicles. This can be accomplished with appropriate signage and street markings and aligning the crossing so that the trail users squarely face the intersection and have the shortest possible distance to cross. Crossings can also employ bollards to alert trail users to the road ahead. Bollards are also an effective means of limiting speed on trails, especially for cyclists who might choose to travel too fast for a shared-used trail. Bollards must be designed so that they are visible at night and do not obstruct the trail so that they actually pose a hazard to cyclists.

At-grade crossings can also be improved by pedestrian or cyclist-activated lighting inset in the cross walk. However, more research is needed regarding how inset lights would function under snow and ice and how they would hold up to snow plows. Another option would be actual traffic signals that give vehicles a red light

when trail users need to cross. This type of treatment could be appropriate in the future at a particularly busy trail crossing.

Bulb-outs are an effective way to enhance the safety of an at-grade crossing. They shorten the crossing distance of a street so someone crossing is exposed to traffic for a shorter time. Care must be taken to ensure that bulb-outs do not cut into bike lanes if they are present on the street to be crossed.

Table top crossings are another tool that can be used. These are raised crossings designed to calm traffic as well as make a crossing more apparent to approaching motorists. These crossings must be designed to accommodate snow removal equipment and emergency vehicles.

Recommended Policy: Conduct a study/audit of existing crossings and identify any safety shortfalls and areas where safety can be enhanced. Use AASHTO and MUTCD as basis of design for assessment. Create a plan to implement safety enhancements. New construction must include safety enhancements per AASHTO and MUTCD at a minimum. Exceeding these standards must be evaluated on a case by case basis.

Opportunity Type: Long term while funding is prioritized for expansion of the trail system.

Separate Grade Crossings

Especially in the urban areas of the Missoula MPO, trails often cross roads or railroad tracks such as with the Northside Pedestrian Bridge. Particular care must be taken at these intersections to ensure that trail users of all ages and abilities can cross safely. At un-signalized trail intersections with high vehicle volumes (typically arterials and collectors), it is preferable to create a separate-grade crossing for the trail users, either routing them over or under the roadway. While more expensive than an at-grade crossing, separate-grade crossings assure that trail users of all ages and abilities can safely use the trail. Special attention should be given to adequate day and night-lighting of trail under-crossings so that they do not pose a real or perceived threat to personal safety and security. Examples of appropriate locations for grade-separated intersections in the Missoula Area include the Milwaukee and Bitterroot Branch Trail crossings at Russell Street.

Opportunity Type: Long-term due to the large cost of these types of improvements.

5. Upgrades and Retrofits

Over time, use patterns on a trail can change. A secondary commuter trail, for instance, could begin to see heavier use due to new development or a change in demographics. On the other hand, the opposite may occur and use of a certain trail may drop off due to changes in the community. As a trail's use changes over time,

the facility could be reclassified, bringing with it all the specific enhancements associated with that classification.

Some trails in Missoula have seen this kind of increased use. The North Shore Riverfront Trail, for instance, sees some of the heaviest traffic in Missoula due to the regular events that are held at Caras Park and downtown. This trail was developed at a time when the traffic volumes were not as high. Congested trails can be a deterrent for some users. This trail needs to be widened to accommodate the use it receives, but the City's ability to do so is limited to the amount of right-of-way available. In a few locations, the right-of-way is quite constricted.

Much of the existing trail system does not have the trail components mentioned in the above sections. The community would benefit from upgrading the trails with these amenities to create a more complete trail system. Trail upgrades provide improved safety and greater accessibility. They make a trail more welcoming and easier to navigate which in turn results in more users and a healthier community.

Opportunity Type: Long term while funding is prioritized for expansion of the trails system.

6. Maintenance

Trail corridors must be well maintained in order to remain inviting to people. There are several attributes of a well-maintained trail corridor:

- The trail and the surrounding landscape must be generally clean and free of trash
- Appropriate waste management facilities should be present such as trash can enclosures and Mutt Mitt stations where appropriate
- Landscapes should be kept up and weeds should be managed
- During the winter months, paved trails should be kept clear of snow and ice to maximize accessibility.
- The trail surface should be kept generally clear of debris that could impede wheeled travel such as gravel, tree branches and leaves.
- Other items should be addressed on an as needed basis such as repairing potholes, filling cracks and asphalt overlays. Eventually pavement wears out and needs to be replaced. For a typical paved trail its surface can expect a lifespan of 20 to 30 years. Replacement of an asphalt surface should be planned within this timeframe.
- Ultimately, when a trail corridor is well maintained, it will be successful. It will draw more people to it and encourage more people to choose active transportation.

It is important to note that the County does not have a Parks and Recreation Department and is not able to deliver a comparable level of service for maintenance comparable to the City on trails located within the MPO. To do so would require additional staffing and funding. While the County Public Works Department works hard to design and construct trails, they also do not presently have the resources to provide snow removal and sweeping as outlined in the preceding level of maintenance sections of the MATP.

Similar to the maintenance of County parks facilities, the County works with neighborhood groups, user groups and other organizations to assist with trail maintenance as appropriate. These partnerships are important to the County; they allow staff to work closely with residents and to extend resources a bit further. This model has been quite successful in more rural parts of the County, and may be something to explore within the MPO area as well.

Chapter 6: Active Transportation Projects

A key goal of the *Missoula Active Transportation Plan* is to identify projects and policies needed to achieve the preferred growth scenario for Missoula as envisioned in the *2008 Missoula Long Range Transportation Plan*. Chapter 5 identifies major active transportation corridors, and examines infrastructure improvement opportunities. Chapter 6 illustrates how the community used this information to develop a Project Matrix that identifies on-street and off-street active transportation infrastructure projects and prioritizes them based on technical/policy ranking criteria and community support

I. Infrastructure Projects

The process that produced the Missoula Active Transportation Plan generated suggestions for a wide range of infrastructure projects such as sidewalks, bike lanes, trails, and intersection improvements. Determining which projects are most important to the community was essential to ensure the best use of limited resources. A key TAC objective was the creation of a system that prioritized projects based on their merits from both a technical standpoint and from a more subjective standpoint of their value as seen by the community.

Please reference Maps 6.1 through 6.3 for maps displaying projects by investment type with each project identified by reference number.

A. Universe of Projects

As a first step in developing a comprehensive list of potential active transportation projects, the planning team compiled a Universe of Projects (UOP) from multiple sources. Chapter 5 of this document described current design issues and potential solutions. The UOP expands on these ideas to come up with a list of potential projects. The UOP included bicycle and pedestrian projects from adopted or draft neighborhood, City, County and regional plans and grant applications Input from participants at the January Kick-Off Workshop, neighborhood associations and active transportation advocacy groups provided additional projects for the UOP. Following completion of the UOP in July, interested citizens throughout the community suggested additional projects as did people who attended the MATP Open House on October 7, 2010.

The MATP project list looks beyond the five year time-frame of the MPO's Transportation Improvement Program and the City and County Capital Improvement Programs. Projects already listed in the Transportation Improvement Program or the Capital Improvements Program were not included in the UOP because they have already been prioritized, assigned funding and have estimated construction years.

B. Project Prioritization

1. Ranking Criteria

In order to prioritize more than 100 active transportation projects, the TAC developed twelve technical criteria grouped under five main categories: Safety, Livability, Equity, and Past History. These categories reflect the Guiding Principles for Active Transportation Plan described in the Executive Summary of the document. Projects were also weighted in part based on more subjective community support. The project list by ranking criteria is shown in Table 6-2. The report detailing the project ranking criteria and procedure for applying the criteria to specific projects appears in Appendix C.

The intent of the ranking process was to score projects based on an objective, data-based set of criteria. Projects received points for each criterion that they met. The maximum total score that a project could receive was forty-five (45) points.

2. Major Areas of Investment

In addition to cataloging all public comments about specific projects, the TAC asked members of the community to weigh in at the broader level of major areas of investment. The team divided the infrastructure projects into the following five "major areas of investment."

- Trail Connections
- Neighborhood Sidewalks
- On-Street Bike Facilities
- Intersection/Safety Improvements
- Education/Outreach and Enforcement Programs

At the October 7 Open House, participants expressed their preferences for where to invest available resources across these major areas of investment. People who attended the Open House visited tables displaying project lists and maps that identified the type and location of projects in each areas of investment. After viewing each display, attendees "invested" poker chips at each display according to how they valued each type of infrastructure. Participants invested their poke chips relatively equally across the physical infrastructure areas of investment, suggesting a balanced approach to investing in pedestrian and cyclist facilities on and off-street. For more information about the public participation process and the October 7 Open House, please see Appendix E.

C. List of Projects Organization

Table 6.1 organizes projects from the refined UOP in a matrix according to the four Major Areas of Investment (Regional Trail Corridors, Neighborhood Sidewalks, On-Street Bike Facilities and Intersection/Safety Improvements). The list of projects

does not include projects found in the 2011-2015 Transportation Improvement Program or Capital Improvements Program that have funding allocated and construction dates set. The matrix includes six elements. The project name identifies the project as it is commonly known or as it appears in a previously adopted plan. The project type identifies the project's Area of Investment. The project limits define the starting and ending points or physical location of a project. The funding source identified where the money will come from to pay for the project. The scope defines the broad parameters of the project (e.g., "install sidewalks, curbs, gutters and landscaping"). For a list of projects by neighborhood, please reference Appendix F.

Table 6-1: Project List

Proj. #	Project	Agency	Source	Funding Source	Project Description
	Intersection/ Safety Improvements				
9	Bitterroot Branch Trail separate-grade crossing of 3rd St.	PARKS & REC	LRTP '08	CTEP	Underpass or at-grade crossing sat BBT and 3rd. As traffic on 3rd increases, it will become more difficult to cross on the BBT. The BBT is a high volume commuter trail that justifies separate-grade crossings.
11	Construct Reserve Bike/Ped Crossings at Spurgin, 7th or 3rd, and River Rd.	PARKS & REC	LRTP '08	CTEP	Improve at-grade crossing conditions at Spurgin and River Rd.. A separate-grade crossing near 3rd would be preferable to one at 7th because of the direct link to the school but site conditions show that a separate-grade crossing at 7th may be more feasible. At-grade crossing improvements at Spurgin and River would suffice but must include bike lane movements.
37	Non-motorized crossing under & onto Russell Street Bridge on north side of river.	MDT	RR/ED LRTP	Unknown Funding	Create a non-motorized crossing under and onto the Russell Street Bridge on the north side of the Clark Fork River, per the Third and Russell Street EIS. Since the project is included in the Russell Street EIS, the Record of Decision will determine its inclusion within the project.
66	West Broadway Bicycle and Pedestrian Improvements	CITY PUBLIC WORKS	DTMP NS/WS	Unknown Funding	West Broadway – Includes protected bikeways on the south side of Broadway from Russell Street to Orange Street. Include streetscape, transit stops, street lighting, and raised and landscaped medians. Include new traffic signals at McCormick, Bitterroot Spur (pedestrian crossing), and Burton Street. Includes signal upgrades to accommodate protected bikeways.
69	Higgins Avenue Bridge Improvements	CITY PUBLIC WORKS	DTMP	Unknown Funding	Higgins Avenue Bridge Improvements – Protected bikeways, enhanced connections to Caras Park, widened walkway, and Historic Street Lights.
73	Downtown Streetscape	CITY PUBLIC WORKS	DTMP	Unknown Funding	Downtown Streetscape – Bulb-outs, hardscape, and landscape, tabletop intersections.
77	Pedestrian signal heads and countdown indicators	CITY PUBLIC WORKS	DTMP	Unknown Funding	Traffic Signal Progression & Pedestrian Countdown Crossing Indicators – Provide vehicle and pedestrian detection at existing traffic signals. Replace existing walk indicators with countdown indicators. This includes all signalized intersections within the Plan area. Currently, upgrades within the Downtown Master Plan study area are under way.
104	Arterial Street Lights	CITY PUBLIC WORKS	LRTP '08 (App. B)	Lighting Improvement District (LID)	Most of the City's arterial streets do no have street lighting. Street lights enhance corridor safety for all modes of traffic and pedestrians and improves the efficiency of night-time operations. A portion of Broadway Street lighting was completed in Fiscal Year 2007. These projects are dependent upon being coordinated with other improvement projects or initiated by property owners. Major streets include, but are not limited to: • Southwest Higgins • Mullan Road • Russell • South 3rd Street • Brooks Street • South Avenue • Broadway
106	Street Improvements: E. Broadway (Van Buren to Easy St.)	CITY PUBLIC WORKS	LRTP '08 (App. B)	Assessments	May include sidewalks, grade separated trails, crosswalks, pedestrian buttons, dedicated bike lanes, bike routes, and sharrows
127	Intersection Improvements at: Clements & Mount Clements & Spurgin Clements & S. 7th W. South Ave. and 40th Ave.	COUNTY PUBLIC WORKS	TR	Unknown Funding	Intersection Improvements: Establish pedestrian crossings at Clements Road & Mount Avenue, Clements Road and Spurgin Road, and Clements Road and South Seventh Street. Include a pedestrian crossing in the proposed traffic circle at South Avenue West and 40th Avenue.
129	Bike and pedestrian facilities on Higgins	CITY PUBLIC WORKS	MIST DTMP	Unknown Funding	Improve Higgins Street to include safe, continuous and accessible bike/ped facilities from Brooks to Broadway.
130	Bike and pedestrian facilities on Broadway	CITY PUBLIC WORKS	MIST	Unknown Funding	Improve Broadway to include safe,continuous and accessible bike/ped facilities from Van Buren Street to the Airport.
131	Bike and pedestrian facilities on Orange/Stephens	CITY PUBLIC WORKS	MIST, BPAB	Unknown Funding	Improve Orange/Stephens to include safe, continuous and accessible bike/ped facilities from Spruce to Brooks.
132	Bike and pedestrian facilities on Brooks	CITY PUBLIC WORKS	MIST	Unknown Funding	Improve Brooks Street to include safe, continous and accessible bike/ped facilities from Mount to Reserve.
143	Intersection improvements at Toole/Scott/Spruce	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Enhance safe pedestrian, bike and vehicular traffic. A 3 or 4 way stop is recommended with enhanced striping for pedestrians.
144	Safe pedestrian crossing - Orange St.	CITY PUBLIC WORKS	NS/WS	Unknown Funding	North Orange near the Providence Center
145	Intersection Improvement - N. 5th St.	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Improvement for pedestrians at N. 5th, Worden and Stoddard
146	Crosswalk Improvement - Spruce & McCormick	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Crosswalk improvement at Spruce and McCormick
147	Bike/Ped Crossing - Russell & Broadway	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Improve pedestrian/bike crossing at Russell Street/Broadway. Since the project is included in the Russell Street EIS, the Record of Decision will determine its inclusion within the project.
148	Street lights - North Scott St.	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Improve pedestrian access with street lights from Palmer to Pullman on North Scott Street.
153	Lighting - Northside Greenway	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Lighting on Northside Greenway for bike ped safety
154	Traffic Calming - Multiple Streets	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Traffic calming projects on Scott Street, West Broadway, N. 5th, N 2nd, West Alder near little McCormick Park
155	Traffic Calming - Cooley	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Traffic calming at Cooley (on the Northside) - Needs better description
158	Bike Facilities - Mount/14th	CITY PUBLIC WORKS	OPN HSE	Unknown Funding	Add bike facilities along the entire length

Table 6-1: Project List

Proj. #	Project	Agency	Source	Funding Source	Project Description
	Neighborhood Sidewalks				
14	Sidewalks - Kemp Street between 3rd Street and South Avenue	CITY PUBLIC WORKS	F2F	Unknown Funding	Complete installation of sidewalks, curbs and gutters on Kemp Street (between 3rd Street and South Avenue)
15	Sidewalks - Catlin Street between 3rd Street and 14th Street	CITY PUBLIC WORKS	F2F TIGER I	Unknown Funding	Complete installation of sidewalks, curbs and gutters on Catlin Street (between 3rd and 14th Streets)
16	Sidewalks - 11th Street	CITY PUBLIC WORKS	F2F	Unknown Funding	Complete installation of sidewalks, curbs and gutters on 11th Street
17	Sidewalks - 8th Street	CITY PUBLIC WORKS	F2F	Unknown Funding	Complete installation of sidewalks, curbs and gutters on 8th Street between Russell and Grant Streets
19	Sidewalks - Grant Street	CITY PUBLIC WORKS	F2F	Unknown Funding	Complete installation of sidewalks, curbs and gutters on Grant Street. Sidewalk improvements to address deficiencies in Walk to School Route.
20	Sidewalks - 10th Street	CITY PUBLIC WORKS	F2F TIGER I	Unknown Funding	Complete installation of sidewalks, curbs and gutters on 10th Street where none exist.
21	Sidewalks - 7th Street	CITY PUBLIC WORKS	F2F TIGER I	Unknown Funding	Complete installation of sidewalks, curbs and gutters on 7th Street. Sidewalk improvements to address deficiencies in Walk to School Route.
39	Rattlesnake Drive Sidewalks--Poplar to Elm	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Sidewalks, curbs, gutters up Rattlesnake Drive from Poplar to Elm. Bike facilities included in Project 142.
40	Sidewalks - Rattlesnake Drive from Elm to Lilac	CITY PUBLIC WORKS	RVTSS 2001 NMTP	Unknown Funding	Sidewalks, curbs, gutters up Rattlesnake Drive from Elm to Lilac. Bike facilities included in Project 142.
41	Rattlesnake Drive Sidewalks--Lilac to 1800 Van Buren	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Sidewalks, curbs, gutters up Rattlesnake Drive from Lilac to 1800 Van Buren. Bike facilities included in Project 142.
42	Rattlesnake Drive Sidewalks--1800 Van Buren/Rattlesnake Drive to Wylie	CITY PUBLIC WORKS	RVTSS CIP	Unknown Funding	Sidewalks, curbs, gutters up Rattlesnake Drive from 1800 Van Buren/Rattlesnake Drive to Wylie Street. Bike facilities included in Project 142.
43	Rattlesnake Drive Sidewalks--Wylie and Rattlesnake Drive to Lolo Street	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Sidewalks, curbs, gutters up Rattlesnake Drive from Wylie to Lolo Street. Bike facilities included in Project 142.
45	Rattlesnake Drive Sidewalks--Lolo Drive to Pineview Drive	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Sidewalks, curbs, gutters, or bike lanes up Rattlesnake Drive from Lolo Street to Pineview. Bike facilities included in Project 142. Sidewalk improvements to address deficiencies in Walk to School Route. Complete missing segments.
46	Mountain View Dr. Bike/Ped facilities - Rattlesnake Drive to Duncan Dr.	CITY PUBLIC WORKS	RVTSS TIGER I	Sidewalk assessments Grant	Sidewalks, curbs, gutters, and bike lanes along Mountain View Drive from Rattlesnake Drive across footbridge, to Duncan Drive. Sidewalk improvements to address deficiencies in Walk to School Route (UPDATED NAME AND DESCRIPTION)
47	Rattlesnake Drive Sidewalks--Pineview to Creek Crossing	CITY PUBLIC WORKS	RVTSS TIGER I	Unknown Funding	Sidewalks, curbs, gutters, or bike lanes up Rattlesnake Drive from Pineview to Creek Crossing. Bike facilities included in Project 142.
85	Sidewalk - Hillview Way from 39th to 55th (includes underpass at Moose Can Gully)	CITY PUBLIC WORKS	LRTP '08 (App. B)	Sidewalk Assessments	Construct sidewalk on Hillview Way from 39th to 55th (includes underpass at Moose Can Gully)
86	Sidewalks - River Road from Reserve to Russell	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	River Road-Reserve to Russell
89	Sidewalk - California from Dakota to 3rd	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Construct sidewalks on California from Dakota to 3rd.
91	Sidewalks - Wyoming from Grant to Davis	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Wyoming- Grant to Davis
92	Sidewalks - Davis from 3rd to River Road	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Davis--3rd to River Road
93	Sidewalks - Curtis from 3rd to River Road	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Curtis--3rd to River Road
94	Sidewalks - S 5th from Garfield to Johnson	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	S 5th-Garfield to Johnson
96	Sidewalks - Schilling from 3rd to 7th	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Schilling-3rd to 7th. Sidewalk improvements to address deficiencies in Walk to School Route.
99	Sidewalks - Eaton from 7th to Dearborn	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Eaton-7th to Dearborn. Sidewalk improvements to address deficiencies in Walk to School Route.
100	Sidewalks - Spurgin from Eaton to Reserve	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Spurgin-Eaton to Reserve
101	Sidewalks - Clark from South to McDonald	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Clark-South to McDonald
102	Sidewalk - Dore from McDonald to 39th	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Construct sidewalk on Dore from McDonald to 39th
103	Sidewalks - Mary from Reserve to RR Tracks	CITY PUBLIC WORKS	TIGER I	Sidewalk Assessments Grant	Mary-Reserve to RR Tracks
110	Bellevue Park Curb and Sidewalk Improvements	CITY PUBLIC WORKS	LRTP '08 (App. B)	City Assessments Special Assessments	(INADEQUATE DESCRIPTION)
150	Complete Sidewalks	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Cooper, Howell, Defoe, Dickens, Stoddard, Sherwood, Turner and Waverly. Sidewalk improvements including curb, gutter and sidewalks to address deficiencies in Walk to School Route.

Table 6-1: Project List

Proj. #	Project	Agency	Source	Funding Source	Project Description
166	Sidewalk Improvements - Gilbert Ave from Rattlesnake Dr. to Pineview Dr.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
167	Sidewalk Improvements - Woodland Ave from Lolo St. to Mountain View Dr.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
168	Sidewalk Improvements - Mountain View Dr. from Rattlesnake Dr. east to end.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
169	Sidewalk Improvements - Missoula Ave. from Van Buren St. to Lolo St.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
170	Sidewalk Improvements - Holly St. from Jackson St. to Van Buren St.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
171	Sidewalk Improvements - Jackson St. from Elm St to Holly St.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
172	Sidewalk Improvements - Ernest Ave. from Garfield St. to Washburn St. (South side only)	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
173	Sidewalk Improvements - 23rd Ave. from W. Foothills Dr. to 55th St.	CITY PUBLIC WORKS	0	Unknown Funding	Sidewalk improvements to address deficiencies in Walk to School Route
	On-Street Bike Facilities				
6	Develop Bike Lanes on Van Buren Street at the MRL bridge	MDT	LRTP '08	Unknown Funding	This project pertains to the pinch point created by the MRL railroad bridge and would include bike lane improvements at this location. Other bike/ped facilities along this section of Van Buren are included in Project 7 - Rattlesnake/Broadway Crossing (RUX) which is currently underway and the Missoula East and West MDT Interstate Maintenance project which is included in both the 2008 LRTP and TIP.
135	5th & 6th Bikeways-- Maurice/Arthur to Higgins	CITY PUBLIC WORKS	BPAB MIST	Unknown Funding	Provide safe, continuous bike facilities on South 5th and 6th Streets between Maurice/Arthur and Higgins
136	Bike Facilities-- W. Spruce from Orange to Railroad Tracks	CITY PUBLIC WORKS	BPAB	Unknown Funding	Install Bike facilities on W. Spruce Street, west from Orange to the railroad tracks
138	5th and 6th Bikeways--Higgins to Russell	CITY PUBLIC WORKS	BPAB	Unknown Funding	Provide safe, continuous bike facilities on South 5th and 6th Streets between Higgins and Russell
140	Bicycle Slip Lanes--Higgins at Intersection with Brooks	CITY PUBLIC WORKS	BPAB	Unknown Funding	On South Higgins Avenue at the Brooks Street intersection add a dotted slip lane or other engineering modifications for bikes.
142	Rattlesnake Drive - On-street Bike Facilities	CITY PUBLIC WORKS	RVTSS	Unknown Funding	On-street Bike Facilities: Poplar to Elm (BIKE LANE COMPLETED), Elm to Lilac (BIKE LANE COMPLETED), Lilac to 1800 Van Buren (BIKE LANE COMPLETED), 1800 Van Buren to Missoula (BIKE LANE COMPLETED), Missoula to Wylie, Wylie to Lolo, Lolo to Pineview, Pineview to Creek Crossing
149	Bike Lanes - N. 5th St., Worden, Cooley	CITY PUBLIC WORKS	NS/WS	Unknown Funding	Bike lanes on N. 5th, Worden, and Cooley to connect Orange and Scott Streets
161	Bike Facilities - Brooks - Mount to Reserve	CITY PUBLIC WORKS	OPN HSE	Unknown Funding	Install bike facilities on Brooks - Mount to Reserve
163	Bike Facilities - Russell St. from Mount to Brooks	CITY PUBLIC WORKS	OPN HSE	Unknown Funding	Install bike facilities on Russell street from Mount to Brooks
	Trail Connections				
8	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South Avenue	PARKS & REC	LRTP '08	CTEP	This project will consist of ROW acquisition, construction of a trail between North and Livingston and improved trail/ped crossings at Johnson & South. It would create a much needed connection in the BBT creating direct access between several neighborhoods, Southgate Mall, downtown and several parks.
10	River Road Trail - California St. to Russell St.	PARKS & REC	LRTP '08 RR/ED	CTEP	Construct a trail in the River Rd ROW from the west side of the California St. Bridge to the proposed Russell St. bridge and the planned trail crossing under it. May require some ROW acquisition at east end of River Rd. This trail is a continuation of the south shore riverfront system.
12	Missoula to Lolo Trail	PARKS & REC	LRTP '08 Lolo Regional Plan OPN HSE	CTEP	Designate most feasible route, acquire ROW where necessary, and construct a trail that links the south end of the Bitterroot Branch Trail in Missoula to the Hwy 93 trail system in Lolo. This trail would extend the Bitterroot Branch Trail all the way to Lolo. It is anticipated that this trail connection would alleviate some of the traffic congestion on Hwy 93. This project is in unincorporated Missoula County.
32	Inverness Place Trail Extension	PARKS & REC	RR/ED	Unknown Funding	Continue the bike-pedestrian trail in Inverness Place eastward across the Rice Addition via the public right-of-way easement that extends east from the present cul-de-sac.
33	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	PARKS & REC	RR/ED	Unknown Funding	Provide a bicycle-pedestrian connection between the Emma Dickinson Learning Center, the Council Grove Apartments, and a future segment of Johnson Street if and when Johnson is extended north from Third Street.
35	Riverfront Trail between Russell & Reserve Streets	PARKS & REC	RR/ED	Unknown Funding	Work toward eventual reclamation and public acquisition of the Missoula Ready Mix property to facilitate extension of the Riverfront Trail after concrete production ceases on the site. Plan for non-motorized circulation within the park as determined at the time of development of the park (gravel pit area). It is necessary for reclamation to occur before the property is turned over to public use.
38	Bike/Ped Bridge from Mullan Rd. to Missoula Ready Mix site	PARKS & REC	RR/ED	CTEP	Add a bicycle/pedestrian bridge from Mullan Road over the Clark Fork River to the Missoula Ready Mix site, preferably somewhere about halfway between Reserve and Russell Streets. • The exact location of the bridge will depend on development and design on both sides of the river. • Cooper Street is one possible approximate location. • A parking lot should be provided with access from Mullan Road near the north end of the bridge.
48	Bicycle/pedestrian facilities parallel to Creek Crossing to Tamarack. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS TIGER I	Grant	Bicycle/pedestrian facilities from Creek Crossing to Tamarack Street/Fox Hollow.

Table 6-1: Project List

Proj. #	Project	Agency	Source	Funding Source	Project Description
49	Bicycle/pedestrian facilities parallel to Tamarack to USFS Trailhead. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Bicycle/pedestrian facilities from Tamarack Street to USFS Trailhead.
50	Bicycle/pedestrian facilities parallel to Lincoln Hills Dr. from Rattlesnake to Applehouse. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Bicycle/pedestrian facilities along Lincoln Hills Drive from Rattlesnake to Applehouse Lane.
51	Bicycle/pedestrian facilities parallel to E side of Soccer Fields. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Bicycle/pedestrian facilities along east side of soccer fields connecting all neighborhoods above Rattlesnake Court with the fields and Lincoln Hills Drive.
52	Bicycle/pedestrian facilities parallel to Lincoln Hills Drive--Applehouse to Contour. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Bicycle/pedestrian facilities along Lincoln Hills Drive from Applehouse Lane to Contour Lane; a trailhead is located a bit further at this point on Lincoln Hills Drive.
53	Bicycle/pedestrian facilities on Greenough Dr. from Waterworks Hill trailhead to Greenough Court. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS LRTP '08	Unknown Funding	Bicycle/pedestrian facilities on Greenough Dr. from Waterworks Hill trailhead to Greenough Court.
54	Bicycle/pedestrian facilities on Greenough Dr./Duncan Dr. from Greenough Court past Lolo St. to West Mountain View. (UPDATED NAME)	CITY PUBLIC WORKS	RVTSS	Unknown Funding	Bicycle/pedestrian facilities on Greenough Dr./Duncan Dr. from Greenough Court West Mountain View.
61	Grant Creek Trail to Snow bowl Rd - County portion only. City portion to be completed in 2010. (UPDATED NAME)	PARKS & REC	LRTP '08	CTEP	Create a 3.5 mile, 10' wide paved or gravel trail parallel to Grant Creek Rd that connects the neighborhoods to I-90 and Reserve. 2 miles are in the City and 1.5 miles are in the County.
63	Mullan Rd Bike/Ped Path Completion-City of Missoula--Flynn to Reserve	CITY PUBLIC WORKS	TIGER I	Grant	0
68	Riverfront Trail Extensions	PARKS & REC	DTMP	Unknown Funding	Riverfront Trail Extensions – Fill in gaps in trail connections on north side of river. Provide connections at Madison, Higgins, and Orange Street. (INADEQUATE DESCRIPTION)
76	Bitterroot Branch Trail River Crossing	PARKS & REC	DTMP NS/WS	Unknown Funding	Bitterroot Branch Trail Bike/Pedestrian Crossing – On or next to existing RR Bridge.
79	Westside Greenway Trail	PARKS & REC	NS/WS	Unknown Funding	Westside Greenway System along the following corridors subject to property owners' approval: (1) Between the Northside Bicycle/Pedestrian Bridge terminus on Owen Street and the Bitterroot Railroad Spur Line. (2) Between the mainline tracks and West Broadway next to the spur line. (3) From the Bitterroot Railroad Spur Line to North Russell Street, next to the main line tracks (low priority). (4) Extending the existing Shady Grove Riverfront Trail to North Orange Street
81	Northside Greenway Trail between Northside Park and Scott Street	PARKS & REC	NS/WS	Unknown Funding	Interstate greenway system between Northside Park and Scott Street on the south side of I-90 with connecting access to the North Hills via Coal Mine Road. A loop trail system could be created depending on cooperation of property owners.
124	Target Range Bike Paths: Tower: South Ave. to 3rd, 33rd: South to 3rd, 3rd: Reserve to Clements, Spurgin: Clements to Tower	COUNTY PUBLIC WORKS	TR	Unknown Funding	Establish bike paths on: ● Tower Street: South Ave. W. to South 3rd St ● 33rd Avenue: South Ave. W. to South 3rd St, ● S. 3rd St. from Reserve to Clements Rd. (Creates a Walk to School Route to Hawthorne Elementary) ● Spurgin Rd. from Clements Rd. to Tower St. NOTE: See Target Range Plan Map 8 – Transportation & Trails for existing & proposed paths.
125	North Avenue Bike Path: Clements - 37th	COUNTY PUBLIC WORKS	TR	Unknown Funding	Improve the bike path on North Ave. from Clements Road to 37th Street.
126	Clements Road Bike Path: Relocate segment between Mount & North Avenues from the east side of the street to west side.	COUNTY PUBLIC WORKS	TR	Unknown Funding	Relocating the bike path that runs the length of Clements Road from the east to the west side of the street for the segment between Mount Avenue and North Avenue would remove 2 avoidable street crossings along a high-use school and neighborhood route.
141	East Missoula to Bonner Bike/Ped Trail	COUNTY PUBLIC WORKS	0	Unknown Funding	Install trail from the bottom of Brickyard Hill to Bonner. Completes connection from East Missoula to Turah.
151	Trail - Ped. Bridge to Madison	PARKS & REC	NS/WS	Unknown Funding	Trail from Northside Pedestrian Bridge to Madison Ave/Rattlesnake Creek
152	Trail - Scott St. to Interstate Greenway	PARKS & REC	NS/WS	Unknown Funding	Trail Along Scott Street or through future White Pine Sash development area joining the Grand Street/Scott Street Rail Greenway to the Interstate Greenway
156	Trail - North Shore Riverfront - Van Buren to Easy St	CITY PUBLIC WORKS	LRTP (TBL. 4-7)	Unknown Funding	Bike/Ped trail along the north shore riverfront from Van Buren to Easy Street (ALIGNMENT HAS NOT BEEN ESTABLISHED)
159	Trail Connection - Strand to Burlington	MRA	OPN HSE	Unknown Funding	Install a trail connection from Strand Ave. to Burlington Ave. somewhere between Russell St. and Stephens Ave through the redevelopment process.
164	Trail Connection - Madison St. underbridge to Front St.	CITY PUBLIC WORKS	MATP TAC	Unknown Funding	Connection from underbridge to Front St. (Northbound)
165	Trail Connection - Madison St. underbridge to Arthur Street.	PARKS & REC	MATP TAC	Unknown Funding	Connection from underbridge to Arthur St. (Southbound)

Table 6-2: Project Ranking

Proj. #	Project	Intersect. (4)	Crash Locations (3)	Missing Infra. (2)	Pers. Safety (1)	Connect. (5)	Reg. Signif. (4)	Compl. Street (3)	UFDA (3)	LMI/Msng. Ifra. (4)	Access to Services (3)	All Active Modes (2)	Children (1)	Plan History (3)	Total Score (34)
	Intersection/ Safety Improvements														
129	Bike and pedestrian facilities on Higgins	0	3	2	1	4	3	3	3	4	3	2	1	1	30
131	Bike and pedestrian facilities on Orange/Stephens	0	3	2	1	5	3	3	3	4	3	2	1	0	30
66	West Broadway Bicycle and Pedestrian Improvements	4	3	2	0	2	0	3	3	4	3	2	1	2	29
143	Intersection improvements at Toole/Scott/Spruce	4	3	2	0	3	0	3	3	4	3	2	1	1	29
130	Bike and pedestrian facilities on Broadway	0	3	2	1	4	2	3	3	4	3	2	1	0	28
146	Crosswalk Improvement - Spruce & McCormick	4	3	2	0	3	0	3	3	4	3	0	1	1	27
154	Traffic Calming - Multiple Streets	4	3	2	0	2	4	0	3	4	3	0	1	1	27
11	Construct Reserve Bike/Ped Crossings at Spurgin, 7th or 3rd, and River Rd.	4	3	2	0	1	0	3	2.5	4	3	2	1	1	26.5
104	Arterial Street Lights	4	3	2	0	0	0	3	3	4	3	2	1	1	26
77	Pedestrian signal heads and countdown indicators	4	3	2	0	0	0	3	3	4	3	2	1	1	26
144	Safe pedestrian crossing - Orange St.	4	3	2	0	2	0	3	3	4	3	0	1	1	26
147	Bike/Ped Crossing - Russell & Broadway	4	3	2	0	3	0	3	3	4	0	2	1	1	26
132	Bike and pedestrian facilities on Brooks	0	3	2	1	4	2	3	3	4	0	2	1	0	25
37	Non-motorized crossing under & onto Russell Street Bridge on north side of river.	0	3	2	1	2	2	0	3	4	3	2	1	2	25
69	Higgins Avenue Bridge Improvements	0	3	0	1	3	0	3	3	4	3	2	1	1	24
73	Downtown Streetscape	4	3	0	0	0	0	3	3	4	3	2	1	1	24
106	Street Improvements: E. Broadway (Van Buren to Easy St.)	4	3	2	0	4	2	3	1	0	0	2	1	1	23
145	Intersection Improvement - N. 5th St.	4	3	2	0	2	0	3	3	4	0	0	1	1	23
158	Bike Facilities - Mount/14th	0	3	2	1	3	2	3	3	4	0	0	1	0	22
155	Traffic Calming - Cooley	4	0	2	0	4	0	0	3	4	0	0	1	1	19
148	Street lights - North Scott St.	4	3	2	0	0	0	0	3	4	0	0	1	1	18
153	Lighting - Northside Greenway	0	0	2	1	1	0	0	3	4	0	2	1	1	15
127	Intersection Improvements at: Clements & Mount Clements & Spurgin Clements & S. 7th W. South Ave. and 40th Ave.	4	3	0	0	2	0	0	2	0	0	2	1	1	15
9	Bitterroot Branch Trail separate-grade crossing of 3rd St.	4	0	0	0	0	0	0	3	2	0	2	1	1	13
	Neighborhood Sidewalks														
14	Sidewalks - Kemp Street between 3rd Street and South Avenue	0	3	2	1	3	1	3	3	4	0	0	1	1	22
40	Sidewalks - Rattlesnake Drive from Elm to Lilac	0	3	2	1	2	1	3	1	4	0	2	1	1	21
89	Sidewalk - California from Dakota to 3rd	0	3	2	1	1	1	3	3	4	0	0	1	1	20
21	Sidewalks - 7th Street	0	3	2	1	1	0	3	3	4	0	0	1	2	20
99	Sidewalks - Eaton from 7th to Dearborn	0	3	2	1	2	0	3	3	4	0	0	1	1	20
94	Sidewalks - S 5th from Russell to Johnson	0	3	2	1	2	0	3	3	4	0	0	1	1	20
150	Complete Sidewalks	0	3	2	1	2	0	3	3	4	0	0	1	1	20
18	Sidewalks - 14th Street	0	3	2	1	1	0	3	3	4	0	0	1	1	19
86	Sidewalks - River Road from Reserve to Russell	0	3	2	1	1	0	3	3	4	0	0	1	1	19
92	Sidewalks - Davis from 3rd to River Road	0	3	2	1	1	0	3	3	4	0	0	1	1	19
39	Rattlesnake Drive Sidewalks--Poplar to Elm	0	3	2	1	2	0	3	1	4	0	2	1	0	19
47	Rattlesnake Drive Sidewalks--Pineview to Creek Crossing	0	3	2	1	5	0	3	1	0	0	2	1	0	18
101	Sidewalks - Clark from South to McDonald	0	3	2	1	1	0	3	3	3	0	0	1	1	18
15	Sidewalks - Catlin Street between 3rd Street and 14th Street	0	0	2	1	3	0	3	3	4	0	0	1	1	18
20	Sidewalks - 10th Street	0	0	2	1	1	1	3	3	4	0	0	1	2	18
103	Sidewalks - Mary from Reserve to RR Tracks	0	0	2	1	1	1	3	3	4	0	0	1	1	17
46	Mountain View Dr. Bike/Ped facilities Rattlesnake Drive to Duncan Dr.	0	0	2	1	5	2	3	1	0	0	2	1	0	17
41	Rattlesnake Drive Sidewalks--Lilac to 1800 Van Buren	0	3	2	1	4	0	3	1	0	0	2	1	0	17

Table 6-2: Project Ranking

Proj. #	Project	Intersect. (4)	Crash Locations (3)	Missing Infra. (2)	Pers. Safety (1)	Connect. (5)	Reg. Signif. (4)	Compl. Street (3)	UFDA (3)	LMI/Msng. Ifra. (4)	Access to Services (3)	All Active Modes (2)	Children (1)	Plan History (3)	Total Score (34)
96	Sidewalks - Schilling from 3rd to 7th	0	0	2	1	1	0	3	3	4	0	0	1	1	16
91	Sidewalks - Wyoming from Grant to Davis	0	0	2	1	1	0	3	3	4	0	0	1	1	16
17	Sidewalks - 8th Street	0	0	2	1	1	0	3	3	4	0	0	1	1	16
16	Sidewalks - 11th Street	0	0	2	1	1	0	3	3	4	0	0	1	1	16
19	Sidewalks - Grant Street	0	0	2	1	1	0	3	3	4	0	0	1	1	16
85	Sidewalk - Hillview Way from 39th to 55th (includes underpass at Moose Can Gully)	0	3	2	1	2	2	3	1	0	0	0	1	1	16
93	Sidewalks - Curtis from 3rd to River Road	0	0	2	1	1	0	3	3	4	0	0	1	1	16
45	Rattlesnake Drive Sidewalks--Lolo Drive to Pineview Drive (COMPLETED)	0	0	2	1	5	0	3	1	0	0	2	1	0	15
102	Sidewalk - Dore from McDonald to 39th	0	0	2	1	3	0	3	3	0	0	0	1	1	14
43	Rattlesnake Drive Sidewalks--Wylie and Rattlesnake Drive to Lolo Street	0	0	2	1	4	0	3	1	0	0	2	1	0	14
171	Sidewalk Improvements - Jackson St. from Elm St to Holly St.	0	0	2	1	2	0	3	1	4	0	0	1	0	14
42	Rattlesnake Drive Sidewalks--1800 Van Buren/Rattlesnake Drive to Wylie	0	0	2	1	3	0	3	1	0	0	2	1	1	14
110	Bellevue Park Curb and Sidewalk Improvements	0	0	2	1	1	1	3	3	0	0	0	1	1	13
167	Sidewalk Improvements - Woodland Ave from Lolo St. to Mountain View Dr.	0	0	2	1	4	0	3	1	0	0	0	1	0	12
172	Sidewalk Improvements - Ernest Ave. from Garfield St. to Washburn St. (South side only)	0	0	0	1	3	0	0	3	4	0	0	1	0	12
170	Sidewalk Improvements - Holly St. from Jackson St. to Van Buren St.	0	0	2	1	2	0	3	1	2	0	0	1	0	12
166	Sidewalk Improvements - Gilbert Ave from Rattlesnake Dr. to Pineview Dr.	0	0	2	1	4	0	3	1	0	0	0	1	0	12
100	Sidewalks - Spurgin from Eaton to Reserve	0	0	2	1	1	0	3	3	0	0	0	1	1	12
168	Sidewalk Improvements - Mountain View Dr. from Rattlesnake Dr. east to end.	0	0	2	1	3	0	3	1	0	0	0	1	0	11
173	Sidewalk Improvements - 23rd Ave. from W. Foothills Dr. to 55th St.	0	0	2	1	3	0	3	1	0	0	0	1	0	11
169	Sidewalk Improvements - Missoula Ave. from Van Buren St. to Lolo St.	0	0	2	1	2	0	3	1	0	0	0	1	0	10
	On-Street Bike Facilities														
135	5th & 6th Bikeways-- Maurice/Arthur to Higgins	0	3	2	1	5	2	3	3	4	3	0	1	0	27
6	Develop Bike Lanes on Van Buren Street near Interstate Bridge from Broadway to Vine	4	3	2	0	4	0	1.5	1	4	0	2	1	1	23.5
140	Bicycle Slip Lanes--Higgins at Intersection with Brooks	4	3	2	0	2	0	3	3	4	0	0	1	0	22
163	Bike Facilities - Russell St. from Mount to Brooks	0	3	2	1	3	1	3	3	4	0	0	0	0	20
161	Bike Facilities - Brooks - Mount to Reserve	0	3	2	1	3	1	3	3	4	0	0	0	0	20
149	Bike Lanes - N. 5th St., Worden, Cooley	0	0	2	1	5	0	3	3	4	0	0	1	1	20
136	Bike Facilities-- W. Spruce from Orange to Railroad Tracks	0	3	2	1	0	0	3	3	4	3	0	1	0	20
138	5th and 6th Bikeways--Higgins to Russell	0	3	2	1	5	0	3	1	4	0	0	1	0	20
142	Rattlesnake Drive - On-street Bike Facilities	0	3	2	1	3	2	0	1	0	0	0	1	1	14
	Trail Connections														
8	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South Avenue	4	3	2	0	3	2	0	3	4	3	2	1	3	30
68	Riverfront Trail Extensions	0	0	2	1	4	3	0	3	4	3	2	1	1	24
156	Trail - North Shore Riverfront - Van Buren to Easy St	0	3	2	1	3	2	0	1	4	3	2	1	1	23
10	River Road Trail - California St. to Russell St.	0	3	2	1	3	2	0	3	4	0	2	1	2	23
81	Northside Greenway Trail between Northside Park and Scott Street	0	0	2	1	5	2	0	3	4	0	2	1	1	21

Table 6-2: Project Ranking

Proj. #	Project	Intersect. (4)	Crash Locations (3)	Missing Infra. (2)	Pers. Safety (1)	Connect. (5)	Reg. Signif. (4)	Compl. Street (3)	UFDA (3)	LMI/Msng. Ifra. (4)	Access to Services (3)	All Active Modes (2)	Children (1)	Plan History (3)	Total Score (34)
63	Mullan Rd Bike/Ped Path Completion-City of Missoula--Flynn to Reserve	4	3	2	0	2	0	3	3	0	0	2	1	0	20
76	Bitterroot Branch Trail River Crossing	0	0	2	1	3	0	0	3	4	3	0	1	2	19
141	East Missoula to Bonner Bike/Ped Trail	0	0	2	1	4	4	0	1	4	0	2	1	0	19
124	Target Range Bike Paths: Tower: South Ave. to 3rd, 33rd: South to 3rd, 3rd: Reserve to Clements, Spurgin: Clements to Tower	0	3	2	1	5	2	0	2	0	0	2	1	1	19
38	Bike/Ped Bridge from Mullan Rd. to Missoula Ready Mix site	0	0	2	1	3	1	0	3	4	0	2	1	1	18
35	Riverfront Trail between Russell & Reserve Streets	0	0	2	1	2	2	0	3	4	0	2	1	1	18
12	Missoula to Lolo Trail	0	3	2	1	3	4	0	0	0	0	2	1	1	17
79	Westside Greenway Trail	0	0	2	1	2	0	0	3	4	0	2	1	1	16
159	Trail Connection - Strand to Burlington	0	0	2	1	3	0	0	3	4	0	2	1	0	16
52	Bicycle/pedestrian facilities parallel to Lincoln Hills Drive--Applehouse to Contour. (UPDATED NAME)	0	3	2	1	1	2	3	1	0	0	2	1	0	16
151	Trail - Ped. Bridge to Madison	0	0	2	1	2	0	0	3	4	0	2	1	1	16
54	Bicycle/pedestrian facilities on Greenough Dr./Duncan Dr. from Greenough Court past Lolo St. to West Mountain View. (UPDATED NAME)	0	0	2	1	4	2	3	1	0	0	2	1	0	16
53	Bicycle/pedestrian facilities on Greenough Dr. from Waterworks Hill trailhead to Greenough Court. (UPDATED NAME)	0	0	2	1	3	2	3	1	0	0	2	1	1	16
164	Trail Connection - Madison St. underbridge to Front St.	0	0	2	1	3	2	0	1	4	0	2	1	0	16
165	Trail Connection - Madison St. underbridge to Arthur Street.	0	0	2	1	3	2	0	1	4	0	2	1	0	16
50	Bicycle/pedestrian facilities parallel to Lincoln Hills Dr. from Rattlesnake to Applehouse. (UPDATED NAME)	0	0	2	1	5	1	3	1	0	0	2	1	0	16
125	North Avenue Bike Path: Clements - 37th	0	0	2	1	4	2	0	2	0	0	2	1	1	15
33	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	0	0	2	1	1	0	0	3	4	0	2	1	1	15
152	Trail - Scott St. to Interstate Greenway	0	0	2	1	1	0	0	3	4	0	2	1	1	15
32	Inverness Place Trail Extension	0	0	2	1	1	0	0	3	4	0	2	1	1	15
48	Bicycle/pedestrian facilities parallel to Creek Crossing to Tamarack. (UPDATED NAME)	0	0	2	1	2	2	3	1	0	0	2	1	0	14
49	Bicycle/pedestrian facilities parallel to Tamarack to USFS Trailhead. (UPDATED NAME)	0	0	2	1	2	2	3	1	0	0	2	1	0	14
61	Grant Creek Trail to Snow bowl Rd - County portion only. City portion to be completed in 2010. (UPDATED NAME)	0	0	2	1	1	2	0	1	0	0	0	1	1	9
126	Clements Road Bike Path: Relocate segment between Mount & North Avenues from the east side of the street to west side.	0	0	0	1	1	0	0	2	0	0	2	1	1	8
51	Bicycle/pedestrian facilities parallel to E side of Soccer Fields. (UPDATED NAME)	0	0	0	1	2	1	0	1	0	0	2	1	0	8

Chapter 7: Education, Outreach and Enforcement Initiatives

As described in Chapter 4 and Table 4-1, the Active Transportation Plan Technical Advisory Committee (MATP TAC) identified 19 existing programs, resources and other initiatives to support the region's active transportation system. The TAC also identified 11 potential new initiatives to support the system. As with existing resources, the ideas identified by the TAC focus on three larger themes:

1. Cyclist awareness and understanding of the rules of the road
2. Driver awareness and etiquette
3. Awareness and accessibility of active transportation facilities

Table 7-1: Potential new initiatives and their area of focus in the future.

Agency/Organization	Cyclist awareness and understanding of the rules of the road	Driver awareness and etiquette	Awareness and accessibility of active transportation facilities
American Automobile Association (AAA)		Insurance incentives for decreased VMT and not having crashes that involve a bicyclist or pedestrian.	By encouraging and promoting the use of transit by members in areas where transit is available,
American Association of Retired Persons (AARP)	Educate and promote bike-ped safety and awareness		Educate and promote bike-ped safety and awareness. AARP could increase awareness of transportation options for people no longer able to drive.
Beech Transportation		Bus Driver Education-safety rules and road awareness of cyclists and pedestrians.	
Bike Sharing			A bike sharing program could make cycling a more attractive option for many people. A new program could be created in Missoula, or existing programs could be strengthened through multi agency collaboration.
Motor Vehicle Division (Montana Dept. of Justice)		Driver Education (at time of licensing) about sharing the road with cyclists and being	

		aware of pedestrians	
HomeWORD			Working with and involving HomeWORD at the time of development of new housing projects and working with tenants to maximize opportunities for users of active transportation modes.
Local Bicycle Shops	Provide information about bike etiquette, safety, licensing, available facilities, etc.		
Missoula Housing Authority			Work with/involve Housing Authority at time of housing project development of new projects as well as with tenants. Increase outreach regarding benefits of active transportation.
Missoula Partnership Health			Provide education/information on the benefits of active living
Public Media	local public print and broadcast media could provide public service announcement campaigns for awareness and expose distracted drivers		
Trucking Companies		Truck Driver Education-safety rules and road awareness. Include emphasis on safety rules and road awareness in their truck driver education programs.	

A. Improving Existing Efforts

The MATP TAC also discussed ideas to improve existing outreach efforts such as:

- **Improve Collaboration among Agencies —** A partnership of agencies with a common goal could be more efficient at providing the necessary service/information to the community. Agencies such as ASUM, the City Bicycle-Pedestrian Program Manager's office, MDT's Safe Routes to School program,

Missoula In Motion, BWAM, and MIST could coordinate efforts to ensure that safety and education is more broadly covered in Missoula.

- **Bike Demographics —** Having this knowledge can help target the type and level of education and outreach needed. Results from the bike and pedestrian traffic counts prepared by the Missoula MPO could be coordinated with similar efforts being undertaken by other organizations.

- **Equal Emphasis on Cyclist and Driver Responsibilities** regarding rules of the road and share the road. A City/County wide effort to have better cyclist and driver education regarding the rules and responsibilities of sharing the road could be put in place by a large number of agencies, and advocacy groups working together. All the agencies referenced in both table 4-1 and 5-1 could initiate this effort.

- **Address Funding for Outreach** in the Active Transportation Plan. With each update of the Active Transportation Plan, identify sustainable funding sources to continue outreach efforts.

- **Share the Road License Plate —** Interested agencies could collaborate to sponsor such a specialty plate. The proceeds could help fund outreach and education programs.[49]

[49] http://www.doj.mt.gov/driving/licenseplates.asp

Chapter 8: Implementing the Plan

The implementation of the vision and goals of a plan occurs when the right combination of political will, public support, and staff commitment come together behind a set of action items that can be realistically achieved. Early success spurs future success. This final section addresses adoption of the plan, what initiating actions are needed and focuses on implementing the MATP through a list of action items organized by the major areas of investment discussed in Section 6. Each action item addresses multiple guiding principles for the Plan. The section concludes with a detailed examination of existing funding sources and issues surrounding them and finally suggests revisions to existing sources and potential new funding sources for active transportation infrastructure construction, maintenance, education and outreach.

I. Adopting the Plan

A. Missoula County Growth Policy Amendment

In order for the Active Transportation Plan to be adopted as an amendment to the Missoula County Growth Policy, it must be reviewed and adopted by both the Missoula City Council and the Board of County Commissioners. As an amendment to the Growth Policy, the Active Transportation Plan will guide how active transportation infrastructure is integrated in future development, serving as a clear reference and finding of fact on the importance of constructing complete, inviting and safe streets and extending the commuter and recreational trail systems as the MPO region continues to grow. City and County planning and engineering staff will refer to the MATP during any development review process as evidence of the need for the types of on and off-street bike and pedestrian facilities described in the Plan.

B. Metropolitan Planning Organization Plan Document

The MPO's Transportation Policy Coordinating Committee would adopt the MATP as a working document to inform ongoing transportation and land use planning processes in the MPO area, as well as updates to the federally-mandated Long Range Transportation Plan. When identifying and prioritizing active transportation projects in the LRTP, the MPO will look to the project list in the MATP for recommendations. The MATP will also provide policy guidance for developing larger, multi-modal projects, highlighting the importance of considering the needs of pedestrians and cyclists equally with those of motor vehicles.

Adoption involves review by partner local, state and federal agencies, the TAC, TTAC and TPCC, as well as the conclusion of the community involvement process via a final community event to share the highlights and findings of the plan.

II. Initiating Actions

A. Creating awareness of plan recommendations

Concurrent with and immediately following the adoption process, MPO staff and members of the TAC must insure community awareness of the Plan's adoption, the resources it offers and most importantly, its recommendations and action items. Staff and committee members will share the new plan with other local and state planning processionals, local and state agency stakeholders, the neighborhoods and communities of the MPO area and developers and their representatives.

Staff and committee members can create awareness of the plan recommendations in multiple ways:

- Using electronic communications
- Featuring the document on relevant websites
- Seeking local media coverage
- Reaching neighborhood and community councils through their own newsletters and meetings
- Setting up individual meetings with interested parties to educate them about the Plan

B. Identify lead agencies and organizations for action items

While it is always easy to characterize oneself and local agency, local council or advocacy group as "at capacity," it remains imperative that we identify lead agencies and organizations to implement the action items described in this section of the MATP. With a lead agency or organization identified, it will also be important to institutionalize coordination with other local agencies on the development of a project or program—through a mechanism like the City and County Development Review Teams, for example.

C. Involve community stakeholders

During the planning and document development process for the MATP, the ad-hoc Technical Advisory Committee represented a variety of community stakeholder interests and it will be important to the implementation process to keep these stakeholders involved.

An Active Transportation Coordinating Committee shall be organized to maintain the forward momentum in implementing policies outlined within this plan. This group will be coordinated by the MPO transportation planner or TPCC designee. It will have quarterly meetings and operate similar to the Downtown Plan model. It will produce an annual report of progress. It will tackle projects utilizing functional work teams. It will provide guidance to agencies carrying

Local and state agencies can continue to explore ways to seek community input during the conceptualization, design and construction of active transportation facilities. The MPO's Transportation Information Specialist will continue to engage stakeholders and act as a clearinghouse for current information on transportation projects and planning processes.

A potential new initiative for engaging the community is an annual stakeholder survey/assessment regarding the state of the active transportation system. This survey could be jointly supported and administered by local agencies such as the MPO, Missoula in Motion and the City Bike and Pedestrian Office.

II. Recommended Action Items

Recommended action items in the matrix below are organized, like the projects in Section 6, by major area of investment. They were selected based on how thoroughly they will help Missoula address the Guiding Principles of the Plan and whether they represent "low-hanging fruit" opportunities for clear, early action.

Table 8-1: MATP Implementation Matrix

MATP Implementation Matrix						
	GUIDING PRINCIPLES					Responsible Agency
MAJOR AREA OF INVESTMENT	Livability	Connectivity	Safety	Equity	Accessibility	
Over-Arching Action Items						
Develop and adopt a Complete Streets policy resolution for the City of Missoula and a Resolution for Missoula County	♦	♦	♦	♦	♦	City and County Administration
Review land use regulations for opportunities to further support active transportation (subdivision regulations, City Title XII) by ensuring the dedication of ROW and construction of facilities.	♦	♦		♦	♦	OPG, PW, P+R,MDT
Close the gaps and continue to expand the commuter trail, neighborhood sidewalk and on-street bike systems	♦	♦	♦	♦	♦	P+R, PW, MRA

Establish a reliable local funding source for active transportation facilities development and maintenance	♦			♦		City and County Administration
Trail Connections						
Create a Master Trails Plan for the City of Missoula, building on the recommendations from the MATP	♦	♦			♦	P+R
Identify legal obstacles to requiring trail construction as part of private development				♦	♦	P+R
Connect all the recreational trails within the active transportation system	♦	♦	♦	♦	♦	City and County Parks Dept.
Neighborhood Sidewalks						
Request that City Council form a special committee to examine more sustainable, equitable funding mechanisms for sidewalk construction	♦			♦	♦	City Council, Bicycle-Pedestrian Advisory Board, Community Forum
Work with other Montana communities to advocate for state and local laws to update the definition of sidewalks as part of the public transportation system--not just amenities	♦			♦		OPG, PW
On-Street Bike Facilities						
Conduct a detailed audit of the on-street bike facilities system to identify and further prioritize needed improvements			♦	♦	♦	City Bicycle-Pedestrian Office, Bicycle Pedestrian Advisory Board
Develop solutions for maintaining functionality and safety of the on-street bike system during winter months	♦	♦	♦	♦	♦	PW

Work towards Gold Level Status for Bicycle Friendly Designation from the League of American Cyclists	♦	♦	♦	♦	♦	P+R, City Bicycle-Pedestrian Office, Bicycle Pedestrian Advisory Board
Safety and Intersection Improvements						
Establish a policy which encourages public agencies to give full consideration to the safety needs of bikes and pedestrians when making intersection improvements.		♦	♦	♦	♦	OPG, PW. CCHD, MDT, Bicycle Pedestrian Advisory Board
Conduct a review of complex intersections and those with a record of bicycle and pedestrian accidents to improve safety and comfort		♦	♦	♦	♦	
Education, Outreach and Enforcement						
Expand Education and Outreach with particular emphasis on safety	♦		♦	♦		MPO, OPG, MIM HD, Police Dept, Sheriff's Office
Expand MIM beyond Commuter outreach and education to include other types of trips	♦				♦	MPO, OPG, MIM HD, Police Dept, Sheriff's Office
Establish reliable funding sources for outreach and education.	♦			♦	♦	MPO, OPG, MIM HD, Police Dept, Sheriff's Office

III. Funding Sources and Processes

Funding is one of the most limiting factors on the expansion and improvement of Missoula's active transportation system. Currently the City and the County draw funding for on- and off-street facilities from a short list of federal, state and local sources, including fees sometimes assessed directly to property owners.

The issue of who pays for sidewalks, in particular, continues to be a challenge. U.S. DOT typically sees sidewalk construction as a local responsibility, while the City has jurisdiction over a number of low-to-moderate income neighborhoods with a backlog of streets in need of sidewalk, curb and gutter and many property owners with limited means to pay for the improvements through their annual property tax bill. Montana state law also currently has a limited set of mechanisms for municipalities to use to generate revenue for sidewalks.[50]

On-street bike facilities are typically installed as part of road reconstruction or routine maintenance like re-paving, yet road reconstruction is costly and does not take place on a regular basis in the MPO. Longer-lasting treatments like striping bike lanes with epoxy paint must come out of the MPO's CMAQ funding allowance, rather than the City or County's capital funds, which must be committed to other capital needs like water and sewer lines and ongoing street maintenance.

Trail development has been partially assisted by local Open Space Bond monies for the purchase of right of way, but these monies cannot be used for trail construction. The City and the County construct trails with a modest annual allocation of federal Enhancement funds through SAFETEA-LU. On and off-street facilities connecting to schools can also be funded through the Safe Routes to School program. These grants are awarded by MDT on a competitive basis each year.

This sub-section describes existing funding mechanisms for active transportation facilities and any ongoing issues related to them, followed by a list of possible additional sources of funding.

A. Existing Funding Mechanisms

1. Local Funding Sources

a) Special Improvement Districts (SID's)

Special Improvement Districts (SID's) serve two primary functions. They can fund the construction of a public facility such as a sidewalk or section of sewer line, or they can fund the maintenance of a public facility like streetlights.

The City Council or the Board of County Commissioners initiates the creation of a SID, although property owners can approach the elected body to form an SID to provide for desired new infrastructure if they wish. First, a resolution of intent is passed and advertised in the newspaper. This notifies the people who will be affected by the SID (if its creation was not requested by property owners). Citizens have the opportunity to protest and make public comments. If the protest has not been sufficient to cancel the project a final resolution is passed.

[50] MCA Section 7-12-4401, Title 7 and MCA, Title 7, Chapter 11, Part 10,

The costs of the new infrastructure or maintenance in the district are distributed across the benefited properties in the district. State law allows the distribution to be done on the basis of the area of each parcel in the district, the assessed value of each parcel, number of parcels, front footage of each parcel bordering a street, or a combination of these methods.

To pays for the costs of the improvements or maintenance in an SID, the City or County sells bonds that are paid off over a period of up to 20 years. The City or County in turn assesses the parcels in the district to generate the money needed to pay off the bonds. The interest rate charged by the City is the average interest rate payable on the outstanding bonds, plus up to 1% to cover the administration costs.

b) Assessments ("Sidewalk Orders")

Most curb and sidewalk projects adjacent to existing development are funded by assessment. Under this process The City may "order" curb and sidewalk improvements for an individual property in a neighborhood and assess the owner for the cost of the improvements adjacent to his or her property. The City typically orders in sidewalks in areas that are already largely developed but where the streets are not fully improved with sidewalks or curbs and gutters adjacent to all properties. The assessment process is considered by some as more notorious than SID's. Unlike SID's, assessments are ordered by the City and affected property owner cannot protest them.

c) Special Districts

In September 2010, the Missoula City Council passed a Resolution[51] creating Road District 1, which will fund ongoing road maintenance, purchasing and improvement services throughout the City via a .016% increase in property taxes. The new district is expected to generate $300,000 in Fiscal Year 2011. City Council will decide to which activities these new revenues will be allocated each year, with the intention that the revenues will eventually address more maintenance issues each year than City Public Works has been able to pay for in the past. For Fiscal Year 2011, the City Council approved $60,000 to subsidize installation of ADA corner ramps where new sidewalks are being installed. Missoula County does not presently have this mechanism in place.

[51] http://ci.missoula.mt.us/DocumentView.aspx?DID=4544

d) Impact and Traffic Mitigation Funds

Impact fees can be assessed in the City of Missoula per Title XV of the Missoula Municipal Code. The Code states that the purpose and intent of the development impact fee procedures are:

1) To establish uniform procedures for the imposition, calculation, collection, expenditure and administration of development impact fees imposed on new development;

2) To assure that new development contributes its fair and proportionate share towards the costs of public facilities reasonably necessitated by such new development;

3) To ensure that new development benefits from the provision of the public facilities provided with the proceeds of development impact fees;

4) To ensure that impact fees collected pursuant to this Chapter are expended only on public facilities the demand for which is generated by the new development against which the fees are assessed.

Impact fees address the costs of public infrastructure, including active transportation facilities, which result from new development. Because they are tied to the traffic impacts of new development, they cannot be used to pay for the City-wide backlog of streets without curb, gutter, and sidewalk.

Missoula County can identify growth areas in the County that will generate additional traffic and necessitate improvements to the transportation system, but according to state law[52], the County must conduct a detailed study showing the need for the traffic mitigation funds in order to create such a district. Missoula County currently has one traffic mitigation district in the Flynn/Mullan area. As a subdivision of state government, the County cannot impose impact fees.

e) State Fuel Tax

Fuel taxes are collected by the State and distributed to cities and counties according to population. The City of Missoula applies gas tax revenue toward street maintenance, including such activities as overlays, chip sealing and pothole repair. Currently the average Missoula MPO resident only receives $0.05 to $0.07 from every dollar of the State's fuel tax that Missoula contributes.

[52] MCA 76.3.510, 511, and 76-3-608

f) Subdivision and Redevelopment Conditions

City and County subdivision regulations require construction of curbs, gutters and sidewalks in most urban area subdivisions unless the governing body approves a variance relieving the subdivider from the requirement.

The following are circumstances under which the City requires installation of sidewalks:

- New multi-family residential, commercial or industrial development: Sidewalks are required as part of the building permit.
- New single-family house: Sidewalks are required as part of the building permit but only if the sidewalk either:
- Completes a gap between two existing sidewalks or extends an existing sidewalk.
- Remodeling of an existing single-family house: Sidewalks are required as part of the building permit but only if the vehicular (driveway) access is changed.
- Conversion of a single-family dwelling into a multifamily dwelling: Sidewalks are required as part of the building permit (The sidewalk, curb and all other right-of-way improvements are required.)

g) Public Private Partnerships

The Missoula Redevelopment Agency (MRA) uses Tax Increment funding to finance public improvements related to projects in the City's Urban Renewal Districts and to protect past public investments. The Downtown Business Improvement District (BID) also uses tax increment funding for improvements in the downtown area. Examples include the acquisition, construction, demolition, or improvements of land, streets, alleys, curbs, gutters, sidewalks, bike / pedestrian facilities, parking facilities, water lines, and public buildings. It is possible to combine tax increment funds with CDBG funds in the case of large projects. MRA installed more than $1.3 million worth of sidewalks during Fiscal Year 2011.

Missoula County has used tax increment funding for public improvements relate to industrial development projects. For examples, in the County's Missoula Development Park near the Missoula International Airport, streets, sidewalks, parks, trails and other infrastructure are financed largely from tax revenue generated by private development located in the park.

2. Federal Funding

a) Transportation Funding Programs

As referenced in Chapter 4, the Missoula MPO has a degree of discretionary authority over three federal transportation funding sources it receives. Although the MOPO receives these funds through an ongoing annual allocation (per SAFETEA-LU), this system may change with the reauthorization of the transportation bill. Through the MPO, the City and the County allocate CMAQ, STPU and STPE funds to active transportation projects and outreach programs. However, as a state with a relatively small population, Montana's annual allocation and what is then sub-allocated to Missoula must be banked over several years to fully fund larger transportation projects.

b) Community Development Block Grants

Community Development Block Grant (CDBG) monies can fund public infrastructure, including trails, sidewalks, and other road repairs and improvements in the City of Missoula. The CDBG Grants Administrator reviews applications and awards funds to cover the property owner's portion of the improvements if the property owner meets the CDBG low-income requirements. Typically, the Missoula City Public Works Department will apply for CDBG funds for sidewalk construction on behalf of a neighborhood or street. For example, approximately $87,000 in CDBG funds were awarded to Public Works in 2010 to construct sidewalks in the Franklin to the Fort Neighborhood per the neighborhood's Infrastructure Plan.

B. Potential New Funding Sources

Below are several possible mechanisms for funding active transportation infrastructure not currently in use for funding such projects in the City or County. Implementing those mechanisms will require action on the part of both the residents and elected officials of the City of Missoula and Missoula County. For some funding mechanisms, implementation will require action at the state level when additional enabling authority is needed.

1. Local Agencies

a) General Obligation Bonds

The State of Montana authorizes local government to issue, sell and administer general obligation bonds to pay for construction and improvement of transportation infrastructure including streets, sidewalks and trails. Voters may approve the sale of bonds for a specific project or program. The amount of the bonds becomes part of the property taxes levied by the City or County.

b) Trail Sponsorship Opportunities

The City or County could sell the right to name a trail to a sponsor who then may name the trail as they choose. The practice of selling naming rights has gained increasing popularity as a means to help fund sports arenas and other facilities. The City used the same approach with the Missoula Osprey baseball park, named Ogren Park at Allegieance Field after two corporate sponsors.

c) Local Option Motor Fuel Excise Tax

Montana state law allows counties to impose a motor fuel excise tax of either one or two cents per gallon subject to voter approval. The county commissioners may adopt a resolution referring the proposed tax to the people, or the people of the county may place the proposed tax on the ballot by initiative petition.[53]

2. State Agencies

The Montana Department of Transportation could increase its programming for safety and non-motorized projects. However, the amount of money that MDT programs for various transportation modes is subject to the amount of available federal and state funding provided by Congress and the Montana Legislature, respectively. In addition, the State Transportation Commission plays a major role in how available transportation dollars are spent. The Commission consists of five members appointed by the Governor. Among the main duties of the Commission are the selection and selection and prioritization of construction projects and allocation of Federal-aid highway funds.

3. Federal Competitive Grant Programs

Through the HUD-EPA-DOT Sustainable Communities initiative launched in 2009, a number of new competitive grant programs have been generated to encourage sustainable development that meets the goals of all three federal agencies. The 2010 DOT TIGER II/HUD Livable Communities[54] joint grant opportunity was the most recent example of this partnership. The Missoula MPO applied for, but did not receive TIGER grant monies, but local agency staff will continue to monitor new grant opportunities to fund active transportation projects beyond what can be funded locally or with the annual allocation of other federal monies.

[53] MCA 7-14-301 (2009)
[54] http://www.dot.gov/recovery/ost/tigerii/

Appendix A: Glossary of Terms

Access--The outcome of creating accessible programs and removing physical and attitudinal barriers for people with disabilities by making changes in the physical environment and providing auxiliary communication aids and services. Gives as many people as possible the same quality of use, benefit and opportunity.

Accessible--A site, building, or facility that complies with the ADA guidelines. Guidelines for public rights of way have been adopted, and a guide for access to outdoor recreation environments is currently being developed.

Active *(also Non-motorized)* Transportation--Pertaining to travel that is achieved with human or animal power and without supplemental energy generation capability. *(Exception: motorized wheelchairs are considered a form of active transportation.)*

Activity Center--A place that attracts a large number of people on a daily basis. Activity centers include, but are not limited to, universities, downtown business districts, shopping malls, and hospitals

Amenities, Pedestrian--Pedestrian Amenities refers to characteristics along a street which make walking along it more pleasurable for pedestrians such as landscaping, lighting, and benches.

Arterial Streets/Road--A street with the primary purpose of providing a high level of mobility within an urban setting. Arterial streets commonly carry a majority of traffic within an urban street network and thus may exhibit characteristics such as higher relative vehicle volumes, speeds, and number of travel lanes.

Bike Corral--Is a on-street structure meant to hold multiple parked bicycles, often replacing a single motor vehicle parking spot with up to a dozen bicycle parking spaces.

Bicycle Boulevard-- A low speed street which has been optimized for bicycle traffic. Bicycle boulevards discourage cut-through motor vehicle traffic, but typically allow local motor vehicle traffic. They are designed to give priority to cyclists as through-going traffic. They improve bicycle safety and circulation in various ways.

Bicycle Box--A designated waiting zone for cyclists at signalized intersections. The stop bar for motorists is moved back about 15 feet from typical location. The bike box outline projects beyond the stop bar, giving increased visibility to cyclists at intersections.

Bicycle Lane--A portion of a roadway dedicated for bicycle use and designated with striping, markings and signage.

Bicycle Route--Part of the bicycle system that is designated with signage to indicate encouragement of use of the route to provide continuity of the system where separate bicycle lanes are not present or may not be possible due to inadequate right of way width.

Bicycle Path--See “Shared Use Path”

Bicycle Pedestrian Advisory Board--A Mayor-appointed advisory committee having special interest in advocating for cyclists' and pedestrians' interests.

Bulbout--Also known as a curb extension, acting as a traffic calming device with the primary purpose of shortening the crossing distance of a street for a pedestrian.

Capacity--The capacity of a facility is defined as the maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period (most often a peak 15-minute period) under prevailing roadway, traffic, and control conditions. Capacity and Level of Service are analyzed separately and are not simply related to each other; both must be fully considered to evaluate the overall operation of a facility.

Carbon Footprint--A measure of the impact our activities have on the environment, and in particular climate change. It relates to the amount of greenhouse gases produced in our day-to-day lives through burning fossil fuels for electricity, heating and transportation etc.

Colored Bike Lane--A technique to define the road space dedicated to cyclist use. Typically green, blue or maroon, the colored bike lane has an enhanced traffic-calming effect on motorists, since the traffic lane appears narrower than usual. In some communities, this technique is used to designate the bike lane through an intersection, not along the entire length of bike lane.

Collector Street/Road--A low to moderate-capacity road which serve to move traffic from local streets to arterial roads. Unlike arterials, collectors are also designed to provide access to residential properties.

Complete Street--Is a street which is designed for all users in mind and allows equal access to every mode of transportation.

Comprehensive Plan--Overall guidelines for development of community land use patterns, including elements such as land use, zoning, recreation, open space. (As, Missoula Urban Area Comprehensive Plan, which includes adopted amendments Non-motorized Transportation Plan, Transportation Plan and Urban Area Open Space Plan).

Congestion--Generally means excessive crowding of a roadway resulting in an impediment to the smooth flow of traffic.

Connectivity--refers to the density of connections in path or road network and the directness of links. A well-connected road or path network has many short links, numerous intersections, and minimal dead-ends (cul-de-sacs). As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations, creating a more accessible and resilient system. Connectivity can apply both internally (streets within that area) and externally (connections with arterials and other neighborhoods).

Conservation Easement--A restriction running with the land whereby an owner, while retaining ownership of the property, relinquishes some rights to the use of the land, normally rights to develop or alter the land. May or may not allow public access.

Context Sensitive Design--A useful design tool that allows for the surrounding physical and social environments,stakeholder input, and the unique character of a place to be considered during thedesign process.

Corridor--A linear strip of land making a passageway for human and/or wildlife travel, creating connections between important destinations, linking open spaces.

Creative Class--A socioeconomic class identified as a key driving force for economic development of post-industrial cities.

Curb extensions--A constructed projection of the pedestrian way into the roadway, narrowing the required crossing distance and enhancing pedestrian safety.

Dedication-- (*As in park dedication*) The acquisition of land by an entity, for use by the public. Montana statute requires certain subdivisions to devote a percentage of land for park and recreation purposes.

Degree of Access--The level of accessibility to various spaces and sites; it may vary from difficult to easy, according to the characteristics of the setting, the purpose and remoteness from urban areas.

Easement--A restriction running with the land whereby an owner, while retaining ownership of the property, relinquishes some rights to use of the land, and grants specific uses to another, often for utility extensions or public access. (*See Conservation Easement*)

Equity--The concept of transportation equity seeks to ensure that the needs of all communities, particularly low-income and minority communities are addressed in transportation policy and the transportation planning process. Additionally, transportation investments should work to ensure that both the benefits and impacts are distributed equally.

Fiscally-constrained--A characteristic of projects listed in a Transportation Improvement Plan (See Transportation Improvement Plan). Means that funding sources and amounts are specified for projects and that collectively they are within the projected allocation amounts of the funding sources.

Functional Classification-- The process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. There are three highway functional classifications: arterial, collector, and local roads.

Greenway--A linear corridor often achieving multiple land use goals, such as non-motorized transportation and recreation, resource conservation or encouragement of wildlife. Storm drainage corridors, park systems and utility corridors may provide opportunities for greenways.

Growth Policy--A Growth Policy is intended to meet the requirements outlined in State law and to provide a framework for continued planning efforts in Missoula City and County. Growth policies also provide guidance for subdivision regulation and review. All planning and community development decision making should be in accordance with the Growth Policy.

Home Zone-- A term used in the United Kingdom for a residential street or group of streets that are designed primarily to meet the interests of the local community, whether they are on foot, cycling, or in a car, enabling the street to operate primarily as a space for social use.

Impact Fee-- A fee that is implemented by a local government on a new or proposed development to help assist or pay for a portion of the costs that the new development may cause with regards to the provision of public services.

Intermodal Transportation--Movement of persons and goods involving the interchange between transportation modes such as automobiles, mass transit, railway and non-motorized uses, as well as park and ride lots. It enables people and goods to be consolidated into larger groups that can be transported at lower costs. It enables greater logistic flexibility and can also reduce congestion and travel time. (*See also Multimodal and Transit Interface)*

Livability--A general term that within planning refers to the overall quality of life that a city offers its residents.

Low Impact Trail--A trail one to five feet wide; may be unimproved foot path or constructed of crushed rock, native soil, wood chips, etc. Usually associated with low level of use, open space land or sensitive areas.

Master Crosswalk Plan--An element of the Missoula City Pedestrian Improvement Plan.

Master Curb Ramp Plan--An element of the City Pedestrian Improvement Plan.

Master Sidewalk Plan--An element of the City Pedestrian Improvement Plan.

Mobility--Is a measure of how freely and easily a person may move around within an urban area.

Mode Share or Mode Split--The relative proportion of total trips made by each type of transportation, whether motorized or non-motorized.

Multimodal--A transportation system that allows people to use various modes of travel, according to the type of trip they wish to make. (See also Intermodal)

Multi-use (or Shared Use) Path--A trail permitting more than one type of user, usually on exclusive right of way and providing for two-way travel. (See also Shared Use Path)

Neighborhood Trail--Connector trails four to eight feet wide; usually constructed of crushed rock, asphalt or concrete. Serves areas or neighborhoods, usually linking to Core trails (*See*).

Non-attainment area--A geographical area whose air quality does not meet Federal air quality standards designed to protect public health.

Non-motorized (also Active)--Pertaining to travel that is achieved with human or animal power and without supplemental energy generation capability. (Exception: motorized wheelchairs and other assistive devices such as Segways and Rascal Scooters are considered a form of non-motorized transportation.)

OPG--Missoula City-County Office of Planning and Grants

Open Space Land--Land that is provided or preserved for (a) park or recreational use, (b) conservation of land or other resources, or (c) historic or scenic purposes.

Ordinance--A rule adopted by the governing body that becomes part of the local code of law, as the Missoula Municipal Code.

Outdoor Recreation Access Route--A path that connects the primary elements of a recreational space, including parking. Standards for these generally exceed those for recreational trails. (See also Recreational Trail)

Park and Ride Lot--A parking lots that are part of a program designed to create a transfer point to or from the personal automobile to mass transit or a non-motorized mode.

Pedestrian Improvement Program--A plan to improve pedestrian access, including curb ramps, sidewalks and crosswalks.

Reasonable Accommodation--Refers to adaptations made to enable a person with disabilities to function more easily. "Reasonable" means that extreme conditions may justify a failure to provide complete access.

Recreation Trail--A trail that facilitates an activity in and of itself. It may provide access to secondary elements of a recreational facility. Standards for access differ from outdoor recreation access routes. (*See Outdoor Recreation Access Route*.)

Refuge or Pedestrian Refuge--A central median in a street right of way that provides a safe intermediate spot for a pedestrian or cyclist. The refuge allows a crossing to be accomplished in two stages, shortening the distance of exposure to traffic.

Resolution--A formally adopted statement expressing the opinion or will of the governing body.

Road Diet-- A technique whereby a road is reduced in number of travel lanes and/or effective width in order to achieve systemic improvements.

Roundabout--A type of intersection design that has a generally circular shape, and requires all entering traffic to yield to traffic already in the circle. A roundabout is used on collectors and arterials, and has features designed to ensure slow speeds for traffic entering and traveling in the circle (example below).

Separated On-street (or Protected) Cycletrack--Increasingly used in major American cities, this treatment provides a physical barrier one to six feet wide, often consisting of either on-street parking or a curbed and landscaped barrier, between the motorized traffic and the bikeway.

Shared Use Path (Multi-use Path) --A trail permitting more than one type of user, usually on exclusive right of way and providing for two-way travel.

Sharrow--A shared-lane marking which is painted in the center of a travel lane to indicate the presence of a bicycle route and to remind motorists that cyclists may use the full lane.

Speed--

Design speed is the maximum safe speed that can be maintained over a specified section of highway when conditions are so favorable that the design features of the highway govern. The design speed of a roadway dictates which geometric design standards are used such as stopping sight distance, radius of curves, and banking of road surfaces.

Operating speed is the speed at which drivers are observed operating their vehicles. *Posted speed* is the maximum speed limit posted on a section of roadway using a regulatory sign.

Posted speed is normally based upon the 85th percentile of observed speed. Speed limits can not be posted in excess of legislatively mandated speed limits. *"85th percentile speed"* is the speed at or below which 85 percent of drivers are operating their vehicles.

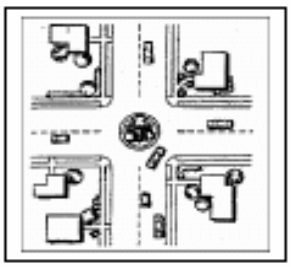
Streetscape--The general appearance and character of a street.

Subdivision--The division of land that creates one or more parcels containing less than 160 acres that cannot be described as less than one quarter aliquot parts of a U.S. Government section when the parcels have been split from the original tract of land.

Sustainable--Generally, the capability of something to be sustained for the long-term. May refer to the ability of a program to be financially secure in its source of funding or can refer to the ability of something continuing with the minimal long-term negative effect on the environment.

Traffic Calming--A number of methods developed to reduce the dominance and speed of motor vehicles. Traffic calming contributes to livable neighborhoods and improved conditions for bicyclists and pedestrians.

Traffic Circle-- A traffic calming device typically located on local streets, consisting of a raised island in the middle of an intersection (see example below). *A traffic circle is not a roundabout.*



Trail--In current terminology, a minimally-developed or undeveloped pathway for equestrian, pedestrian or bicycle use, or a combination. Formerly, a generic term for a dedicated non-motorized pathway separated from the road right of way. (See Shared Use Path and Muti-use Path.)

Trailhead--A designated entrance to a trail system. May be developed to various levels, depending on need, with information kiosks, parking, trailer storage, picnicking facilities, etc.

Transit Interface--The physical link between the transit service and a neighborhood, street, or other modes of transportation

Turning Radii--The size and angle of a turn allowed for at an intersection.

Variance--An exemption, usually from the a local zoning code,, issued to equalize rights and privileges within a zone. Variances often are used in cases of unusual lot shapes, or the configurations of nearby buildings.

Walkable/Walkability--A measure of how friendly an area is to walking. Generally, walkability is the extent to which the built environment accommodates pedestrian activity.

Wayfinding--The system by which people use to orient themselves. A good system of markers, maps, and signs along a trail can make wayfinding simple and easy.

Woonerf--In the 1970s, the Dutch pioneered the “living street” or “living yard,” residential streets where vehicle traffic and speeds are drastically reduced and priority is returned to the people that lived in the street.

Zoning--A process carried out through ordinances that allows for complementary kinds of land uses in defined areas. Zoning creates reasonable certainty that neighborhoods will remain compatible. Zoning allows for growth and change over time in ways that are complementary to the community's expectations.

Appendix B: Resources and Information on Community Benefits of Active Transportation

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Appendix C: Providing for Safe Paths and Common Areas

All active transportation infrastructure should be designed so as to provide the greatest possible element of safety and comfort whenever feasable.

Missoula Police Department Input on Safety

Safe Paths and Common Areas
Provide adequate lighting for all pedestrian walkways to be used in hours of darkness.

Close or discourage nighttime use of walkways where adequate lighting, visibility, and surveillance cannot be provided.

Eliminate entrapment spots, e.g. dense landscaping or plant growth, high walls or hedges, or alcoves along pedestrian walkways.

Locate amenities and activities at or near entrances, exits and major circulation paths to increase risk of detection for intruders.

Use signs to: Discourage access to dangerous places
Indicate opening and closing times

Direct people to safe paths, exits, emergency assistance, means of calling for help, etc.

Inform people how to report maintenance problems, i.e. inoperative lighting.

Inform intruders of access control measures.

Crime Prevention Through Environmental Design (CPTED) Strategies

Timothy D. Crowe, a previous director of the National Crime Prevention Institute, and perhaps the most notable authority on CPTED today, has defined the following seven CPTED strategies.

Provide clear border definition of controlled space. Examples of border definition may include fences, shrubbery or signs in exterior areas. Within a building, the arrangement of furniture and color definition can serve as a means of identifying controlled space. As much as possible, all space should be the clear responsibility of someone.

Provide clearly marked transitional zones.

Persons need to be able to identify when they are moving from public to semi-public to private space. For example, a sidewalk represents public space and the main path into a residential development is semiprivate, and a path that branches into individual units becomes semiprivate and the interior of the unit becomes private space.

Relocation of gathering areas.

Gathering areas or congregating areas need to be located or designated in locations where there is good surveillance and access control. For example, play areas should be located within the central common area of the building with as many units as possible to watch children at play.

Place safe activities in unsafe locations.

Safe activities attract normal users to a location and subsequently render the location less attractive to abnormal users due to observation and possible intervention. For example, well-used common areas (safe) may overlook a parking area (unsafe) to provide additional security for the parking area.

Place unsafe activities in safe locations.

Placing unsafe activities in areas of natural surveillance or controlled access will help overcome risk and make the users of the area feel safer. For instance, common restroom facilities should not be located in a remote corner of the site or at the end of a long hallway.

Designate the use of space to provide natural barriers.

Separate activities that may conflict with each other (outdoor basketball court and children's play areas, for example) by distance, natural terrain or other functions to avoid such conflict.

Improve scheduling of space.

The timing in the use of space can reduce the risk for normal users and cause abnormal users to be of greater risk of surveillance and intervention. Below are some suggested elements for a trails system wayfinding program:

- Post signs to indicate the distance from an area, neighborhood, park, etc., in minutes or miles-
- Locate mileage signs at trail junctions or no more than one mile apart.
- Develop a distinctive design for wayfinding signage:
- Consistent color, size, text
- Use universal symbols
- Use “Trails Missoula” logo
- Use mile markers

- Consider rural as well as urban style/format for signage, as what may be appropriate for the urban area might not work in Lolo/Florence.
- Make trail information downloadable.
- Trail maps should also be readily available to augment the wayfinding signage in the field.
- Include an amenities section in the trail information.
- Incorporate requirements for wayfinding signs as part of trail reconstruction and upgrades.
- Introduce colored and stamped concrete segments to trails where they turn, cross sidewalks, merge with sidewalks and bike lanes, or where they cross roads.
- Install 4” white fog lines on both edges of asphalt trails to increase their visibility.
- Install center dashed line to separate traffic directions on trails. This should be considered when traffic volumes on a trail reach a certain high point. [specific criteria on this would be helpful]
- Use landscaping to announce entry/exit points, rest areas, interpretive sites, and other elements.

Appendix D: Missoula Active Transportation Plan Project Ranking Criteria—What, Why and How

Purpose

As part of the development of the Missoula Active Transportation Plan it was deemed necessary to have a system in place for ranking potential projects. Therefore, a set of criteria were deveolped to act as a set of objective performance measures that could be used to compare projects based on how well projects promote safety, connectivity, equity and livability.

A key ATP output will be a list of projects and programs that improve travel in the Missoula region by walking, biking or other human-powered means. To rank projects in order of importance to the community, the planning team has developed thirteen criteria grouped under four main categories: Safety, Livability, Equity and Past History. The intent of the ranking process is to score projects based on an objective, data-based test of how they meet each of the criteria. Projects receive points for each criterion that they meet. Projects are ranked in order of the number of points they receive. The maximum total score that a project can receive is forty (40) points.

This report describes (a) the meaning of each criterion and (b) how a project qualifies as complying with the criterion. If a project meets a particular criterion, it receives the total number of points assigned to that criterion. A project that does not meet a particular criterion gets zero points for that criterion.

A. Safety (10 Points)

Intersections (4 Points)

Meaning: This criterion awards points to a project which a project improves bicycle and pedestrian safety at an intersection. For example, a project might include:

- New crosswalks
- Curb extensions
- Bulb-outs
- Improved pedestrian crossing signals
- Mid-street pedestrian refuge islands

In Order to Comply With the Criterion: If the project includes one or more of the elements such as the above examples, the project meets the criterion and receives 4 points. If a project qualifies, skip Personal Safety below.

Known Crash Locations (3 Points)

Meaning: This criterion awards points to projects located in areas with a history of crashes based on data from local or state law enforcement and transportation agencies.

In Order to Comply With the Criterion: If all or part of a project is located in an area that has a record of 2 or more *reported* crashes, the project meets the criterion and receives 3 points.

Missing Infrastructure (2 Points)

Meaning: This criterion considers whether a project adds active transportation infrastructure in locations where none previously existed. For example, does a street reconstruction project add sidewalks or bike lanes to a street that previously has no sidewalks or bike lanes?

In Order to Comply With the Criterion: If a project adds new active transportation infrastructure in a location or locations where none previously existed, the project meets the criterion and receives 2 points. The project does not meet the criterion if it upgrades or repairs existing infrastructure (e.g., replacing 4-foot sidewalks with 7-foot sidewalks).

Personal Safety (1 Point)

Meaning: This criterion considers whether a project gives a cyclist or pedestrian a travel option that significantly reduces the possibility of being involved in a collision with a vehicle, another person or cyclist.

In Order to Comply With the Criterion: The project should substantively reduce risk of bodily injury as the result of an accident—i.e. street lighting, a sidewalk or commuter trail, protected bike facility where none previously existed (crossing improvements already accounted for in Intersections above).

B. Livability (15 Points)

Connectivity (5 Points)

Meaning: As used in this ranking process, connectivity refers to how a project adds or improves the active transportation connection between different destinations that people might reasonably travel to by walking or biking for all or part of the trip.
.

In Order to Comply With the Criterion: A project could receive between 0 and 5 points depending on answers to the following questions, one point for each yes:

- Does the project connect 2 neighborhoods or provide intra-neighborhood connections?
- Does the project connect to an Activity Center?
- Activity Centers: Schools, parks, Downtown, the Mall, hospitals.
- Does the project improve access to a transit route or facility (e.g., transfer center, bus stop or park-and-ride lot)?
- Does the project connect to or complete a link in the Safe Routes To School (SRTS) system?
- Does the project connect to or complete a link in the Bicycle Commuter Network?

Regional Significance (4 Points)

Meaning: As used in this ranking process, the 'Regional Significance' criterion measures the extent to which projects connect Missoula's urban active transportation system to public open spaces, wilderness areas and trails systems.

In Order to Comply With the Criterion: A project could receive between 0 and 4 points depending on answers to the following questions, one point for each yes:

- Does the project connect to a public open space?
- Does the project connect to a wilderness areas?
- Does the project connect to a regional trail system?
- Does the project connect 3 or more neighborhoods?

Complete Street (3 Points)

Meaning: The 'Complete Streets' criterion asks whether a project advances the intent of the City of Missoula's Complete Streets Resolution to "provide for the safety and convenience of all users of all ages and of all abilities: pedestrians, bicyclists, transit users, and motorists" (No. 7473, adopted August 24, 2009).

In Order to Comply With the Criterion: When asking the following questions about a project, if "yes" is the answer to the first question below and any one of the remaining questions, the project meets the criterion and receives 3 points.

- Is the project on-street (vs. a trail project)?
- Does the project add new active transportation infrastructure to a street or road in a location where such infrastructure previously did not exist?
- Does the project increase safety and convenience for all users of all ages and abilities?

- Does the project repair, replace or upgrade existing active transportation infrastructure in a street or road?

Addresses UFDA (3 Points)

Meaning: The Missoula's Urban Fringe Development Area (UFDA) project identifies and assigns residential growth allocation numbers to areas/corridors that can accommodate additional development.

In Order to Comply With the Criterion: The 'Addresses UFDA' criterion awards 1 point to a project that is located in an area identified for an additional 0-5% development, 2 points for a project in an area identified for an additional 5%-10% and 3 points in an area identified for an additional 10%-15%. See table below:

Area/Corridor	Residential Growth Allocation	Percent of Allocation	Rank Points
Grant Creek	0	0%	1
Bonner/W. Riverside	302	2%	1
Rattlesnake	315	2%	1
University	400	2%	1
East Missoula	678	4%	1
West Mullan	773	4%	1
South Hills	800	5%	1
Target Range/Orchard Homes	1,000	6%	2
Miller Creek	1,366	8%	2
Brooks Corridor	2,154	12%	3
Wye	2,281	13%	3
Reserve to Russell Corridor	2,400	14%	3
East Mullan	2,500	14%	3
Central	2,595	15%	3
Total	**17,564**	**100%**	

C. Equity (10 Points)

LMI / Missing Infrastructure (4 Points)

Meaning: The 'LMI/Missing Infrastructure' criterion awards points to a project that adds active transportation infrastructure to an area identified as "Low and Moderate Income" (LMI) based on census data. To be considered LMI, an area must contain 50% or more households that meet the definition of low to moderate income.

In Order to Comply With the Criterion: If the project in question add missing infrastructure and is located in an area that falls within the LMI definition, the project meets the criterion and receives 4 points.

Access to Disability Services / Aging services (3 Points)

Meaning: This criterion considers whether a project makes it easier for senior citizens or people with disabilities to reach locations and facilities that provide them with needed services.

In Order to Comply With the Criterion: A project meets the criterion if it improves access to adjacent medical facilities, senior housing developments or agencies or organizations that serve senior citizens or people with disabilities

Facilities for All Active Modes (2 Points)

Meaning: This criterion considers whether a project includes facilities for not just one but all modes of active transportation.

In Order to Comply With the Criterion: A project meets this criterion if it adds or improves facilities for walking or biking.

Children (1 Point)

Meaning: This criterion awards points to a project that is especially beneficial to children ages 12 and younger.

In Order to Comply With the Criterion: A project receives one point for a "yes" answer to any one of the following questions

- Is the project all or part of an element identified in the Missoula Safe Routes To School program?
- Does the project provide or improve access to a school even though the project is not part of the Safe Routes To School program?
- Does the project provide or improve access to a playground, park or recreation facility, or improve connectivity within a neighborhood (a reasonable trip for a child to make alone)?

Past History (5 Points)

Meaning: A project's past history refers to what plan or plans the project has appeared in since the idea for the project was first discussed. Projects already identified in adopted plans indicate an already-established level of community need and support.

In Order to Comply With the Criterion: A project receives one point for each adopted plan in which it appears, up to a maximum of five (5) points. Examples of plans include:

- 2008 Missoula Long Range Transportation Plan (LRTP)
- Missoula Transportation Improvement Program (TIP)
- Missoula Greater Downtown Master Plan
- 2004 Master Parks and Recreation Plan for the Greater Missoula Area
- Missoula City Capital Improvements Program
- Missoula County Capital Improvements Program
- An adopted City of Missoula neighborhood plan
- An adopted City of Missoula infrastructure plan
- An adopted regional or sub area plan that includes all or part of the ATP Plan Area—i.e. Lolo Community Plan
- City of Missoula Master Sidewalk Plan

Appendix E: City of Missoula Complete Streets Resolution

RESOLUTION NUMBER 7473

A RESOLUTION OF THE CITY COUNCIL PROVIDING FOR A COMPLETE STREETS POLICY AND DIRECTING STAFF TO DEVELOP IMPLEMENTATION STRATEGIES TO INCREASE THE USABILITY OF ALL STREETS FOR ALL MODES OF TRAVEL FOR CITIZENS OF ALL AGES AND ABILITIES IN MISSOULA.

WHEREAS, The City of Missoula wishes to ensure that all users of our transportation system are able to travel safely and conveniently on all streets and roadways within the public right-of-way in Missoula; and

WHEREAS, a complete street is defined as one which provides a safe, convenient, and context-sensitive facility for all modes of travel, for users of all ages and all abilities; and

WHEREAS, complete streets better serve the needs of those who use transit by providing access to transit systems; and

WHEREAS, complete streets have public health benefits, such as encouraging physical activity and improving air quality, by providing the opportunity for more people to bike and walk safely; and

WHEREAS, complete streets improve access and safety for those who cannot or choose not to drive motor vehicles; and

WHEREAS, complete streets are essential in providing safe routes to school for children; and

WHEREAS, complete streets policies have been adopted legislatively by at least five states, and by at least 36 localities – of which 13 are by local law (resolutions or ordinances); and

WHEREAS, the City of Missoula currently has a limited complete streets policy applying particularly to streets developed in new subdivisions; and

WHEREAS, the City of Missoula Public Works Department has a Master Sidewalk Plan and other programs to improve the ability of Missoula's streets to meet the travel needs of all users; and

WHEREAS, the concept and principles of complete streets are entirely compatible with the direction and plans embodied in the 2008 Missoula Urban Area Transportation Plan update; and

WHEREAS, it is the desire of the City of Missoula to formalize a commitment to the principles of complete streets for all of our streets;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MISSOULA, MONTANA, that the City of Missoula commits to a Complete Streets Policy which has the following elements:

1. Any roadway in the city of Missoula which is to be newly constructed or completely reconstructed must be designed and constructed to

A. provide for the safety and convenience of all users of all ages and of all abilities: pedestrians, bicyclists, transit users, and motorists; and

B. address the needs of all users both along roadway corridors and crossing the corridors.

2. Any project in which an existing roadway surface is to be restored or rehabilitated, and any remediation of deficient or non-existent sidewalks, shall be reviewed for the potential of making the roadway a complete street. Consideration shall particularly include proportionality: is the scope of work needed to make a complete street reasonable in relation to the scope of the proposed roadway maintenance or improvement?
3. Any exception to applying this Complete Streets Policy to a specific roadway project must be approved by the City Council, with documentation of the reason for the exception.

4. An annual report will be made to the City Council by the City Administration showing progress made in implementing this policy.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that this Complete Streets Policy will apply to the scoping, design, and construction of projects.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that the Public Works Department will review current design standards, including the design standards embodied in the most recent version of the subdivision regulations (currently Article 3-2 and 3- 3) which apply to new roadway construction, to assure that they reflect the best available design standards and guidelines, and effectively implement the Complete Streets Policy above stated.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that these design standards also serve as guidance for all existing roadway rehabilitation, reconstruction, or resurfacing, to the extent that the work required is reasonably proportional to the scale of the proposed rehabilitation, reconstruction, or resurfacing.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that application of design standards will be flexible to permit context-sensitive design, fitting the roadway design within the context of the neighborhood, recognizing that all streets are different and user needs will be balanced.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that exceptions may be made when

- The project involves a roadway on which non-motorized use is prohibited by law. In this case, an effort shall be made to accommodate pedestrians and bicyclists elsewhere.

- There is documentation that there is an absence of use by all except motorized users now and would be in the future even if the street were a complete street.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that staff in the Public Works Department be directed to develop ordinances, resolutions, programs, and recommendations for funding to implement the Complete Streets Policy, for consideration by the City Council; and that these shall identify the complete streets needs and recommend a plan to meet those needs, including for sidewalks, throughout the city.

AND BE IT FURTHER RESOLVED BY THE CITY COUNCIL OF THE SAID CITY OF MISSOULA, MONTANA, that the City Council commits to including Complete Streets Policy and principles in all future City plans.

PASSED AND ADOPTED this 24th day of August, 2009.
ATTEST: APPROVED:
/s/ Martha L. Rehbein /s/ John Engen
Martha L. Rehbein, John Engen,
City Clerk Mayor
(SEAL)

Appendix F: Missoula Active Transportation Plan Public Involvement Summary

Over the course of 2010, the Missoula Active Transportation Plan was produced with the help of public involvement. Missoula community members, including the general public and various agency employees, were given multiple opportunities to participate in the process of crafting the MATP document. Through the public process which included public meetings, committees, workshops, and exercises that were designed to garner valuable input on local conditions, improvements that area residents would like to see, and a prioritization of issues to be addressed. The following is a summary of the various process and forums created to gather that public input.

Outreach

Numerous tools were utilized inorder inform the public about the Active Transportation Plan and opportunities for community members to become involved. OPG Transportation staff contacted many local agencies throughout the community to garner interest and involvement as well as producing flyers, legal advertisements, and new media tools for distribution around Missoula. Additionaly, presentations were given at many local community functions including:

The Community Forum
MIM Employer Partner Breakfast
BWAM Annual Meeting
Rattlesnake Leadership Team meeting
Neighborhood Council meetings
County Parks and Trails Master Plan meetings

Monthly Updates to TTAC & TPCC

The Transportation Technical Advisory Committee and the Transportation Ppolicy Coordinating Committee were both involved with the planning document in an advisory role. The two committees are composed of various community leaders and local agency staff that can act in an advisory manner on technical issues. Both committees will be involved with the process of ultimately adopting the Active Transportation Plan and recommending the plan be integrated with current long-range transporation planning policies.

Monthly Technical Advisory Meetings

A technical advisory committee consisting of local agency and advocacy group representatives met monthly to develop ideas, consult on the design of public events, and review the draft Plan. Subcommittees were formed based on the individual issues of greatest concern to the planning document including:

Trails
Sidewalks
Bicycle facilities
Programs and education

The following were members of the TAC:

Adventure Cycling Association
ASUM Transportation
Bike Walk Alliance Missoula
Business Improvement District
City Bike and Pedestrian Advisory Board
City Bike and Pedestrian Office
City Parks and Recreation Department
City Public Works Department
City-County Health Department
City Office of Neighborhoods
Missoula Advocates for Sustainable Transportation
Missoula Chamber of Commerce
Missoula Community Forum
Missoula County Parks and Recreation
Missoula County Public Schools
Missoula County Public Works
Missoula Downtown Association
Missoula Institute for Sustainable Transportation
Missoula to Lolo Trail Alliance
Missoula Police Department
Missoula Redevelopment Agency
Montana Department of Transportation
Specialized Transportation Advisory Committee

January 2010 Kick-off Public Workshop

On January 28th the Missoula Metropolitan Planning Organization held a community Workshop at the University Center North Ballroom to kick-off the 2010 Missoula Active Transportation Plan Update. The community was invited to participate in a hands-on discussion about the current status and future needs of our active transportation infrastructure. More than 60 people attended the workshop.

The workshop started with a presentation by Harrison Rue from ICF International. Harrison Rue is a principal at ICF International with expertise in transportation policy, integrated transportation and land use planning, climate change, transit, transportation demand management, transit-oriented development, affordable housing and green building, and public participation and communications.

Attendees were then asked to gather around a map of the MPO and identify areas of the community that need active transportation improvements. Participants identified gaps in the trails system, areas where sidewalks need to be constructed, as well as areas that pose a safety concerns to active transportation modes of transportation.

Participants were also asked to show with post-it notes what they value about the current active transportation system and what they think needs to be changed or improved.

Results from this activity are summarized in the word cloud images below. Bigger and thicker words represent more people using those words to describe what they valued most or what the wanted to change the most.

At each table, participants were asked to answer a few questions about using active modes of transportation to get around town. All answers to these questions are summarized in the tables below.

Missoula Active Transportation Plan- Community Workshop

Barriers to Using the Active Transportation System	**#**	**What projects or programs would make it more feasible for you?**	#
Lack of sidewalks	**8**	Complete Streets	**4**
Lack of bus stops	**1**	Safe Routes to School	**2**
Snow and ice removal	**11**	Bus stops	**1**
Walk light cycles too short	**1**	Sidewalks	**6**
Discontinuous sidewalks	**3**	Curb cuts	**2**
Lack of curb cuts at intersections	**1**	Education	**1**
Disconnected trails	**1**	More boulevard sidewalks	**1**
Cars parking over sidewalks	**2**	More roundabouts and less stop lights	**2**
Disconnected pathways	**2**	More bus service	**3**
Arterials without bike lanes	**1**	Leaf removal	**1**
Speed limits	**6**	Vegetated medians	**3**
No bike lanes	**4**	Continuous bike lanes and trails	**5**
Poor bus service (later service and more routes)	**3**	Remove bikes from sidewalks	**1**
Poor maintenance of bike lanes and trails	**3**	Lower speed limits	**1**
Weather	**2**	Street lights	**1**
Poor accessibility	**1**	Snow removal	**2**
Time	**2**	Better maintenance	**4**
Distance	**2**	Better traffic calming	**2**
		Bike lanes	**5**
		Underpasses beneath busy arterials	

Destinations		Why can't you get there?	
Rattlesnake Gardens		**Lack of sidewalks**	
Bus stops		Lack of bus stops	
Ace Hardware		Intimidated by traffic speeds	
Across Reserve Street		Poor signalization	
Reserve Street		Too busy	
Good Food Store		**No sidewalks**	
Shopping along Brooks, Russell		Too much traffic, no bike lanes	
High Park Way to Whitaker		**No sidewalks**	
Missoula to Lolo		No off-road trails, paths or bike lanes	
Wal-Mart		Not safe	
East Missoula		**No infrastructure**	
Carmike Cinema		Lack of driver consideration	

Programs: What programs are you most interested in?			
Education / Outreach		**Safety / Enforcement & Maintenance**	
Bike Ambassadors	**5**	Bike cops during warmer months	**9**
Way To Go! Club-style incentives	**6**	Increased snow removal efforts	**20**
Bike repair/maintenance classes	**9**	Decreased speed limits for vehicles	**14**
Gear Giveaways and Contests	**6**	Driver/Biker education in schools	**13**
Additional Bike Walk Bus Weeks	**4**	Lighted Emergency phones on major trails (ie. Kim Williams)	**4**
Business/Shopping discounts	**3**	Change the leaf removal policy	**5**
Neighborhood biking/walking clubs	**4**	More signed intersections	**5**
Festive street closures	**11**	Roundabouts	**5**
Employer Incentives		Street Lights	**3**
		Traffic calming	**3**

Comments			
Make Van Buren safer			
Bike ped infrastructure maintenance			
Education			
Require streetlights in new subdivisions			
Add street lights on streets that lack them			
Improve river and railroad crossings			
No bikes on sidewalks			
Install more Stop signs			
Install more roundabouts			
Connectivity from developments west of Russell Street to the rest of the community			

Improvement of Brooks Street to make it complete			
Finish off-street trail system			
Continue the river trail system			
Three lane roads instead of four			

Results from this workshop guided the development of the Active Transportation Plan update. The Active Transportation Plan focused primarily on Growth Policy Goals and Objectives, Connectivity, Accessibility, Health and Livability, Safety, Inter-Agency Coordination and Education and Outreach.

October 7th Open House Summary

On October 7th, the Missoula Metropolitan Planning Organization Hosted an Open House meeting to invite public comment on the Missoula Active Transportation Plan Update. Approximately 40 people participated in the Open House. The goal of this event was to ensure that MATP development is reflective of the comments, opinions and feedback received at the January 28th Community Workshop. Specific feedback was sought for the proposed projects identified in the MATP. In order to achieve this, seven stations were set up with information about the MATP. Participants were asked to circulate through all the stations once to learn about the proposed projects and the MATP in general.

Proposed projects in the MATP were divided into "Areas of Investment." These groupings of the MATP proposed projects focused on the type of facility such as Trails, Sidewalks, On-Street Bike Facilities, Safety and Intersection Improvements; as well as programs that could improve Education, Outreach and Enforcement.

At Station 1, participants could review the DRAFT Vision, Guiding Principles and Goals for the MATP.

Missoula Active Transportation Plan
Vision and Guiding Principles

Vision

Missoula envisions a community where citizens can safely and conveniently reach any destination using active modes of transportation. We intend to further develop an interconnected, continuous and universally accessible system of sidewalks, bike facilities and trails throughout the Missoula area, and we look to the City and County to provide leadership in the promotion, education, enforcement and development of this active transportation system.

Guiding Principles

Livability *Equity* *Connectivity* *Accessibility* *Safety*



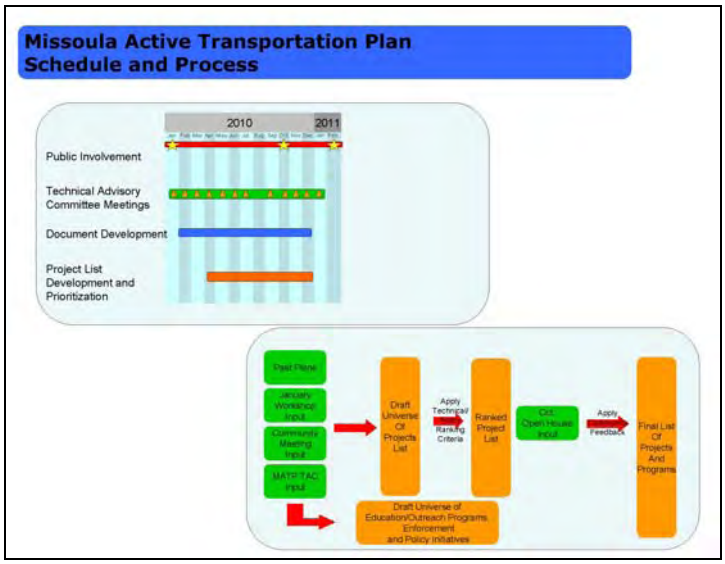


Stations 2— 6 each focused on a major area of investment:

Trail Connections
Neighborhood Sidewalks
On-Street Bike Facilities
Safety and Intersection Improvements
Education, Outreach and Enforcement Programs

Each station featured a map that displayed the proposed projects, as well as posters and handouts with projects descriptions. City and County staff along with MATP Technical Advisory Committee volunteers staffed each station and answered questions about the various projects and programs.

At Station 7, participants received poker chips to symbolize the "investment" that each participant would make at the different stations. This station also provided information about funding for active transportation projects, how participants' feedback will be incorporated into the process, and next steps in the MATP planning process.



Attendees were asked to register their investment preferences by placing their chips in containers at their preferred stations. Results of this exercise reveal that the community placed a fairly even amount of importance to the development of sidewalks, trails and on-street bike facilities.

Sidewalks	Trails	Bike Facilities	Education and Outreach	Safety/Intersection Improvement
86	**92**	**97**	**47**	**43**

Throughout the event, participants were encouraged to provide comments on specific projects shown and/or suggestions for additional projects to add to the MATP project list. Comments received suggested ways to improve each one of the areas of investment and provided additional projects to be added to the MATP project list.

Participants suggested the following projects be added to the universe of projects for the MATP. Those that were not already part of the MATP have been added to the un-sponsored project list for further review:

Type of Project	Location	Specifics
	Van Buren , Vine to Broadwater	Noise wall
Trail	Upper Rattlesnake	Connect Columbine with Mt view Drive Trail
Bike	Length of Mount/ 14th to Reserve	If Mount/14th is to be bike friendly then get rid of parking lane to make room for dedicated and marked bike lane
Bike/Sidewalk	Improve lighting on Brooks St (Mount to Higgins)	
Bike	Sharrows on Higgins from Brooks to 3rd	
Bike	Negotiate a bike-ped connection on Oxford St. between Strand and the	

	street north of Strand next to the Parts Plus Auto Parts store	
Trail	Add creek crossing to USFS trailhead to Rattlesnake Improvement list	
Bike-Trail	Complete trail system from Reserve to UM on North side of river	
Trail	Complete trail system from end of Duncan Dr through private property to trail along creek/PEAS farm	
Bike	Brooks- Mount to Reserve	
Bike	Greenough top of hill to Duncan	
Trail	Lolo Missoula Trail	
Bike	Bike lanes on Russell from Mount to Brooks Road diet needed	
Trail	Upper Rattlesnake	Non-motorized transportation across Rattlesnake Creek near water treatment plant and trailhead to North Hills on Duncan- Suitable for equine use
Trail	Upper Rattlesnake	Connectivity to USFS equine trailhead from trail system south of Madera Dr. and rattlesnake Drive
Bike-Trail	Upper Rattlesnake	Bike ped trail system from Clark Fork Trail system to USFS trailhead
	Missoula to Lolo Trail	
Bike	Charis lane /City Drive	Connection between Charis Lane and City Drive
Sidewalks	Rattlesnake	Along Rattlesnake Drive
Bike	5th and 8th	Convert one lane on 5th and 8th to bike lanes
Sidewalks		Sidewalks in the F2F
Trail		From Van Buren to USFS Trailhead
Sidewalks	On Van Buren	

May 4th Open House Summary

On May 4th, the final publci meeting event was held for the Missoula Active Transportation Plan in the form of an open house. The community was invited to attend and review the draft document with approximately 30 people in attendence. A short presentatation giving an overview of the document was presented to people in attendence followed by a Q and A session. Stations were setup to display the proposed projects that the MATP public process resulted in.

An additional station held the propossed table of action items for implementing the plan. At this station, people were asked to mark the specific action item that deserved priority. The action item that gained the most support focused on closing the gaps that exist in area sidewalks, trails, and bicycle network. Other action items that gained significant support from those in attendence included: the adoption of a Complete Streets Resolution at the county level, the establishment of additional funding for safety, education, and outreach programs, and the establishment of a policy that gives cyclists and p[edestrians more consideration during the design of intersections.

Appendix G: Neighborhood Council Project List by Rank

Proj. #	Neighborhood Council	Investment Type	Project	Project Description	Score
12	MSLA to LOLO	TRAIL CONNECTIONS	Missoula to Lolo Trail	Designate most feasible route, acquire ROW where necessary, and construct a trail that links the south end of the Bitterroot Branch Trail in Missoula to the Hwy 93 trail system in Lolo. This trail would extend the Bitterroot Branch Trail all the way to L	16
Multiple Councils					
6	Multiple Councils	ON-STREET BIKE FACILITIES	Develop Bike Lanes on Van Buren Street at the MRL bridge	This project pertains to the pinch point created by the MRL railroad bridge and would include bike lane improvements at this location. Other bike/ped facilities along this section of Van Buren are included in Project 7 - Rattlesnake/Broadway Crossing (RUX	22.5
8	Multiple Councils	TRAIL CONNECTIONS	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South Avenue	This project will consist of ROW acquisition, construction of a trail between North and Livingston and improved trail/ped crossings at Johnson & South. It would create a much needed connection in the BBT creating direct access between several neighborhoo	27
10	Multiple Councils	TRAIL CONNECTIONS	River Road Trail - California St. to Russell St.	Construct a trail in the River Rd ROW from the west side of the California St. Bridge to the proposed Russell St bridge and the planned trail crossing under it. May require some ROW acquisition at east end of River Rd. This trail is a continuation of th	21
11	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Construct Reserve Bike/Ped Crossings at Spurgin, 7th or 3rd, and River Rd.	Improve at-grade crossing conditions at Spurgin and River Rd.. A separate-grade crossing near 3rd would be preferable to one at 7th because of the direct link to the school but site conditions show that a separate-grade crossing at 7th may be more feasibl	25.5
38	Multiple Councils	TRAIL CONNECTIONS	Bike/Ped Bridge from Mullan Rd. to Missoula Ready Mix site	Add a bicycle/pedestrian bridge from Mullan Road over the Clark Fork River to the Missoula Ready Mix site, preferably somewhere about halfway between Reserve and Russell Streets. • The exact location of the bridge will depend on development and design on	17
54	Multiple Councils	TRAIL CONNECTIONS	Bicycle/pedestrian facilities on Greenough Dr./Duncan Dr. from Greenough Court past Lolo St. to West Mountain View. (UPDATED NAME)	Bicycle/pedestrian facilities on Greenough Dr./Duncan Dr. from Greenough Court West Mountain View.	16
66	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	West Broadway Bicycle and Pedestrian Improvements	West Broadway – Includes protected bikeways on the south side of Broadway from Russell Street to Orange Street. Include streetscape, transit stops, street lighting, and raised and landscaped medians. Include new traffic signals at McCormick, Bitterroot Sp	27
69	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Higgins Avenue Bridge Improvements	Higgins Avenue Bridge Improvements – Protected bikeways, enhanced connections to Caras Park, widened walkway, and Historic Street Lights.	23
76	Multiple Councils	TRAIL CONNECTIONS	Bitterroot Branch Trail River Crossing	Bitterroot Branch Trail Bike/Pedestrian Crossing – On or next to existing RR Bridge.	17
77	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Pedestrian signal heads and countdown indicators	Traffic Signal Progression & Pedestrian Countdown Crossing Indicators – Provide vehicle and pedestrian detection at existing traffic signals. Replace existing walk indicators with countdown indicators. This includes all signalized intersections within the	25
79	Multiple Councils	TRAIL CONNECTIONS	Westside Greenway Trail	Westside Greenway System along the following corridors subject to property owners' approval: (1) Between the Northside Bicycle/Pedestrian Bridge terminus on Owen Street and the Bitterroot Railroad Spur Line. (2) Between the mainline tracks and West Broa	15
85	Multiple Councils	NEIGHBORHOOD SIDEWALKS	Sidewalk - Hillview Way from 39th to 55th (includes underpass at Moose Can Gully)	Construct sidewalk on Hillview Way from 39th to 55th (includes underpass at Moose Can Gully)	15
102	Multiple Councils	NEIGHBORHOOD SIDEWALKS	Sidewalk - Dore from McDonald to 39th	Construct sidewalk on Dore from McDonald to 39th	13
129	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Bike and pedestrian facilities on Higgins	Improve Higgins Street to include safe, continuous and accessible bike/ped facilities from Brooks to Broadway.	29
130	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Bike and pedestrian facilities on Broadway	Improve Broadway to include safe,continuous and accessible bike/ped facilities from Van Buren Street to the Airport.	28
131	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Bike and pedestrian facilities on Orange/Stephens	Improve Orange/Stephens to include safe, continuous and accessible bike/ped facilities from Spruce to Brooks.	30
132	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Bike and pedestrian facilities on Brooks	Improve Brooks Street to include safe, continous and accessible bike/ped facilities from Mount to Reserve.	25
135	Multiple Councils	ON-STREET BIKE FACILITIES	5th & 6th Bikeways-- Maurice/Arthur to Higgins	Provide safe, continuous bike facilities on South 5th and 6th Streets between Maurice/Arthur and Higgins	27
138	Multiple Councils	ON-STREET BIKE FACILITIES	5th and 6th Bikeways--Higgins to Russell	Provide safe, continuous bike facilities on South 5th and 6th Streets between Higgins and Russell	20
140	Multiple Councils	ON-STREET BIKE FACILITIES	Bicycle Slip Lanes--Higgins at Intersection with Brooks	On South Higgins Avenue at the Brooks Street intersection add a dotted slip lane or other engineering modifications for bikes.	22
142	Multiple Councils	ON-STREET BIKE FACILITIES	Rattlesnake Drive - On-street Bike Facilities	On-street Bike Facilities: Poplar to Elm (BIKE LANE COMPLETED), Elm to Lilac (BIKE LANE COMPLETED), Lilac to 1800 Van Buren (BIKE LANE COMPLETED), 1800 Van Buren to Missoula (BIKE LANE COMPLETED), Missoula to Wylie, Wylie to Lolo, Lolo to Pineview, Pinevi	13
143	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Intersection improvements at Toole/Scott/Spruce	Enhance safe pedestrian, bike and vehicular traffic. A 3 or 4 way stop is recommended with enhanced striping for pedestrians.	28
144	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Safe pedestrian crossing - Orange St.	North Orange near the Providence Center	25
151	Multiple Councils	TRAIL CONNECTIONS	Trail - Ped. Bridge to Madison	Trail from Northside Pedestrian Bridge to Madison Ave/Rattlesnake Creek	15
154	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Traffic Calming - Multiple Streets	Traffic calming projects on Scott Street, West Broadway, N. 5th, N 2nd, West Alder near little McCormick Park	26
156	Multiple Councils	TRAIL CONNECTIONS	Trail - North Shore Riverfront - Van Buren to Easy St	Bike/Ped trail along the north shore riverfront from Van Buren to Easy Street (ALIGNMENT HAS NOT BEEN ESTABLISHED)	22
158	Multiple Councils	INTERSECTION/SAFETY IMPROVEMENTS	Bike Facilities - Mount/14th	Add bike facilities along the entire length	22
161	Multiple Councils	ON-STREET BIKE FACILITIES	Bike Facilities - Brooks - Mount to Reserve	Install bike facilities on Brooks - Mount to Reserve	20
163	Multiple Councils	ON-STREET BIKE FACILITIES	Bike Facilities - Russell St. from Mount to Brooks	Install bike facilities on Russell street from Mount to Brooks	20
165	Multiple Councils	TRAIL CONNECTIONS	Trail Connection - Madison St. underbridge to Arthur Street.	Connection from underbridge to Arthur St. (Southbound)	16
166	Multiple Councils	NEIGHBORHOOD SIDEWALKS	Sidewalk Improvements - Gilbert Ave from Rattlesnake Dr. to Pineview Dr.	Sidewalk improvements to address deficiencies in Walk to School Route	12
Northside					
81	Northside	TRAIL CONNECTIONS	Northside Greenway Trail between Northside Park and Scott Street	Interstate greenway system between Northside Park and Scott Street on the south side of I-90 with connectin access to the North Hills via Coal Mine Road. A loop trail system could be created depending on cooperation o property owners.	20
145	Northside	INTERSECTION/SAFETY IMPROVEMENTS	Intersection Improvement - N. 5th St.	Improvement for pedestrians at N. 5th, Worden and Stoddard	22
148	Northside	INTERSECTION/SAFETY IMPROVEMENTS	Street lights - North Scott St.	Improve pedestrian access with street lights from Palmer to Pullman on North Scott Street.	17

Appendix G: Neighborhood Council Project List by Rank

Proj. #	Neighborhood Council	Investment Type	Project	Project Description	Score
149	Northside	ON-STREET BIKE FACILITIES	Bike Lanes - N. 5th St., Worden, Cooley	Bike lanes on N. 5th, Worden, and Cooley to connect Orange and Scott Streets	19
150	Northside	NEIGHBORHOOD SIDEWALKS	Complete Sidewalks	Cooper, Howell, Defoe, Dickens, Stoddard, Sherwood, Turner and Waverly. Sidewalk improvements including curb, gutter and sidewalks to address deficiencies in Walk to School Route.	19
152	Northside	TRAIL CONNECTIONS	Trail - Scott St. to Interstate Greenway	Trail Along Scott Street or through future White Pine Sash development area joining the Grand Street/Scott Street Rail Greenway to the Interstate Greenway	14
153	Northside	INTERSECTION/SAFETY IMPROVEMENTS	Lighting - Northside Greenway	Lighting on Northside Greenway for bike ped safety	14
155	Northside	INTERSECTION/SAFETY IMPROVEMENTS	Traffic Calming - Cooley	Traffic calming at Cooley (on the Northside) - Needs better description	18
River Road					
32	River Road	TRAIL CONNECTIONS	Inverness Place Trail Extension	Continue the bike-pedestrian trail in Inverness Place eastward across the Rice Addition via the public right-of-way easement that extends east from the present cul-de-sac.	14
33	River Road	TRAIL CONNECTIONS	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	Provide a bicycle-pedestrian connection between the Emma Dickinson Learning Center, the Council Grove Apartments, and a future segment of Johnson Street if and when Johnson is extended north from Third Street.	14
35	River Road	TRAIL CONNECTIONS	Riverfront Trail between Russell & Reserve Streets	Work toward eventual reclamation and public acquisition of the Missoula Ready Mix property to facilitate extension of the Riverfront Trail after concrete production ceases on the site. Plan for non-motorized circulation within the park as determined at t	17
86	River Road	NEIGHBORHOOD SIDEWALKS	Sidewalks - River Road from Reserve to Russell	River Road-Reserve to Russell	18
91	River Road	NEIGHBORHOOD SIDEWALKS	Sidewalks - Wyoming from Grant to Davis	Wyoming- Grant to Davis	15
92	River Road	NEIGHBORHOOD SIDEWALKS	Sidewalks - Davis from 3rd to River Road	Davis--3rd to River Road	18
93	River Road	NEIGHBORHOOD SIDEWALKS	Sidewalks - Curtis from 3rd to River Road	Curtis--3rd to River Road	15
Riverfront					
9	Riverfront	INTERSECTION/SAFETY IMPROVEMENTS	Bitterroot Branch Trail separate-grade crossing of 3rd St.	Underpass or at-grade crossing sat BBT and 3rd. As traffic on 3rd increases, it will become more difficult to cross on the BBT. The BBT is a high volume commuter trail that justifies separate-grade crossings.	12
89	Riverfront	NEIGHBORHOOD SIDEWALKS	Sidewalk - California from Dakota to 3rd	Construct sidewalks on California from Dakota to 3rd.	19
Rose Park					
159	Rose Park	TRAIL CONNECTIONS	Trail Connection - Strand to Burlington	Install a trail connection from Strand Ave. to Burlington Ave. somewhere between Russell St. and Stephens Ave through the redevelopment process.	16
Southgate Triangle					
110	Southgate Triangle	NEIGHBORHOOD SIDEWALKS	Bellevue Park Curb and Sidewalk Improvements	(INADEQUATE DESCRIPTION)	12
172	Southgate Triangle	NEIGHBORHOOD SIDEWALKS	Sidewalk Improvements - Ernest Ave. from Garfield St. to Washburn St. (South side only)	Sidewalk improvements to address deficiencies in Walk to School Route	12
Target Range / Orchard Homes					
124	Target Range / Orchard Homes	TRAIL CONNECTIONS	Target Range Bike Paths: Tower: South Ave. to 3rd, 33rd: South to 3rd, 3rd: Reserve to Clements, Spurgin: Clements to Tower	Establish bike paths on: ● Tower Street: South Ave. W. to South 3rd St ● 33rd Avenue: South Ave. W. to South 3rd St, ● S. 3rd St. from Reserve to Clements Rd. (Creates a Walk to School Route to Hawthorne Elementary) ● Spurgin Rd. from Clements Rd. t	18
125	Target Range / Orchard Homes	TRAIL CONNECTIONS	North Avenue Bike Path: Clements - 37th	Improve the bike path on North Ave. from Clements Road to 37th Street.	14
126	Target Range / Orchard Homes	TRAIL CONNECTIONS	Clements Road Bike Path: Relocate segment between Mount & North Avenues from the east side of the street to west side.	Relocating the bike path that runs the length of Clements Road from the east to the west side of the street fo the segment between Mount Avenue and North Avenue would remove 2 avoidable street crossings along a high-use school and neighborhood route.	7
127	Target Range / Orchard Homes	INTERSECTION/SAFETY IMPROVEMENTS	Intersection Improvements at: Clements & Mount Clements & Spurgin Clements & S. 7th W. South Ave. and 40th Ave.	Intersection Improvements: Establish pedestrian crossings at Clements Road & Mount Avenue, Clements Roa and Spurgin Road, and Clements Road and South Seventh Street. Include a pedestrian crossing in the propose traffic circle at South Avenue West and 40	14
174	Target Range / Orchard Homes	NEIGHBORHOOD SIDEWALKS	Sidewalk Improvements - S. 3rd St. W, from Reserve to Tower	Sidewalk improvements along S. 3rd St. W. from Reserve to Tower serving Hawthorne Elementary.	21
Upper Rattlesnake					
45	Upper Rattlesnake	NEIGHBORHOOD SIDEWALKS	Rattlesnake Drive Sidewalks--Lolo Drive to Pineview Drive	Sidewalks, curbs, gutters, or bike lanes up Rattlesnake Drive from Lolo Street to Pineview. Bike facilities included in Project 142. Sidewalk improvements to address deficiencies in Walk to School Route. Complete missing segments.	15
46	Upper Rattlesnake	NEIGHBORHOOD SIDEWALKS	Mountain View Dr. Bike/Ped facilities Rattlesnake Drive to Duncan Dr.	Sidewalks, curbs, gutters, and bike lanes along Mountain View Drive from Rattlesnake Drive across footbridge, to Duncan Drive. Sidewalk improvements to address deficiencies in Walk to School Route (UPDATED NAME AND DESCRIPTION)	17
47	Upper Rattlesnake	NEIGHBORHOOD SIDEWALKS	Rattlesnake Drive Sidewalks--Pineview to Creek Crossing	Sidewalks, curbs, gutters, or bike lanes up Rattlesnake Drive from Pineview to Creek Crossing. Bike facilities included in Project 142.	18
48	Upper Rattlesnake	TRAIL CONNECTIONS	Bicycle/pedestrian facilities parallel to Creek Crossing to Tamarack. (UPDATED NAME)	Bicycle/pedestrian facilities from Creek Crossing to Tamarack Street/Fox Hollow.	14
49	Upper Rattlesnake	TRAIL CONNECTIONS	Bicycle/pedestrian facilities parallel to Tamarack to USFS Trailhead. (UPDATED NAME)	Bicycle/pedestrian facilities from Tamarack Street to USFS Trailhead.	14
50	Upper Rattlesnake	TRAIL CONNECTIONS	Bicycle/pedestrian facilities parallel to Lincoln Hills Dr. from Rattlesnake to Applehouse. (UPDATED NAME)	Bicycle/pedestrian facilities along Lincoln Hills Drive from Rattlesnake to Applehouse Lane.	16
51	Upper Rattlesnake	TRAIL CONNECTIONS	Bicycle/pedestrian facilities parallel to E side of Soccer Fields. (UPDATED NAME)	Bicycle/pedestrian facilities along east side of soccer fields connecting all neighborhoods above Rattlesnake Court with the fields and Lincoln Hills Drive.	8
52	Upper Rattlesnake	TRAIL CONNECTIONS	Bicycle/pedestrian facilities parallel to Lincoln Hills Drive--Applehouse to Contour. (UPDATED NAME)	Bicycle/pedestrian facilities along Lincoln Hills Drive from Applehouse Lane to Contour Lane; a trailhead is located a bit further at this point on Lincoln Hills Drive.	16

Appendix G: Neighborhood Council Project List by Rank

Proj. #	Neighborhood Council	Investment Type	Project	Project Description	Score
167	Upper Rattlesnake	NEIGHBORHOOD SIDEWALKS	Sidewalk Improvements - Woodland Ave from Lolo St. to Mountain View Dr.	Sidewalk improvements to address deficiencies in Walk to School Route	12
168	Upper Rattlesnake	NEIGHBORHOOD SIDEWALKS	Sidewalk Improvements - Mountain View Dr. from Rattlesnake Dr. east to end.	Sidewalk improvements to address deficiencies in Walk to School Route	11
Westside					
37	Westside	INTERSECTION/SAFETY IMPROVEMENTS	Non-motorized crossing under & onto Russell Street Bridge on north side of river.	Create a non-motorized crossing under and onto the Russell Street Bridge on the north side of the Clark Fork River, per the Third and Russell Street EIS. Since the project is included in the Russell Street EIS, the Record of Decision will determine its in	23
147	Westside	INTERSECTION/SAFETY IMPROVEMENTS	Bike/Ped Crossing - Russell & Broadway	Improve pedestrian/bike crossing at Russell Street/Broadway. Since the project is included in the Russell Street EIS, the Record of Decision will determine its inclusion within the project.	25

Appendix H: Agency & Public Comment

Agency: Associated Students of The University of Montana Office of Transportation. Nancy Wilson, Director

Received 3/7/11

- The Executive Summary, in my opinion, is too long. It should summarize the intent of the document, not summarize each section. I would like to move Chapter 5 up somehow. There are 50 pages prior to getting to the good stuff. Pages 13-28 could be in the appendix I feel. Page 29 – last paragraph – is incorrect. There is bike parking at many Mountain Line stops.
    - Addressed. The Executive Summary has been rearranged and edited. Chapter 5 has been largely untouched in its organization. The bike parking portion of the Transit Interface section in Chapter 5 has been clarified.

Agency: Bicycle/Pedestrian Program. Phil Smith, Program Manager

Received 3/14/11

Page 18, 338 center line miles would mean a potential of 676 sidewalk miles. Subtract 394 from this and you get 282, not 220.
Noted, sidewalk number was calculated based on both sides of the street while excluding intersections.

How do the sidewalk numbers in the 1st paragraph under I. in Chapter 3 relate to the number stated on page 15?
Addressed, double checked the figures and corrected the error

Page 42, funding figures under safe routes to school needs to be corrected
Addressed, added the correct funding numbers

Chapter 5 introduction: Perhaps we need a paragraph here saying the info in this chapter serves as a guide to design. Then say where, elsewhere in this document, specific project recommendations can be found
Noted, changed the title of Chapter 5 to better reflect the contents. Additionally, information on the contents of each chapter is found at the beginning of the document

Agency: Business Improvement District. Rod Austin, Director

Received 3/3/11

- Pg 7 perhaps a more specific reference to a "Balance Centered Development" as put forth in the DT Master Plan under III. Making the Case...
  - **Addressed,** added reference (pg 7) with footnote to DTMP

- Pg 33 add a specific reference to "Balance Centered Development" after 3. Missoula Greater Downtown Master Plan (2009)…
  - Noted, pg 4-4 under Missoula Greater Downtown Master Plan already contains a reference to Balance Centered Development

- Pg 63 I didn't see a reference to narrowing lanes as a method to lower speeds…
  - Noted, already includes a reference to narrowing of lane widths and its use as a potential traffic calming element

- The Balance Centered Development is at the core of the Master Plan and as such deserves better promotion.
  - Noted

Public/Advocate: Bike Walk Alliance for Missoula. Jean Belangie-Nye & Ethel MacDonald

Received 3/8/11 & 3/11/11

- Page 57, large volume roundabouts are not pedestrian friendly.

  Noted, the text about roundabouts in Chapter 5 already addresses safety issues with large roundabouts.

- Page 67, income levels should be considered also example 3rd st low income housing. Lolo has a low to moderate income issue with more on the way with new houses.

  Noted, a majority of Missoula is classified as low-middle income areas.

- Page 70, Bring portland model on and cite it.

  Noted, Missoula has a higher percentage of people that bike than Portland and a different set of challenges.

- Page 83, Special bike novelty plates for motor vehicles could bring in money that goes to bicycle infrastructure and issues.

  Noted, state policies and laws are not within the purview of this plan.

- Page 86, trails need to be established and marked early so that abuting landowners cannot acquire the land by placement of fences or plantings.
  Noted

- Page 90, landscaping should be natural to the area and easy to maintain and also low in water use.
  Noted

- Page 93, standards need to be established. We do not need the trails that is falling apart.
  Noted

- On page 65, third paragraph "a" need to be changed to "the" Complete Streets... Rational: it is "the" in earlier sections and re-enforces the Complete Streets Ordinance that is already in place.
  Addressed, Added.

- Other various comments that addressed grammatical errors and typos throughout the document
  Addressed

Agency: City Parks & Recreation. Jacquelyn Corday, Open Space Program Manager

Received 3/11/11

- **Executive Summary** - It appears that the Executive Summary merged with what is suppose to be Chapter 1 (the Table of Contents does not list Chapter 1). The first 3 sentences under the Purpose & Need section could serve as the E.S. by expanding it to include a short summary of Missoula's non-motorized planning history – where we've been and where we're headed with this new plan. Basically, in one page tell readers the essence of the plan – informing readers that it is both an action plan (chap 7) and a capital projects plan (chap 6) to continue to improve Missoula's active transportation infrastructure in order that more citizens feel safe and inspired to walk and bike more often to more places.
  - **Addressed, executive summary has been rewritten and updated.**

- Additionally, we recommend the following edits to what is currently paragraph 1 under the Purpose & Need section (which is what we're suggesting could be paragraph 1 of the E.S.):
  More than any community in Montana, Missoula has consistently supported and invested in its active transportation system, trail networks and public spaces. Especially since the adoption of the 2001 Missoula Non-Motorized

Transportation Plan, the City and the County have significantly expanded the Missoula area's active transportation system. The City has committed to enhancing both the existing and future system in a Complete Streets Resolution, and through the 2008 Envision Missoula process, the Metropolitan Planning Organization (MPO) area has a community supported vision for how Missoula should grow and develop. [need a footnote here to explain what that vision is and how it relates to this plan].

- Addressed

- These efforts have resulted in Missoula being awarded the Silver level designation as a Bicycle Friendly Community by the League of American Bicyclists in 2006. Ftnt – website link to the page that explains the reasons why Missoula got the designation.
  - Addressed

- *Vision statement* – We recommend the following amendments:
  Missoula envisions a community where citizens can safely and conveniently reach any destination using active/non-motorized modes of transportation. We intend to further develop an interconnected, continuous and universally accessible system of sidewalks, bike facilities and trails throughout the Missoula area in order to provide the opportunity for more people to safely walk and bike more often to work, school, shopping and other destinations. We look to the City and County to provide leadership in the promotion, education, enforcement and development of this active transportation system.
  - Noted

- *Goals Section*- For ease of citing the goals in future documents, we recommend numbering them and have an introductory sentence, such as "The following goals will help achieve the active transportation vision:"
  - **Addressed… added the above clarifying sentence**

- We recommend adding the following goals:
  1. Achieve the Gold designation level through the League of American Bicyclists Bicycle Friendly Communities program within a target date of 2016.
  2. Decrease the number of bicycle and pedestrian related accidents by identifying and correcting existing unsafe conditions and ensuring high safety standards on new facilities.
  3. Increase bicycle use for trips 3 miles or less by focusing efforts, funding and resources on providing bicycle infrastructure in areas of town that are most likely to serve the highest number of users.*

4. The concepts and reasoning behind this goal can be explained in detail under Chap 5.C Bicycle Facilities – later in this memo we provide such text.
5. We recommend adding an additional goal about the importance of engaging citizens: "Engage citizens through marketing, education, outreach via multiple media sources and public meetings, and working groups to further the vision, goals and action items of this plan." This goal could replace the need for statements regarding public process in other sections of plan, such as the last 3 sentences of the 4th paragraph on pg 85.
    - **Addressed. Added #1 to the list of action items, #2 became a goal emphasizing focus on non-motorized safety.**

- *Making the Case* - Greg Oliver has done an excellent job of drafting the "Making the Case," which appears in a short version in Chap 1 and in detail as Appendix A. We believe the short version in chapter 1 could be strengthened by adding more from what is stated in the Appendix and understand that Greg is going to submit those suggestions.
    - **Addressed in the rewrite of the making the case section**

- **Chapter 1** – We recommend adding an additional goal about the importance of engaging citizens: "Engage citizens through marketing, education, outreach via multiple media sources and public meetings, and working groups to further the vision, goals and action items of this plan." This goal could replace the need for statements regarding public process in other sections of plan, such as the last 3 sentences of the 4th paragraph on pg 85.
    - **Noted**

- We recommend adding the following as the 3rd sentence in the 1st paragraph under the Making the Case, on pg 7: "There is strong citizen support for maintaining and expanding our off-street trail system, as evidenced in a recent Missoula County/City Parks and Trails survey." Ftnt. *When asked what facilities they need the most, 70% Missoula City residents chose paved commuter trails. This was the 2nd highest ranking (hiking/biking trails ranked #1). See the survey at: provide link – Lisa Moisey has it.*
    - Noted

- **Chapter 4 –** Please replace the text under the "2004 Master Parks and Recreation Plan for the Greater Missoula Area" on pg 32 with the following: "This plan includes an inventory of current park, trail, open space, and recreational resources and then analyzes the future needs within Missoula and an area approximately 3 miles beyond the city limits. The plan establishes the desired Level of Service for parkland acreage (2.5 acres/1000

residents), sets forth standards for developed parks, and adopts numerous goals, policies, and action items to increase the quantity and quality of parks. The plan also includes goals for extending the off-street trail system and filling in gaps for the Bitterroot Branch, Riverfront, Kim Williams and Milwaukee Trails. Where possible, the plan encourages connections to popular destinations, such as shopping districts, downtown, schools, employment centers, and parks."

- Addressed… added the desired text

- Please move the "Missoula Urban Area Open Space Plan" to page 32 to place as the next section below the Master Parks Plan and add the following the text under paragraph 2 to replace the existing 2nd sentence (1st existing sentence remains): "The plan envisions a trail system "to provide recreational opportunities and help further facilitate non-motorized transportation as a viable option for more people in and around the City." The priorities listed include extending existing trails and filling in gaps and extending commuter/recreational trails up the Grant Creek and Rattlesnake Valleys and out west to the Mullan area and east to Bonner along the old Milwaukee Grade. It is important to note that both the 1995 and 2006 Open Space Bonds allow for expenditure of funds for "providing recreational and commuter trails." Thus far, these bond funds have been an important funding source for expanding the Bitterroot Branch and Milwaukee Trails." Ftnt – *2006 Open Space Plan, pg 33*.
  - Noted

- **Chapter 5** –
  AI – Create a Policy for ranking project priorities. Ranking Criteria should include existing criteria used in this plan and should add: Creating a connection along an identified origin/destination route
  Project that supports UFDA development patterns
  Project readiness – if a project is ready to go it should be moved up in priority (this item not currently listed in the plan)
  - **Noted… a ranking system already has been developed for evaluating potential projects**

- Policy – Follow user hierarchy in the design and planning of all new transportation projects. Consider peds. First (not necessarily as the focus)
  - **Addressed, Added clarifying language on the user hierarchy diagram**

- a.1.a Policy – Context Sensitive Solutions (CSS) must be employed **and documented** during the design phase of all road projects. CSS must include consideration of the pedestrian environments (consider ped needs) and environmental impacts (use of low impact materials and construction practices)

  - **Addressed, Added clarifyling language under the CSS section in sidewalks**

- AI – Research alternative materials for sidewalk construction that are more environmentally responsible than typical concrete. Assess the feasibility of using any identified materials (availability, cost, maintenance needs)
  - Noted

- AI – Conduct tests of alternative materials – small test plots – and record data on them.
  - Noted

- AI – Research rain garden swales as an environmentally responsible way to manage surface storm water. Research must include items such as facility design, needed materials, appropriate vegetation, construction methods, and maintenance.
  - Addressed, added a "recommended policy" to subsection

- AI – Identify locations where rain gardens could be implemented, how they could be funded, and create plans for implementation.
  - Addressed, added a "recommended policy" to subsection

- a.1.b Policy – Employ user hierarchy and CSS when designing intersections. Options researched must be documented and safety for each user type must be addressed. Roundabouts are one option that should be researched but may not be the safest solution for all locations. This must be required of all intersection projects including those done by MDT or FHWA.
  - Addressed, added a "recommended policy" to subsection

- a.2.a AI – Research Home Zone design practices and develop a solid set of design guidelines specific to Missoula. Require adherence to these guidelines for new projects by developers or City/County
  - Noted

- AI – Identify locations/roads where Home Zone implementation would be appropriate
  - Addressed, added a "recommended policy" to subsection

- AI – Conduct public education/outreach on lane conversions – safety benefits to all modes especially AT modes Noted

- AI – Conduct a study that identifies where lane conversions could be implemented for the largest increase in safety
  - Addressed, added a "recommended policy" to subsection

- AI – Propose lane conversion projects based on study and pursue funding
  - Noted

- AI – Identify potential locations for "shared space" implementation – refer to Greater Downtown Master Plan, other?
  - Addressed, added a "recommended policy" to subsection

- a.2.b AI – Identify bike/ped deficiencies and needs on existing bridges. Propose upgrades that would address these needs. Submit these as projects to the MPO.
  - Noted

- a.2.c Policy – Pedestrian Intersection Safety Policy – intersection design best practices: Lower citywide speed limits to 25 mph and 15 mph as stated, reduce the standard drive lane width, employ traffic calming devices, use on-street parking, raise pedestrian visibility, include ped-actuated crossing signals and reduce turning radii to make crossing safer for AT users.
  - Addressed, added a "recommended policy" to subsection

- AI – Research possibility of using in-ground lights for crossings in Missoula's climate and typical road maintenance conditions.
  - Noted

- AI – Research bike/ped only phase at traffic signals. Identify how these could work in Missoula's current system.
  - Addressed, added a "recommended policy" to subsection

- a.3.d AI – Explore funding options for funding sidewalks that reduces the burden on property owners. Once identified, pursue actions necessary to secure the funding. Funding source should be a long term solution.
  - Addressed, added language to the funding section

- AI – Amend the Master Sidewalk Plan to include a Sidewalk Repair Schedule. 1. Develop a MPO wide inventory of existing sidewalks and their condition. 2. Assess the condition of the sidewalks. 3. Set up a schedule for when repair/replacement of the sidewalks will happen. 4. Work with adjacent land owners to establish payment process well in advance.
  - Noted

- B.1 AI – Establish standard design criteria for transit interface that addresses the following: Public safety (real and perceived – CPTED), lighting, accessibility, signage & visibility, adequate space, and bicycle accommodations. Transit stops can be created at different levels of

development. Standard requirements for the bare minimum facilities must be included in this. Some elements to include: Stops must meet ADA and must have connected sidewalks within X radius, must allow for wheelchair access and proper curb cuts.
    - Addressed, added a "recommended policy" to subsection

- Policy – Select transit stops must be equipped with adequate bicycle parking.
    - Noted

- AI – Research the feasibility and costs of a full service "Bicycle Station" integrated into Mountain Line's downtown transfer center. This facility would include long term bicycle parking, lockers, service (what kind of service?) and public showers. Once researched and schematically programmed, submit as a project for funding.
    - Noted

- C.1.a Policy – Bike lanes must be a minimum of 6' wide with 7' being preferred. Deviations from these standard widths must be justified, documented and approved by…..
    - Addressed, Added clarifying language to street bicycle facilities section

- AI – Establish criteria to determine when a new or existing roadway should be equipped with bike lanes or shadows (bike route). Establish design standards for signage and street markings (if not already in place). Criteria must include roadway conditions like speed, width, surrounding land use, origin-destination routes, etc.
    - Noted

- Policy – Future roadway planning must include bike/ped facilities that extend and connect the existing BCN.
    - Noted

- C.1.b Policy – Intersections with bike lanes must include bike lane markings to the left of right-turn lanes. Further, intersections with bike lanes must have bike lane markings up to the crosswalk markings.
    - Addressed, added a "recommended policy" to subsection

- AI – Research best practices for design of bike boxes and conduct necessary research and planning to identify potential locations. Establish criteria that determine when bicycle boxes are appropriate.
    - Addressed, added a "recommended policy" to subsection

- AI – Create the educational program to be implemented in concert with the installation of bike boxes.
    - Addressed, added a "recommended policy" to subsection

- Policy – Require the inclusion of bicycle boxes on all new roadway projects where appropriate as defined by the criteria mentioned above.
    - Noted

- AI – Study the feasibility and workings of bike signal heads. The study should include a trail location(s) and period. Collect data on the trail location(s) and generate a report with conclusions and recommendations.
    - Noted

- AI – Study bike-sensitive loop detectors. Include a cost benefit analysis. Research ways to overcome the current costs obstructions associated with them.
    - Noted

- C.2.a Major Overall AI – fill gaps & improve substandard facilities
    - Noted

- AI – Research ways to overcome obstacles to retrofitting existing roadways – political, financial and ROW.
    - Noted

- AI (as stated) – Identify location where additional right of way is needed to accommodate on-street bicycle facilities.
    - Addressed, added a "recommended policy" to subsection

- C.2.a Policy - On existing roadways, bike lanes must be widened per these standards when opportunities arise such as when a road is being repaved, re-striped or reconstructed.
    - Noted

- Policy – Repainting of sharrows must be part of annual re-striping schedule by the City and County.
    - Noted

- AI – Clarify re-striping…as stated
    - Noted

- AI – Establish criteria to determine where sharrows should be located.
    - Noted

- AI – Research potential incentive programs to encourage developers to use alternative street designs in their projects. Once incentive programs are determined and feasible, pursue policy changes to implement them.
    - Noted

- AI – Research the feasibility of stated alternative street designs. Document findings and report recommendations to use or not to the MPO. If a facility type is determined to be feasible, pursue policy to allow or require its use under specific criteria/conditions.
    - Noted

- Policy – Build into policy the necessary public process to adequately justify the use of a proposed alternative street design.
    - Noted

- C.2.b AI – Develop a policy that requires bike lanes to be cleared of snow by the City. Research potential funding sources for this additional work. The study must also include research into alternative methods of snow removal and the dedication of equipment for it.
    - Addressed, added a "recommended policy" to subsection

- AI – Initiate conversations with the State to change their policy to include snow removal of bike lanes on bridges in the MPO area. Draft inter-agency agreements as necessary for coordination between agencies.
    - Noted

- C.2.c AI – Conduct bike parking inventory (as stated)
  AI – Install more bike corrals (as stated)
  AI – Updated existing policy to require coordination between Parking Commission and PW on bike parking design and location.
  AI – Identify underutilized parcels in downtown for bike parking (as stated)
  AI – Use ends of diagonal parking for bike parking (as stated)
    - Noted

- C.3.a AI – Strengthen subdivision regs to require use of the user hierarchy when designing and reviewing new roadway facilities.
    - Noted

- AI – Establish regular monitoring system (as stated). Once system is created, pursue policy that requires its implementation and identifies a funding source.
  AI – bike facility safety audit (as stated)
    - Noted

- B.1 Policy – All new trail construction must take a context sensitive approach during the design phase and must connect seamlessly with other AT facilities – bike lanes, bike routes, sidewalks
    - Addressed, added a "recommended policy" to subsection

- AI – A policy must be developed that requires new development, whether it be through subdivision or building permit, to provide trail construction that connect to the greater system as identified in this plan
    - Noted

- b.1. AI – identify corridors where lands can be acquired to create continuous greenways for trail development.
    - Noted

- b.2. a. AI – create a stronger policy that requires development to construct trails

  AI – develop a policy that requires developers to receive approvals from agencies (Parks) on trail design at several stages during planning and construction.
    - Noted

- b.2.c AI – Introduce legislation at the state level to permit GLO road rights of way to be close to vehicular traffic and used as non-motorized rights of way.
    - Noted

- b.3 Policy – Parks & Rec determines the classification of a trail. Trails are then developed to meet the classification design standards.
    - Noted

- b.4 Policy – plan trails to include amenities per this plan –
    - Noted

- b.4.a Policy – all trails must be designed by a qualified professional (applies to gvt. and developer led projects)
  Policy – all trails must meet MUTCD, AASHTO, ADA (list any other applicable standards)

  Policy – all trails must be designed for CPTED
    - Addressed, added a "recommended policy" to subsection

- b.4.b Policy ? – Trails must be designed to accommodate special user interests as far as is practice. Parks & Rec to determine what is "practical"

AI – conduct further research into alternative trail surfacing materials in the interest of environmental sustainability/responsibility. Permeable surfaces, sustainably produced materials

- Noted

- b.4.c Goal – Provide lighting on all Primary Commuter Trails, new and existing. Provide lighting on Secondary Commuter as deemed appropriate.
  AI – Identify where lighting needs exist
  Commuter trails without lighting
  Existing lighting that is failing or substandard, etc.
  Secondary commuter trails and neighborhood connectors that should be lit
  Policy – Include lighting on all new Primary Commuter Trails
  - Addressed, added a "recommended policy" to subsection

- b.4.d Policy – Trail corridors must be landscaped for beautification and safety. Landscaping must be water-wise to reduce water consumption.
  - Addressed, added a "recommended policy" to subsection

- b.4.e AI – develop a comprehensive way-finding system to be employed on the entire AT system – bike lanes/routes, trails & sidewalks.
  Policy – all new trail projects must include way-finding signage and all existing trails must be retrofitted with appropriate way-finding signage
  - Addressed, added a "recommended policy" to subsection

- b.4.f Policy – All Primary Commuter Trails must include seating and rest areas. Secondary Commuter and Nbhd. Connector Trails should have seating and rest areas as deemed appropriate by Parks.
  - Addressed, added a "recommended policy" to subsection

- b.4.g AI – conduct a study/audit of existing crossings and identify any safety shortfalls and areas where safety can be enhanced. Use AASHTO and MUTCD as basis of design for assessment. Create a plan to implement safety enhancements.
  - Addressed, added a "recommended policy" to subsection

- Policy – New construction must include safety enhancements per AASHTO and MUTCD at a minimum. Exceeding these standards must be evaluated on a case by case basis.
  AI – Develop criteria for determining when a separate grade crossing is to be used. Eg: crossing major obstacles (rivers, rail road yards, 5+ lane roads, roads of a certain speed and higher, etc) and opportunities (road & bridge construction and/or reconstruction)
  - Noted

- b.5 AI – Establish criteria for re-classification of trails dependant on use.
  Policy – Conduct trail use studies (traffic counts) every X # years to determine level and type of use.
  AI – Propose re-classification upgrades as new projects in City CIP and identify funding sources
  Policy – Upgrade existing trails with amenities per classification.
  - Noted

- We would recommend a Policy and Programmatic Recommendations section under trails to remain consistent with the other subsections in Ch 5. We will provide the specific policy items next week. There are lots of ideas and specific items in Ch 5 that could be pulled out as policy recommendations and action items to follow up on after adoption. Several are easily implemented and several need a lot more discussion. We will provide a list of what we believe these points to be next week also.
  - Noted

- The draft contains two places in Chap 5 that officially set forth "Policy and Programmatic Recommendations" – first on pages 65-66 under the "Sidewalks" section and then on pages 82-83 under the "Bicycle Facilities" section. In our March 11th memo, we said that the trails section should also include "Policy and Programmatic Recommendations" to be consistent. Here is our recommendation to be inserted as the last section, #7 on page 99:
  a) **Dedication and acquisition of Trail Right-of-way**
     Require dedication of either fee title land or public trail easement the width needed to accommodate construction of shared-use trails recommended in this plan in the same manner as streets and roads in the development approval process. Where filling gaps or trail extensions are needed and no development is taking place, local government will take the lead on working with private property owners to acquire trail easements in locations prioritized in this plan.
  b) **Trail Design**
     In the interest of safety, durability, and maintenance, all new trails, whether being constructed by a developer in a new subdivision or local government, must be designed by a qualified professional. To the greatest extent practical, trails must conform to MUTCD, AASHTO, ADA, and CPTED guidelines.
  c) **Trail Amenities**
     In the interest of safety and aesthetics that encourage more users, to the greatest extent practical, new trails should provide lighting, landscaping, way finding signage, rest areas and seating. Existing trails should be reviewed to determine if such amenities need to be added.

- Noted

- There are numerous other statements in Chap. 5 that could be interpreted as policies or action items to help implement the plan. In his outline delivered to you on March 6, Greg Oliver listed numerous such items under each section of Chap 5 and attached is a similar outline created by Dave Shaw to try to understand Chap 5 as it is confusing – are the ideas listed for improving the active transportation system, such as the ideas listed under "best practices," guidelines, standards, and/or polices that should/could be adopted? Another example is the Education, Outreach and Enforcement section on pages 100-102 which lists "potential new initiatives" in a chart, some of which lend themselves to being listed as policy, others as action items. We encourage further discussion with the MATP TAC members on this topic to determine if Chap 5 could be re-organized to provide more clarity.
  - Noted

- On page 85 under Recommended Locations, please include the following after the 3rd sentence in the 2nd paragraph: "Trails along rivers are highly desirable and popular with citizens. Access to rivers ranked high with both City and County residents in regards to "needed facilities" (68% of the City survey respondents and 69% of County respondents). Ftnt. *Provide link to the survey*. Access can be in the form of trails along rivers or developed boat ramp facilities. In addition to the river corridors, the railroad corridors are a crucial route for east/west non-motorized travel (the Milwaukee) and through the heart of Missoula SW to NE (the Bitterroot Branch)."
  - **Addressed… added above text with minor changes.**

- Cyclists range anywhere from an advanced level cyclist who is comfortable riding among motor vehicles and operating at maximum speeds to beginners whom would prefer to avoid high traffic volume streets and feel most comfortable on off-street facilities. Borrowing some terminology from Portland's Bicycle Plan, citizens can be classified into four types: 1) "Not interested" which includes those who have no interest in bike riding and those who are unable to do so, which generally represents 35% of the population, 2) "Strong and fearless" bicyclists will ride anywhere with or without bike facilities, which represent only 1-2%, 3) "Enthused and confident" bicyclists are comfortable riding on busy streets so long as there is an adequate bike lane and represent about 10%, and 4) about 505 are "Interested but concerned" bicyclists who would like to ride more, but are afraid of traffic even when bike lanes are present, and they generally ride only where there are off-street facilities such as trails or bike boulevards or

cycle tracks. For this reason, it is imperative that bicycle facilities are designed to meet the needs of a spectrum of users.
At 50%, the "interested by concerned" category represents the large majority of citizens and the greatest opportunity for increasing bicycle use. To increase bicycle trips amongst this group, bicycle infrastructure that provides a higher comfort/safety level than bike lanes needs to be provided, such as bike boulevards, cycle tracks, and off-street bike trails. Of course, this infrastructure is usually more costly than bike lanes and thus to be most cost effective, such infrastructure should be targeted for locations where it will most likely increase bike use. Research has indicated that half of all trips within cities are three miles or less and that three miles is a distance readily and efficiently traveled by bicycle, a distance that most riders can cover in less than 20 minutes. Ftnt to support. Based upon this fact, efforts should be focused on analyzing which neighborhoods could generate the greatest increase in bicycle trips considering demographics and trip generating destinations such as work centers, schools, parks, and commercial services.
    - Noted

- **Chapter 7** - Additional Action items we recommend:
  Form a working group or use an existing group or agency to research and analyze how to achieve moving Missoula from the Bicycle Friendly Community silver level to the gold level designation from the League of American Bicyclists. Based upon the report findings, make recommendations to TPCC and City Council for prioritizing and implementing action items. Ftnt *The Madison Mayor's Platinum Bicycling Committee Adopted Report, April 8, 2008 is a great resource:* http://www.cityofmadison.com/trafficEngineering/bicyclingPlan.cfm *This report has 6 pages of recommendations for elevating Madison, WI from Gold level to Platinum*.
    - Addressed, added this to the action item matrix

- In order to address the goal of increasing bicycle use for trips of 3 miles or less, analyze "Bike Zones" in areas of town that are most likely to serve the highest number of users based upon demographics, geography (i.e. relatively flat), and trip generating destinations. Target these Bike Zones for determining where to provide bike facilities and what types of facilities will most likely increase ridership. This may include considering converting existing wide streets to two or three lane roads in order to provide bike lanes or bike boulevards.
    - Noted

- Research best practices for design of bike boxes and establish criteria that determine where they are appropriate.
    - Noted… this recommendation is already incorporated into Ch. 5

- Conduct a review of complex intersections and determine solutions to improve bicycle/pedestrian safety and comfort. Chose which intersections to review based upon those that are shown as Bike Routes and Bike Lanes in Map 3.2 and those with *substantial* (better word?) pedestrian use. Prioritize which intersections to upgrade/improve for bicyclists based upon the Bike Zone analysis and accidents (Map 3.5) and for pedestrians based upon use and accidents (Map 3.4). (*please consider editing the priority criteria to conform to established transportation design criteria that we may have not listed*)
    - Noted

- Develop criteria for creating trail access and corridors along the Clark Fork and Bitterroot Rivers as supported by the Master Parks Plan, Open Space Plan, and citizen surveys. Review and strengthen local development regulations to ensure river access and trails are provided where appropriate.
    - Noted

- Research environmentally friendly ideas mentioned in Chap. 5, such as alternative materials for sidewalk construction, where rain swales to manage surface storm water might be appropriate, and alternatives to asphalt for commuter trails.
    - Noted

- Collaborate with regional, state and federal partners to reform system performance measures and mobility standards to reflect the movement of persons rather than vehicles and favor active transportation modes.
    - Noted

- Prepare an annual report on the progress made toward achieving the goals and action items in this plan. Present the report to TPCC, City Council, and other interested committees and organizations.
    - Noted

Agency: City Public Works. Steve King, Director & Doug Harby, Construction Project Manager

Received 3/3/11 & 3/10/11

- (pg 118) City street improvement assessments are different than SIDs and may need a separate section to explain.

    Addressed, added separate sections for SID/Assesments in the funding chapter

- (pg 118) For FY 2011 the City Council approved $60,000 to subsidize installation of ADA corner ramps where new sidewalks are being installed.

  Addressed, Added verbatim

- (pg 120) The MRA funded sidewalk projects should be mentioned. MRA installed more than $1.3M worth of sidewalks in FY 11.

  Addressed, added sentence to pg 122 where the MRA is discussed under 3. Public Private Partnerships.

- (pg 120, under Gas Tax) Gas tax funded street maintenance is often used in association with new curb and sidewalk projects which substantially reduces assessments to property owners. The gas tax does not directly fund sidewalk construction, but the street repairs, drainage structures, and pavement restoration associated with new curb installation is funded by gas tax.

  Noted, already addressed in the updated language on the state fuel tax in the funding section

- **Interconnectivity Issues**
  There is very little mention in the ATP of the importance of interconnectivity on private property between large pedestrian generators within one parcel or with adjacent parcels. For example the pedestrian connections along the North Reserve commercial properties are very insufficient with pedestrians required to cross roadways at mid-block or travel very indirect routes to walk safely from one store to the next. Recent revisions to tile 20 and tile 12 have included these design requirements but I think it should be included in this document.

  Noted, connectivity between developments is already included in Chapter 5 under c) Develop a Connectivity Policy in Subdivision Regulations

- **Page 20 1. Sidewalks**
  Include the Rattlesnake and South Hills in the areas lacking connectivity
  - Addressed.. added

- **Page 24 Sidewalk Hazards and Page 66 Ongoing and Long Term Sidewalk Repair and Funding**
  The City Engineering is very proactive regarding sidewalk repair and upgrades, a very small portion of our replacement projects are strictly a result of complaints, (except snow removal). The Master Sidewalk plan does include a repair schedule and planning future projects is very much driven by the Master Sidewalk Plan. We have historically replaced 30-60 blocks of sidewalk annually. These numbers represent 30-60% of our annual sidewalk program. However, as with the installation of new sidewalks, the assessment program eats up about 50% of our project staff resources. An

alternative funding source would enable the present staff to effectively double the amount of sidewalks installed annually and increase the sidewalk replacement program by a factor of four times.

- Addressed… added some clarifying language from the above paragraph

- In respect to the recommendation of a complete sidewalk condition inventory, this is not a reasonable task at this time. With the present funding system where each property owner is assessed for the work done on the ROW adjacent to their property the sidewalk condition must be inventoried on a property by property basis. This requires knowing the legal address and ownership of each property and the location of the property lines. A change in the present funding system away from the individual assessment would significantly streamline the work and make a sidewalk condition tracking system possible.
  - Noted, how a complete sidewalk inventory would be conducted and what agencies would cooperate in its completion is yet to be addressed

- **Driveway Conflicts**
  One of the issues that seem to have been overlooked by the ATP in the recommended design section is the conflict between driveways, mostly residential, and pedestrians/bicylists. Driveways which access the street present frequent conflicts with pedestrians and bicyclists, these include:
  Vehicles backing across the sidewalk without observing or looking for pedestrians or who's visibility is obstructed by fences or vegetation
  Vehicles entering the driveways from the street where the pedestrian may be hidden by parked cars or vegetation
  Vehicles entering the street by backing often are obstructed by parked cars creating a conflict with bicyclists and create more opportunities for "hooking" situations.
  The most common situation is vehicle partially or completely blocking the sidewalk when parked in the driveways
  In order meet the goals of the ATP, recommended design should discourage front loading in residential districts.
  - Noted, the subdivision regulations already adequately address this is with the following language:
    20.60.060 B. Driveways
    2. Driveways from streets may not be created in residential zoning districts for parcels with access to an alley except those approved by the city engineer due to topographic, physical or easement constraints.

Agency: County Health Department. Greg Oliver

Received 3/11/11

- Shorten this section. It should include:
  - Noted

- Add: This plan replaces the 2001 Plan.
  - Addressed, added

- We, The TPCC is the responsible group for this plan representing the MPO.
  - Noted

- In bold on first page in a box: Overall goal: Increase non-motorized trips and the percentage of residents and visitors who choose non-motorized modes of transportation for work and school commutes, social and recreational trips.
  - Addressed, added as a goal

- Move "Making the Case" summary here…
  - **Addressed, already moved making the case into its own section… becoming the new introduction. Old introduction will be re-titled to reflect its nature**

- Rearrange order so that "congestion" isn't the first benefit. Make economics first, health second? Bolster the summary sentences under each . Pump up the summaries. (I'm glad to take a stab at doing that if you like)
  - **Addressed, section was rearranged in rewrite**

- Add: Special Considerations for Biking
  - **Noted**

- The Portland percentages- not sure what they are- 5%, 10%, 50%. That the best strategic target is 50%. The 3 mile concept- people in the 50% will consider riding if conditions are good and destinations are within 3 miles. Special considerations include dividing the city and county into zones where more there it is more likely to make a substantial mode shift and focus efforts and resources there. The goal is not for everyone to ride a bike year round- although that is possible, but to add as many trips as they can during the intervals that they are comfortable riding
  - **Noted**

- Improve this section by organizing it slightly differently.
  - Noted

- Start with the general goal as the heading in active terms

  - Noted

- Ex. Complete the sidewalk system or Employ context sensitive solutions to roadway design
  - **Noted**

- Possibly follow with this format:
  Current status
  Promising approaches or best practices that could be employed in Missoula
  Specific Missoula considerations about how to make progress
  - **Noted**

- Clarify which projects are in 4 year plan pipeline and that the new 4 year plan will be developed in 2012 and there will be opportunity to weigh in during that process.
  - **Noted**

- Goal: Maintain, enhance, and improve education, promotion, outreach and enforcement
  - Noted

- Current status: Move p. 38-44 to this new Chapter.
  - Noted

- Promising approaches or best practices that could be employed in Missoula
  - Noted

- Specific Missoula considerations about how to make progress
  - Noted

- Add to the Action Matrix:
  Institute an ATP Steering Group that meets quarterly and has representatives from:
  See Technical Advisory Committee list: add Missoula In Motion
  This group will be coordinated by the MPO transportation planner or TPCC designee. It will have quarterly meetings and operate similar to the Downtown Plan model. It will produce an annual report of progress. It will tackle projects utilizing functional work teams. It will provide guidance to agencies carrying
  - **Addressed, Added additional paragraph to C. Initiating Actions with details on the initiating committee Addressed**

- Develop an overall active transportation communications plan that incorporates promising strategies from other places and utilizes

sophisticated social marketing approaches and that members of the Steering Group can utilize.
  - **Noted**

- Further develop criteria for evaluating priority infrastructure projects including: 1) shovel ready with things like ROW. 2) targets an area with conditions supportive of more walking and biking.
  - **Noted**

- Research and implement criteria that will allow Missoula to move from its silver status to gold as a Bike Friendly city by League of American Bicyclists
  - **Noted**

Agency: County Parks Department. Lisa Moisey, County Parks Director

Received 3/11/11

- Page 10 - Under ATP Technical Advisory Committee - change Missoula County Parks and Recreation to just Missoula County Park.
  - Addressed, corrected

- Throughout the documents - change "Missoula County Parks Department" to "Missoula County Parks Program"
  - Addressed, corrected

- the County does not have a Parks and Recreation Department and is not able to deliver a comparable level of service for maintenance on County trails located within the MPO. To do so would require additional staffing and funding. While our Public Works Department works hard to design and construct trails, they also do not presently have the resources to provide snow removal and sweeping as outlined in the level of maintenance sections of the draft plan.
  Similar to County park maintenance, the County works with neighborhood groups, user groups and other organizations to assist with trail maintenance, as appropriate. These partnerships are important to the County; they allow us to work closely with our residents and to extend our resources a bit further. It's a model that's been quite successful in our more rural parts of the County and may be something to explore in other areas as well.
  My concern is that the sections describing level of maintenance for the various trail classifications may imply a commitment by the County to provide something that we are presently unable to do. My first thought it that perhaps we could add some qualifying language in these sections, noting that the stated level of maintenance may not be attainable on County trails in the near future.

- Addressed, added a short paragraph to B. System Functionality and Safety: Natural Barriers in Ch. 3. as well as a clarifying statement to trails maintenance in chapter 5

Public/Advocate: Lolo Trails Association. Roger Dibrito

Received 3/11/11

- The word "accident", I believe "crash" is the current term....we used crash many years ago, then the industry moved to accident, now I believe the work "crash" is the common term used by NHSTA.
  - Addressed, changed use of accident/incident to crash throughout the whole of the document.

Agency: MDT. Sheila Ludlow

Received 3/14/11

- Page 5 – I – States Missoula supports non-motorized more than any other community in the state. Do we know this for sure? Is this a fact?

  Noted, Missoula has the highest rate of bicycling in the state and is 6th in the nation, which is evidence of local support for non-motorized transportation

- Page 26 – The report attempts to make the correlation between high volume roadways and bike ped crashes stating that high volume roadways have significant numbers of crashes. The report should stick to crash rates, and maybe try to look at the corridor and if it accommodates bikes and peds. Volumes alone don't mean it's a cause for alarm.

  Noted

- Table 4-1, wouldn't hurt to have headings on the different pages of the table so the reader doesn't have to shuffle back and forth to read the table.

  Addressed, added the suggested text

- Page 42, Safe Routes to School – Unless the document is going to be updated annually to account for successful grants it may be best to remove the last sentence specific to dollar amounts.
  - Noted… the $ figure provides a snapshot that can be looked back upon.

- Page 43 – h) might want to just add the appropriate language to this section instead of sending the reader back. See Subsection 1 above…all of section one or specific to a. b, c, d, or e?
  - Noted

- Page 44 – Construction and Maintenance – Does MDT not construct and maintain facilities?
    - Addressed, added MDT as an agency responsible for trails facilities maintanence

- Page 47 – MDT is paying for the signals on the Arthur 5th and 6th project. That might be considered part of the partnering.
    - Addressed, added clarifying language

- Page 52 -considering peds first and "other modes" last contradicts the Guiding Principles on
    - Noted, simply because pedestrians should be considered first in designing facilities does not mean that outcomes are unequal

- Page 6 under "Equity" where all users' needs and rights should be considered - all modes should be considered equally.
    - Noted, Just because one mode is considered first, doesn't mean that the other modes were not considered equatibly

- Page 57 – considering a roundabout could also mean requiring a signal. With a double lane roundabout, signals are required for pedestrians in the Public Right of Way Accessibility Guidelines (P-ROW-AG).
    - Addressed with additional sentence and footnote

- Page 62 – Under Bridges- not sure if it needs to declare that the Russell Street Bridge will accommodate non-motorized. If Russell Street needs to be used, maybe it would be better to state that the Draft EIS preferred alt would accommodate non-motorized users.
    - Noted

- Page 63 – says that most crashes occur at "high speed high volume intersections". What is high?
    - Addressed… added aditional statistics and analysis that clarifies the original statement

- Page 67 – is that 40% and 36.5% in Missoula or nationwide?
    - Addressed… statement has been clarified

- Page 71 – 6 to 7 foot bike lanes in new construction will require more right of way. In an urban area that can be the difference between having to impact a structure and not impacting a structure. Is the AASHTO 51' lane inadequate in some way?

  - Addressed with reference to NACTO Urban Bikeway published guidelines

- Page 74 – the use of bicycle signals is suggested. How would they be actuated? At an intersection like Mullan and Reserve you will add additional congestion to an already congested intersection. The costs might be better used building more bike ped infrastructure.
  - Addressed, added clarification

- Page 107 & 111: Project #7 (Rattlesnake Gateway Project – Van Buren & I-90) is called the Rattlesnake / Broadway Crossing (RUX) project and the City is currently evaluating proposals for the design of the project. Therefore, it should be removed from these lists as the project is already underway.
  - **Addressed, taken Out of Project List**

- Page 107 & 111: Project #37 (Non-motorized crossing under & onto Russell Street Bridge on north side of river) is included in the Russell Street EIS. It should be noted that it is included in the EIS and that depending on the Record of Decision; it may be taken care of with that project.
  - **Addressed, added additional clarification to project description**

- Page 107 & 111: Project #77 (Pedestrian signal heads and countdown indicators) is currently under construction. Therefore, it should be removed from these lists as the project is already underway.
  - **Addressed, revised project description to include all existing ped heads**

- Page 107 & 111: Project #147 (Bike/Ped Crossing – Russell & Broadway) is included in the Russell Street EIS. It should be noted that it is included in the EIS and that depending on the Record of Decision; it may be taken care of with that project.
  - **Addressed, revised description**

- Page 108 & 112: Project #45 (Rattlesnake Drive Sidewalks – Lolo Drive to Pineview Drive) says that is has been completed. If it has, delete the project from the lists. If it hasn't, delete the text "(COMPLETED)".
  - **Addressed, project description has been revised**

- Page 109 & 112: Project #6 (Develop Bike Lanes on Van Buren Street near Interstate Bridge from Broadway to Vine) should be removed from these lists as the work is already included in two other projects that are already underway. The work south of the Railroad Bridge is included in the Rattlesnake / Broadway Crossing (RUX) project and the work north of the Railroad Bridge is included in MDT's Missoula – E&W project. The roadway

directly underneath the Railroad Bridge is still a pinch point and neither project can address that because it is MRL's bridge.
  - **Addressed, revised to describe mainly the pinch point on Van Buran at the railroad bridge**

- Page 110: Project #141 (East Missoula to Bonner Bike/Ped Trail) should say the County, and not MDT, as the project sponsor.
  - **Addressed, revised description**

Public/Advocate: Missoula Institute for Sustainable Transportation. Bob Giordano, Executive Director

Received 3/11/11

- p.5: Regarding the first sentence of the document, "More than any community in Montana, Missoula has consistently supported and invested in its active transportation system, trail networks and public spaces", please consider removing "More than any community in Montana", which I think would make for a stronger opening. Also, we cannot be quite sure that Missoula has invested more than any community without quite a bit of research. For instance, a very small town installing a couple sidewalks may end up with a very high per capita investment ratio. Also, regarding the first sentence, please consider rewording the ending, as a trail system is a part of the overall active transportation system.
  - Noted

- p.20 Regarding, "Missoula MPO includes… 38 miles of bike lanes and bike routes in the
  City of Missoula," please consider separating the lanes and routes into two different figures. People seem to be more comfortable and feel safer on bike lanes, which have white stripes, than on bike routes, which have no stripes and often place cyclists in the 'door zone' of parked cars.
  - Noted

- p.25: Regarding, ""Audible road delineators" or "rumble strips" are a well-documented hazard to bicyclists.", this tends to be a true statement, yet there are situations this does not seem to be the case. For instance, on Hwy 200, up the Blackfoot River, there are rumble strips on many miles of road that do not seem to be a hazard. The shoulder is about 6' to 8' wide, to the right of the 'strips,' which tends to leave plenty of room for safe bicycling. Perhaps there could be a reference to what constitutes a 'safe' rumble strip, either in this section or later in the document. I have led several large group bike rides up the Blackfoot and speak from experience on this issue.
  - Addressed: Added more detail to the rumble strip statement

- p.26-28: Replace the word 'accident' with 'crash', as accident implies there is no fault or accountability. Canada Government has been making this word change.
  - **Addressed, revised description**

- p.27: Regarding, "High volume roadways that likewise exhibit relatively large volumes of foot and bicycle traffic allow for the opportunity of greater interaction between travel modes and thus a greater opportunity for conflicts to occur.", there is some data that conflicts somewhat with this statement. Most notably is the 'Jacobsen Study,' (Jacobsen, P. L. 2003. Safety in numbers: more walkers and bicyclists, safer walking and bicycling. *Injury Prevention*, 9, 205–209.). Perhaps this study could be sited somewhere in the Active Plan.
  - Noted. This is true on a per capita basis. Overall crashes will rise, but crashes on a per capita basis will fall because the increase in cyclists/pedestrians rises faster than the number of crashes. We don't have the ability at this point to undertake that level of analysis to see if that has happened in Missoula in recent years because of a lack of enough relevant data.

- p.38: MIST does provide 'Driver Awareness and Etiquette' through our 'Share the City Share the Street' program. We routinely give presentations, facilitate discussions and lead field trips that promote driver awareness (for instance at roundabouts and on 3-lane streets).
  - Noted

- p.40: To be consistent with advocacy groups, please add "In particular, MIST supports:
  Single lane roundabouts instead of traffic lights
  3-lane roads instead of 4 or 5 lane roads
  One green street per neighborhood
  A connected sidewalk, trail and bike lane system
  A walking street or public square downtown
  Buses every 10 minutes on arterials
  City wide car share and bike share system"
  - Noted

- p.57: Regarding, " b) Intersections": New York, we believe, does not just 'consider' a roundabout, but puts the roundabout as the default design. Could also mention that the Montana legislature passed a resolution in 2005 or 2007 to study roundabouts when an intersection is changed.
  - Noted

- p.57: Regarding, "In higher volume situations, such as where a collector and arterial intersect, as with the intersection of Russell and South 3rd Street, a signalized intersection with a pedestrian crossing phase can, in fact, be safer for pedestrians." Please cite a reference.
    - Noted

- p.58: Regarding, "Intersections are improved fairly frequently and a roundabout or traffic circle can always be considered as a context sensitive solution." Suggest replacing 'can' with 'shall' or at a minimum 'should.'
    - Noted

- p.59: MIST is working on a form of these 'Home Zones', and we generally refer to these streets as 'Green Streets'.
    - Noted

- p.59: Regarding, "Home zones all represent long-term opportunities whose implementation require consensus among stakeholders such as affected property owners/residents, emergency service providers, utilities and all responsible agencies." Does consensus mean 100% agreement? Suggest that the wording be changed to reflect current Missoula policy.
    - Noted. Consensus: the judgment arrived at by most of those concerned

- p.63: Regarding, "Safer Pedestrian Crossings," what about roundabouts? The Federal Highway Administration has a brochure that identifies roundabouts as safer than signals for pedestrians.
    - Noted

- p.64-65: Regarding, "Finally, one context sensitive design solution for intersections is reducing turning radii. This both slows vehicular traffic and increases pedestrian visibility to drivers. Reducing turning radii should be carefully considered in order for emergency vehicles and buses to still have adequate access, especially in more urban areas.", another big factor is the 'design vehicle,' or the largest vehicle allowed to use the road or intersection. Currently in Missoula, the design vehicle tends to be a WB-67, which is a very large tractor trailer. As discussed in Active Transportation committee meetings, Missoula may benefit greatly by reducing the largest size vehicles allowed in the City limits to something like a WB-50 or smaller. This is especially important in the Central Business District. This has been done successfully in many other cities and involves in-depth conversation with trucking companies, the City and businesses. Appropriate truck size is a very important topic because of the possible large safety benefits for active modes (and probable cost savings for having smaller roads and intersections). This is also a critical factor when considering the conversion

of a signalized intersection to a modern roundabout. Having a smaller size design vehicle can often make a roundabout fit into a given location.
    - Noted… dictating what vehicles are allowed on Missoula roads isn't within the scope of the MATP.

- p.75: Please mention 'lane conversions' as a way to get in bike lanes.
    - Addressed, the benefits and uses of lane conversions are discussed in anther section

- p.93: Earth surfaces can be practical for commuter trails. A clay paver is a type of 'earth surface'. MIST is working with parks n rec for a test strip by the river. The picture on p.96 shows a paved trail not using asphalt (it might be concrete though, it is hard to tell).
    - Noted, alternative paving materials are discussed in another seciton

- p.95: Please recommend native or low water plants as desirable for trail landscaping.
    - Noted

- p.97: Please include 'water fountains' to be considered on trails.
    - Noted

- p.97: Please include roundabouts as a safe way to intersect trails and roads.
    - Noted

- p.98: We suggest language that speaks towards looking for natural grade separated crossings. For instance, the trail under Orange St. is grade separated, but the trail user does not have to go down or up.
    - Noted

- p.99: Please include that a good trail does not have an abrupt lip at the edge.
    - Noted

- p.109, 110: Project 138 submitted by MIST also.
    - Noted

- p.113: Regarding, "Bicycle/pedestrian facilities on Greenough Dr": This is 'on street' and not a 'trail'.
    - Noted

- p.114: Please outline how the lead agencies will be identified, with a timeline, in order to implement this plan.
    - Noted, this can be addressed during the implementation phase

- Appendix B: We disagree with, "Close or discourage nighttime use of walkways where adequate lighting, visibility, and surveillance cannot be provided." Greenough Park trails fit this description, but should not be closed or have use discouraged. Perhaps the language could be softened.
    - Noted, these are recommendations from the Missoula Police Department and are not listed as a suggestion in the main document.

Agency: MUTD. Michael Tree, General Manager

Received: 3/12/11

- The only suggestion that I have is listing the Missoula Urban Transportation District's publication Transit Guidelines in Project Development as an available resource. A description of the publication might fit best in Section II. Development Guidelines (which starts on page 33).
    - Addressed. A description of the Transit Guidelines has been included in the section suggested.

Public/Advocate: TAC Member. Jon Salmonson

Received 3/14/11

- Sidewalks are more than transportation - a connected strand of pedestrian walkways facilitating getting to destinations. They are that; but they are more. The infant needs them and the elderly using a walker needs them, and neither are going anywhere. However, the vehicle is using the street so folks of any age, and for any reason, must have the walk in front of their residence for movement. This plan focuses on a connected network for a limited set of pedestrian activities. I feel that is a limited point of view and should not be a part of a 25 year plan.
    - Noted.

- The five "guiding principles" are excellent, but in the particular case of sidewalks in Missoula, Mt., they don't quite cover the subject. A. **Equity** is a principle common to all modes, but should be seen as particularly appropriate applied to sidewalks: all ages and every street in town, when supplied with sidewalks, are open to use by citizens - **all, every.** B. But in addition to equity, sidewalks have had the longest history of deferral, and the history of the slowest form of updating. Sidewalks win in need history, 100 years, fore and back. C. The 'most need' principle is also demonstrated by the fact that sidewalks are needed as a prerequisite to the use of other AT modes: one needs to get to the bus stop; one must get to a trail; one must have the sidewalks out of which to make the Safe Routes to School. Sidewalks are so fundamental to, are so essential to, and clearly precede other modes that they shouldn't need inclusion in this plan at all. D. The 1996 Ordinance makes Sidewalks, Curb, Gutter the law for development

and redevelopment. This point is made in the plan, emphasizing the commercial form of development.
    - Noted, guiding principles were worked on extensively in the TAC.

- Input to the plan has not included important resolutions by interest groups. Franklin to Fort Neighborhood Council ('06), BWAM, BikePed Board, and Community Forum all adopted resolutions which support completion of sidewalks in the City of Missoula by date certain, most by 2020. (The resolutions can be supplied if they are not a part of the present Plan record). These resolutions were discussed, debated, and adopted by memberships which realized the difficulties; they were asking powers that be, and plans in the offing, such as this one, to take into account the lack of sidewalks, raise the issue to a high priority, and solve problems such as funding which block completion of this priority. The Plan should acknowledge this effort.
    - Addressed. How sidewalks can become more of a priority is highlighted in Ch. 7 under potential funding sources.

- Clarify the goal to "complete the sidewalk system" by striking the word 'system'.
    - Noted.

- The extraordinary effort to list a universe of projects, create evaluation criteria, do the evaluation, and still have totally erroneous data is very, very, hard to understand - at the most generous. During my tenure in TAC, you may remember that this was another thing that I objected to. Why this "Universe" of project was created when there already exists a Missoula Sidewalk Plan which identifies the streets by category, is still a mystery to me. The projects are entirely arbitrary and their choice, unscientific. Whatever was on the shelf that folks, in a public arena, had 'mentioned' became the "universe". Huge amounts of time was devoted to collecting and then evaluating all of these items by the devised criteria. At one meeting of the TAC, on being first introduced to the list, I noted that a major component of the sidewalk list included for the Franklin Neighborhood had already been done. My comment was challenged and argued with. Now, I see that the final, fully vetted list still has many, many errors:
    - Noted. The sidewalks inventory will be updated on an annual basis and any errors will be catalogued and corrected during that update process.

- Draft pages 111 - 112: Neighborhood Sidewalks # 94 "Sidewalks- S 5th from Russell to Johnson" **is in fact done to Garfield and has been since 1913**;
    - Addressed. Project description has been revised.

- Item # 150 "Complete Sidewalks" **is fully evaluated although there is no indication of what sidewalks are being considered "complete"**.
    - Noted

- Item # 18: Sidewalks - 14th Street. **These are fully evaluated to be finished - but they have been finished for two years**. :
    - Addressed. Project was removed from the list

- Item # 20 Sidewalks - 10th Street; **These, too, are fully evaluated as candidates to be finished, but 10th has be**en **finished from Russell to Johnson for years and years.**
    - Addressed, revised the project description.

- Taking this portion of the plan as an indication of validity, undermines it all. That shouldn't be the case. I would hope the plan can be put on hold and worked on in terms of what is the case and what needs to be done.
    - Noted

Public/Advocate: Susan Ridgeway, Rattlesnake neighborhood resident

Received

- It appears there is no plan for north of Mountain View Drive on the west side (Duncan Drive)? Just wondering why the plan stops there. A lot of folks come from Mountain View and head north to cross over the new bridge over Rattlesnake Creek. Runners, walkers, and lots of mountain bike riders. This area will become more developed in the future, so best to make a plan now rather than waiting until options might become more limited. Options for routes are Duncan Drive, the trail by the creek, and a connection from the creek trail to Duncan either through the strip by my house (quite steep in parts) or through an easement on property owned by Muth-Hillibery (south of my house).
    - Noted, the comment was received too late in the process to add a project to the list.

Agency: OPG Urban Initiatives. Lewis Yellowrobe, Planner

Received 3/11/11

- Recommend that Safety is the first principle to reduce crashes, injuries, and fatalities.
    - Addressed, added sentence with more detail.

Making the Case for Active Transportation, page 7

- Include safety in the priorities. Appendix A lists safety.
    - Addressed, added clarifying language to making the case and to the goals of the plan.

Ethnic Demographic Data, page 14

- What is the purpose of showing ethnic background within Missoula? Data are not referenced in subsequent sections. What does ethnic background have to do with Active Transportation Planning? Suggest removing ethnic background data.
    - Noted, so much of the MPO area is considered Low-Middle Income areas that using poverty as a reasoning for providing infrastructure is not necessary.

Poverty Demographic Data, page 16

- In the plan, discuss how Active Transportation addresses poverty or how poverty influences active transportation.
    - Noted

Functions of the System, page 22

- This is a good place to include persons in poverty who may not own a vehicle. Sidewalks and trails may be the best transportation routes to get to the store, school, or work.
    - Noted

Design Barriers, page 24

- Bring in the MUTD Transit Guidelines in Project Development. The guide acknowledges cul-de-sacs use and pathways within in the cul-de-sacs to get to outlying streets and roads.
    - Addressed, added a reference to the MUTD Transit Guidelines in Chapter 4 under development guidelines

Table 3-1, page 26

- In the table, are *Corridor Accidents* vehicle crashes only or pedestrian/vehicle crashes?
    - Addressed, clarified the caption of the figure

High Crash Areas and Statistics, page 27

- Name the arterials, collectors, and local streets mentioned in Table 3-1. Which roadways with the traffic volumes have the greatest concentration of pedestrian or cyclist crash incidents?
    - Noted, that information is in the maps and doesn't need to be added to the text of the document.

High Crash Areas and Statistics, page 28

- In the first paragraph, it is stated that Missoula Central Business District is not the most dangerous intersection areas for pedestrians although it has the highest rates of pedestrian accidents at three intersections. Since it has the most crashes in the MPO, what actions can be taken to reduce pedestrian/vehicular crashes or collisions at these intersections?
    - Noted. This section is not the place to discuss design solutions. Such discussion takes place in Sec. 5 with many references to increased safety from various measures.

Transit Interface, page 28

- This is good place to mention that more low-income and persons in poverty ride the bus because they can afford it or for some it's their only form of motorized transportation. Also, the bus is a main form of transportation for people who are unable to drive because of disability, age, or loss of driving privilege.
    - Noted

Shelters and Street Furniture, page 29

- Include lighting. Riders perceive poorly lit facilities as unsafe.
    - Addressed with an added section.

Missoula County Growth Policy (2006), page 30

- Can this Plan require improvements consistent with this Plan to be a condition for subdivision approval?
    - Noted, this plan is a set of recommendations that should be implemented and does not have the force of regulatory authority

Chapter 5, The Future Active Transportation System, page 49

- In this section, mention as many streets, roads, trails, intersections, and retrofits as possible. Since this is the problem section which justifies and supports the Universe of Projects in Chapter 5, explain to decision-makers and funding agencies the specific areas that need safety improvements to reduce crashes and collisions.
    - Noted. Such information requires additional analysis and research that was not in the scope or timeframe of the plan

- Bullet one says this chapter identifies major active transportation corridors. This chapter explains the general bike and pedestrian problems but doesn't directly identify the problem areas. The chapter explains what might be wrong but doesn't show where these problems occur. Table 6-1 does a better job of explaining these corridors. Incorporate as much of the Table 6-1 information into the document.
    - Noted

Sidewalks, page 52

- In this section, avoid giving the impression that the city, county, Montana Department of Transportation, or developers have not been proactive in building sidewalks. This section describes missing or disconnected sidewalks. Describe the existing sidewalks in the MPO. List the arterials, collectors, and recent sub-divisions that have sidewalks, such as Stephens, Brooks, Higgins, S.W. Higgins/South 39th, and Reserve Street. Finally, describe the areas that need sidewalks that should be built to complete the work already done. List the 39 *Neighborhood Sidewalks* projects in Table 6.1.
    - Noted, a map is included that shows the areas within the City of Missoula that include sidewalks

New Construction, page 53

- List the design best practices in existing streets and roads, such as Stephens, Brooks, Higgins, S.W. Higgins/S. 39th, Reserve, and recent sub-divisions.
    - Addressed. Added N. Higgins and Stephens as two examples of CSS.

Intersections, pages 57-58

- Move this section to Intersection Improvements on pages 63-65.
    - Noted

Intersections Opportunity Type, page 58

- List 25 Intersection/Safety Improvement Projects listed in Table 6-1.
    - Noted

Upgrades and Retrofits, page 58

- Which MPO streets and roads are the best candidates for a retrofit?
    - Noted, road characteristics have been described that would make a road a good candidate for retrofit

New Street Design Concepts – Home Zones, page 58

- These are called Homes Streets on page 77.
    - Noted

Intersection Improvements, page 63

- Which intersections have the extended distances to cross? Are these the intersections in Table 3-1? Combine this section with the Intersection segment on pages 57-58.
    - Noted

Intersection Possible Solutions, page 63

- Discuss how the city and county work with the MDT to lower speed limits on streets and roads within the MPO. The city or county sends a letter to the MDT to request a speed study to determine if a lower speed limit is justified.
    - Addressed, added a sentence that added detail.

Complete Streets Opportunity Type, page 65

- Will the Complete Streets ordinance, a county Complete Streets Resolution, the city and county sub-division regulations, or variance or administrative waiver processes go through the review and approval processes?
    - Addressed… added sentence with detail

Increase Sidewalk Construction Requirements, page 65

- Avoid advocating that developers repair sidewalks since sidewalk repair is not part of development review process.
    - Addressed, added clarification

Develop a Connectivity Policy in Subdivision Regulations, page 66

- The paragraph reads that developers should be required to construct non-motorized facilities. Current regulations already require non-motorized facilities to existing or planned non-motorized facilities. This is discussed on page 86 in the *Dedicated Developer Easements and Trail Construction*.
    - Noted, the two sections discuss slightly different issues

New Construction and Retrofits, page 67

- Are the 40% and 36.5% statistics a Missoula or nation-wide problem?
    - Addressed

Transit Interface Opportunity Type, page 69

- List transit areas that need improvement.
    - Addressed

Roadways Opportunity Type, page 72

- Installation of bike lanes can be included in the Russell/S. 3rd and Arthur Street projects. List the nine *On-Street Bike Facilities* projects in Table 6-1.
    - Noted

Intersection Improvements, page 72

- Which Missoula intersections expose pedestrians and cyclists to collisions with vehicles? Which intersections have turning movements, unprotected left turns, etc? Since national fatality statistics are given, report the crash data in Table 3-1.
    - Noted, additional analysis would need to be conducted that time constraints did not allow at this time.

Intersection Opportunity Type, page 73

- Which intersections have right turn lanes that could handle combined vehicle/pedestrian turning lanes? List the 25 *Intersection/Safety Improvements* projects in Table 6-1.
    - Noted

Consider Bike Signal Heads, page 74

- Which MPO intersections are the best candidates for Bike Signal Heads?
    - Noted. Already describes intersections that would be good candidates

Connectivity Opportunity Type, page 77

- This exists in the subdivision regulations in the Parks and Open Spaces section. This is discussed at length on page 86 in 2a. Another option is to plan, design, and construct separated paths and trails within the established right of way at the time of subdivision planning, design, and construction.
    - Noted

Consider alternative street designs, page 77

- Home streets are called Home Zones in the Sidewalks section.
    - Noted

Improve bicycle facilities where deficiencies exist on bridges, page 78

- Which bridges have limited pedestrian movements? Russell Street Bridge is a good example.
    - Addressed, added clarifying language

Trails Recommended Locations, page 85

- Provide an inventory and a map of existing and future trails from the 30 *Trail Connections* projects in Table 6-1. Map future trails with an emphasis on the fringes of city so that city planner and developers could look to an inventory and mapped plan for required trail and easement dedications and facilities to connect to existing and proposed trails. Map 5.5 shows proposed future corridors. Are these the projects listed in Table 6-1?
    - Noted, there is a map in section 6 that addresses trails.

Dedicated Developer Easement and Trail Construction, page 87

- The section describes methods to obtain easements for trails, as required in the Parks and Opens subdivision section. Re-state this and remove the "should be strengthened" in the sentence, "…regulations ~~should be strengthen~~ to require…trails" in the paragraph. A requirement for easements for trails is that a developer must dedicate easements for trails if the subdivision is within 250 feet of an existing or proposed trails system.
    - Noted

- Provide additional suggestions for when connections to trails are beneficial. Current text mentions “when a site contains an identified trail corridor.” What if adjacent to the trail or with 250 feet of an existing or proposed trail system.
    - Addressed

Trail Classification, page 88

- Identify that map 3.2 shows the primary commuter trails within Missoula.
    - Addressed.

Trail Opportunity Type, page 92

- List the 30 *Trail Connection* projects in Table 6-1.
    - Noted

Lighting, page 94

- Rather than indicate negative behavior, mention the crime prevention through environmental design strategies in Appendix B.
    - Noted

Separate Grade Crossings, page 98

- Include the crossing over the MRL tracks that links the northside with downtown.
    - Addressed

Table 5-1, Public Media, page 101

- In the table, mention that Missoula in Motion advertises on television and billboards to encourage people to bike, walk, and observe the road rules.
    - Noted

Equal Emphasis on Cyclist and Driver Responsibilities, page 102

- State that Missoula in Motion advertises on television and billboards to encourage people to bike, walk, and observe the road rules.
    - Noted

Chapter 6: Active Transportation Projects, page 104

- The chapter states the key goal is to achieve the preferred growth scenario in the *Long Range Transportation Plan*. Reevaluate this goal. It might be better to achieve the *Active Transportation Plan* goals and principles, which are described in the Executive Summary on pages 6-9.
    - Noted

Universe of Projects, page 104

- Explain how Chapter 5 lists the safety problems, opportunities, areas to improve, and how the UOP expands Chapter 5.
    - Addressed

Ranking Criteria, page 104

- Mention the criteria are in Table 6-2. In the second paragraph, the project score is 45. The matrix shows a total score of 34 but numbers actually add to 38.
    - Noted

List of Projects Matrix Organization, page 105

- State that the reference numbers in the matrix are shown on maps 6.1-6.3. Make sure this paragraph accurately describes Table 6-1 columns.
    - Noted

Table 6-1

- Provide a description of the acronyms in the *C. List of Projects Matrix Organization*. Since some projects are mentioned in the *Opportunity Type* sections in Chapter 5, integrate Table 6.1 in Chapter Five since it lists the deficiencies describes. Table 6.1 projects get lost at the end of the chapter.
    - Addressed

Table 6-2

- Move this table into Chapter 6 since it is dedicated to project priorities and implementation.
    - Noted

Tables 6-1 and 6-2

- Are the TIP projects in these tables? Include Hawthorne School (no pedestrian access to the school except along shoulder of a busy 3rd Street) location in the priority tables.
    - Addressed. Added clarifying language

Maps 3.1 – 3.7

- In the Active Transportation Plan, highlight the maps that show existing sidewalks and trails systems so it is known where they are within with the MPO. Move the maps from the back of the Plan into the chapters. The visuals get lost, although they are mentioned in the plan.

Insert map 3.1 in the Sidewalks section in Chapter 5.
Insert map 3.2 in the Roadways section in Chapter 5.
Insert map 3.3 in the Sidewalks section in Chapter 5.
Insert maps 3.4 and 3.5 in the High Crash Areas and Statistics section in Chapter 3.
Combine maps 3.6 and 3.7 and insert in the Transit Interface section in Chapter 5.

- Noted

Maps 6.1 – 6.3

- Are the MATP projects from Table 6-1 or 6-2?
    - Noted

Maps 5.5 and 6.1 – 6.3

- In the Active Transportation Plan, emphasize the maps that show the proposed sidewalks and trails systems so it is known where they are within with the MPO.
    - Noted

- Combine map 5.5 with map 6.1. Map 5.5 shows the sidewalk gaps. Map 6.1 lists the sidewalk projects from Table 6-2. Place this map into the Major Areas of Investment Neighborhood Sidewalks section in Chapter 6.
    - Noted

- Combine map 5.5 with map 6.2. Map 5.5 shows the bike and trail facility gaps. Map 6.1 lists the bike and trail facility projects from Table 6-2. Place this map into the Major Areas of Investment Neighborhood Trail Connections and On-Street Bike Facilities sections in Chapter 6.
    - Noted

- Combine map 5.5 with map 6.3. Map 5.5 shows the high crash intersection locations. Map 6.3 lists the intersection projects from Table 6-2. Place this map into the Major Areas of Investment Neighborhood Intersection/Safety Improvements section in Chapter 6.
    - Noted. Maps are placed in one place so it is easy to flip back and forth between them.

General Comments

- Use pictures from Missoula to show good or poor examples of sidewalks, trails, intersections, etc. Local pictures convey a better sense of the Missoula areas that need improvement or are safe.
    - Noted

- Suggest a universal replacement of “accident” with “crash” or “collision”. Crash or collision leaves a bigger impression than accident. An accident implies a simple mistake. A crash or collision paints a picture of injury or harm.
    - Noted

Public/Advocate: Bill Flanery

Received 5/4/11

- Overall, a very good plan with high level of detail.
  Specifically, Figure 2-2 and 2-3 are confusing. 2-2 has age groupings of various sizes. 2-3 does not include car, truck, or van.
  P. 17, Total for non-motorized does not match up
  P. 22, Discussion of bulbouts does not mention they are a safety hazard for bikes.
  P. 30, Chapter 4 does not clarify how the MATP relates to the existing plan
  Table 4-1 illustrates a glaring lack of emphasis for agencies or driver awareness and etiquette.
    - Noted

Agency: 911 Center. Chris Lounsbury, Assitant Manager of Operations Technology

Received 2/27/11

- Since the Department of Emergency Services also covers the 911 Center, one of the issues we have experienced is locating people in or on Missoula's wonderful trail system. A system of trial signs identifying the trail name and the location on the trail might be very helpful. I have attached a link below to a solution that one community in South Carolina has come up with, there are many other examples out there as well.
  http://www.foxcarolina.com/community/25799106/detail.html
    - Noted. The issue of a way finding system is already discussed within Chapter 5's trails section. Additionally, Appendix B includes a discussion on the components of a safe trail system.

Map # 2.1

MATP - MISSOULA MPO & SURROUNDING AREA

0 1 2
Miles

City Limits
MPO Boundary
Missoula City & County Lands
Publicly Managed Lands

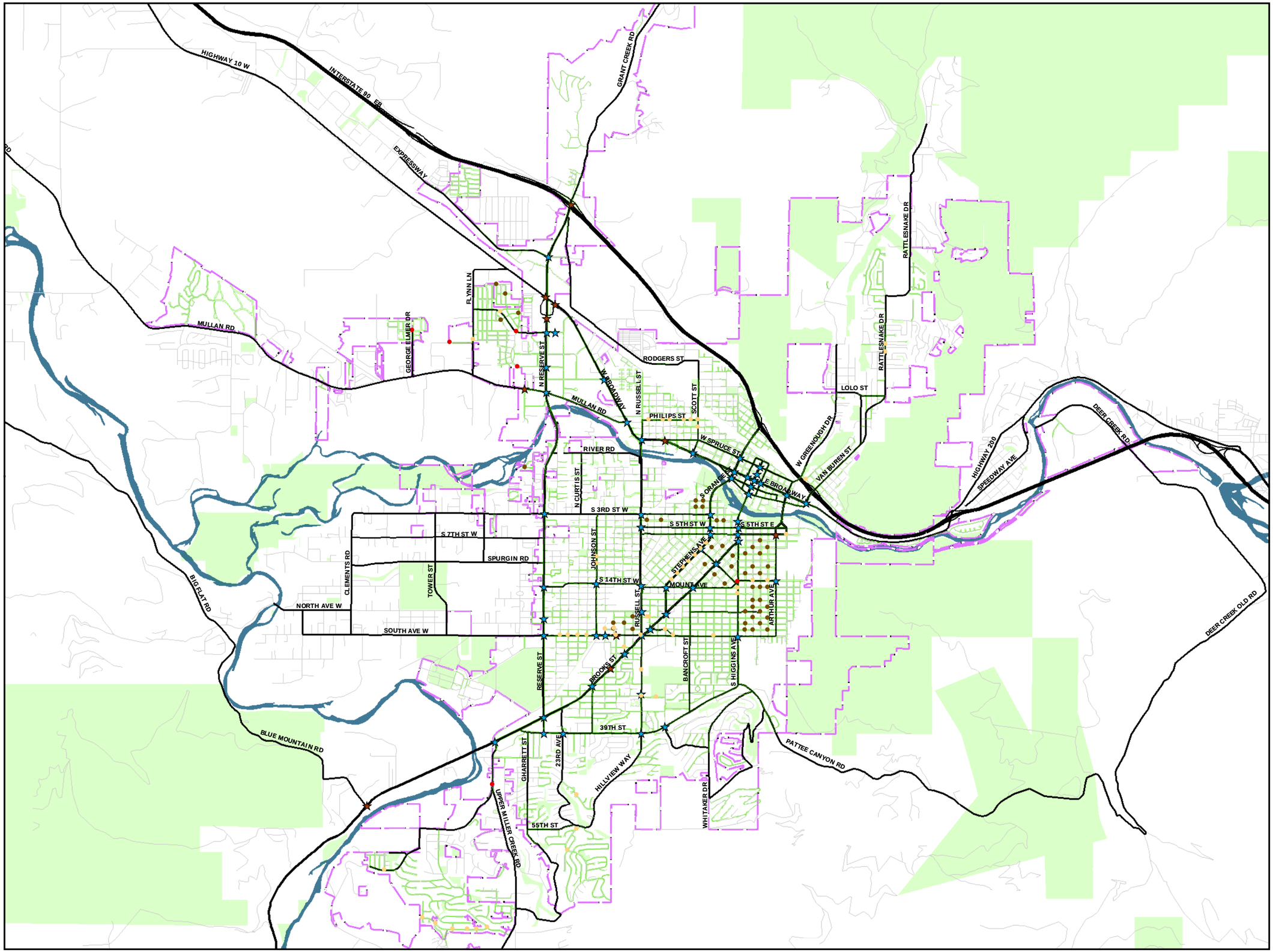
Office of Planning & Grants

N

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_TRANSIT_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

Map # 3.1

MATP - CITY OF MISSOULA'S WALKING ENVIRONMENT: EXISTING SIDEWALKS & TRAFFIC CALMING



Traffic Calming
- Bulbout
- Roundabout
- Traffic Circle

Signalized Intersections
- Traffic Signals
- Missing Pedestrian Signals

Existing Sidewaliks
City Limits
Rivers
Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_SDWKS_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

Office of Planning & Grants

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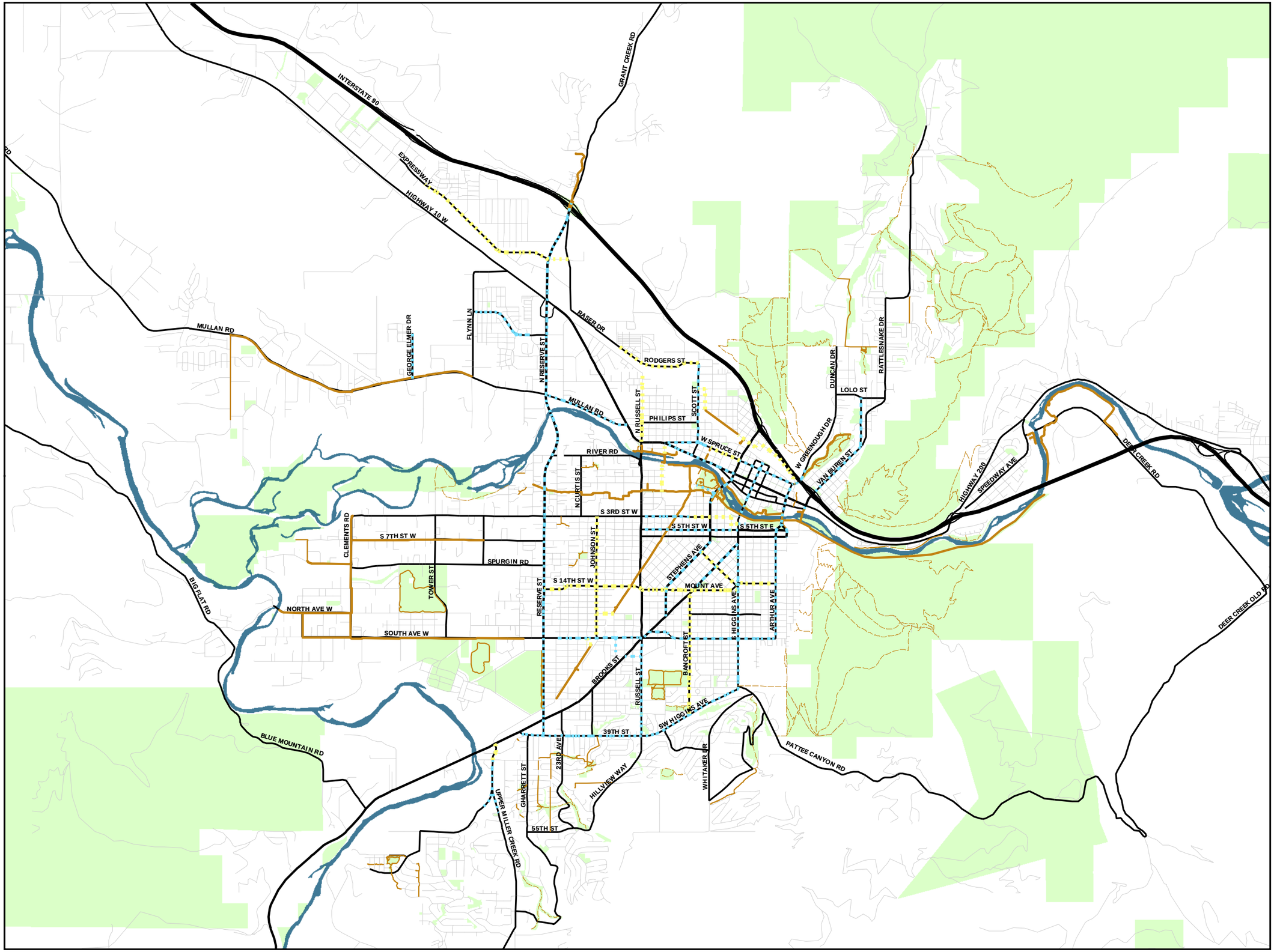
Map # 3.2

MATP - EXISTING BICYCLE & TRAIL INFRASTRUCTURE



Bike Lanes & Routes

- Bike Lane
- Bike Route

Multi-use Trails

- Primary
- Secondary
- Recreational
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_BIKE_INFRA_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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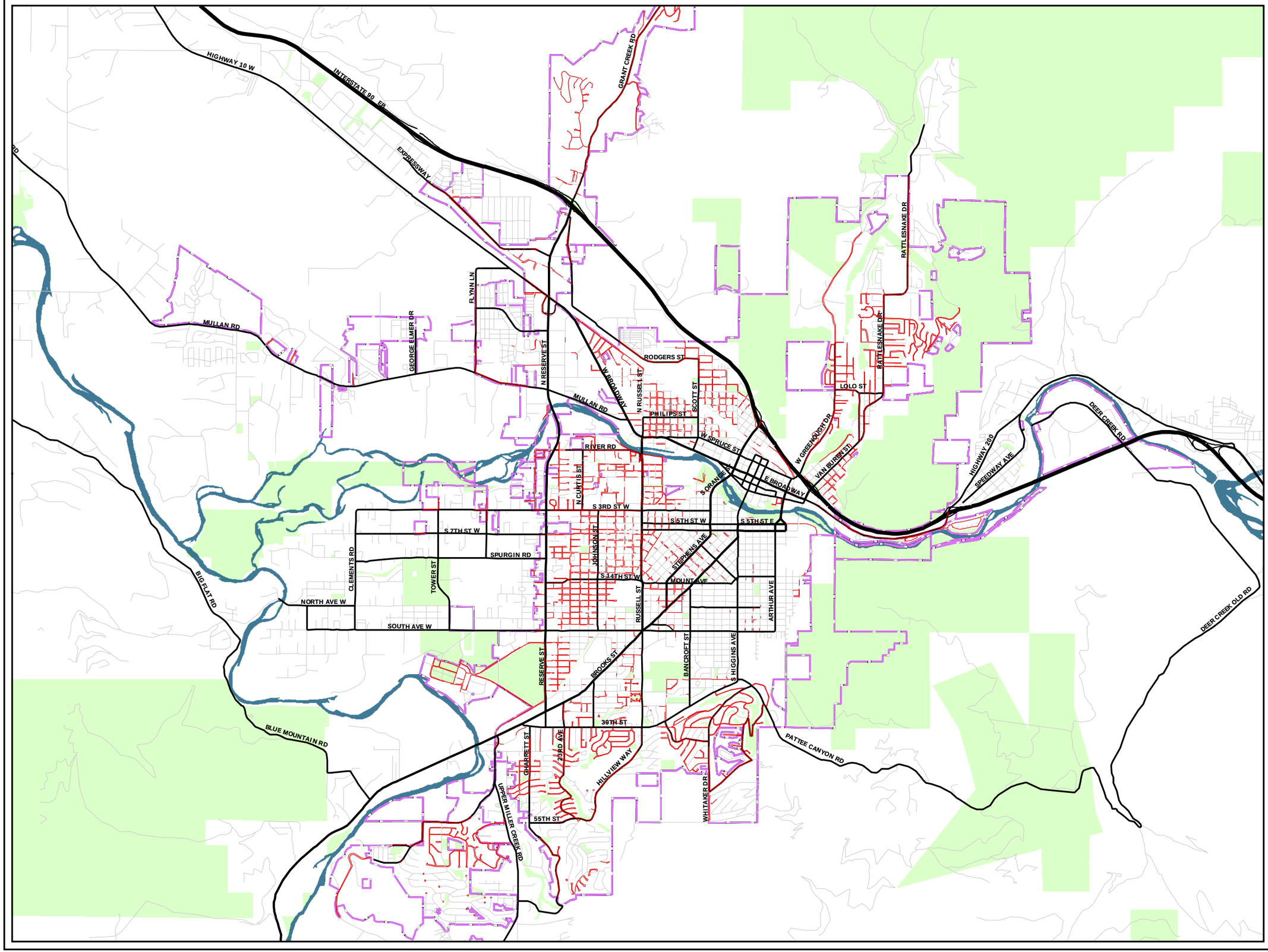
Map # 3.3

MATP - CITY OF MISSOULA'S WALKING ENVIRONMENT: MISSING SIDEWALKS



Missing Sidewalks
City Limits
Rivers
Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_SDWKS_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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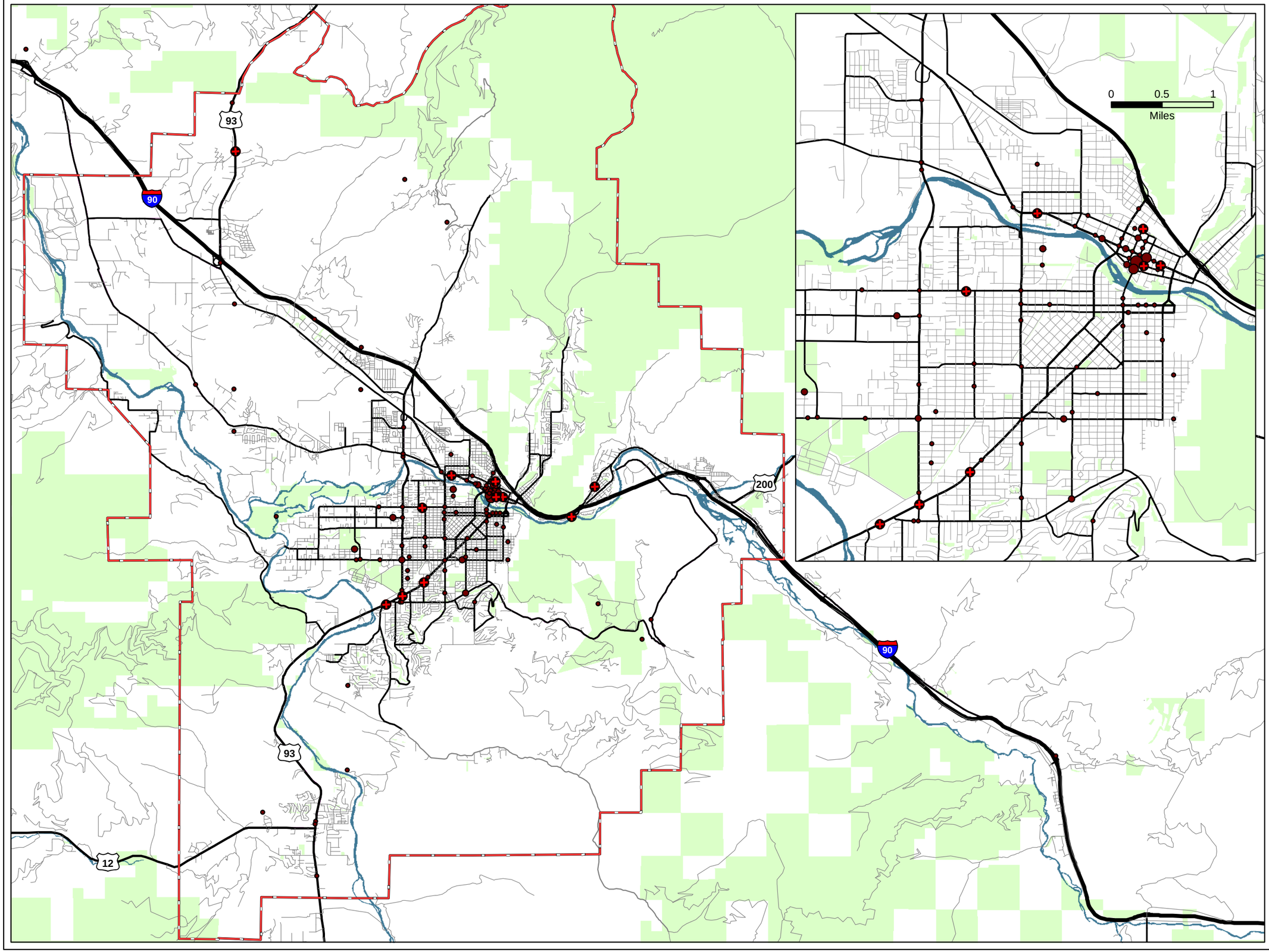
Map # 3.4

MATP - PEDESTRIAN ACCIDENTS WITHIN MISSOULA MPO 2005-2010



* Data provided by MDT. Due to data limitations all accident locations may not be represented. Accident locations are mapped based on roadway intersection, MDT corridors, and township-range data.

Pedestrian Accidents*

Pedestrian Fatalities

MPO Boundary

Rivers

Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_ACC_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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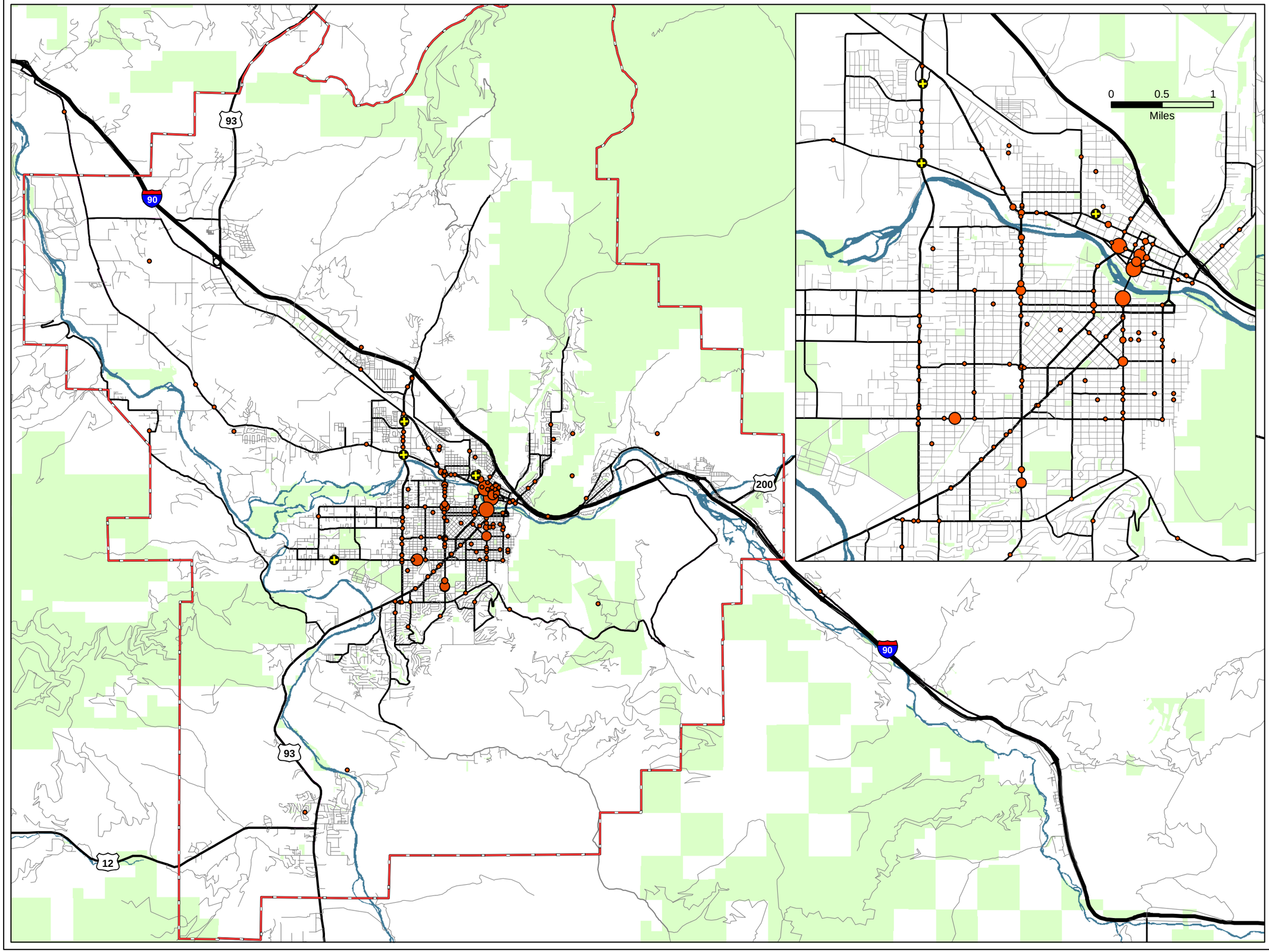
Map # 3.5

MATP - BICYCLE ACCIDENTS WITHIN MISSOULA MPO 2005-2010



* Data provided by MDT. Due to data limitations all accident locations may not be represented. Accident locations are mapped based on roadway intersection, MDT corridors, and township-range data.

Bicycle Accidents*

1 2 3 4 5-6

- Bicycle Fatalities
- MPO Boundary
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_ACC_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

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Miles

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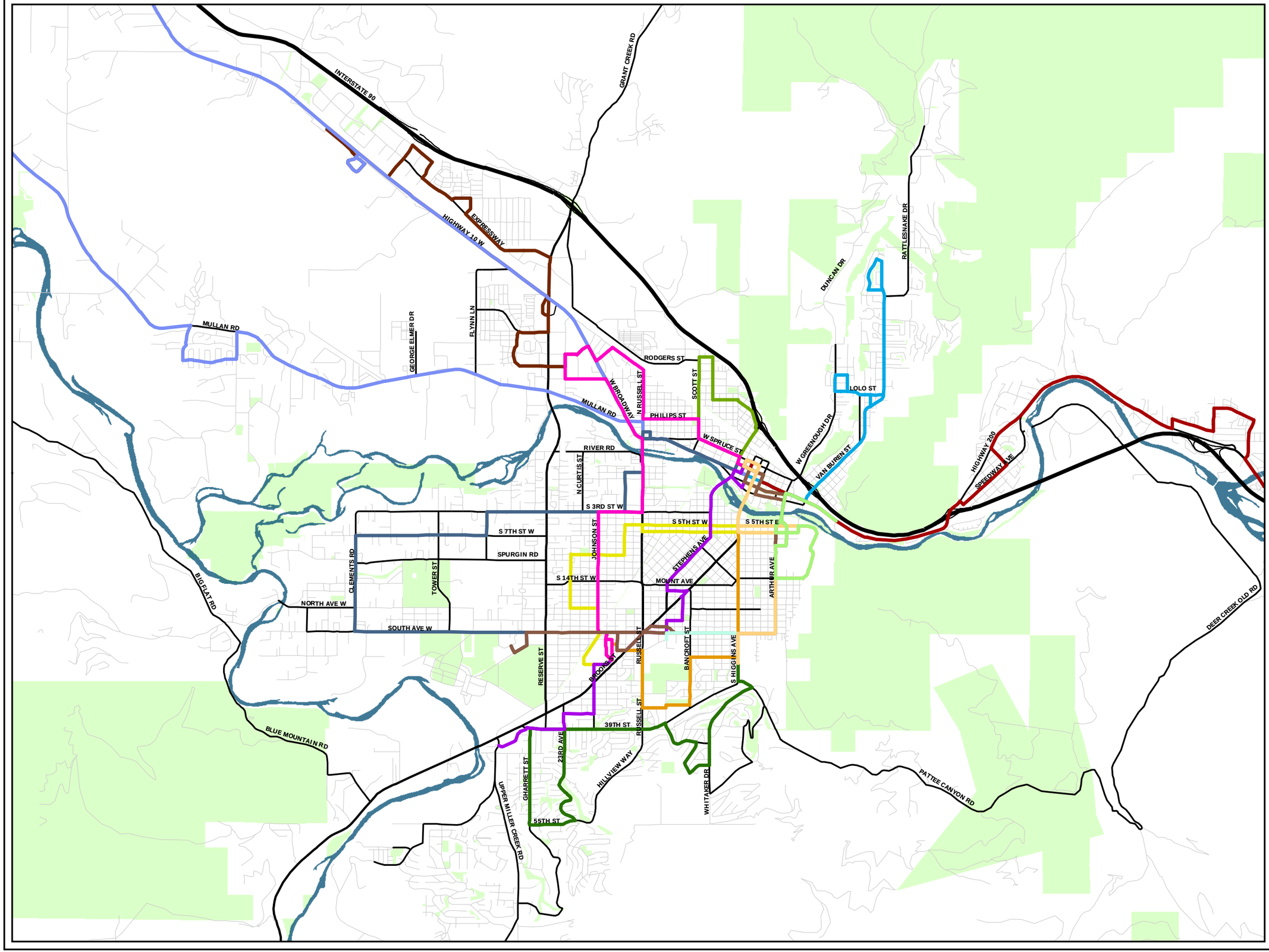
Map # 3.6

MATP - MISSOULA'S TRANSIT SERVICE



Mountain Line Routes

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Route 8
- Route 9
- Route 10
- Route 11
- Route 12

UM Routes

- E. Park-n-Ride
- UDASH
- S. Park-n-Ride
- COT
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_TRANSIT_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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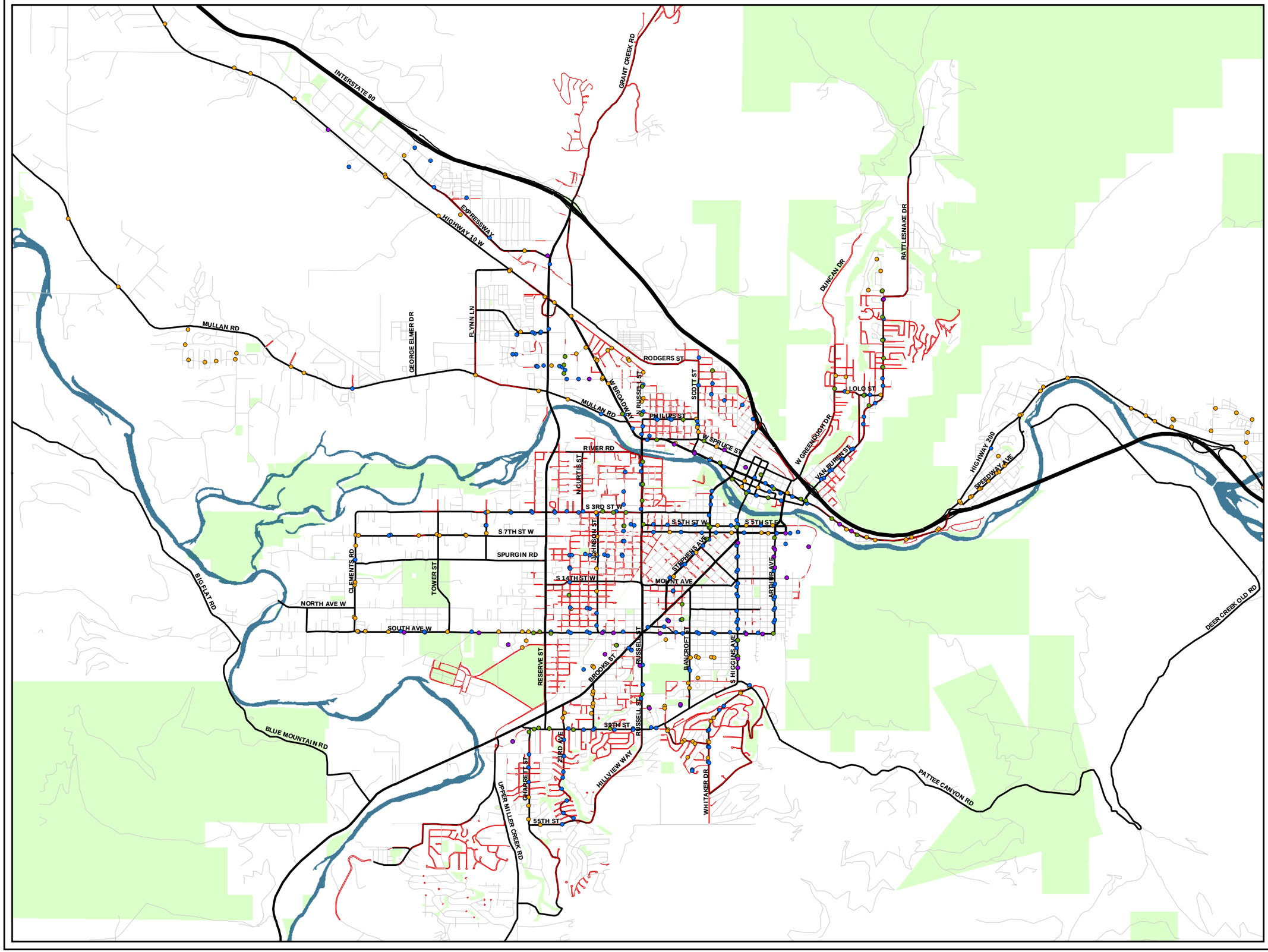
Map # 3.7

MATP - MISSOULA'S TRANSIT INTERFACE



Mountain Line Bus Stops

- Stops w/ Shelters
- Stops w/ Bench
- Signed Stops
- Unmarked Stops
- Missing Sidewalks
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_TRANSIT_8x11.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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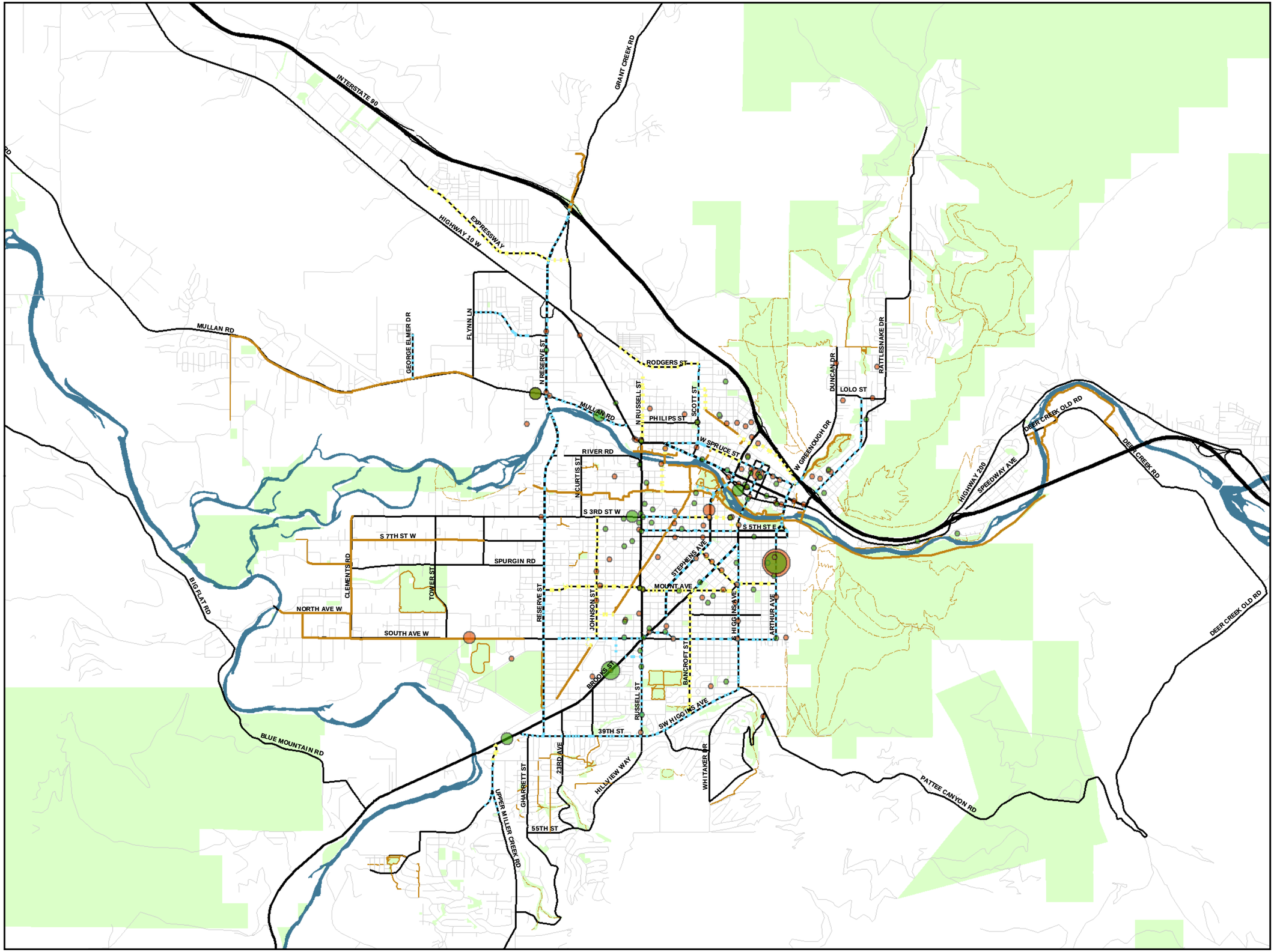
Map # 5.1

MATP - WEEKDAY BICYCLE ORIGIN & DESTINATIONS



Bicycle Origin

- 1
- 2
- 3 - 4
- 5 - 26

Bicycle Destination

- 1
- 2 - 3
- 4 - 8
- 9 - 28

Bike Lanes & Routes

- Bike Lane
- Bike Route

Multi-use Trails

- Primary
- Secondary
- Recreational
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_BIKE_Ped_OD_11x17.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS, Non-motorized Traffic Counts; Spring/Fall 2010

0 0.5 1
Miles

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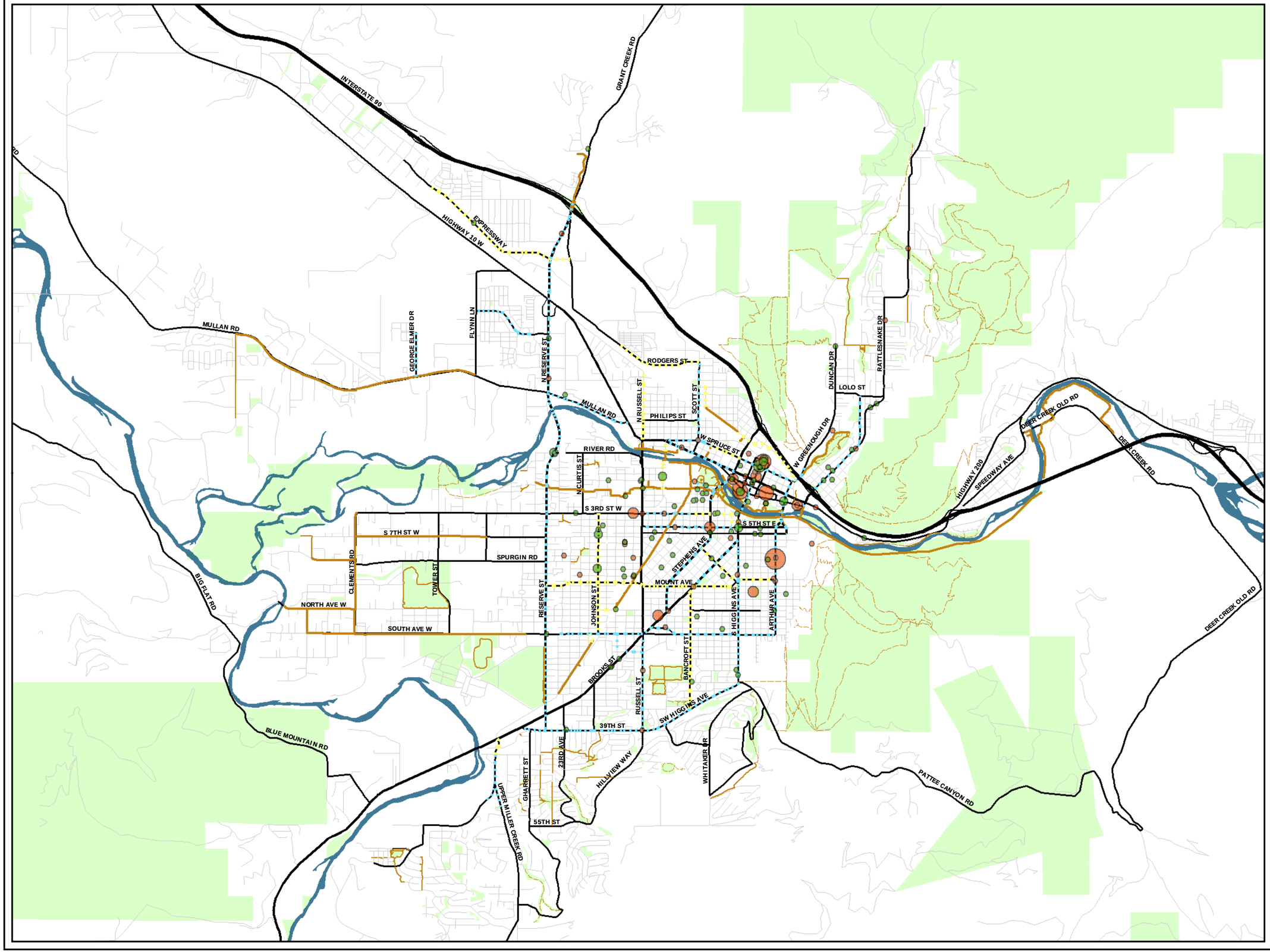
Map # 5.2

MATP - WEEKDEND BICYCLE ORIGIN & DESTINATIONS



Bike Origin

- 1
- 2
- 3

Bike Destination

- 1
- 2 - 3
- 4 - 7
- 8 - 14

Bike Lanes & Routes

- Bike Lane
- Bike Route

Multi-use Trails

- Primary
- Secondary
- Recreational

- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_BIKE_Ped_OD_11x17.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS, Non-motorized Traffic Counts; Spring/Fall 2010

0 0.5 1
Miles

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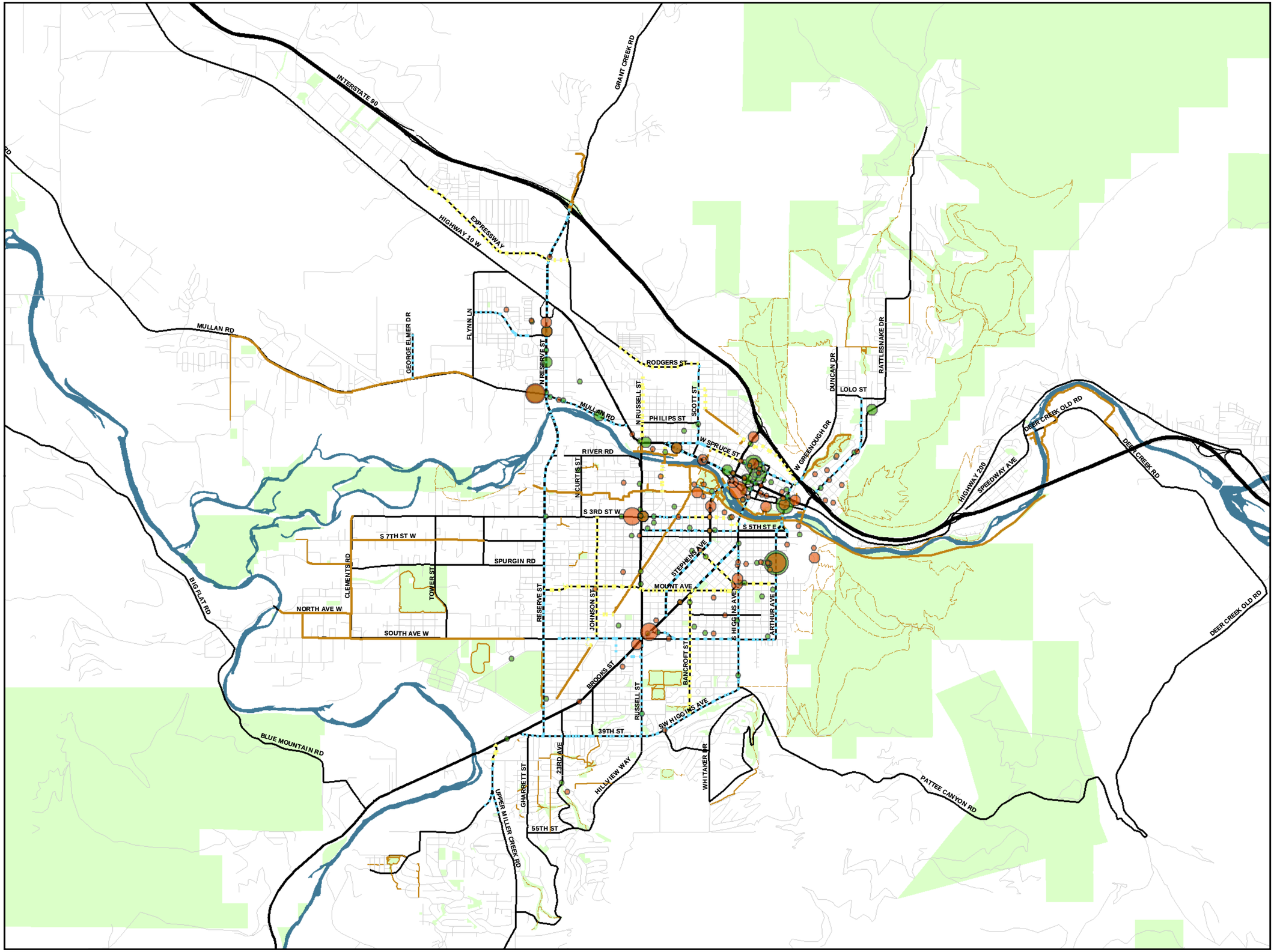
Map # 5.3

MATP - WEEKDAY PEDESTRIAN ORIGIN & DESTINATIONS



Pedestrian Origin

- 1
- 2 - 3
- 4 - 10
- 11 - 26

Pedestrian Destination

- 1
- 2 - 3
- 4 - 10
- 11 - 19

Bike Lanes & Routes

- Bike Lane
- Bike Route

Multi-use Trails

- Primary
- Secondary
- Recreational
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_BIKE_Ped_OD_11x17.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS, Non-motorized Traffic Counts; Spring/Fall 2010

0 0.5 1
Miles

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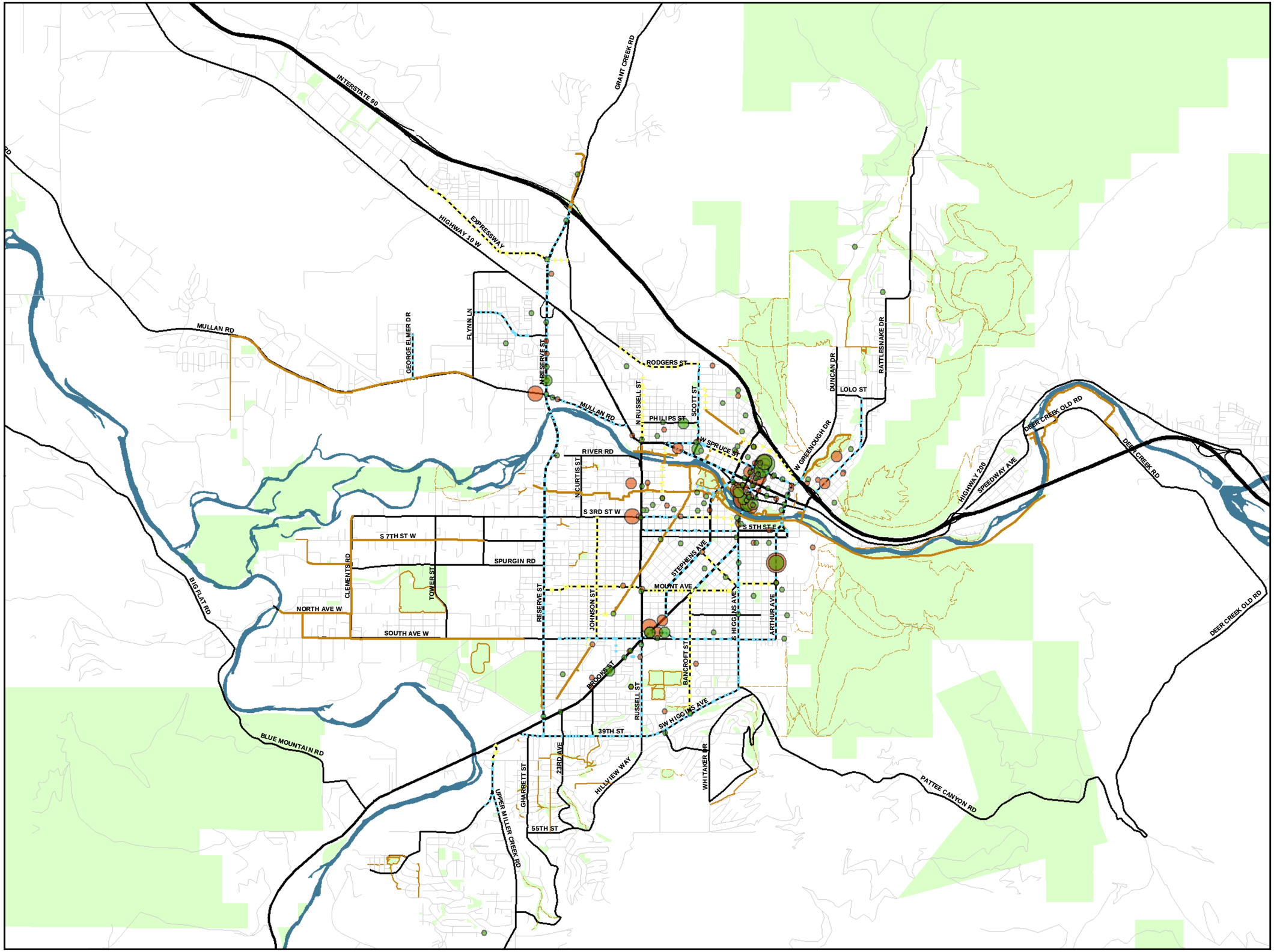
Map # 5.4

MATP - WEEKEND PEDESTRIAN ORIGIN & DESTINATIONS



Pedestrian Origin

- 1
- 2 - 4
- 5 - 7
- 8 - 11

Pedestrian Destination

- 1
- 2 - 4
- 5 - 7
- 8 - 11

Bike Lanes & Routes

- Bike Lane
- Bike Route

Multi-use Trails

- Primary
- Secondary
- Recreational
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_BIKE_Ped_OD_11x17.mxd
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS, Non-motorized Traffic Counts; Spring/Fall 2010

0 0.5 1
Miles

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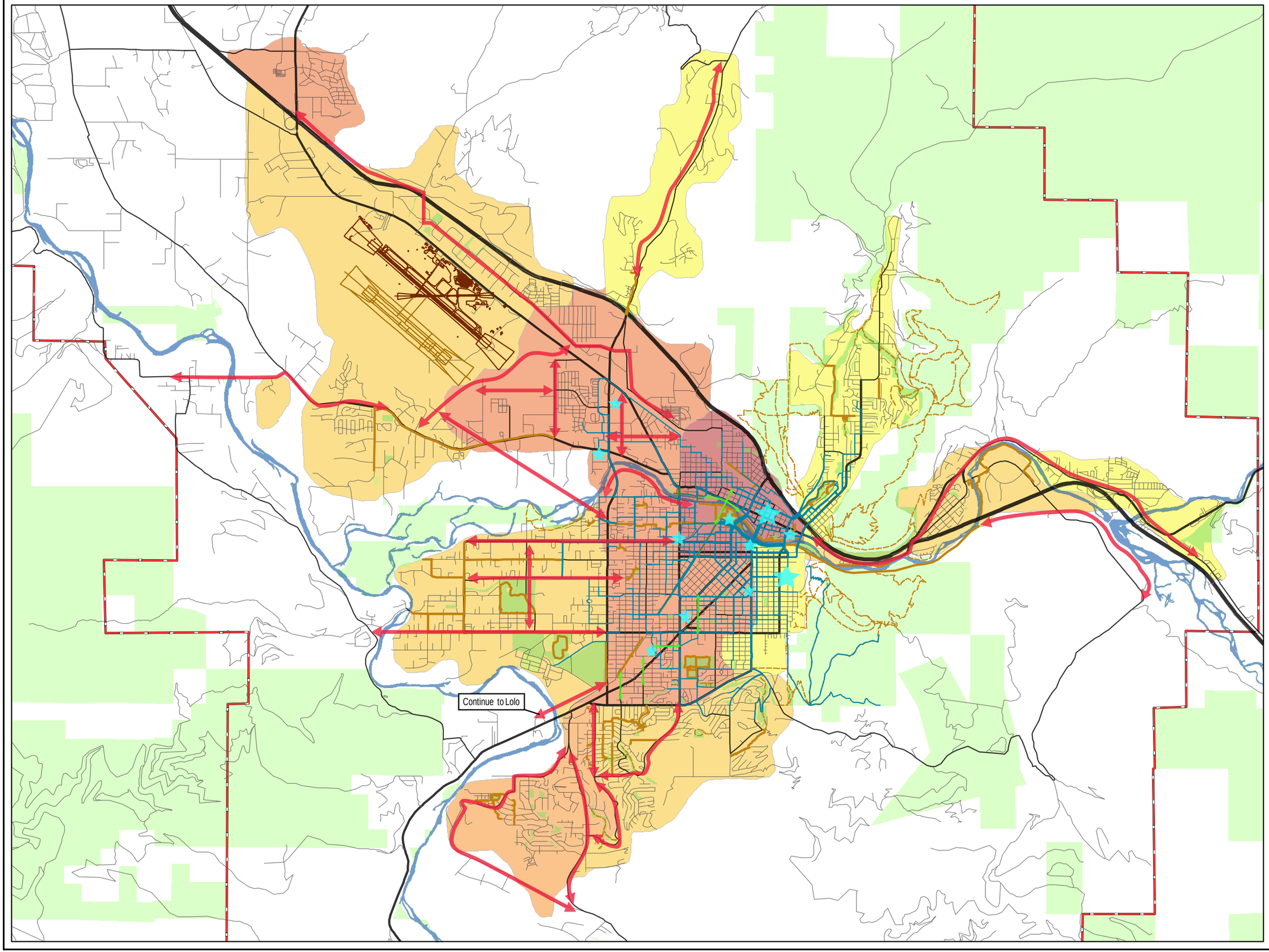
Map # 5.5

MATP - CONNECTING MISSOULA'S URBAN FRINGE: PROPOSED FUTURE CORRIDORS OF TRAVEL FOR BICYCLE & PEDESTRIANS



Growth Allocation
Additional Dwelling Units
- 0 - 398
- 399 - 972
- 973 - 1358
- 1359 - 2292
- 2293 - 2551

Non-Motorized Corridor Use
- 1
- 2 - 3
- 4 - 6
- 7 - 8
- Multi-use Trail
- Recreational Trails
- MPO Boundary
- Rivers
- Parks & Public Lands
- Airport
- Proposed Future Airport Expansion
- Proposed Crossing Improvements
- Proposed Future Corridor
- Activity Centers

NAD_1983_StatePlane_Montana_FIPS_2500
Projection: Lambert_Conformal_Conic
Map by: Lewis Kelley
Date: January 13, 2011

Sources: Missoula MPO,Missoula Parks & Recreation, City & County Public Works Departments, Montana FWP, NRIS

0 0.5 1
Miles

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Map # 5.6

MATP - COMMUNITY WORKSHOP FEEDBACK

Bike/Ped Hotspots

1 2 3 4 5

Daily Routes Taken
- 1
- 2
- 3 - 4
- 5 - 6
- 7 - 8

Route Issues
- 1
- 2
- 3
- 4
- 5 - 6
- Missing Connections

Multi-use Trails
- Primary
- Secondary
- Rectreational
- Existing Sidewaliks
- Rivers
- Parks & Public Lands

0 0.5 1
Miles

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Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_WORKSHOP_MAPS.MXD
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

Map # 6.1

MATP - PROJECTS BY INVESTMENT TYPE: PRIORITY PROPOSED SIDEWALKS

*Projects already included in the TIP are not mapped because funding has already been allocated and construction dates anticipated.

MATP Projects*

- (165) Project Reference Number
- Sidewalks Investments

Multi-use Trails

- Primary
- Secondary
- Recreational

- Rivers
- Parks & Public Lands
- Missing Sidewalks

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_PROJECTS_11x17.MXD
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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Map # 6.2

MATP - PROJECTS BY INVESTMENT TYPE: BICYCLE FACILITIES & TRAIL CONNECTIONS

*Projects already included in the TIP are not mapped because funding has already been allocated and construction dates anticipated.

MATP Projects*

- (165) Project Reference Number
- On Street Bicycle Facilities
- Trail Connections
- Bike Lane
- Bike Route

Multi-use Trails

- Primary
- Secondary
- Recreational
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_PROJECTS_11x17.MXD
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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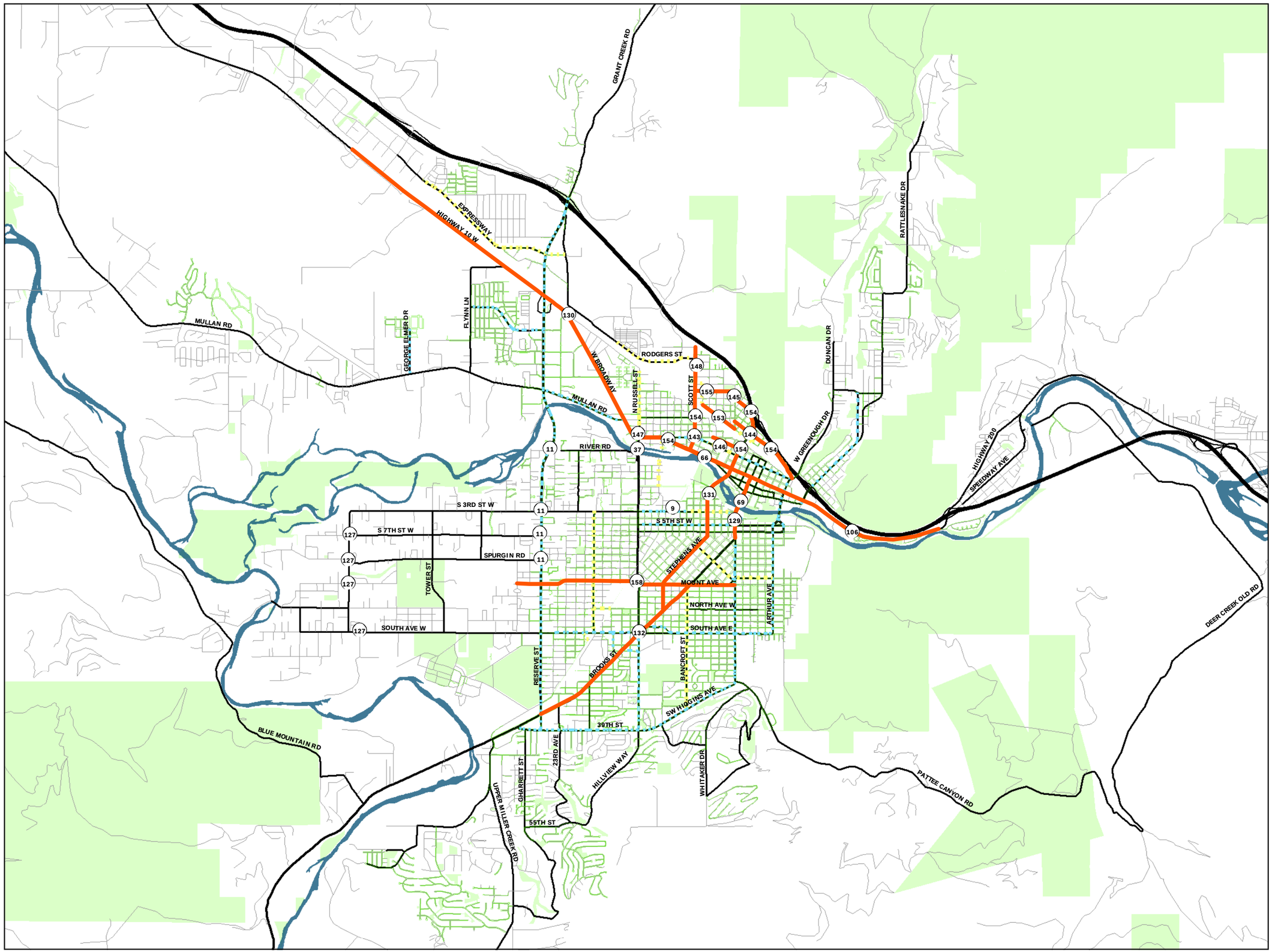
Map # 6.3

MATP - PROJECTS BY INVESTMENT TYPE: INTERSECTION & SAFETY IMPROVEMENTS



*Projects already included in the TIP are not mapped because funding has already been allocated and construction dates anticipated.

MATP Projects*

- (165) Project Reference Number
- Intersection/Safety Improvements

Existing Bike Lanes & Routes

- Bike Lane
- Bike Route
- Existing Sidewaliks
- Rivers
- Parks & Public Lands

Map by: Lewis Kelley, GIS Tech
Date: 1/13/2011
Filename: MATP_PROJECTS_11x17.MXD
Sources: OPG, Missoula Parks & Rec., Missoula Public Work, MDT, NRIS

0 0.5 1
Miles

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