2011

Billings Area Bikeway and Trail Master Plan

PREPARED BY:
Alta Planning + Design
PREPARED FOR:
City of Billings/Yellowstone County

Billings
MONTANA'S TRAILHEAD

STAR OF THE BIG SKY COUNTRY
BILLINGS
MONTANA

YELLOWSTONE COUNTY
MONTANA

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PLANNING + DESIGN

Acknowledgments

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1 Introduction

Since the first bike plan in 1994, Billings has been making great strides to develop a community that is more bicycle and pedestrian friendly. Billings has received recognition from several groups on the bicycle and pedestrian system. The system as a whole is still young and has lots of room for growth. The Billings Area Bikeway and Trail Master Plan will help lead the area in a direction to continue the success.

In 1994, the first community-wide non-motorized plan, The BikeNet Plan, was adopted. In the ten years following adoption many advances were made for non-motorized travel including the hiring and subsequent contracting of an Alternate Modes Coordinator, implementation of 10 miles of paved trail, and new roadways being striped with bicycle lanes. This plan laid the foundation for the expansion of non-motorized transportation within the Billings area.

In 2004, an update to the BikeNet plan, the Heritage Trail Plan, was adopted. This plan gave update guidelines on where to expand a system of on and off road facilities and gave emphasis on the role of trails not only as functional and recreational systems, but also as an opportunity for interpretive sites to bind historical places and events. Since implementation of this plan, an additional 25 miles of paved trail have been constructed, a Bicycle and Pedestrian Advisory Committee was formed, Billings was declared a Bronze level Bicycle Friendly Community from the League of American Bicyclists, and an identity was given to the trail system. The Heritage Trail Plan became a powerful roadmap for off-street trail development.

The first phase of the Swords Park Trail was built in 2004

This update will stand on the shoulders of the previous plans and place added emphasis on on-street facilities to connect not only trails, but also all destinations that residents may wish to access within the Billings Area. As such, the plan has been named the 'Billings Area Bikeway and Trail Master Plan.' The purpose of this plan is to:

- Prioritize on-street bikeways and to recommend a Complete Streets Policy
- Prioritize key trail connections to add value, not just mileage to the trail network
- Set guidelines to evaluate the plan after adoption
- Increase integration with MET Transit
- Set standards and funding for the maintenance of existing facilities
- Provide recommendations for educating and encouraging bikeway and trail users
- Maintain and increase bikeway and trail law enforcement
- Promote the system as a healthy, safe way of transportation.

If these goals are met, it is achievable for Billings to be a Gold level Bicycle Friendly Community.

1.1 Federal Policies

Bicycle and pedestrian planning started with the Intermodal Surface Transportation Efficiency Act (ISTEA) that was passed in 1991. After this bill, two more transportation bills, Transportation Equity Act for the 21st Century (TEA-21) and Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 (SAFETEA) have continued funding for bicycle and pedestrian programs. The latest federal transportation act, The Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU) was enacted August 2005, as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009. Since 2009, extensions of SAFETEA-LU have been passed to maintain funding levels. 2011 brings with it the possibility of a new transportation bill.

One major source for the funding through these federal bills has been the Community Transportation Enhancement Program (CTEP), which is a State of Montana program administered by MDT to distribute Transportation Enhancements funding. These funds require a 13.42 percent local match, but provide a large portion of the funding for projects in Billings that are bicycle and pedestrian related. A majority of the bicycle and pedestrian facilities in the Billings area have been funded through this program. The City currently receives approximately $600,000 annually from CTEP. Matching funds have historically been provided through the G.O. Bond, BikeNet and other state and local grant sources.

Another source of federal funding that was created during the SAFETEA-LU bill is the Safe Routes to School program. This program gives 100 percent funding to projects that safely allow children to commute to school using active transportation. The Billings area has seen several projects funded by this program, including the Go Play program, and Safe Routes to School Plans for each of the City's elementary schools. Both the CTEP and SRTS programs are administered by the Montana Department of Transportation.

The Federally funded Recreational Trails Program (RTP) has also contributed to the Billings Trail system with over $200,000 in project funding.

1.2 State and Local Policies

The influx of federal funding has helped the state to develop plans for bicycle and pedestrian facilities. Montana has a statewide bicycle and pedestrian coordinator, as well as a Safe Routes to School coordinator. The state currently has a Context Sensitive Solutions Policy and several cities including Missoula and Bozeman have implemented a Complete Streets policy. Several other communities are studying Complete Streets.

The City of Billings has adopted several policies that have helped to grow the bikeway and trail system throughout the community. The previous BikeNet plan and Heritage Trail Planning efforts created documents that the City used as a guide both for planning bikeway or trail projects and also ensuring other development or major infrastructure projects include bikeway or trail related facilities. The City of Billings, through updates to its typical road sections has created a policy to accommodate bicycle and pedestrian users on all new roadways created or reconstructed in the city with bike lanes to be provided on all new or reconstructed collector and arterial roadways. This has been utilized on Shiloh Road, Aronson Avenue, Rimrock Road, King Avenue (East and West), and Zimmerman Trail. Billings has also held workshops to explore the creation of a Complete Streets policy.

1.3 Local Partners

Several groups have been actively involved in the progression of the bicycle and pedestrian system. The City's G.O. Bond has been a primary source of matching funds with approximately $600,000 made available to bicycle and trail projects.

BikeNet, a 501(c)3 local non-profit group, is responsible for raising over $200,000 in matching funds to be used to secure federal funding for trails in Billings. The group has been focused on spreading the word of the trail system and hosts the Ales for Trails fundraising and awareness event in the fall. BikeNet has been a major contributor of the local match funds for CTEP trail projects.

The Billings Chamber of Commerce has formed a trails committee to help raise awareness and funding to turn the trail system into a destination for tourists and an attraction for businesses and families looking to relocate to Billings. The committee has around 100 members and has focused on three parts of the trail system: advocacy, sustainability, and connectivity. The Chamber of Commerce has even created a logo for Billings depicting it as 'Montana's Trailhead' that is being widely used throughout the community, including local government.

RiverStone Health in partnership with Billings Clinic and St. Vincent Healthcare have formed the Healthy by Design initiative and have supported bicycle and pedestrian improvements by hosting a Complete Streets workshop. RiverStone Health has also been active in the community by being involved in many of the various bicycle and pedestrian groups and committees.

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2 Vision, Goals & Objectives

The Vision, Goals, and Objectives of the Billings Area Bikeway and Trail Master Plan are principles that will guide the development and implementation of the Billings area bicycle system and trail network for years to come. Goals and objectives direct the way the public improvements are made, where resources are allocated, how programs are operated, and how City/County priorities are determined. This Master Plan will lay out a framework of how to create and expand programs and improvements to increase bicycling and trail use in the Billings area.

These goals should support the vision for the Billings area and describe the most important aspects of the City's programs, priorities and attitudes. A 'best practices' review of goals formulated by other cities is included in Appendix A.

2.1 Draft Vision, Goals, and Objectives

The following vision, goals, objectives and policies have been based on national best practices and from discussions with the Project Steering Committee during review of the 2004 Heritage Trail Plan's "Policies, Goals and Actions."

A vision statement outlines what the city wants to be. It concentrates on the future and is a source of inspiration. Goals help guide the community towards fulfilling that vision. Goals will relate to both existing and newly launched efforts by the City of Billings and Yellowstone County. Objectives are more specific statements under each goal that define how each goal will be achieved. Objectives are measurable and allow tracking and benchmarking systems to demonstrate the extent of the community's progress toward the goals and overall vision. Each objective has a number of implementation measures that can help target efforts toward the achievement of the objective and the related goal.

2.2 Plan Vision

Billings will have one of the most comprehensive bicycle and trail networks in the State of Montana, and will be rated a 'Gold Bicycle Friendly Community' by the League of American Bicyclists by the year 2020.

2.3 Goals & Objectives

The on-street bikeway network and trails system will be implemented through a comprehensive program of activities to address the following areas:

1. Complete Streets
2. Implementation
3. Evaluation
4. Transit Integration
5. Maintenance
6. Education & Encouragement
7. Enforcement
8. Health & Safety

1. Complete Streets

Goal: Improve and prioritize bicycle and pedestrian accommodations within the Billings Urban Area

Objectives:

1A: Implement a continuous network of bike lanes, signed shared bikeways, and bike boulevards that serve all bicycle user groups, including both recreational and utilitarian riders.

1B: Implement an accessible network of pedestrian supportive infrastructure, including sidewalks, curb ramps, and trails in high-priority pedestrian areas.

1C: Provide a bicycle, pedestrian and trail network that is safe and attractive and meets the needs of all genders, ages and abilities.

1D: Evaluate streets for bike facilities based on the recommended projects in this Plan when performing street resurfacing or restriping projects.

1E: Include priority bikeway and trail projects within the 5-year Capital Improvement Program.

1F: Eliminate gaps in the bicycle network to improve connectivity between destinations.

1G: Require new private development projects to finance and install bicycle facilities, sidewalks, and multi-use trails where recommended in the Billings Area Bikeway and Trail Master Plan, as part of on-site improvements and off-site mitigation measures as appropriate. Such requirements should be required through updates to the Subdivision Regulations and the Site Development Ordinance.

1H: Adopt and adhere to existing and future standards established by manuals including, but not limited to the AASHTO Guide for the Development of Bicycle Facilities, and the Manual of Uniform Traffic Control Devices (MUTCD).

1I: Adopt revised roadway design standards to ensure compliance with Complete Streets principles.

2. Implementation

Goal: Adopt local government policies, processes and standards that encourage and enhance walking, bicycling and other trail related activities in the Billings Area

Objectives:

2A: Adopt and implement the Billings Area Bikeway and Trail Master Plan.

2B: Designate City of Billings/Yellowstone County staff member(s) to be responsible for the coordination of non-motorized transportation.

2C: Expand sources for funding construction and maintenance of trails and bikeways beyond BikeNet, G.O. Bond and Community Transportation Enhancements Program (CTEP).

2D: Create a sustainable, dedicated source of bikeway funding within the annual city and county budget.

2E: Encourage bikeway and trail advocates and other interested citizens to serve on government boards and committees.

2F: Pursue public-private partnerships in the planning and implementation of bikeway and trail projects.

2G: Preserve potential corridors for future use including rail corridors, canals/ditches, utility rights-of-way and natural corridors.

2H: Complete a 26-mile 'marathon' loop trail that would surround the Billings urban area.

2I: Ensure consistency with existing documents such as the Billings Urban Area Long-Range Transportation Plan, the Growth Policy and Safe Routes to School Study and local neighborhood plans as they are updated.

3. Evaluation

Goal: Monitor the implementation of the Billings Area Bikeway and Trail Master Plan

Objectives:

3A: Continue 'annual trail census' counts.

3B: Begin monitoring on-street bicycle use both on existing bikeways, and as before/after data collection on future on-street bikeways.

3C: Monitor bicycle and pedestrian collision data to seek continuous reduction in bicycle and pedestrian collision rates

3D: Track public opinion about walking and bicycling through surveys such as the National Citizens Survey.

4. Transit Integration

Goal: Integrate bicycling and walking into the MET transit system

Objectives:

4A: Provide access and bicycle support facilities to transit through the development of bikeways that serve transit stations and transit hubs.

4B: Continue to accommodate bicycles on all transit vehicles.

4C: Provide safe end-of-trip facilities (bike parking, etc) at all transfer stations.

4D: Partner with MET Transit when developing educational and outreach programs.

4E: Integrate bicycle parking into new bus shelters.

5. Maintenance

Goal: Ensure citywide bicycle and trail facilities are clean, safe and accessible

Objectives:

5A: Incorporate bicycle network repair and maintenance needs into the regular roadway maintenance regime as appropriate, paying particular attention to sweeping and pothole repair on priority bicycle facilities.

5B: Address pedestrian and bicyclist safety during construction and maintenance activities by providing safe, convenient and accessible routes for bicyclists and pedestrians through construction zones

5C: Implement an 'Adopt-a-Trail' or 'Adopt-a-Mile' program as a way to assist the City and County with maintaining trails.

5D: Establish routine maintenance program that encourages citizens to report maintenance issues through the City website that impact bicyclist and trail safety.

5E: Develop funding for maintenance activities that are sufficient to keep both existing and future bikeway and trail facilities in good working order.

5F: Encourage interdepartmental and interjurisdictional cooperation with regard to bikeway and trail maintenance to maximize efficiency.

5G: Adopt the 'Trail Asset Management Plan' provided as part of this Plan.

6. Education and Encouragement Programs

Goal: Implement comprehensive education and encouragement programs targeted at all populations.

Objectives:

6A: Educate and inform the general public on bicycle and walking safety issues and encourage non-motorized transportation with programs that target pedestrians, bicyclists and motorists.

6B: Install signage along all on-street bikeways and trails to assist with way-finding and to increase awareness of bicyclists and other trail users.

6C: Support Safe Routes to School and other efforts, including educational and incentive programs to encourage more students to bicycle or walk to school, through a partnership with the school districts and other interested parties.

6D: Encourage employers to provide incentives and support facilities for employees that commute by bicycle.

6E: Partner with trail and bicycling advocacy groups, the medical and health community, MET transit, bike shops, businesses, museums and outlying communities on education and encouragement programs.

6F: Promote bicycling and walking through City-sponsored events.

6G: Educate professional drivers (transit drivers, delivery drivers, etc) on bicyclist rights and safe motoring behavior around bicyclists.

6H: Encourage large employers, colleges and universities, activity centers and major transit stops to provide secure bicycle storage facilities and racks and promote their efforts.

6I: Require bicycle parking and other end-of-trip facilities within new commercial development and retrofit public facilities with bicycle parking where it is absent.

7. Enforcement

Goal: Increase enforcement on City/County streets, trails and bikeways

Objectives:

7A: Increase attention by law enforcement officers to bicycle-related violations by both motorists and bicyclists, and emphasize positive enforcement for safe bicycling behavior by children. Law enforcement officers should be recruited to participate in educational programs in schools.

7B: Increase enforcement efforts to prevent the obstruction of dedicated bikeways and walkways.

7C: Reduce aggressive and/or negligent behavior among drivers, bicyclists and pedestrians.

7D: Ensure that all bicycle or pedestrian collisions are accurately recorded into a collision database for future analysis and monitoring.

7E: Continue volunteer bike patrol on trails.

8. Health & Safety

Goal: Promote healthy lifestyles and safe trail/bikeway facilities

Objectives:

8A: Work with Billings' large medical community to develop programs that promote the health and wellness benefits associated with walking and cycling.

8B: Work with Safe Routes to Schools efforts in Billings to encourage healthy walking and bicycling habits from an early age.

8C: Increase activity among Billings' residents through the provision of a comprehensive bikeway and trail network.

8D: Reduce the numbers of crashes involving bicyclists and trail users by at least 30 percent.

8E: Increase helmet use among bicyclists, particularly those required by City ordinance who are 16 years of age and under.

3 Background Document Review

The purpose of this review is to provide a summary of the documents that have influenced bicycle/trail infrastructure and policy in Billings. The documents reviewed in this report are:

- Council Strategic Plan
- Bicycle Pedestrian Advisory Committee (BPAC) Review for Council and City
- 2010 Billings Urban Area Long-Range Transportation Update
- 2008 Growth Policy Update
- Trails Public Policy
- City of Billings Safe Routes to School Study

This review will focus on major themes, recommendations, and how they relate to the future of bicycling and trail use in Billings for the Heritage Plan Update.

3.1 Council Strategic Plan (CSP) or Community Investment Plan

Adopted in 2007 and updated in 2010, the Billings City Council/Staff Strategic Plan identifies the goals for the City. The 2010 document much simplified the content presented in 2007. The Plan is divided into six sections:

1. Honest Responsive Government
2. Comprehensive Orderly Growth
3. Transportation Linkages
4. Preservation of Resources
5. Economic Development
6. Involved, United Community

Each of the six sections are organized by its goal and associated priorities.

The goal of the Transportation Linkages section calls for Billings to create a "comprehensive, multi-modal system." This goal clearly identifies the importance of a multi-modal transportation system in Billings – which includes a bicycle network that encourages people to make trips by bicycle. The priorities within this section that deal with non-motorized travel include:

- Collaboration and celebration of successes
- Multi-modal and "complete streets"
- Enforcement and safety
- Balance of limited resources and priorities
- Multi-use trail development and connectivity.

3.2 Bicycle Pedestrian Advisory Committee Review

In November of 2009, the City of Billings convened its Bicycle and Pedestrian Committee (BPAC) to review "the various aspects of non-motorized travel in the community of Billings and Yellowstone County." The committee was comprised of the following members; Kathy Aragon (Chair), Jim Collins (Vice-Chair), Don

Vanica, Deidre Schafnitz, Dolores Terpstra, Bill Anderson and Stella Fong. Committee members serve for three-year terms and their primary focus is to advise the city council, mayor, the county commissioners, Planning Board, and all departments and boards of the city and county with regard to non-motorized transportation matters.

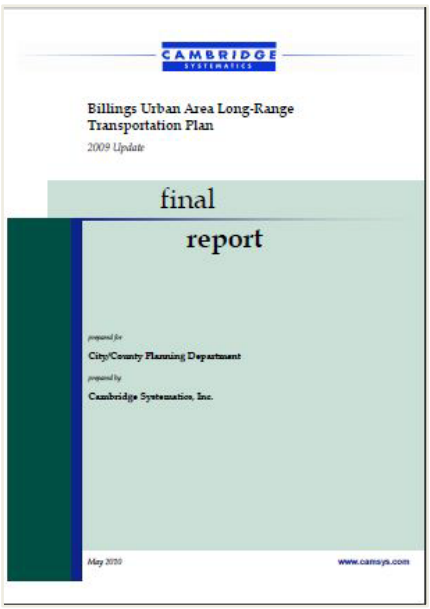
The BPAC met with professionals and organizations in Billings, related to bicycle and pedestrian issues. The results of these meetings are six goals for bicycle and pedestrian access and policy in Billings.

1. Signage for both wayfaring and informational or regulatory including Share the Road signage. Signage should be located on high use and prioritized routes within the City and County.
2. Facilitate coordinated community effort to improve and increase the use of bike/pedestrian infrastructure through i.e. hospitals, health organizations, advocacy groups and other civic-minded groups such as Riverstone Health, the Chamber of Commerce, etc.
3. Collect, compile and update baseline data, which should include but not be limited to: number of miles of hard surface trail (on and off street), usage, and injuries.
4. Through the direction and recommendations within the Heritage Trail Plan (Billings Area Bikeway and Trail Master Plan) prioritize connectivity routes within the community.
5. Identify sustainable funding sources to implement the Trail Maintenance Plan.
6. Promote respect on roadways between non-motorized and motorized traffic through educational campaigns such as "Share the Road" and through enforcement.

These goals identify crucial components to a healthy and actively used bicycle trail system (signage, encouragement, evaluation, connectivity, funding and education). The Heritage Trail Plan update (Billings Area Bikeway and Trail Master Plan) will address these goals and prescribe recommendations, programs, and other measures to help Billings achieve these goals.

3.3 Billings Urban Area Long-Range Transportation Plan (2009)

The 2009 update to the Billings Urban Area Long-Range Transportation Plan (BUALRTP) was published May, 2010 by Cambridge Systematics, Inc. The BUALRTP was funded by grants from the Federal Highway Administration, Federal Transit Administration, and the US Department of Transportation. It provides a comprehensive look at all transportation in Billings, including streets, highways, public transit, freight, pedestrian and bicycle facilities.



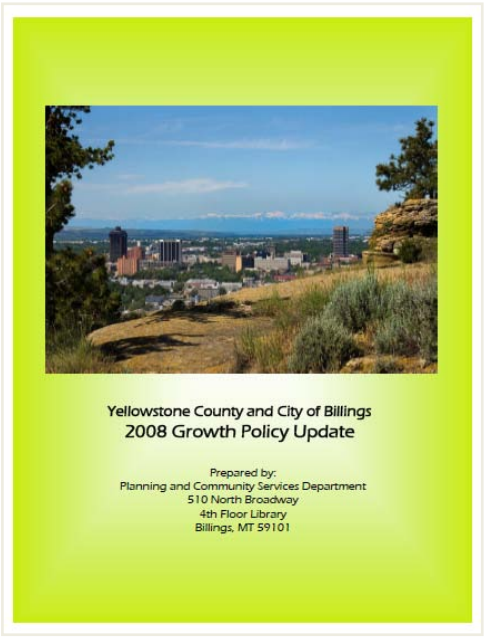
The BUALRTP provides a brief discussion on the history of bicycle planning in Billings, including BikeNet's 1994 plan, and the 2004 Heritage Trail Plan. Within the Pedestrian and Bicycle and Pedestrian Facilities section, the BUALRTP divides bicycle issues into the following categories:

- Existing Facilities
- Existing Programs and Policies
- Council Action
- Heritage Trail Plan Recommendations
- Priority Projects

This document serves as a clearinghouse for all Billings transportation related information, and as such is iterative in nature. The bicycle facility descriptions provide an update on accomplishments since the adoption and implementation of the Heritage Trail Plan (now Billings Area Bikeway and Trail Master Plan). Among the highlights of the BUALRTP is the priority projects section. This section breaks down all of the projects identified by the 2004 Heritage Trail plan and ranks them in order of evaluation criteria identified within the plan. Separate prioritization criteria were used for on-street bicycle facilities and off-street multi-use trails. The BUALRTP will be a helpful resource during the development of the Billings Area Bikeway and Trail Master Plan, to assess priority projects and reevaluate where necessary.

3.4 2008 Growth Policy Update

The Yellowstone County and City of Billings 2008 Growth Policy Update (GPU) was prepared by the City of Billing's Planning and Community Services Department. As the City of Billings and Yellowstone County continues to grow, the GPU seeks to provide structure and guidance to ensure that growth occurs in a manner that is "consistent with the values of the community."



The 2008 GPU adopts many of the goals and policies outlined in the 2003 GPU, but with notable changes coming to areas that affect the Heritage Trail Plan (as the result of extensive public input). The Transportation Element of the GPU identifies goals and objectives outline the continued prosperity and growth of bicycling in Billings. Among these objectives are:

- Promote non-motorized transportation modes
- Reduce traffic congestion in Billings
- Provide cost-effective alternative to vehicular travel

Chapter three of the GPU addresses Community Goals and Objectives. One of the community goals is a vision for "additional bicycle facilities throughout the City and County." In order to support this goal, the three following objectives are identified:

1. Provide needed facilities for recreational and commuter bicyclists
2. Encourage bicycling as a cost-effective healthy alternative to driving
3. Promote safe bike riding options

The GPU addresses the need for education and concerns of unsafe behaviors. To do this, the GPU Community Goals discuss three objectives: to ensure equitable and safe use of public transportation facilities, encourage alternative modes of transportation, and educate users of the responsibilities. Education plays a crucial role in the City's efforts to promote bicycling, while informing the public of the responsibilities that come with using alternative modes of transportation.

Providing education, encouragement, and engineering (facilities and infrastructure) will be key components of the Heritage Trail Update (Billings Area Bikeway and Trail Master Plan).

The GPU also discusses the existing conditions and trends of the transportation system in the region, both motorized and non-motorized. Bicycling is on the rise in Billings, due to efforts of the alternative modes coordinator, the success of encouragement activities (e.g. Bike to Work Day, National Trails Day, Go Play!), and the implementation of additional trails and a future Complete Streets policy.

3.5 Trails Public Policy

In 2008, the Billings Chamber of Commerce Convention and Visitors Bureau developed its position on bicycle trails in Billings. The Trails Public Policy (TPP) acknowledges the importance of bike trails in providing methods of alternative transportation for its residents, and promoting Billings as "Montana's Trailhead."

The Trails Public Policy includes four priority areas, including:

- Connecting trail segments especially the areas surrounding town that would form a 30-mile "Big Loop"
- Developing signage and branding elements at Swords Park that will carry over to the entire trail system
- Adopt-A-Trail Program for maintenance
- Finding public and private solutions to fund new and existing trails.

The Chamber identifies the key aspects necessary for continued growth of the bicycle trail network, maintenance: funding, connectivity and promotion. The Billings Area Bikeway and Trail Master Update will address these important priorities for the trail network and bicycling throughout Billings and Yellowstone County.

In support of the trail network, the Chamber's TPP focuses on three components: Connections, Funding and Sustainability. Better connections would allow trail users to get to popular destinations without having to leave the trail, and would complete the many segments of trail presently constructed. The TPP also lists its priority areas that would complete the trail network in Billings. In order to achieve these goals, the TPP directs the City to pursue funding for the construction of trails and to keep them maintained with additional amenities like signage, wayfinding where appropriate. The Billings Area Bikeway and Trail Master Update acknowledges the importance of the TPP and will use these principles in the development of the plan.

3.6 City of Billings Safe Routes to School Study

The City of Billings Safe Routes to School Study is a two-part effort of which only the first report was complete at the time of writing. This report covers 11 of the 22 total schools within Billings School District No. 2. This report covers the following schools that were selected due to their lower amounts of existing pedestrian infrastructure:

- Arrowhead Elementary School
- Beartooth Elementary School
- Bench Elementary School
- Bitterroot Elementary School
- Boulder Elementary School
- Eagle Cliffs Elementary School
- Meadowlark Elementary School
- Newman Elementary School
- Poly Drive Elementary School
- Ponderosa Elementary School
- Washington Elementary School

Example plan recommendations from Arrowhead Elementary School

Recommendations were given for each of the "E's" including Engineering, Education, Encouragement, Enforcement and Evaluation, though the plan focuses mainly on infrastructure (Engineering) recommendations. Each school listed above was analyzed for existing infrastructure and deficiencies within ½ mile of the school. Projects were recommended to address critical sidewalk gaps, intersections, improving sight distances, new trails and bike lanes. Most projects proposed are eligible for State Safe Routes to School Funding (see Chapter 9.3). All bike lane and trail connections recommended are reflected in the Billings Area Bikeway and Trail Master Plan.

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4 Demographic Analysis

This chapter provides a profile of climatic and socio-economic characteristics relevant to bicycle and pedestrian travel for the Billings Area.

4.1 Billings Area Profile

Located in south central Montana, Yellowstone County is Montana's most populous with approximately 150,000 residents according to the 2010 Billings Urban Area Long Range Transportation Plan. Billings, the state's largest city has a population of approximately 105,000 and is a major retail, financial, energy, transportation and medical center. Table 4.1 – Population Trends and Projections shows population trends for the City of Billings and Yellowstone County. It should be noted that this table was created prior to the results of the 2010 census. All numbers are taken from the 2010 Billings Urban Area Long Range Transportation Plan. Figure 4.1 – Population Trends and Projections shows this information graphically.

Table 4.1 – Population Trends and Projections

	1980	1990	2000	2010	2020	2030
City of Billings	*66,798*	*85,073*	*89,847*	*106,529*	*123,631*	*143,478*
Billings Urban Area	*91,714*	*94,724*	*117,549*	*140,624*	*163,200*	*189,399*
Yellowstone County	*108,035*	*113,419*	*129,352*	*148,850*	*165,403*	*200,479*
Billings Percent of County	*61.8%*	*75%*	*69%*	*71.8%*	*71.6%*	*71.5%*
Billings 10-Year Percent Growth	*8.5%*	*27.4%*	*5.61%*	*18.5%*	*16%*	*16%*
County 10-Year Percent Growth	*23.7%*	*5%*	*14.05%*	*14.6%*	*11.1%*	*11.1%*

Source: U.S. Census Bureau and City/County Planning Department (2010 Billings Urban Area Long-Range Transportation Plan)

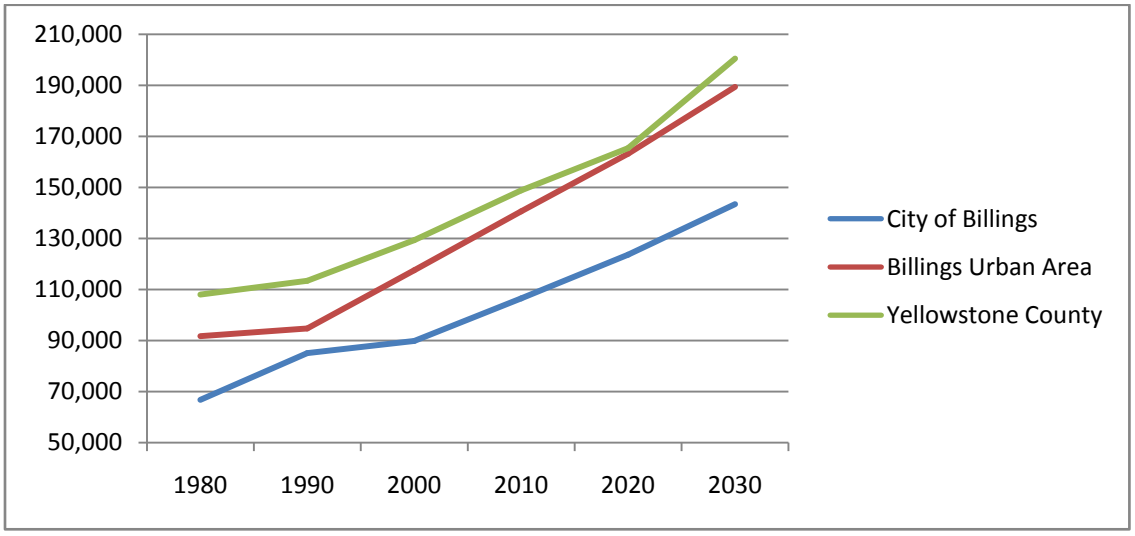

Figure 4.1 – Population Trends and Projections

4.2 Climate

According to the National Climatic Data Center, the average daily low in January is 14 degrees Fahrenheit with an average of 8 days of snowfall.

The average daily high in July is 87 degrees Fahrenheit. The wettest month typically is May with an average of 11 days and 2.57 inches of rainfall. Table 4.2- Average Temperatures and Precipitation for Billings shows detailed average temperatures and precipitation for each month from the National Climatic Data Center. Averages are computed from data recorded during the period of 1961 to 1990. The record highs and lows are through the year 2000.

Table 4.2- Average Temperatures and Precipitation for Billings

Month	Average High	Average Low	Record High	Record Low	Average Precip. (in)	Rain/Snow Days
January	32°	14°	68°	-30°	0.90	8
February	39°	19°	72°	-38°	0.64	7
March	46°	25°	79°	-19°	1.16	9
April	57°	34°	92°	-5°	1.74	10
May	67°	43°	96°	14°	2.57	11
June	78°	52°	105°	32°	1.99	11
July	87°	58°	106°	41°	0.94	7
August	85°	57°	105°	35°	1.01	6
September	72°	47°	103°	22°	1.36	7
October	61°	38°	90°	-7°	1.14	6
November	45°	26°	77°	-22°	0.84	6
December	34°	17°	69°	-32°	0.79	7

4.3 City of Billings' 2009 Citizen Survey

The City of Billings' 2009 Citizen Survey is a nationally standardized survey administered by the National Research Center, Inc. (NRC) and the International City/County Management Association (ICMA). City of Billings staff selected items from a menu of questions about services and community problems. The survey provides statistically valid results of resident opinions about community and services provided by local government.

Question two dealt with 'Community Characteristics' with several of the sub-questions reflecting walking/bicycling and trails. Table 4.3 – Responses to Community Characteristics Questions, summarizes these responses. As can be seen below, an average of about 25% of the community felt that the ease of bicycle travel in Billings was 'Excellent' or 'Good'. Approximately 46% of the community felt that the ease of walking in Billings was 'Excellent' or 'Good', while approximately 40% of the community felt that the availability of paths and trails was 'Excellent' or 'Good'. Also evident from the data is the fact that lower income households seemed to have a higher opinion of the ease of bicycle travel than high income households (35% vs. 16%).

Table 4.3 – Responses to Community Characteristics Questions

	Respondent Age			*Gender*		*Length of Residency*			*Household Income*			
	18-34	35-54	55+	F	M	< 5	6-20	> 20	< $25k	$25-$50 k	$50 – 100k	$100k +
Ease of Bicycle Travel	25%	24%	28%	26%	25%	27%	23%	27%	35%	30%	21%	16%
Ease of Walking	46%	47%	46%	44%	50%	51%	42%	48%	51%	56%	39%	46%
Availability of paths and trails	40%	36%	46%	39%	42%	44%	33%	43%	44%	47%	36%	34%

Open ended responses were permitted and many residents chose to leave comments. There were ten comments advocating for increased focus on bicycle and pedestrian facilities, and one against.

4.4 Trail Counts & Biennial Trail Census

Collecting user data is a very important element of a community bicycle and trail program. Through a formal program of collecting user counts, meaningful analysis can take place and provides insight into how the trails and bikeways are being used, what types of users are using them, and if usage is increasing with the growth in the overall non-motorized system. To date, the City of Billings has used two methods to collect trail data, the use of a biennial 'Trail Census', and the use of an automated trail scanner that is moved around the city. There is no existing program to collect on-street bikeway users. Figure 4.2 – Trail Counts, displays the locations of the scanner, and Trail Census (Manual) counts, Table 4.4 – Summary of Existing Count Practices provides additional information on each location.

Table 4.4 – Summary of Existing Count Practices

ID	Site	Location	Count Type	Month	Year(s)
01	Kiwanis Trail	on fence post north of Wicks	Scanner Count	July	2008
			Scanner Count	October	2009
01.A	Kiwanis Trail	By Bitterroot School access	Manual Count	May	2003, 2005, 2007, 2009
02	Two Moon Park Trail	On post entering the park	Scanner Count	July	2008
03	Metrapark Trail	By Two Moon Access Road	Scanner Count	July	2008
			Scanner Count	September	2009
03.A	Metra Park	By Frasier Bridge over Alkali Creek	Manual Count	May	2003, 2005, 2007, 2009
04	Coulson Park	By fishing access on fence post	Scanner Count	October	2009

ID	Site	Location	Count Type	Month	Year(s)
05	Mystic Park	By Frasier Bridge over Alkali Creek	Scanner Count	June	2009
06	Alkali Creek Road	Pedestrian light by Alkali Creek School	Scanner Count	August	2009
07	Aronson Road	Pull out just north of the Alkali Cr bridge	Scanner Count	August	2009
08	Swords Park Trail	Sign post just east of trailhead where crosses road	Scanner Count	September	2009
08.A	Swords Park	By parking lot	Manual Count	May	2007, 2009
09	So. Billings Blvd.	North of Newman Elementary	Scanner Count	October	2008
10	Norm's Island	On post after bridge at access to right	Scanner Count	August	2008
10.A	Norm's Island	By Riverfront Park	Manual Count	May	2005, 2007, 2009
11	Rimrock Road Trail	Post west of 46th St. W.	Scanner Count	June	2009
12	Big Ditch Trail	On sign just east of Larchwood	Scanner Count	April	2008
12.A	Big Ditch Trail	38th St. W, east of Shiloh underpass, in line with Colton Blvd.	Manual Count	May	2005, 2007, 2009
13	Zimmerman Road	Light pole north of Ave. E	Scanner Count	July	2009
14	Will James Cut	City ROW between Will James & Broadwater	Scanner Count	September	2008
15	Descro Park	On shelter corner towards trail intersection	Scanner Count	July	2009
15.A	Descro Park	By bridge	Manual Count	May	2003, 2005, 2007, 2009
16	Stewart Park Trail	On fence by water pump	Scanner Count	July	2009
17	Lampman Strip Park	On directional sign where trail goes along road	Scanner Count	September	2009
18	Bannister Drain Trail	Curve Sign south of King by HDR Engineering	Scanner Count	August	2009
19	Midland Trail	Tree by Hilton Garden Hotel	Scanner Count	September	2008, 2009
20	TransTech	By Stillwater Mining	Scanner Count	September	2008
21	King Ave. W.	3rd light pole east of Meadowbrook(trailer court)	Scanner Count	July	2009

Figure 4.2 – Trail Counts

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4.4.1 Trail Census

The City of Billings has organized a biennial 'Trail Census' to collect data on usage levels and user type split on the trails. The census was first performed in 2003 with data collected every other year through 2009. The effort is largely volunteer based and takes place over a period of 14 hours from 7am to 9pm at five locations on trail facilities around the city. Volunteers record the number of bicyclists, walkers, runners, skaters/scooters, and passengers that use the trail. Repeatability in the day of the week and time of year were goals of the program and have allowed the data collected each census to be used in comparisons. Manual counts were taken on a Thursday during the third week in May and a weekend date following the Thursday count. The weekend count is not quite as comparable as not all sites were inventoried during each census. Figure 4.3 – Trail Census Counts by Location shows the counts by user type for the census locations. Figure 4.4 – Trail Census Counts by Year shows the overall number of users counted for each year. Note: Only the Thursday Census Data was used as the weekend dates were not as complete for comparison purposes. However, when compared to the weekday counts, the weekend counts were usually significantly higher for all user groups with the largest increase in the amount of bicycling. Trail runners seemed to have slightly higher numbers during the week.

Volunteers counting trail users during the Trail Census

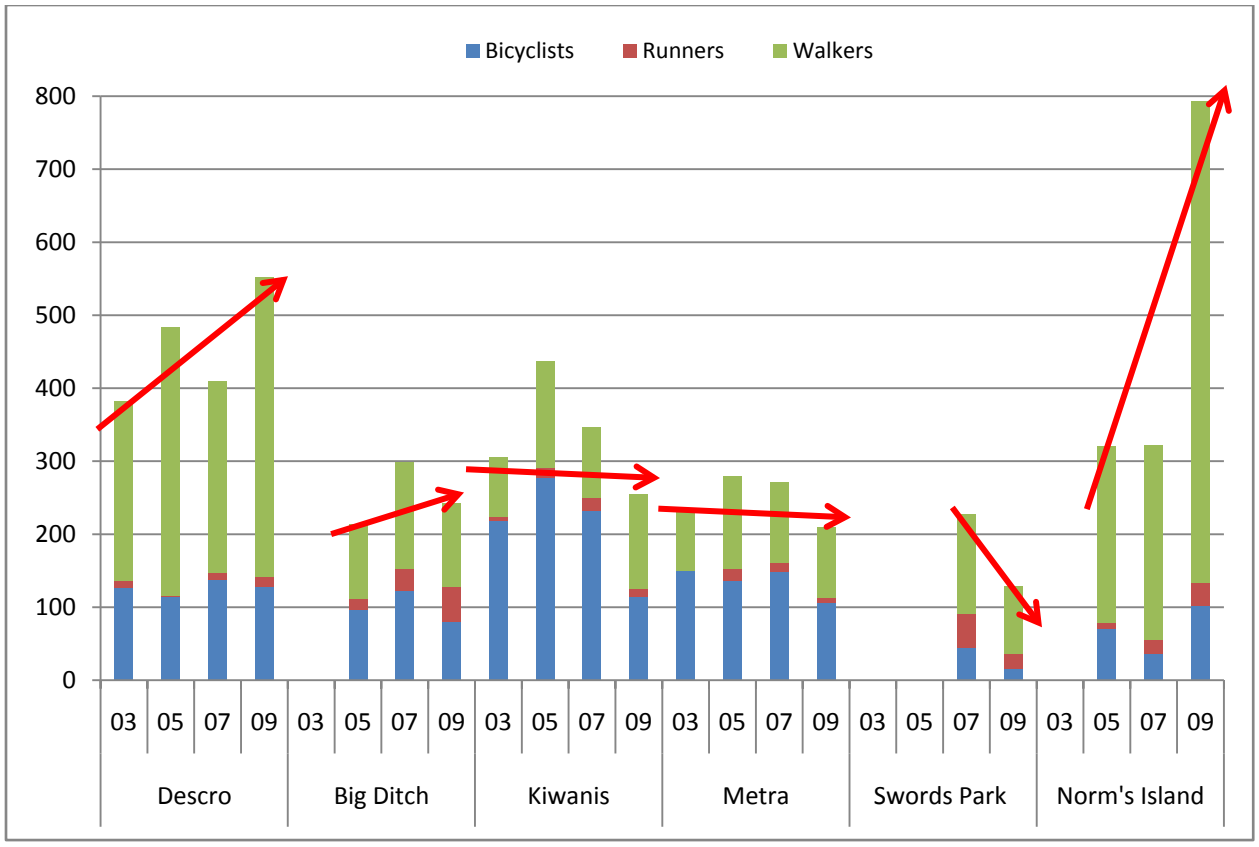

Figure 4.3 – Trail Census Counts by Location

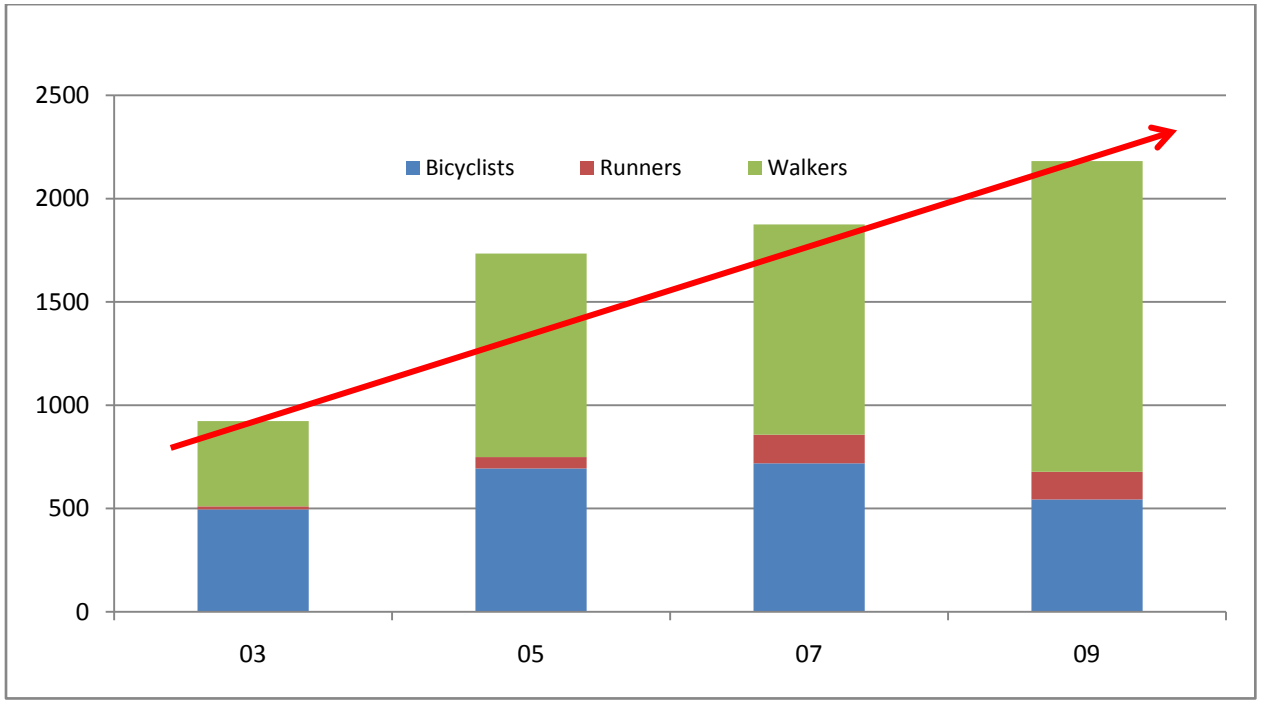

Figure 4.4 – Trail Census Counts by Year

4.4.2 Trail Scanner Counts

Beginning in October 2007, the Alternate Modes Coordinator began using an automated scanner to collect trail user data. The scanner is mounted adjacent to the trail and left in place for a week to collect data. This program has been geographically more ambitious than the biennial Trail Census and covers 22 locations. Unfortunately most locations do not have multiple years of data collected, and if they do, the time of year is not comparable. Below is an example of the scanner location on the Big Ditch Trail in Figure 4.5 – Big Ditch Trail Scanner Counts. It is clear that weekend counts are higher than weekday counts. The user concentration is also more concentrated during the middle of the day with the weekdays having their AM peaks occur earlier in the morning. The impact of the time of year can also be seen with counts in May of 2010 showing concentrations of trail users later in the morning and earlier in the evening due to the shorter daylight and cooler temperatures. Interestingly, the highest trail user count recorded was at 8 P.M. on the weekend in July.

Trail scanner secured to an existing sign

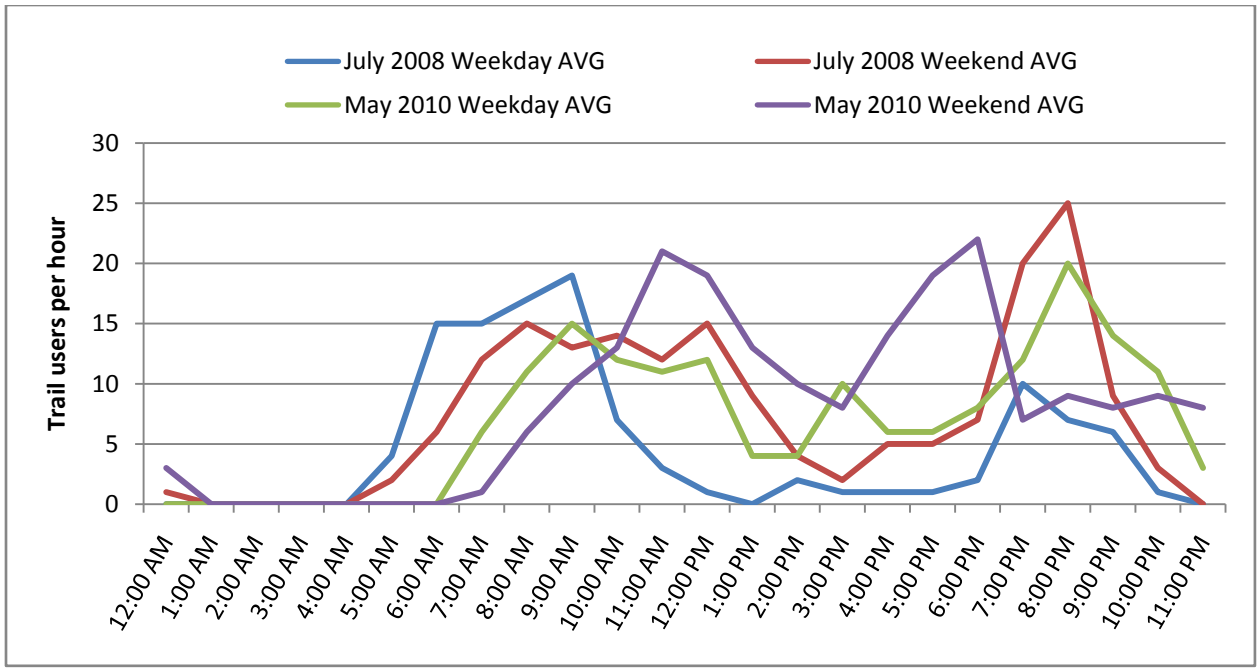

Figure 4.5 – Big Ditch Trail Scanner Counts

4.5 Non-Motorized Demand Model

4.5.1 Purpose

Higher rates of walking and bicycling have numerous community benefits, including improved air quality, better community health resulting from exercise, and reduced household transportation costs. In order to set goals and measure progress towards increased bicycling and walking in Billings, it is essential to first establish a baseline estimate current use.

4.5.2 Demand Estimation

Journey-to-work information collected by the US Census Bureau's American Communities Survey is the most commonly cited measure of transportation mode split, but commute mode share percentages alone cannot paint a complete picture of walking and bicycling in Billings. Using recently released data from the 2009 National Household Travel Survey (NHTS 2009) conducted by the US Department of Transportation, Alta Planning + Design has developed detailed estimates of the number of walking and bicycling trips being made in Billings. By isolating different walking and bicycling user groups (such as workers, school children and college students) and applying trip distance information, it is possible to estimate the total distance Billings residents travel to work or school by walking and bicycling. But not all walking and bicycling trips are commute trips. Trip type multipliers provide an indirect method of estimating the number of walking and bicycling trips made for other reasons, such as shopping and running errands. For example, NHTS 2009 data indicates that for every bicycle work trip, there are slightly more than two utilitarian bicycle trips made. Although these trips cannot be directly attached to a certain group of people (not all of the utilitarian bicycling trips are made by people who bicycle to work) these multipliers allow a high percentage of the community's walking and bicycling activity to be captured in an annual estimate.

4.5.3 Disclaimer

As with any modeling projection, the accuracy of the result is dependent on the accuracy of the input data and other assumptions. Effort was made to collect the best data possible for input to the model, but in many cases national data was used where local data points were unavailable. Examples of information that could improve the accuracy of this exercise include the detailed results of local Safe Routes to Schools parent and student surveys, a regional household travel survey, and a student travel survey of students at MSU Billings and Rocky Mountain College.

4.5.4 Model Output

From Tables 4.5-4.11 below the estimated number of daily non-recreational bicyclists and pedestrians within the Billings urban area can be calculated. From the calculations it is estimated that approximately 850 bicyclists ride on Billings' roadways and trails daily for non-recreational purposes. These bicyclists account for approximately 1,500 daily trips and ride a total of 3,300 daily miles. It is estimated that a further 3,100 daily bicycle trips are made for social/recreational reasons bringing the total number of daily bicycle trips up to approximately 4,600 . Many more walking trips are typically made when compared to bicycling trips. It is estimated that nearly 4,600 pedestrians make 12,000 trips non-recreational trips daily, accounting for approximately 7,000 miles walked. An estimated additional 12,000 walking trips are made daily for social/recreational purposes totaling 10,500 miles. The total number of daily walking trips is estimated at 24,000.

Table 4.5- Demand Model Demographic Groups

Demographic Groups	*Figure*	*Note*
Billings Population	98,465	ACS 2006-2008
Employed population	50,337	ACS 2006-2008
College student population	6,131	ACS 2006-2008
School children population, K-12	13,769	ACS 2006-2008

Table 4.6 – Commute Modeshare by Type of Commuter

Commute Modeshare		*Note*
Employed		
Bike	0.67%	*ACS 2006-2008*
Walk	2.83%	*ACS 2006-2008*
K-12		
Bike	0.67%	*NHTS 2009, respondent ages 5-18*
Walk	10.57%	*NHTS 2009, respondent ages 5-18*
College		
Bike	0.67%	*Data not available online from MSUB*
Walk	2.83%	*Assume same modeshare as employed journey to work, ACS 2006-2008*

Table 4.7 – Trip Distance by Type of Commuter

Trip Distances	*Figure*	*Unit*	*Note*
Bicycle Trip Distance			
Commute	3.06	Miles	NHTS 2009
College	1.52	Miles	NHTS 2009
Utilitarian	1.80	Miles	NHTS 2009
School (children)	0.80	Miles	NHTS 2009
Walking Trip Distance			
Commute	0.73	Miles	NHTS 2009
College	0.58	Miles	NHTS 2009
Utilitarian	0.75	Miles	NHTS 2009
School (children)	0.39	Miles	NHTS 2009
Utilitarian Trip Multiplier			
Bicycle	2.19	Ratio	NHTS 2009
Pedestrian	4.92	Ratio	NHTS 2009
Social/Recreational Trip Multiplier			
Bicycle	6.45	Ratio	NHTS 2009
Pedestrian	5.90	Ratio	NHTS 2009

Table 4.8 – Bicycling Statistics in Billings (Non-Recreational)

Utility Bicycling Statistics	
Bicycle Commute Trips	
Bicycle commuters	337
Weekday bicycle trips	674
Weekday miles bicycled	2,062
Bicycle School Trips	
K-12 bicycle commuters	93
Weekday K-12 bicycle trips	185
Weekday miles bicycled	81
Bicycle College Trips	
College bicycle commuters	41
Weekday college bicycle trips	82
Weekday miles bicycled	125
Utilitarian Bicycle Trips	
Adult bicycle commuters	378
Daily utilitarian trips	592
Daily miles bicycled	1,063
Total Daily Weekday Bicycle Commuters	**849**
Total Daily Weekday Bicycle Trips	**1,533**
Total Daily Miles Bicycled	**3,331**

Table 4.9 – Bicycling Statisitcs in Billings (Social/Recreational)

Social/Recreational Bicycling Statistics	
Social/Recreational Bicycle Trips	
Daily social/recreational trips	3,104
Daily miles bicycled	7,262

Table 4.10 – Walking Statistics in Billings (Non-Recreational)

Utility Walking Statistics	
Walk Commute Trips	
Walk commuters	1,426
Weekday walk trips	2,852
Weekday miles walked	2,082
Walk School Trips	
K-12 walk commuters	1,456
Weekday K-12 walk trips	2,912
Weekday miles walked	621
Walk College Trips	
College walk commuters	174
Weekday college walk trips	347
Weekday miles walked	201
Utilitarian Walking Trips	
Adult walking commuters	1,600
Daily utilitarian trips	5,623
Daily miles walked	4,199
Total Daily Walking Commuters	**4,655**
Total Weekday Walking Trips	**11,734**
Total Daily Miles Walked	**7,103**

Table 4.11 – Walking Statistics in Billings (Social/Recreational)

Social/Recreational Walking Statistics	
Social/Recreational Walking Trips	
Daily social/recreational trips	12,025
Daily miles walked	10,582

4.6 Bicycle Crash Data

Crash data was collected from MDT covering the years from 1997 to 2009 for crashes involving bicycles on Billings area roadways. Data sets were made available for Yellowstone County and the City of Billings. The formatting of the raw data was complicated and performing special analysis of crash locations was not possible. Figure 4.7 – Crashes Involving Bicycles, Assessment of Fault shows the overall number of bicycle crashes by year for injury and non-injury crashes. Experience has shown that bicycle crashes are typically under reported with many collisions not being recorded through a police report. As such, the data below should not be considered as comprehensive, but it can be useful for tracking crashes that have been reported. According to a study done by the Montana Livable Places Campaign, the number of injury crashes involving bicyclists and pedestrians are significantly under-reported. Because they are not required to file insurance claims, crashes involving bicyclists commonly go unreported. The effect is most notable when comparing emergency room data to the data contained in police records. Records may also be influenced by the reporting policies of the Billings Police Department. For a part of the study period the department had a policy of not encouraging officers to report on crashes that did not have injury or drivers under the influence.

As shown in

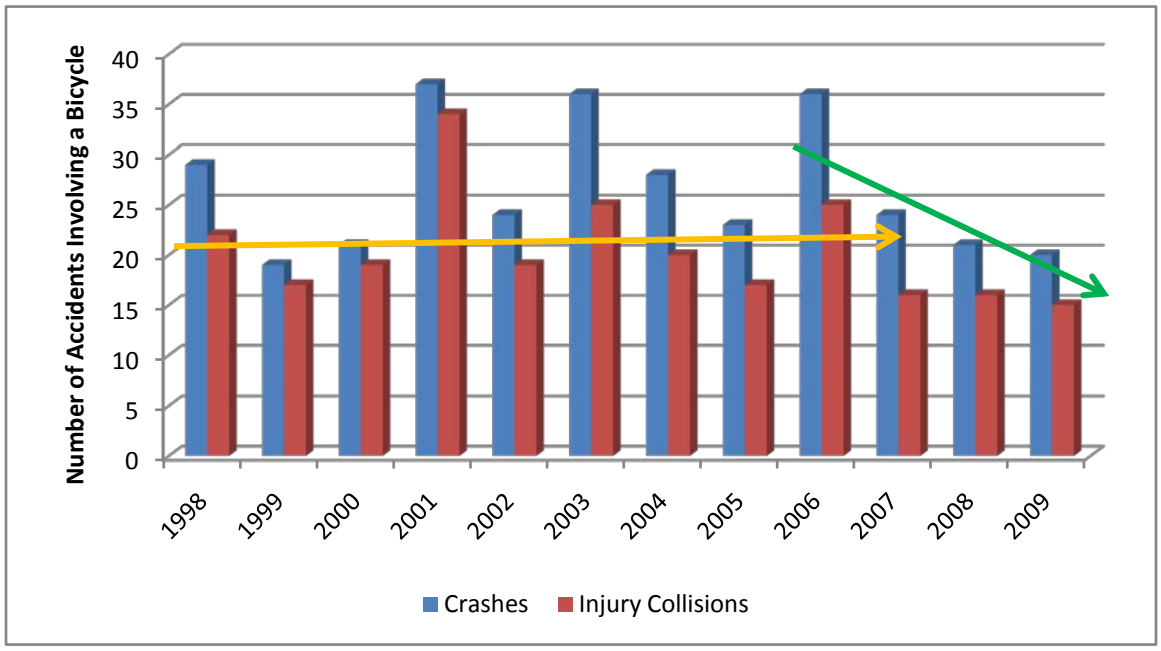

Figure 4.6 – Bicycle Crashes by Year, the number of reported crashes involving a bicycle fluctuated by year fairly significantly, the overall trend did not change much from 1998 to 2006. The period of 2007 to 2009 represents the lowest number of reported crashes in the last 11 years. There is no data available for crashes along the trail system.

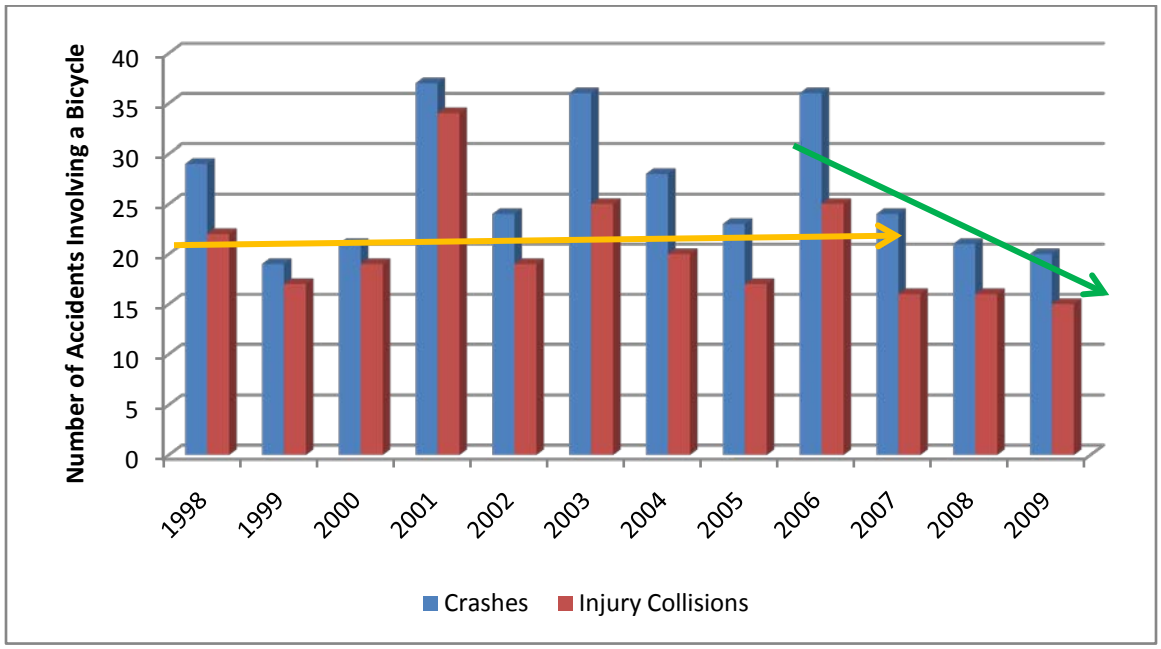

Figure 4.6 – Bicycle Crashes by Year

Figures 4.7 & 4.8 explore crashes involving bicycles in Billings. Based on available crash data, fully 62 percent of crashes involving a bicycle and a motor vehicle were the fault of the bicyclist, with 38 percent being the fault of the motor vehicle. Figure 4.7 – Crashes Involving Bicycles, Assessment of Fault examines the various causes of crashes. Major findings show that a significant portion of all crashes are caused by factors that bicyclists can control. The most hazardous behaviors of bicyclists in Billings are:

- Inattentive Riding (17%)
- Failure to Yield (11%)
- Disregarding Traffic Signs (7%)
- Wrong Way Riding (6%)

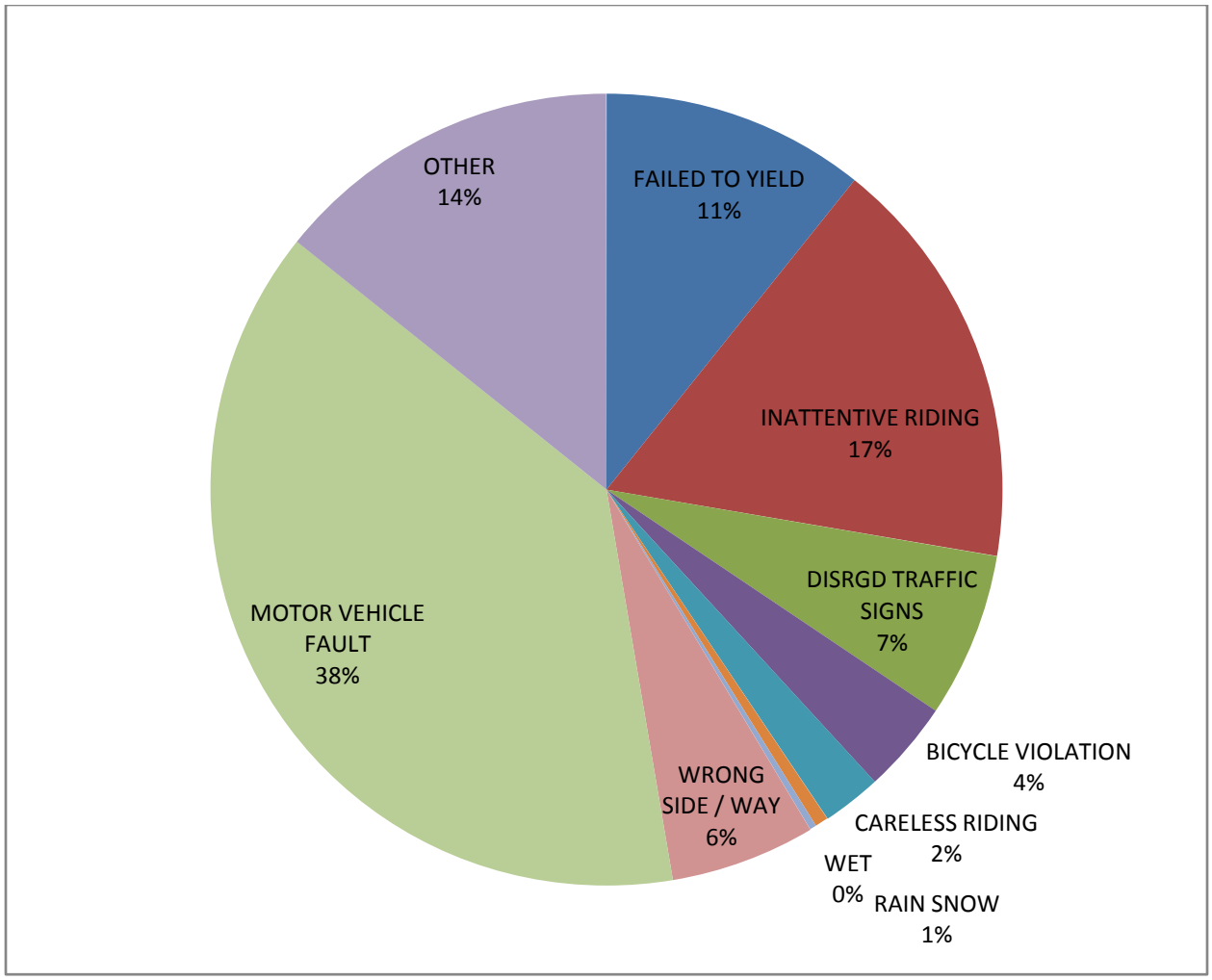

Figure 4.7 – Crashes Involving Bicycles, Assessment of Fault

These data typify the need for greater bicyclist education and improved on-street bicycle facilities, both of which could have an effect on reducing future crash rates. Bicycle safety/education campaigns can be helpful at reaching large audiences, while specialized classes and programs exist to target a specific demographic of bicyclists. According to an Oregon study, the greater existence of on-street bicycle facilities has shown to greatly improve bicyclist riding behavior as demonstrated by Figure 4.8 – Effect of Bike Lanes on Bicyclist Behavior.

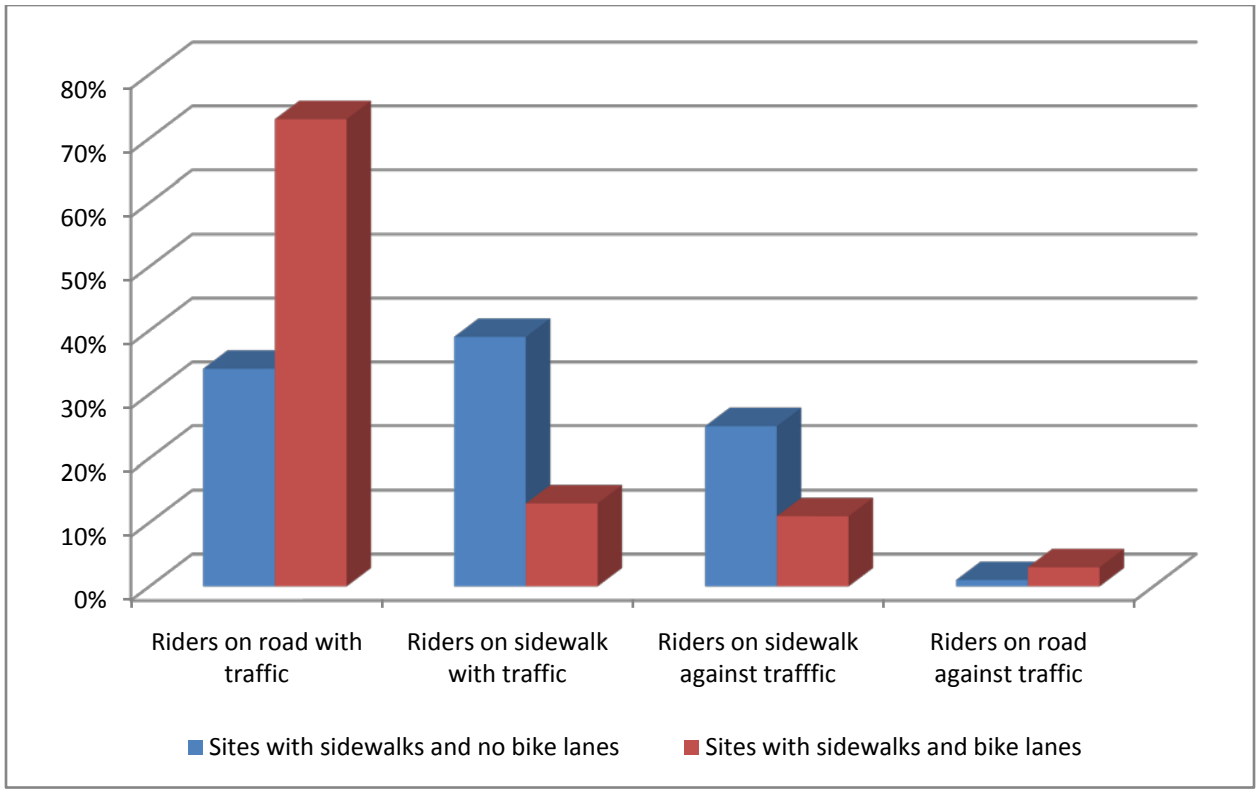

Figure 4.8 – Effect of Bike Lanes on Bicyclist Behavior

Figure 4.7 – Crashes Involving Bicycles, Assessment of Fault identifies 38 percent of crashes where the motor vehicle is at fault. Of this 38 percent, Figure 4.9 – Crashes Involving Bicycles, Assessment of Motorist Fault breaks down the various causes for motor vehicle fault. The two most common causes where a motor vehicle is at fault are Failure to Yield (33%) and Inattentive Driving (28%). Failing to yield may be attributed to a lack of knowledge concerning a bicyclist's right to operate in the roadway, and where to expect to encounter a bicyclist. To confront these issues, many cities have implemented education campaigns with public service announcements and added on-street bicycle facilities to all arterial and collector roadways. The educational and encouragement campaigns serve simultaneously educate and promote the use of roads for all users. Inattentive riding can be addressed with education, but also enforcement measures. In 2010 Billings City Council banned talking and texting without the use of a hands free device. The ban went in to effect at the end of October and violators will be cited with a $110 fine per offense.

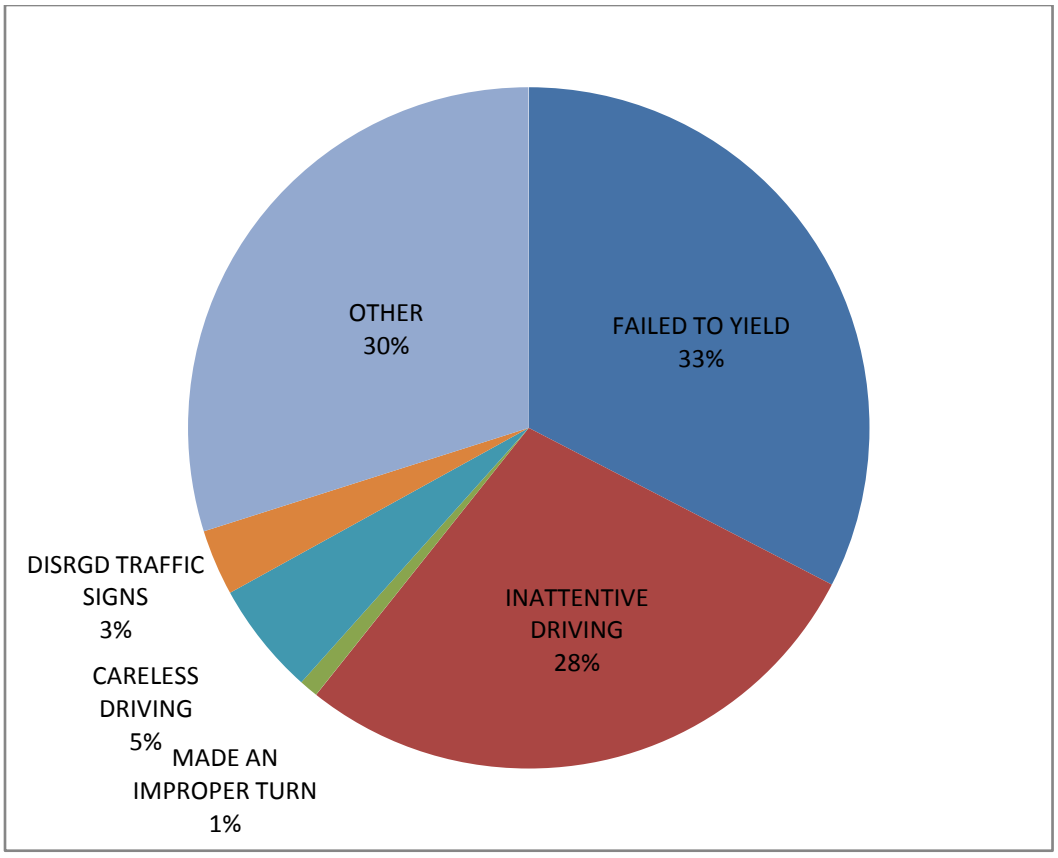

Figure 4.9 – Crashes Involving Bicycles, Assessment of Motorist Fault

5 Existing Bikeway and Trail Facilities

This Chapter summarizes the existing on-street bikeway and trail facilities in the Billings area. Existing bicycle or trail related programs and activities are also included. A map of existing on-street bikeway and trail facilities in Billings can be found in Figure 5.2 – Existing Bikeways and Trails in the Billings Area.

5.1 Existing Multi-Use Trails

Since 1994, Billings has added over 35 miles of multi-use trails, with 25 of those miles coming since 2004. These trails have been identified through both the previous BikeNet Plan and the 2004 Heritage Trail Plan. The current network has taken advantage of new developments, existing right-of-ways, and reconstruction of major roadways. Figure 5.1 – Billings Paved Multi-Use Trail Development displays the rapid rate of growth over the past decade. Table 5.1 – Existing Multi-Use Trails in Billings lists the existing paved multi-use trail network by segment, length and the year of construction.

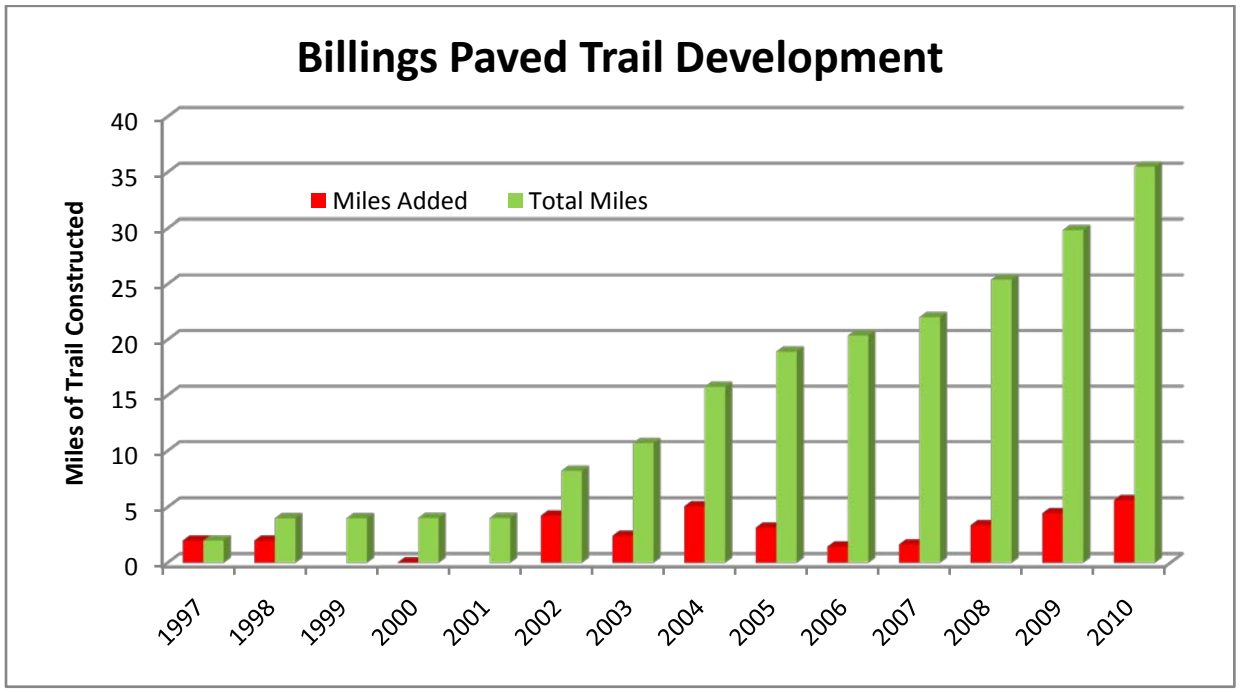

Figure 5.1 – Billings Paved Multi-Use Trail Development

Table 5.1 – Existing Multi-Use Trails in Billings

Trail Name	*Length (feet)*	*Length (mi)*	*Year Constructed*
24TH Street Connector	3,991	0.76	2003
Alkali Creek Rd Trail	9,571	1.81	2004 & 2010
Aronson Ave Trail	2,985	0.57	2008
BBWA Canal Trail	10,073	1.91	2003 &2009
BBWA Canal Trail Connector	1,324	0.25	2009
BBWA Canal-Transtech Trail	4,446	0.84	2005 & 2006
Big Ditch Trail	5,658	1.07	2005 & 2006
Big Ditch Trail Connector	726	0.14	2006
Big Ditch Trail-Shiloh Underpass	95	0.02	2000
Cove Ditch Trail	996	0.19	2006 & 2007
Earl Guss Park Trail	1,270	0.24	2010
Emma Jean Heights	1,029	0.19	2008
Hawthorne Ln Connector	1,257	0.24	2002
Highway 3 Trail	2,105	0.40	2009
Ironwood Subdivision Trails	12,240	2.32	2005 & 2006
Jim Dutcher Trail	31,682	6.00	1998 & 2002
Josephine Crossing Trail	1,272	0.24	2006
King Ave E Trail	10,433	1.98	2008
Kings Green Trail	950	0.18	2007
Kiwanis Trail	10,270	1.95	1997
Lake Elmo	2,525	0.48	2010
Pioneer Park	1,622	0.31	
Rehberg Estates	6,211	1.18	2003
Rimrock Rd Trail	8,741	1.66	2009
Riverfront Park Trail	3,363	0.64	
S Billings Blvd Trail	3,597	0.68	2004
Shiloh Rd Trail	24,359	4.61	2010
Swords Park	15,298	2.90	2004 & 2011
Swords Park Connector	2,261	0.43	2009
Zimmerman Trail	6,770	1.28	2007
Total Miles of Multi-Use Trails		**35.44**	

5.1.1 Notable trails in Billings

Over the last decade the Billings trail network has matured to the point where there are several key trails that serve as destinations for its residents. The following are the major trail segments (2 miles or more) that are existing in Billings.

Figure 5.2 – Existing Bikeways and Trails in the Billings Area

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Swords Park Trail (2 Miles)

The Swords Park Trail is the signature trail of the Billings trail system. This trail is situated on the top of the rimrocks east of the airport and offers a great view of the city. This trail is a 10 foot wide asphalt trail. Connections will be made in 2011 to trails and underpasses created as part of Airport Road reconstruction.

Swords Park Trail

Kiwanis, Metra, and Coulson Trails (6.5 Miles)

This trail combines three projects that starts in the northern part of the Billings Bench neighborhood and ends at Mystic Park on the south-east part of Billings. This trail serves as the longest segment of trail currently in Billings. This trail is connected to a trail constructed as part of the Aronson Road project and Airport Road project with an underpass on Main Street. This trail is a 10 foot wide concrete trail.

Trail through Mystic Park

Descro, Stewart Park, Lampman, Famous Dave's, Bannister Drain Trail (4.2 Miles)
These trails were combined to create the second largest segment of trails in Billings. The trail starts at Broadwater Avenue and ends at 24th Street West just south of King Avenue West. This trail provides a connection from residential neighborhoods to the mall and other retail areas on King Avenue. This trail is a 10 foot wide concrete trail with three at-grade street crossings.

Bannister Trail

Rimrock Road, Shiloh Road, and King Avenue West Trails (6.75 Miles)
The Shiloh and Rimrock Road reconstruction projects included the creation of a 10 foot wide asphalt multi-use trail to be constructed on one side of the roadway. These three projects have created a trail that stretches from the north side of Billings to the south side on the far west side of town. This trail connects residential properties with the College of Technology, ZooMontana and commercial developments at Grand and King Avenues and Zoo Drive.

Rimrock Road Trail

5.2 Existing Connector Trails

In addition to over 35 miles of paved multi-use trails, Billings also has over 8 miles of 'Connector' trails. These trails are also paved, but are not considered wide enough for comfortable passing of multiple user groups (defined as 8 feet in width or greater). These trails complement the network of multi-use trails and are useful for connections by a variety of users. Table 5.2 – Existing Paved Connector Trails in Billings summarizes these trails.

Table 5.2 – Existing Paved Connector Trails in Billings

Connector Trail Name	Length (feet)	Length (miles)
Alkali Creek Rd Trail	2,055	0.39
Big Ditch Trail Connector	395	0.07
King Ave E Trail	4,063	0.77
Kiwanis Trail Connector	283	0.05
Lillis Park-BBWA	4,775	0.90
Lillis Park-BBWA Connector	550	0.10
Olympic & Heritage Sub Trails	28,246	5.35
Transtech Center	2,236	0.42
Total Miles of Neighborhood Trails		**8.07**

Connector Trail in Billings

5.3 Existing Soft Surface Trails

Billings also enjoys nearly ten miles of unpaved soft surface trails. These trails provide an important variety of experiences for recreational use, but they can also be utilized as commuter routes for some individuals. Table 5.3 – Existing Soft Surface Trails in Billings summarizes these soft surface trails.

Table 5.3 – Existing Soft Surface Trails in Billings

Soft Surface Trail Name	Length (feet)	Length (miles)
CEC Trail	4,266	0.81
Jim Dutcher Trail	6,098	1.15
Josephine Crossing Trail Connector	534	0.10
Lake Elmo	5,211	0.99
Norms Island	12,109	2.29
Norms Island Bridge	136	0.03
Riverfront Park Trail	4,046	0.77
Two Moon Park	17,879	3.39
Total Miles of Soft Surface Trails		**9.52**

Soft Surface Trail in Billings

5.4 Existing On-Street Bikeways

According to AASHTO's Guide for the Development of Bicycle Facilities (1999), there are several types of "bikeways." Bikeways are distinguished as preferential roadways accommodating bicycle travel. Accommodation can take the form of bicycle route designation or bicycle lane striping. The existing topography and built environment in Billings are generally supportive to walking and bicycling with generally flat routes and wide streets laid out on a grid system. These existing conditions provide a solid foundation from which to improve the on-street bikeway network.

Currently in Billings, all designated on-street bike lanes take the form of bicycle lanes. Bike lanes are a marked space along the length of a roadway for exclusive use of cyclists. Bike lanes create a visual separation between bicycle and automobile facilities, thereby increasing bicyclist's comfort and confidence. Bike lanes are typically used on major through streets with average daily traffic (ADT) counts of 3,000 or higher and should

be one-way facilities that carry bicycle traffic in the same direction as motor vehicle traffic. Table 5.4 – Existing Bike Lanes in Billings summarizes the existing roadway in Billings with bicycle lanes.

Table 5.4 – Existing Bike Lanes in Billings

Street	From	To	Length (feet)	Length (miles)
38TH ST W	Fairmeadow Court	Grand Avenue	2,414	0.46
Aronson Ave	E. Alkali Creek Road	West Hilltop Road	6,346	1.20
High Sierra Blvd	Matador Avenue	Siesta Avenue	1,234	0.23
Lake Hills Drive	Wicks Lane	End of road (north)	4,591	0.87
Rimrock Road	Virginia Lane	17th Street West	7,984	1.51
Monad Road	Lampman Trail	Stewart Park Trail	880	0.17
Pemberton Lane	Highway 10	Lake Elmo Drive	2,007	0.38
S 25th St	1st Avenue South	7th Avenue South	2,652	0.50
Senators Blvd	Governors Boulevard	Alkali Creek Road	2,638	0.50
6th Avenue South	South 27th Street	South 34th Street	2,565	0.49
South 28th Street	2nd Avenue South	11th Avenue South	3,421	0.65
North 30th Street	6th Avenue North	Grandvew Boulevard	3,737	0.71
Briarwood Boulevard	Blue Creek Road	Cardiff Road	6,273	1.19
Nutter Boulevard	Hilltop Road	Tam O'Shanter Road	6,300	1.19
Poly Drive	13th Street West	32nd Street West	12,010	2.27
Total Miles of Bike Lanes				**12.32**

Billings has recently begun to place increasing effort to the development of the City's on-street network. A total of three miles of bike lane were provided between 1994 and 2004. From 2004 through 2009 a further 2.5 miles were provided, while 2010 has seen a further 6 miles of bike lanes implemented. Bike lanes not only provide important 'commuter routes' for non-recreational trips, but they can link neighborhoods to the City's trails making the entire trail system more accessible to residents.

Existing Bike Lane on Rimrock Road

5.5 Existing Programs

5.5.1 Education Programs

Bicycle education is one of the key elements to have a successful bicycle system. It is one of the major criteria used to rank bicycle friendly communities and is also a key element in the Safe Routes to School program. Education is not only teaching people to ride lawfully and safely, but also educates about the existing facilities and the benefits of having them.

Bicycle Education Courses

Education courses have been hosted in the Billings area since 2009. The courses that have been conducted include the League of American Bicyclists curriculum, in which Billings has two certified instructors, and the International Police Mountain Bike Association curriculum, which trains police officers. These classes cover the laws pertaining to bicycles, defensive riding techniques, and safely riding with traffic. Classes have been offered to the public through BikeNet and through the Billings Recreation courses. There has been little attendance in these courses because many people believe they know how to ride a bicycle. However, experienced riders that have participated in the courses state they have learned from these courses and feel safer riding in Billings.

Safe Routes to School

Several of the Billings area schools have established Safe Routes to School programs. This program uses education, encouragement, engineering and enforcement to help children commute to school using active modes of transportation. Because education is the main purpose of the school system, it is a highly important piece of the Safe Routes to School program. One example of a local education strategy is the Lockwood School District who hosted a course for physical education teachers to learn how to teach bicycle safety as part of the curriculum. Contact your local school for a copy of their Safe Route to School educational strategies.

Family on Bike and Walk to School Day

Public Service Announcements

To help educate the public that may not be interested in taking an education course, BikeNet, a local advocacy group, sponsored video PSA's to air on the local television stations. The PSA's were commercials not more than two minutes in length that made people aware of sharing the roadway with bicyclists. Another set of PSA's that have run are part of the "Go Play" campaign. This campaign included billboards, newspaper advertisements, website, video and audio commercials. The "Go Play" campaign was originally funded through a Safe Routes to School grant and private sponsorship. The campaign was created by marketing students at Montana State University- Billings. They created PSA's that talked about the benefits of trail system, both health and economically.

Go Play and Heritage Trail Maps

There are two maps for the Billings area that show the trail system, the "Go Play" maps and the "Heritage Trail" maps. The "Go Play" maps show just the trails and bike lanes as part of the bicycle system, where the Heritage Trail maps also show bikeways. Both maps highlight park lands and points of interest, with the Heritage Trail maps going into more detail. These maps are to educate users of where you can ride and encourage them to utilize the system.

5.5.2 Encouragement Programs

The famous saying, "If you build it, they will come" is somewhat truthful. More accurately, "If you build it, and tell people about it, they will come." Yet, to increase usage of the existing facilities, encouragement strategies are needed. In Billings, statistics show that with the increased usage of the trail system, there have been fewer bicycle crashes per user. Other added benefits include reduced traffic congestion, a healthier community, and economic benefits. There have been several successful encouragement events that have been conducted in the Billings area that have added awareness to the trail system, with few concentrating on encouraging on-street bicycle use.

Bike, Walk, Bus Week

Billings for many years has hosted Bike, Walk, Bus Week that falls in coordination with National Bike to Work week. This week encourages people to use alternate modes of transportation to commute to work. The highlight of the week has been the Sneaker, Spokes and Sparkplugs challenge. This is a race between a person walking, biking and driving a car to complete several errands in Downtown Billings. The basis of this challenge is to create awareness that the active transportation methods can be faster than using a car in Downtown Billings.

Trail Trek Participants in 2009

Trail Trek

Every spring, Trail Trek is a joint event hosted by the City of Billings and BikeNet that encourages people to ride together on the trail system and enjoy live music and entertainment along the way. The event is open to all ages and riding as a family is encouraged. This event aims to create awareness on how the trail system can be used as family activity.

Ales for Trails

For the last 10 years, BikeNet has hosted an event to raise money and celebrate the trail system in Billings. This event takes place in the fall. The event educates the public on the existing trail system. Bicycle valet was offered at the 2010 event to encourage people to ride their bicycle to and from the event. This event keeps growing each year and raises a large sum of money that is reinvested into the trail system.

Ales for Trails 2009

Women's Encouragement

Women are often less comfortable with bicycling (particularly in traffic) than men, and may be intimidated at bicycle shops, which are often aimed at sporty, knowledgeable riders and staffed by young, athletic male employees. A 'Ladies Night Out' run by 'The Spoke Shop' currently covers topics such as maintenance basics, bike cleaning, riding in the rain and dark, shopping by bike, or commute tips. The Vela Bella women's bike rides in the summer currently exist and provide a more comfortable experience to women with a 'no drop' policy. There is a specific Vela Bella ride in September that is sponsored.

Community Trail Openings

Whenever new segments of trails are opened, the city hosts a ribbon cutting ceremony to recognize the parties responsible for making that trail happen. This opening attracts people to ride the new trails and helps to gain media attention to the growing trail system. This event is usually organized by the Alternate Modes Coordinator contracted by the City of Billings.

Big Ditch Trail Dedication – December 6th, 2007

6 On-Street Bikeway & Trail Recommendations

This chapter describes the proposed system of on-street bikeways and trails for the Billings area. The proposed system was developed based on the public outreach efforts described in **Appendix A**, the results of the Alta StreetPlan model, and field observation. The following criteria and design parameters were used in developing the proposed system of bikeways and the priority list of bikeway projects.

6.1 Bikeway Selection Criteria

The development of the proposed system of on-street bicycle routes took into account the broader goals of Chapter 2 Vision, Goals & Objectives. In particular, the recommendations emphasize a safe, comfortable, convenient and highly-connected bikeway system that meets the transportation and recreation needs of the broad range of bike riders, while balancing the needs of other transportation types including automobiles, train, transit and pedestrians. In particular, factors considered during development of the proposed system map include:

Needs assessment – The location and attractiveness of existing bicycle routes, bicycle travel and trail facilities within the Billings area was reviewed. Specific parameters included access to parks, public facilities, schools, employment centers, residential and non-residential land use; population and employment densities, and roadway conditions including number of lanes, capacity and speed.

System Coverage – The proposed system considers balanced access from the City's population centers for both commuting and recreation purposes. In general, Billings has a fairly uniform built environment and street configuration, the recommended bikeway network maximizes potential within the existing grid system.

Safety – The proposed system provides the highest level of safety possible taking into account bicycle travel and bicycle crossings of major roadways.

Connectivity – The proposed system provides connections between residential areas, schools, parks, public transit stops, shopping centers, employment centers, with an emphasis on connections to major activity centers and multimodal transfer locations.

Connections to Adjacent Jurisdictions – The proposed system connects the City of Billings to surrounding communities such as Lockwood and Laurel.

Projects of Local/Regional Significance – Many projects, including some that cross jurisdictional boundaries have the potential to create regionally significant bike facilities. Certain trail corridor's have shown to have special significance with the public and have been given careful consideration in the planning process. Table summarizes the facility recommendations proposed within the Billings Area Bikeway and Trail Master Plan. Figure 6.1 – Proposed Bikeway and Trail Network depicts future bikeways and trails in the Billings Area.

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Figure 6.1 – Proposed Bikeway and Trail Network

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Table 6.1 – Proposed Miles of Bicycle or Trail Facilities by Type

Facility Type	Number of Segments	Miles
On-Street Bicycle Lanes	*56*	*79.8*
Bicycle Routes	*13*	*12.7*
Bicycle Boulevards	*8*	*8.8*
Trails	*64*	*150 (approximate)*
Totals:	*141*	*251 (approximate)*

6.2 Recommended Bicycle Lanes

The recommended network of bicycle lanes forms the core of the overall network. Bike lanes defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes in other jurisdictions are generally found on major arterial and collector roadways and are four to seven feet wide. Bike lanes can be found in a large variety of configurations, and can even incorporate special characteristics including coloring and placement if beneficial. The 2009 update to the Manual of Uniform Traffic Control Devices no longer requires the use of the R3-17 'Bike Lane' sign.

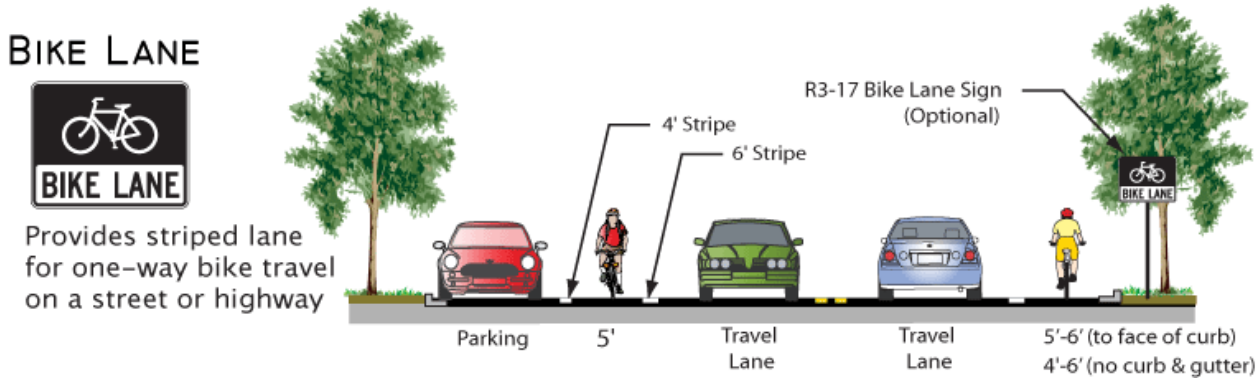

Figure 6.2 – Typical Bicycle Lane Configurations

Bike lanes enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions and facilitate predictable behavior and movements between bicyclists and motorists. Bicyclists may leave the bike lane to pass other bicyclists, make left turns, avoid obstacles or debris, and to avoid other conflicts with other roadway users. In the Billings area, bike lanes represent the greatest opportunity for continuous dedicated bicycle facilities and connections between outlying areas and the downtown area.

6.2.1 StreetPlan Analysis

A critical component of the bike lane analysis was the use of Alta Planning + Design's 'StreetPlan' model. The StreetPlan model is a method to determine how an existing roadway cross section can be modified to include bike lanes. Assuming acceptable minimum widths for each roadway element, the model analyzes a number of factors including strategies to retrofit bike lanes on each surveyed roadway segment. Factors used in this analysis include:

- Current roadway width
- Raised or painted median
- Number and width of travel lanes
- Presence and number of turn lanes and medians
- Location and utilization of on-street parking

In some cases, the retrofit is simple and only requires the addition of a bike lane in readily available roadway space. In other circumstances a retrofit may be more challenging and require the narrowing of a travel lane, the removal of on-street parking or a more detailed engineering study. This model is useful as it clearly illustrates locations where projects can be completed easily and locations where adding bike lanes may be challenging. Retaining a uniform roadway configuration throughout a corridor can simplify travel for motorists and cyclists alike creating a safer and more comfortable experience for all users.

Example of StreetPlan output

It is recognized that acceptable lane widths vary by functional classification, for example 10 foot travel lanes may be acceptable for a local street, but higher speed arterials may require 11 feet as the minimum lane width. For the purposes of the model, acceptable minimum roadway dimensions were set at the following:

- Travel lane width: 11 feet
- Right turn lane width: 10 feet
- Left or Center Turn Lane width: 10 feet
- Parking lane width: 7.5 feet

MDT maintained facilities have slightly different minimums including:

- Travel lane width: 11 feet
- Right turn lane width: 12 feet
- Left or Center Turn Lane width: 11 feet
- Parking lane width: 8 feet

Where existing roadway dimensions were extremely close to allowing bike lanes the above standards were examined through supplemental field work. In some cases an adjustment was made to the aerial photo measurements to more accurately reflect actual conditions. It is possible that to implement some projects the City of Billings or MDT may consider reducing the lane widths indicated above.

StreetPlan Outcomes

Many segments of Billings' roadway network resulted in multiple potential strategies for accommodating bike lanes. The model layers these potential strategies based on ease of implementation and desirability. The layering order used for the Billings area is based on the following strategies:

1. Bike lanes will fit with existing roadway configuration

2. Reconfigure travel lanes and/or parking lanes
3. Consider 4 to 3 Road Diet
4. Remove redundant on-street parking and stripe bike lanes
5. Remove a lane of on-street parking to accommodate bike lanes
6. Add additional pavement width (no existing curb or gutter)
7. Bike lanes can not be accommodated easily – engineering solution needed.

Based on this order, the StreetPlan model uses the first strategy for a given segment of roadway and is given priority over succeeding strategies. Not all of the options were possible strategies for all segments, but on many segments multiple strategies could be used to implement bike lanes.

Bike Lanes Fit With Existing Roadway Configuration

In this option, enough surplus road space exists to simply add the bike lane stripes and stencils without an impact on the number of lanes or configuration of the roadway. This is by far the most desirable and easily implemented option available. Billings has a surprising number of roadways that this strategy is possible over. Such segments represent the 'low hanging fruit' of the recommended on-street bikeway network.

Reconfigure Travel Lanes and/or Parking Lanes

In this option, bike lanes can be added by simply adjusting wide travel lanes or parking lanes within the established minimums presented above. No reduction to the number of travel or parking lanes is needed.

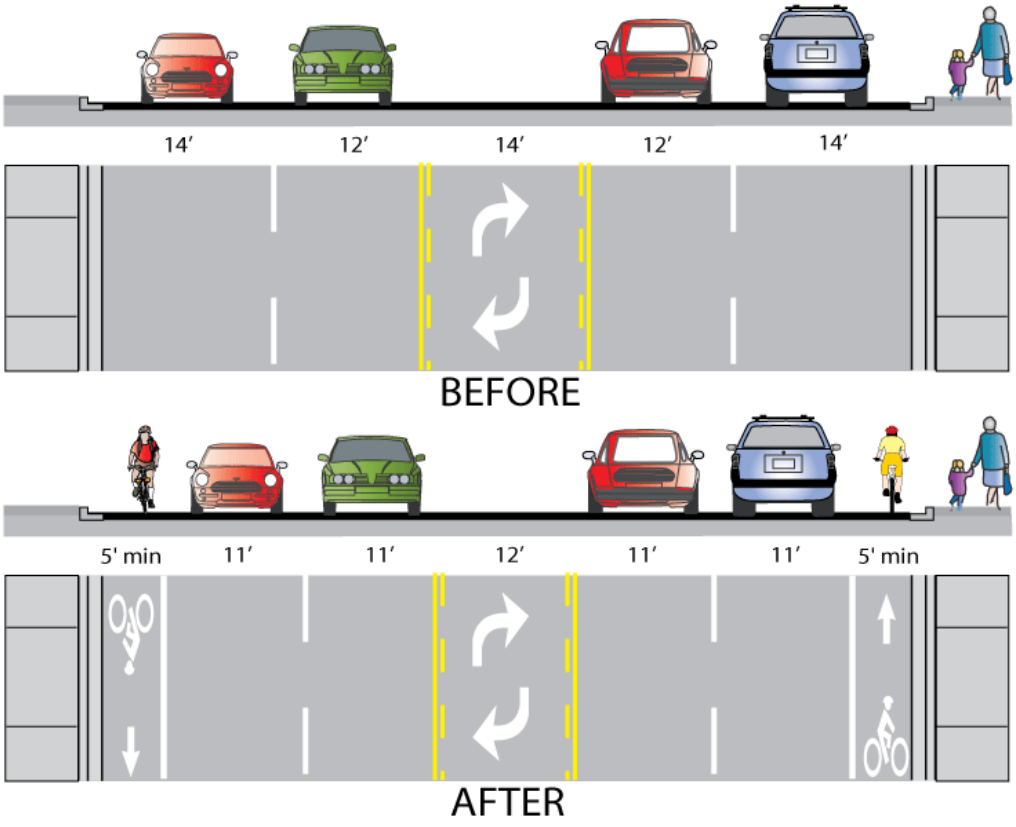

Figure 6.3 – Bicycle Lanes Added Through Lane Narrowing

Consider 4 to 3 Road Diet

In this option, a four-lane road section is 'put on a diet' and reconfigured to include a single travel lane in each direction and a two way left turn lane. Three lane road sections have operational and safety benefits to for motorists by facilitating left turns and reducing rear end collisions. Road diets can be strong candidates for roadways with traffic volumes below 20,000 vehicles per day. In some instances road diets have been successful on roads with 23,000 vehicles per day.

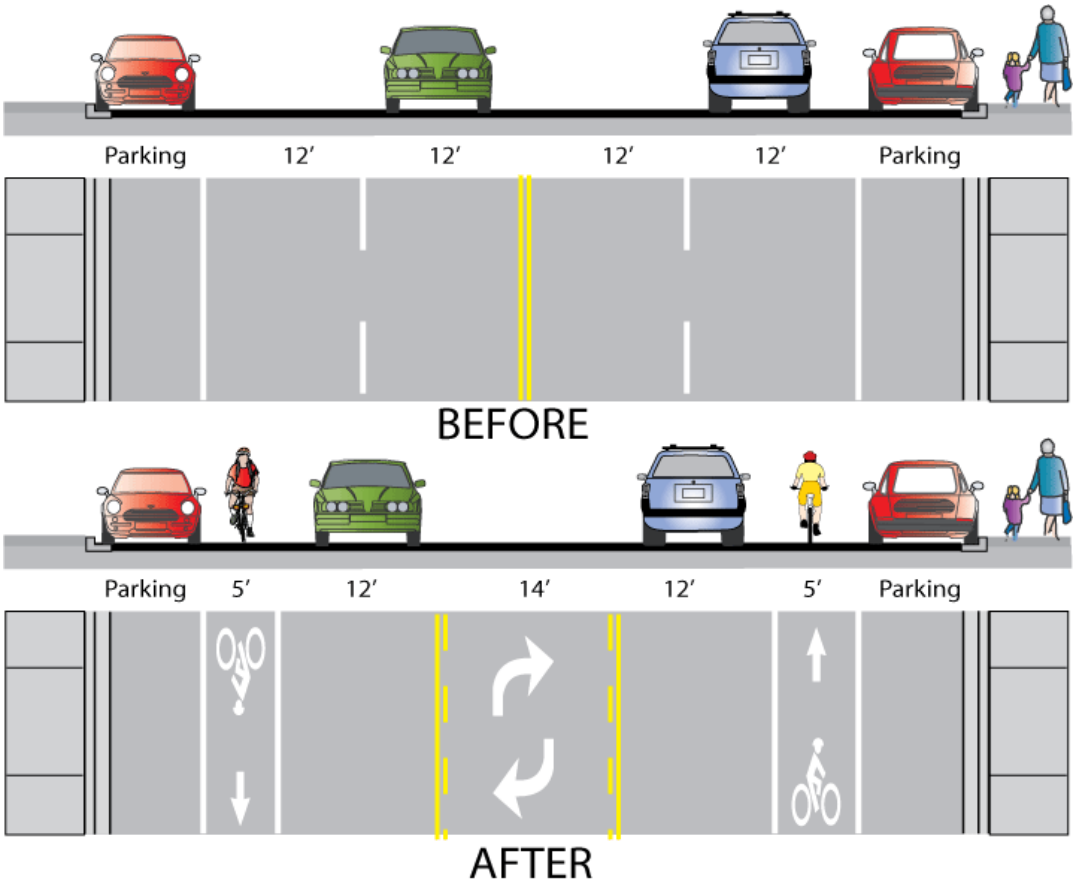

Figure 6.4 – Road Diet

Remove Redundant or Unneeded On-Street Parking

In this option, unnecessary on-street parking on one side of the street is removed to create space for bike lanes. Acceptable situations for this scenario include collector or arterial roadways that pass by back fences of homes rather than the front sides, or areas that have large surface parking lots adjacent to existing on-street parking.

Remove On-Street Parking

In this option, on-street parking may be removed on one side of the road. However this on-street parking configuration may currently be utilized in residential or commercial areas. This option is seen as a less desirable option and may only be considered as a last resort in short sections to maintain bike lane continuity. A full parking study should be conducted to determine if excess parking capacity exists before making changes to the roadway configuration.

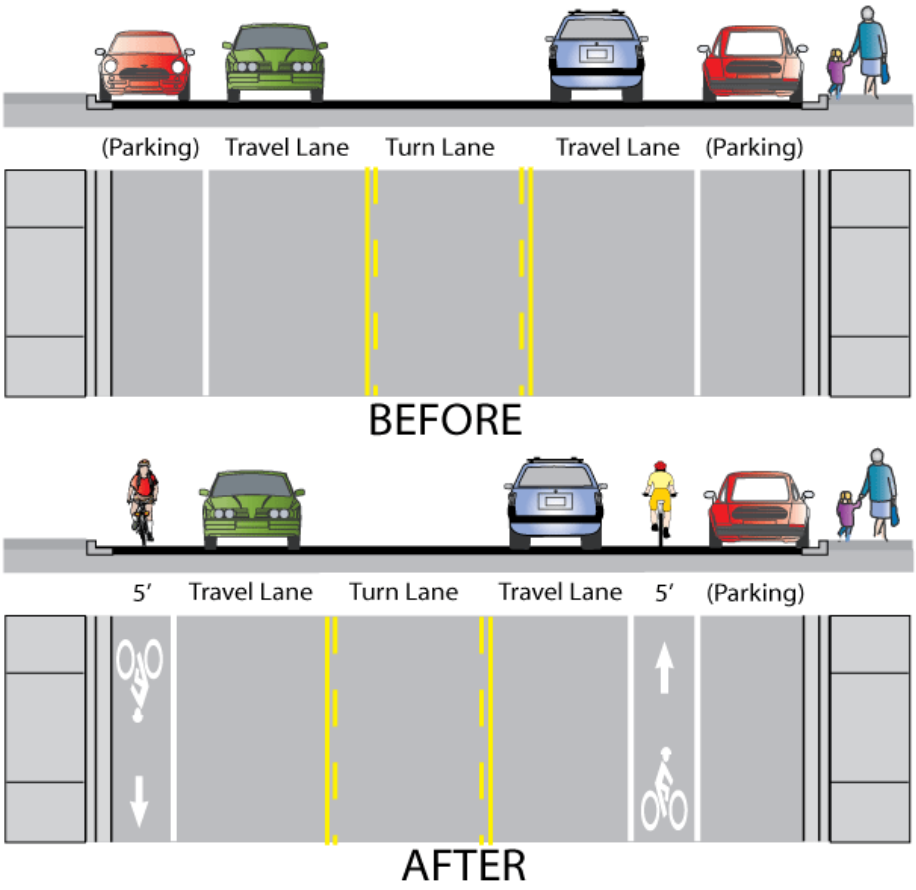

Figure 6.5 – Bicycle Lanes Added Through Parking Removal

Add additional pavement width

In this option, if the roadway has no existing curb and gutter it can be effective to add additional shoulder width thereby providing sufficient space to stripe and designate a bicycle lane. Potential candidates for this treatment include rural or otherwise unimproved roadways that will not be reconstructed in the near future to a higher standard.

Figure 6.6 – StreetPlan Outcomes displays the results of the above analysis on all collectors and arterials within the Billings city limits. This analysis represents only what is physically possible within the existing roadway dimensions and does not reflect the final recommendations provided in Table 6.2 – Proposed Bicycle Lanes in the Billings Area.

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Figure 6.6 – StreetPlan Outcomes

Table 6.2 – Proposed Bicycle Lanes in the Billings Area

Corridor	Length (miles)	Limit 1	Limit 2	Recommended Strategy
Bitterroot Dr	2.17	Yellowstone River Rd	Plateau PL	Add Pavement
Riverside Rd	1	King Ave E	State Ave	Add Pavement
Central Ave	2.54	Shiloh Rd	19th St W	Add Pavement
King Ave E	1.7	Orchard Ln	Sugar Ave	Add Pavement
Sugar Ave	0.7	State Ave	King Ave E	Add Pavement
S Billings Blvd/Blue Creek Rd	2.9	Midland Rd	Briarwood Blvd	Add Pavement
Wicks Ln	1	Bench Blvd	Bitterroot Dr	Add Pavement
S 34th St	0.5	1st Ave S	State Ave	Add Pavement
Rod and Gun Club Rd	0.54	Ironhorse Trail	Airport Rd	Add Pavement
Yellowstone River Rd	1.23	Bitterroot Dr	Bench Blvd	Add Pavement
High Sierra Blvd	0.37	W Wicks Ln	Siesta Ave	Add Pavement
Lake Elmo Dr	2.3	Robertson Rd	Hwy 10 W	Road Diet
Central Ave W	1.67	19th St W	Access St	Road Diet
State Ave	1.52	1st Ave S	S 27th St	Road Diet
Hilltop Rd	0.26	Bench Blvd	Hwy 10 W	Road Diet
Virginia Lane	0.47	Poly Dr	Ave E	Remove Parking
5th St W	0.96	Montana Ave	Grand Ave	Remove Parking
11th Ave N	0.71	N 32nd St	N 22nd St	Remove Parking
Jackson St	0.89	State Ave	Murphy Ave	Remove Parking
13th St W	1	Poly Dr	Lewis Ave	Remove Parking
19th St W	1.37	Parkhill Dr	Central Ave	Remove Parking
8th St W	1.39	Parkhill Dr	Central Ave	Remove Parking
Lewis Ave	2.95	N 24th Ave	Division St	Remove Parking or provide uphill bike lane & sharrows
Parkhill Dr	2.03	N 32nd St	19th St W	Remove Parking or provide uphill bike lane & sharrows
Rimrock Rd	1.97	17th St W	Edmond St	Remove Parking
King Ave E	1.38	Laurel Rd	Orchard Ln	Remove Parking
N 27th St	0.96	Rimrock Rd	6th Ave N	Reconfigure
S 27th St	1.3	1st Ave S	Garden Ave	Reconfigure
S. Billings Blvd	1.1	Laurel Rd	Midland Rd	Reconfigure
Zimmerman Trail	3.8	Rimrock Rd	Gabel Rd	Reconfigure
Wicks Ln	2.5	Bench Blvd	High Sierra Blvd	Reconfigure
Poly Dr	0.98	N. 30th St	11th St W	Reconfigure
Alkali Creek Rd	0.24	Hwy 10 W	Airport Rd	Reconfigure

Corridor	Length (miles)	Limit 1	Limit 2	Recommended Strategy
Zoo Dr	0.91	40th St W	I-90 Frontage	Reconfigure
46th St W	0.5	Rimrock Rd	Rangeview Drive	Ready
Rehberg Ln	1	Rimrock Rd	Grand Ave	Ready
Colton Blvd	1.5	Rehberg Ln	17th St W	Ready
Grand Ave	1.9	Shiloh Rd	Forest Park Dr	Ready
Broadwater Ave	1.6	35th St W	N 24th St W	Ready
17th St	1	Rimrock Rd	Grand Ave	Ready
Poly Dr	0.56	11th St W	Emerson Pl	Ready
HWY 3	3.92	Zimmerman Trail	N 27th St	Ready
E Airport Rd	2.68	HWY 3	Alkali Creek Rd	Ready
Governors Blvd/WHilltop Rd/Hilltop Rd	2.35	W Wicks Ln	Main Street	Ready
Babcock Blvd	0.93	W Wicks Ln	Governors Blvd	Ready
N 22nd St	0.47	Burnstead Dr	6th Ave N	Ready
9th Ave N	0.71	N 32nd St	N 22nd St	Ready
6th Ave N	1.96	Grand Ave	Exposition Dr	Ready
4th Ave N	2	Division St	Exposition Dr	Ready
N 18th St	0.35	6th Ave N	1st Ave N	Ready
1st Ave N	1.64	Division St	N 13th St	Ready
Orchard Ln	0.88	Frances Ave	King Ave E	Ready
Monad Rd	3	S Shiloh Rd	Daniel St	Ready
N 25th St	0.5	6th Ave N	Minnesota Ave	Ready
S 20th St W	0.51	Monad Dr	King Ave	Ready
S 24th St W/Gabel Rd/	2.53	King Ave W	Zoo Dr	Ready
Total:	**79.8**			

6.3 Bicycle Routes & Bicycle Boulevards

The recommended network of bicycle routes forms a secondary network to the primary bike lane network. Bike routes provide a less congested experience that many less experienced bicyclists prefer over on-street bike lanes. Billings has a well connected grid of secondary local roadways that suit the designation of bike routes and bicycle boulevards perfectly. Bike Routes are defined as facilities shared with motor vehicles. They are typically used on roads with low speeds and traffic volumes (typically 3,000 ADT or less), although they can be used on higher volume roads with wide outside lanes or wide shoulders. Bike routes can be established along "through" routes not served by shared-use paths or bike lanes, or to connect discontinuous segments of bikeway (normally bike lanes). A motor vehicle driver will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

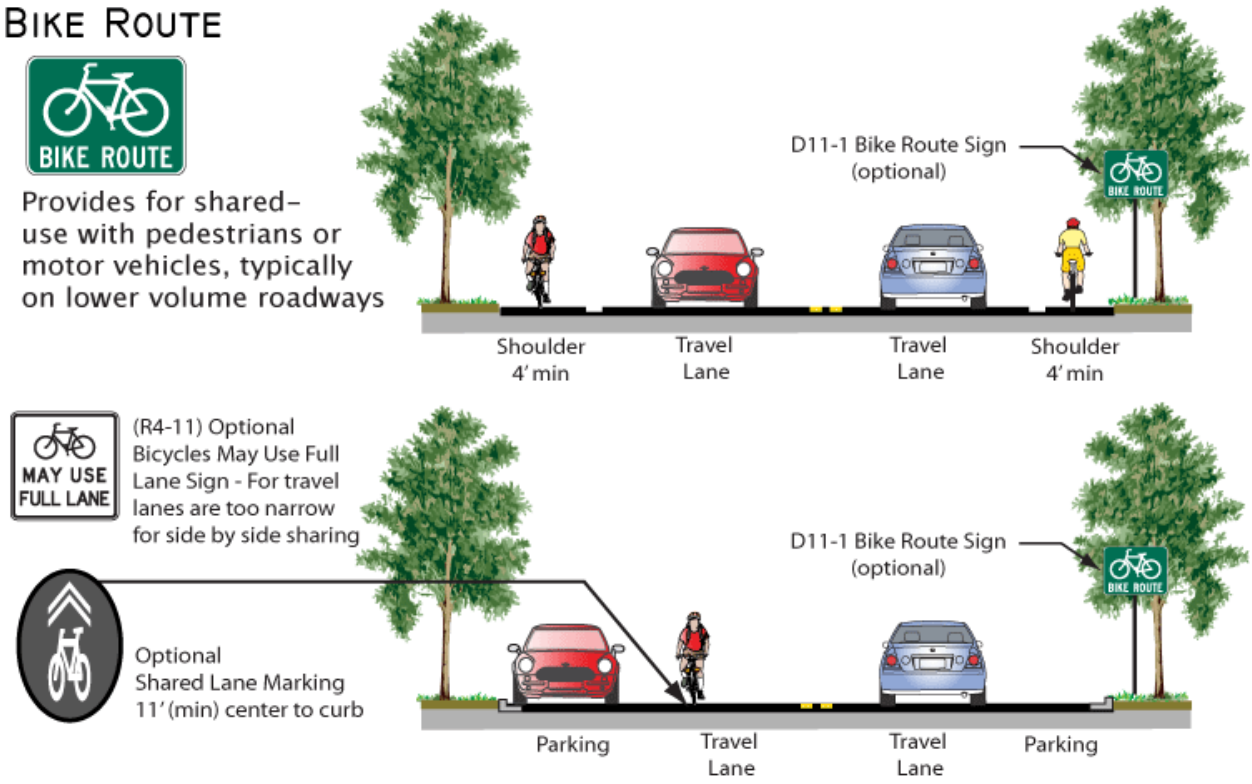


Figure 6.7 – Typical Bicycle Route Configurations

Bicycle routes can employ a large variety of treatments from simple signage to complex treatments including directional signage, various types of traffic calming applications and/or pavement stenciling. The level of treatment to be provided for a specific location or corridor depends on several factors. Unique Bicycle Route Signage that can incorporate wayfinding provides a sense of place is recommended in lieu of the D11-1 Bike Route Sign to create added emphasis and a sense of place. With more intensive treatments, bike routes can become known as 'Bicycle Boulevards'.

Example of bicycle route sign with wayfinding in Bozeman

Table 6.3 – Proposed Bicycle Routes Within the Billings Area

Corridor	Length (miles)	Limit 1	Limit 2	Classification
Crist Dr	.34	Main Street	Yellowstone River Trail	Bike Route
Avenue C	.3	3rd St W	N 32nd St	Bike Route
15th St W	1.9	Parkhill Dr	Monad Rd	Bike Route
28th St W	.55	Grand Ave	Broadwater Ave	Bike Route
10th St W	1.4	Parkhill Dr	Central Ave	Bike Route
Wingate Ln	.52	Rimrock Rd	Colton Blvd	Bike Route
12th St W	.75	Lewis Ave	Central Ave	Bike Route
Simpson St	.,87	Newman Ln	Jackson St	Bike Route
13th St W	.25	Rimrock Rd	Poly Dr	Bike Route
Virginia Ln	.26	Rimrock Rd	Poly Dr	Bike Route
Lewis Ave	.4	N 24th St W	Parkview Dr	Bike Route
Wentworth Dr	1.4	Annandale Rd	Wicks Ln	Bike Route
Calendula Cir-Butterfly Lake Ln	.73	Nutter Blvd	Uninta Park Dr	Bike Route
Total:	**8.8 miles**			

Bicycle boulevards take the shared roadway bike facility to a higher level, creating an attractive, convenient, and comfortable cycling environment that is welcoming to cyclists of all ages and skill levels (Figure 6.8 – Example Elements of a Bicycle Boulevard). In essence, bicycle boulevards are low-volume and low-speed streets that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction, signage and pavement markings, and intersection crossing treatments. These treatments allow through movements for cyclists while discouraging similar through trips by non-local motorized traffic. Motor vehicle access to properties along the route is maintained. Not all elements depicted in Figure 6.8 may be applicable on a given bicycle boulevard. Many bicycle boulevards will have very little intensive treatment and can rely on wayfinding signage and stenciling. Table 6.4 – Proposed Bicycle Boulevards Within the Billings Area identifies street segments appropriate for bicycle boulevards.

Table 6.4 – Proposed Bicycle Boulevards Within the Billings Area

Corridor	Length (miles)	Limit 1	Limit 2	Classification
Berthoud Dr - Santa Fe Dr	.69	Monad Rd	St Johns Ave	Bicycle Boulevard
2nd St W	.82	Ave C	Miles Ave	Bicycle Boulevard
4th Ave S	.92	S 27th St	State Ave	Bicycle Boulevard
Avenue D	2.02	21st St W	Virgina Ln	Bicycle Boulevard
Miles Ave – Terry Ave	3.3	28th St W	Montana Ave	Bicycle Boulevard
Yellowstone Ave	2.9	22nd St W	Division St	Bicycle Boulevard
N 32nd St	.82	Grand Ave	Poly Dr	Bicycle Boulevard
Kootenai Ave – Constitution Ave	1.2	Calico Ave	Nutter Blvd	Bicycle Boulevard
Total:	**12.7**			

As the popularity and usage of bicycling in Billings grows, the City may find it necessary to add additional treatments to the network of bike routes (listed in Table 6.3) upgrading them to bicycle boulevards. Additional guidance for bicycle boulevards can be found in Alta Planning + Design's "Bicycle Boulevard Planning & Design Guidebook" (view at: http://www.altaplanning.com/bike+blvd+guidebook.aspx)

6.4 On-Street Signal Detection and Actuation

Adequately accommodating bicyclists at traffic signals can be challenging for traffic engineers as the needs and characteristics of bicycles and motor vehicles vary so greatly. This section contains guidance on bicycle considerations at traffic signals, detection of bicycles at signals, bicycle pavement markings and signage.

6.4.1 Bicycle Considerations at Traffic Signals:

Bicycles typically travel much slower than motor vehicles and can find themselves without an adequate 'clearance interval', which is the time to clear the intersection between conflicting green phases. The duration of the amber phase of signals is typically determined by the expected motor vehicle speed through an intersection. Bicyclist speeds average 10mph through intersections. Methods for accommodating bicyclists include:

- Lengthening the amber phase of the intersection slightly to allow for the slower speed of bicyclists. This should be part of the solution as longer amber phases can also encourage motor vehicles to enter intersections under this phase.
- Lengthening the 'all red' phase of the intersection. This allows any vehicles or bicyclists still in the intersection to clear it before a green phase is given to opposing traffic. The maximum length of the 'all red' phase should not generally be greater than 3 seconds. Under no circumstances should this time be extended beyond 6 seconds.

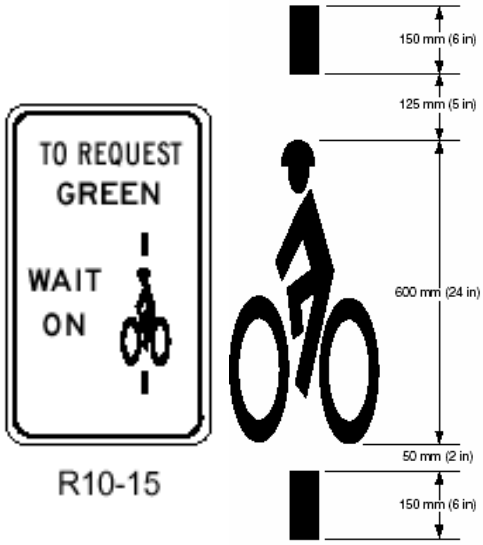
- Coordinating signals to allow for the 10-15mph propagation speed of bicyclists. Sometimes it is possible to alter signal timing to provide 'green waves' for bicyclists without significantly impeding motor vehicle flow.
- Increase in the minimum green phase. Bicyclists have slower speeds and accelerations than motor vehicles and even if they are at the stop line when a green light is given, the bicyclist may still lack sufficient time to clear the intersection before a conflicting green phase.
- Use signal detection to detect moving bicyclists. Video detection technology can be programmed to detect the presence of bicyclists and alter the minimum green phase, or the clearance interval based on their presence.

6.4.2 Loop Detectors

Bicycle-activated loop detectors are installed within the roadway to allow the presence of a bicycle to trigger a change in the traffic signal. This allows the bicyclist to stay within the lane of travel and avoid maneuvering to the side of the road to trigger a push button.

Most demand-actuated signals in Billings currently use loop detectors, which can be attuned to be sensitive enough to detect any type of metal, including steel and aluminum. Some bicycles may lack enough detectable material by the loop such as models that are mainly composed of carbon fiber or aluminum.

Current and future loops that are sensitive enough to detect bicycles should have pavement markings to instruct cyclists how to trip them, as well as signage (see right).



Recommended loop detector marking design & Instructional sign

6.4.3 Video Detection

Inductive loop detection technology may not always pick up a bicyclist's presence. If the bicyclist fails to position themselves correctly over the loop or is riding a bicycle made of alternative materials such as carbon fiber the detector may not actuate the signal. Video detection technology can detect a bicyclists presence over a larger area by using pixel analysis of an image to detect the presence of vehicles or bicycles. Changes to the detection can be made quickly with a few modifications to the software to adjust to a change in lane configuration or the addition of a bike lane.

With Video detection, disturbance to the pavement, stenciling, and signage can be avoided. Shortcomings can include poor detection in darkness (a lighted intersection solves this), and the shadows of adjacent vehicles triggering the bicycle area during certain times of day.

Video camera system costs range from $20,000 to $25,000 per intersection.

6.4.4 Remote Traffic Microwave Sensor Detection (RTMS)

RTMS is a system developed in China, which uses frequency modulated continuous wave radio signals to detect objects in the roadway. This method is marked with a time code which gives information on how far away the object is. The RTMS system is unaffected by temperature and lighting, which can affect standard video detection cameras.

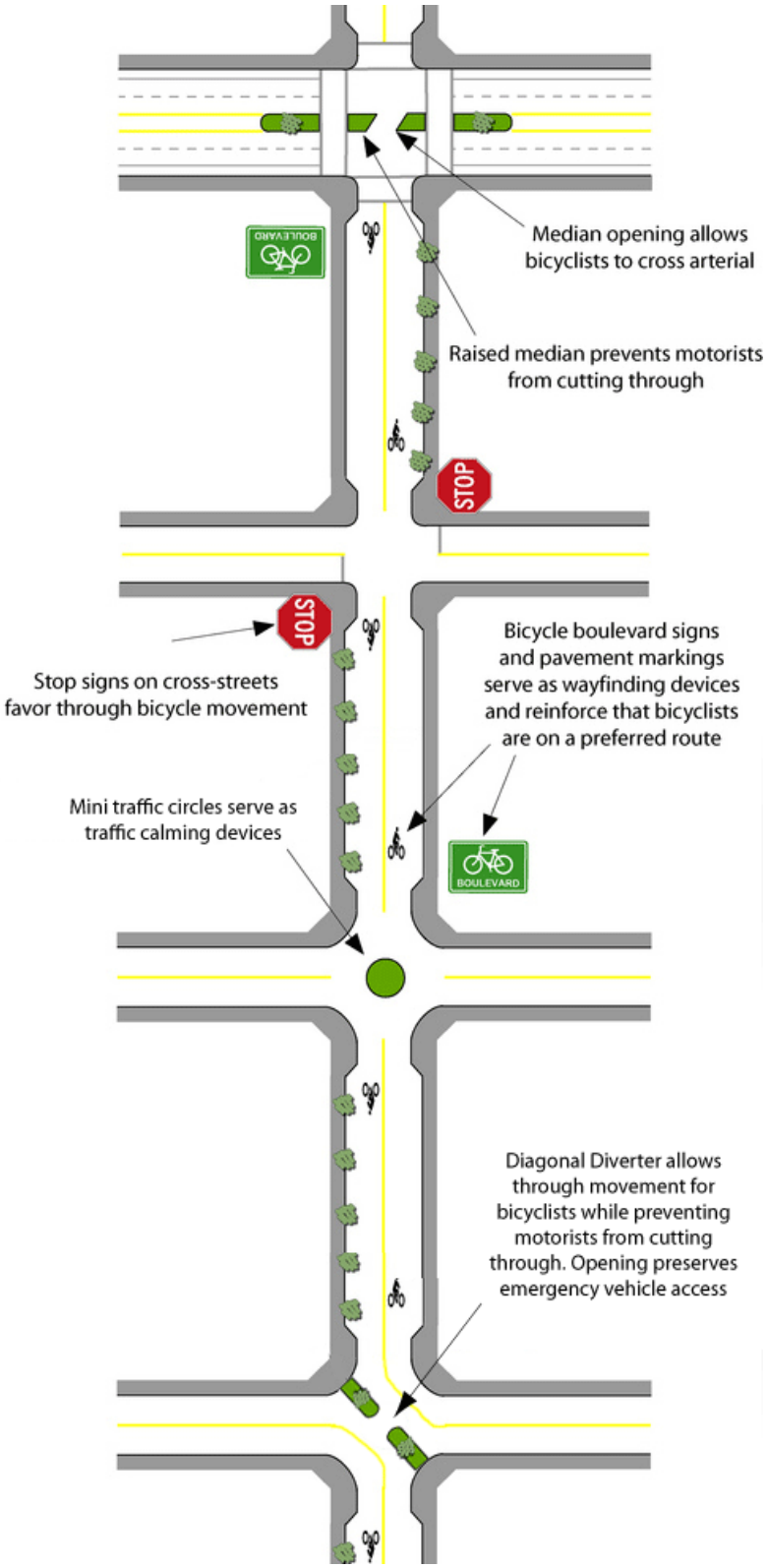


Figure 6.8 – Example Elements of a Bicycle Boulevard

6.5 Multi-Use Trails

A bicycle path (or multi-use trail) allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. Multi-use trail facilities can also include amenities such as lighting, benches, signage, and fencing (where appropriate). The recommended network of multi-use trails complements the on-street network of bikeways and is suitable for all users and ability levels.

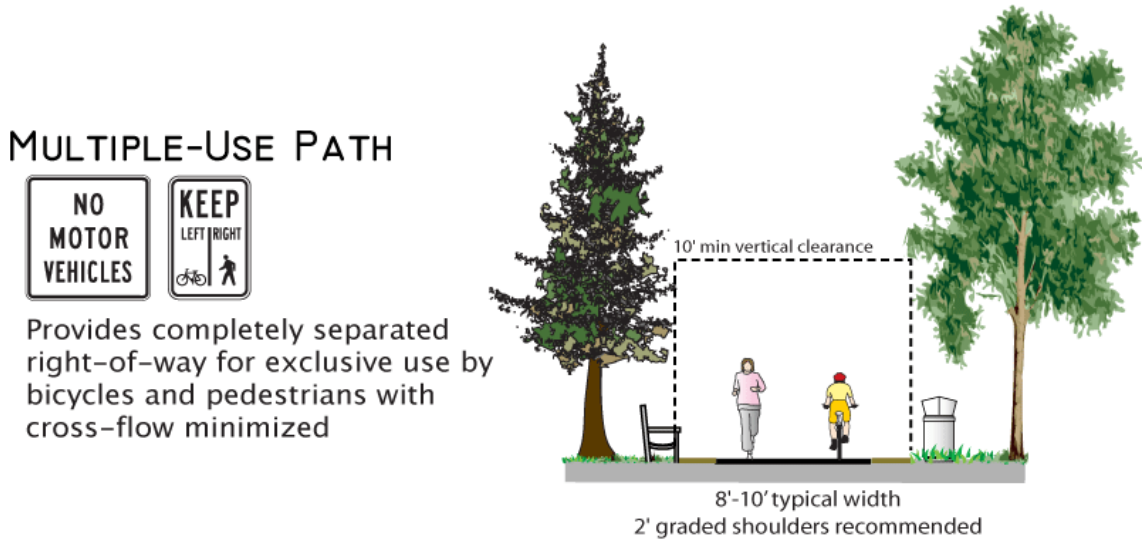


Figure 6.9 – Typical Multi-Use Path

Paved trails less than eight feet in width are known as 'Connector Trails' and are typically shorter sections of trail used to connect neighborhoods/businesses to longer multi-use trails. These trails are typically six feet in width and do not allow sufficient room for passing, or multiple uses. For the operational purposes mentioned all new recommended trails in the Billings area are recommended to be constructed to a minimum standard of 8 feet in width, for some proposed trails a recommended width of 10-12 feet may be appropriate.

In Billings, multi-use trails have been constructed along roadways such as Zimmerman Trail, King Avenue and Alkali Creek Road. Also known as "sidepaths", these facilities have unique operational challenges due to their geometric configuration at intersections. This geometry creates a situation where a portion of the bicycle traffic rides against the normal flow of motor vehicle traffic and can result in wrong-way riding when either entering or exiting the path. This can also result in an unsafe situation where motorists entering or crossing the roadway at intersections and driveways do not notice bicyclists coming from their right, as they are not expecting traffic coming from that direction. Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may frequently block path crossings. Even bicyclists coming from the left may also go unnoticed, especially when sight distances are poor.

Such facilities are not recommended where driveways or cross-streets are more frequent than 400 feet. Crossings should have high visibility pavement markings and proper signage to help clarify right-of-way.

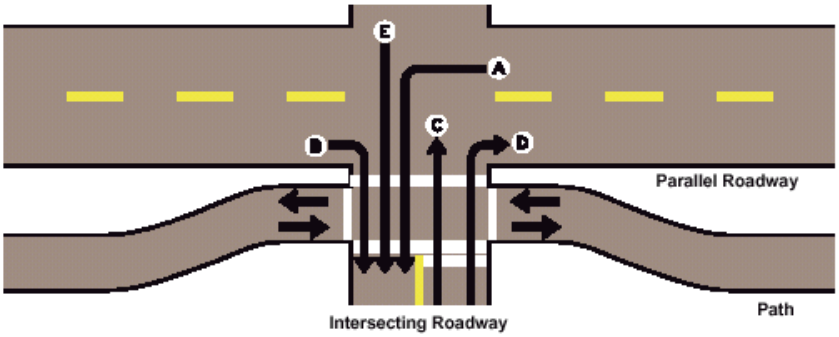


Figure 6.10 – Potential Conflict Points Along a Sidepath (AASHTO)

Table 6.5 – Proposed Multi-Use Trails within the Billings Area

Trail Corridor	Approx Length* (miles)	Limit 1	Limit 2
BBWA to Swords Park Trail	5.5	Aronson Avenue	Lillis Park
25th Street Railroad Bridge	0.5	Montana Avenue	Minnesota Avenue
ACEC Connector Trail	0.5	ACEC Trails	Mullowney Lane
ACEC Trail	0.5	Riverfront Park Trail	Josephine Crossing Trail
Alkali Creek Trail	0.5	Aronson Avenue	Black Pine Street
Arnold Drain Trail	0.5	Arnold Drain Connector	Grand Ave
Arnold Drain/ Shiloh Road Connector Trail	1	Broadwater Avenue	Shiloh Road
Big Ditch Trail	2.5	Rimrock West Trail	Hogans Slough
Birely Drain to Big Ditch Trail	3	Big Ditch and Hogans Slough	Canyon Creek
BNSF Rail with Trail	15	MRL Rail with Trail	Highway 3
Briarwood to Blue Creek School Trail	1.5	Briarwood Boulevard	Blue Creek School
Briarwood to Pictograph Caves Trail	2.5	Briarwood Boulevard	Pictograph Caves Sate Park
Broadwater Trail	0.5	Broadwater Trail Crossing	Zimmerman Trail Trail
Broadwater/ Arnold Drain Trail	1	Zimmerman Trail	Shiloh Road
Canyon Creek Trail	6	ZooMontana	BNSF Rail with Trail
Castle Rock Trail	1	Governors Boulevard	BBWA Canal
Colton Connector Trail	1	32nd Street West	38th Street West

Cove Ditch Trail	2	Molt Road	Hogans Slough
Downtown Connector Trail	1	S 25th Street and 7th Avenue South	Coulson/ Mystic Park Trail
Four Dances Connector Trail	1	Lockwood Trail	Four Dances Natural Area Trails
Heights BBWA Trail	3	Aronson Avenue	Lake Elmo State Park
Heights Upper Loop Trail	4.5	Yellowstone River	Alkali Creek Road
High Ditch Trail	4	Rimrock West Trail	Hogans Slough
Hogans Slough Trail	5.5	Shiloh Road	BNSF Rail with Trail
Inner Belt Loop Trail	6.5	Governors Boulevard	Highway 3
King Avenue Trail	1	S 44th Street West	Hogans Slough
Lockwood Trail	6	I-90	Bobolink Street and Dickie Road
Monad Trail	1	S 45th Street West	Hogans Slough
Monad Trail	2.5	BBWA Canal Trail	48th Street West
MRL Rail with Trail	9	I-90	Shiloh Road
Outer Bypass Trail	4	Interstate 90	Highway 312
Rehberg Ranch Trail	1	End of Trail in Rehberg Ranch Subdivision	Inner Belt Loop
Rimrock Road Trail	1.5	54th Street West	Cove Ditch
Senators Park Trail	1	Aronson Avenue	Inner Belt Loop Trail
Snow Ditch Trail	2	Shiloh Road	Big Ditch
South Hogans Slough Trail	1	Suburban Ditch	MRL Rail with Trail
Spring Creek Extension Trail	1	24th Street West	15th Street West
Transtech Connector Trail	0.5	Transtech Way	BBWA Trail
Two Moon Park to Five Mile Creek Trail	3	Kiwannis Trail	Five Mile Creek
Western Yellowstone River Trail	5	Josephine Crossing Trail	Shiloh Road Trail
Will James Middle School Connector Trail	0.5	Will James School	Broadwater Avenue
Yellowstone River Trail	2.5	Mystic Park Trails	Riverfront Park Trails
Zimmerman Trail	1	Highway 3	Poly Drive
Total:	**114**		

* Trail lengths are approximate and estimated to nearest half mile as exact alignemnts are subject to change.

Proposed trails shown in Figure 6.1 – Proposed Bikeway and Trail Network have varying levels of detail. Proposed trails within the Billings city limits or within other public right-of-way are depicted with an approximate alignment. Portions of proposed trails that have already been platted as part of subdivisions have alignments that are more accurately known. Trails proposed passing through unincorporated Yellowstone County or over privately held property are shown with little detail and should be considered conceptual.

Before any trail development, landowner permission will be obtained. All trail projects will be developed with consideration of the affected landowners preferences. Some trail alignments may only be constructed through land development, some may never be constructed. These alignments are subject to change and should not be used by the public until construction is complete and the project publicly dedicated.

Respect will be shown to private property rights regarding potential future trail alignments. These trails are recreational trails and while they are a nice amenity to the City of Billings and Yellowstone County, they will not take precedence over private property rights. Eminent Domain will not be used to acquire easements or property for any trail corridor that are not located within existing public rights-of-way. Representation of trails to all affected property owners will be open and candid. Property owners will be notified by the standard locally adopted means of notification. Affected property owners will be personally notified in the planning stages of trail development while revisions can still be made if necessary. Modifications to Figure 6.1 – Proposed Bikeway and Trail Network will follow in future updates to the Billings Area Bikeway and Trail Master Plan.

6.5.1 Trail Site Amenities

In addition to the proposed trails above, some supplemental facilities will be required to maximize the opportunity and experience to Billings' residents. Site amenities offer a wonderful opportunity to enhance the character and identity of the Billings trail network. Often overlooked, site amenities can offer trail users points of rest, interpretation, and contemplation resulting in a positive trail experience while providing continuity throughout the trail system. Amenities such as benches, bollards, and signage utilizing materials such as wood timbers and natural stone are recommended to promote and enhance the identity of the trail network.

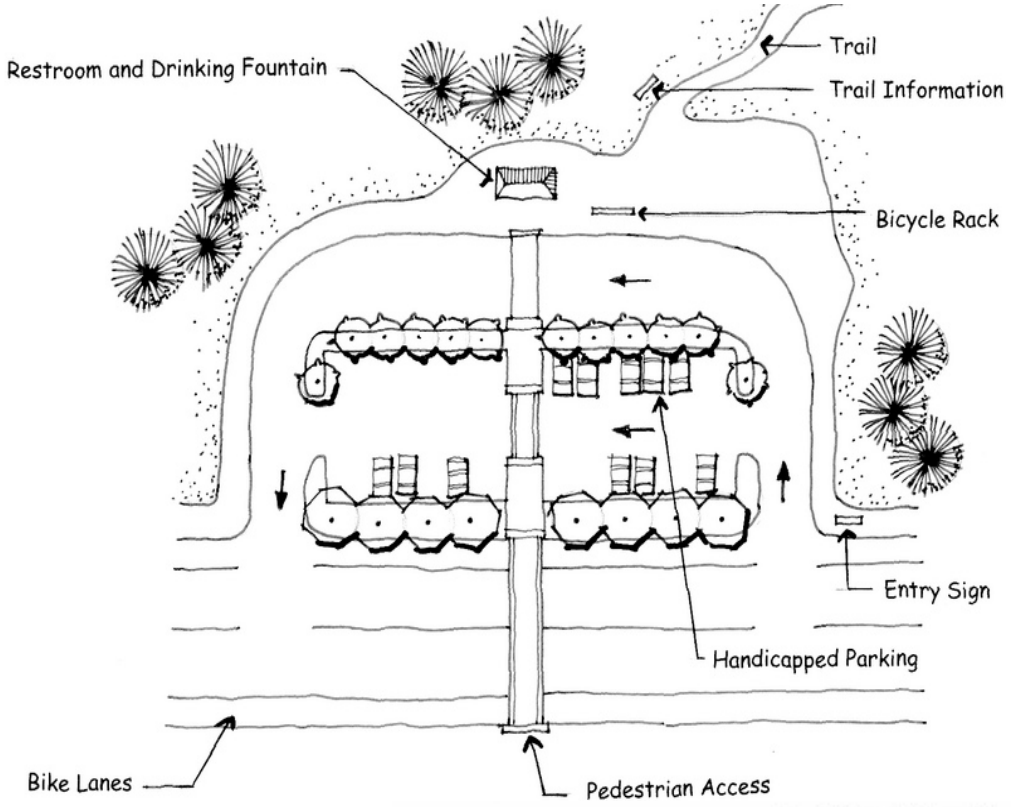
Trailheads

Good access to the trail system is a key element to its future success. Trailheads (formalized parking areas) serve the local and regional population arriving to the trail system by car. Trailheads provide the public with important access points to the trail system, especially near key interest points, or where it may be too far to walk or ride a bike from resident's homes.

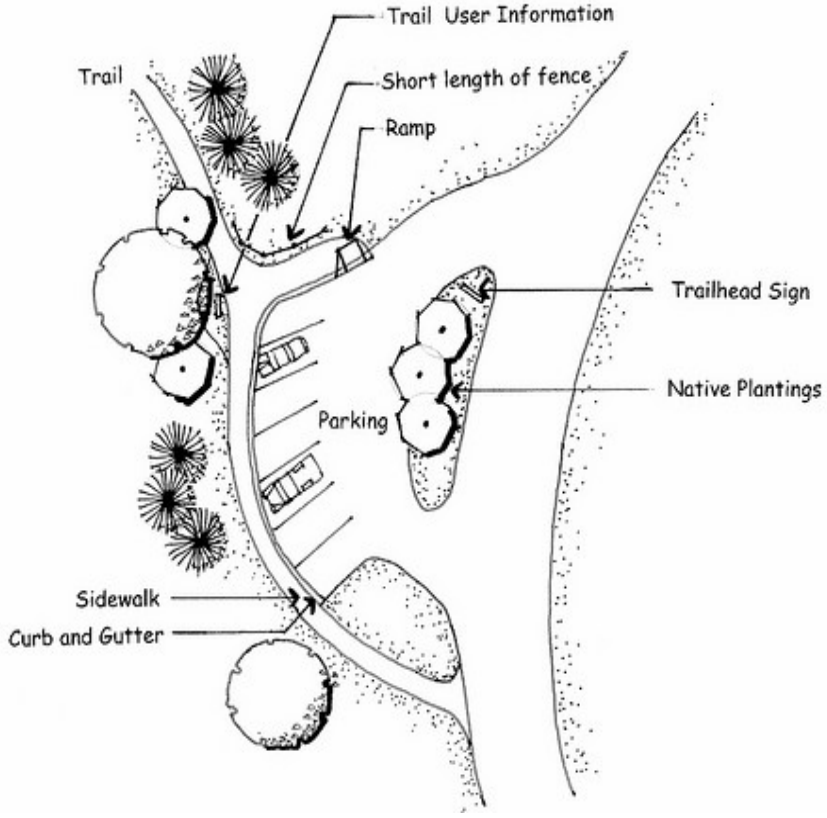
Existing Trailhead at Swords Park

A typical trailhead design should consider:

- Circulation for vehicles, pedestrians and potentially leashed dogs.
- Appropriate parking areas
- Restrooms, signage, screening, and landscaping
- Connector trails to the main trail for alternate use
- Safety and security



Major Trailhead – For more popular access points with higher usage. Has larger number of amenities



Minor Trailhead – For less intensive trail acess locations. Has fewer amenities

Additional trailheads will be needed in the Billings Area to provide new access points to the expanding network. More trailheads will accommodate a greater diversity of accessible experiences to Billings residents. Table 6.6 – Proposed Trailhead Locations details the locations of trailheads that would be beneficial to the Billings trail network.

Table 6.6 – Proposed Trailhead Locations

Proposed Trailhead	Location	Type
Confluence Trailhead	At the intersection of Aronson Ave, Alkali Creek Road and Airport Road	Major
Five Mile Creek Trailhead	Intersection of proposed trails along Five Mile Creek and Yellowstone River Trail	Minor
Cove Ditch Trailhead	Intersection of Cove irrigation ditch and Rimrock Road	Minor
Zoo Montana Trailhead	Placed near Zoo Montana	Major

Landscape

Trail alignments and surfacing must be complimentary to the surrounding landscape. Alignments that create large scars not only leave devastating aesthetic compromises, but they often cost more to construct and maintain. The vertical and horizontal alignments must take into account the type of user (transportation vs. recreation), unique environmental considerations and constructability.

Impacts due to construction or general reclamation will include the careful consideration of the vegetative cover. Ideally, the reclamation effort should reflect the same ecotypes present before disturbance. The Billings Parks Department or County Parks Board should provide input to the proper reclamation type based upon adopted policies and known future development.

Natural Areas Landscape

The Heritage Trail Plan (2004) identified several ecotypes throughout the planning area. Off-street development most commonly places trail alignments through undeveloped and natural areas. The reclamation techniques for these areas are the most difficult due to poor or non-existent soils, inadequate moisture and construction logistics.

Mitigating poor soil conditions is one of the key elements to successful native vegetation establishment. The trail designer should test the pre-development topsoil every 1500 feet along the trail alignment to determine soil texture, fertility and potential for reuse. Soil amendments, such as compost, should be blended into the native soils. Compost is expensive; however, studies have shown that it adds vital nutrients, improves soil texture and retains moisture for better establishment potential. Designers are encouraged to consult with an agronomist or landscape architect for proper soil blending techniques.

Inadequate moisture is a common problem in a region that typically receives just over 14 inches of precipitation per year. In terms of herbaceous vegetation, timing and seeding methods become critical elements of success. Billings receives the most moisture between March and June (7.22 inches or 50 percent)

and in September and October (2.39 inches or 17 percent). These months become critical to the success of the establishment.

Non-irrigated grasses ideally should be seeded in March and April when the ground is not frozen and soil temperatures are cool. The remainder of the spring seeding window could continue through June. However, seeding past that point could subject new seedlings to drying conditions and excessive heat resulting in reduced establishment potential.

Drill seeding is the preferred method of native grass establishment

Fall seeding is the next ideal time, generally in early September, but this seeding period becomes riskier as new seedlings can become prone to freezing temperatures, possibly killing off the establishment. Fall seeding after November 1, is often called "dormant seeding," as the seed lies dormant in the seed bed throughout the winter. This is a more ideal seeding situation.

Construction logistics is a major factor in successful reclamation areas. Native vegetation often takes three to seven weeks (depending on soil temperature) to germinate and establish a viable seedling. The seeding technique plays a key role in native seed establishment. Proper seed to soil contact is crucial for success. In areas that are accessible to a small drill seeder, it is recommended to drill seed native grasses. Because the seed is placed in the topsoil, it is less susceptible to dehydration, blowing away in the wind and scavenging by birds and other animals. Native grasses also have deeper root systems and placing the seed in the ground provides a better advantage for better root stage development.

In areas inaccessible by a drill seeder, broadcast seeding is the second-best solution. The seed is initially placed on top of the soil, and then is raked into the seed bed for cover. Broadcast seeding typically costs more because the seeding rate needs to be doubled over drill seeding and it is much more labor intensive. Difficulties in broadcast seeding include the equal distribution of seed throughout a given area.

Hydroseeding is generally not recommended for native grass establishment. The seed is placed into slurry and sprayed on top of the soil. The above soil placement does not take advantage of the seed to soil contact previously described. Hydroseeding does generally work on steep slopes and is most ideal during the spring seeding window.

Placement of mulch over a seeded surface does provide some advantages. Mulch can range from straw, compost to paper or fiber mulch (i.e. hydromulching).

The establishment period for native grasses can pose problems for contractors who are tasked with noxious weed control. Because native grasses tend to take a long time to establish (almost two years), weeds become prevalent until grasses choke them out. Most contractors want to close out a project after the bulk of the work is complete, with the release of performance bonds. Jurisdictions become challenged to ensure that the contractor follows through on maintenance for long periods of time.

Weed control can be accomplished through mechanical, chemical or biological means. The full establishment period can be labor cost intensive to maintain and is often the most overlooked cost item in new trail development. It is recommended that the designer or contractor develop a weed maintenance plan with each project.

A Storm Water Pollution Prevention Plan (SWPPP) will be required for projects that disturb land exceeding one acre in area.

Developed Areas

Trail corridors placed in developed parks should be enhanced to create an aesthetically pleasing experience. Unlike native grasses, parks typically have turf-type grass mixes that establish quickly. The logistics for establishment become much more controlled and the desired results occur within 30 to 60 days.

Aesthetically enhanced trail corridor

Woody vegetation, such as shade and evergreen trees and shrubs, should be placed outside of the safe sight distance triangles and far enough away from the trail to prevent trail damage from the roots. Plant stock should be planned for its mature growth and species diversity. Ideally, trees should be placed along the trail every 50 feet, similar to many street tree planting requirements. Cluster plantings of trees may be used to fulfill the same quantity requirements to utilize ideal planting conditions. Plantings should be coordinated with other amenities, such as benches and shelters.

Brownfields

Brownfields include areas such as railroad corridors, landfills and other areas with possible contaminates in the soil structures. Depending on levels of toxins found within the soil and environment, remediation may be required for trail development.

Site Furniture

Site furniture includes benches, picnic tables, bike racks and litter receptacles. Site furniture may be themed across a trail segment or as diverse as the area that a trail serves. Furniture is also an ideal way to promote businesses and sponsorships. In general site furniture should be durable, comfortable, appropriately located and secure.

Benches

Benches should be provided at a minimum of one bench for every two miles of trail and at all trailheads. Benches placed at trailheads should be embedded in concrete for permanent installations. Benches placed along trail corridors should be secured to a concrete pad to provide flexibility in their placement by the appropriate staff. Benches over four feet in length should have a center arm to discourage sleeping on the bench.

Picnic Tables

Picnic tables may be placed at trailheads or at locations with relatively easy access for refuse disposal. Tables should be secured by embedding them in concrete. New federal ADA rules recommend that at least one or twenty percent of tables in a given area should be ADA compliant.

Shade Structures

Shade structures provide microclimatic relief for trail users. These structures can also serve as a gateway between park and trail activities. Structures can be architecturally diverse throughout the trail system, adding to the cultural heritage of the corridor. The structure should be sized for the quantity users predicted along the trail. The structure should not be considered as shelter from lightening or hail.

Bench and trash receptacle

Existing picnic table and shade structure

Bicycle Racks

Bicycle racks are discussed in Chapter 7. In parks and open space areas, racks should be placed at trailheads, near picnic areas and playgrounds. Placement of racks should ensure that the secured bicycle does not protrude into the route of traffic or pedestrians.

Litter Receptacles

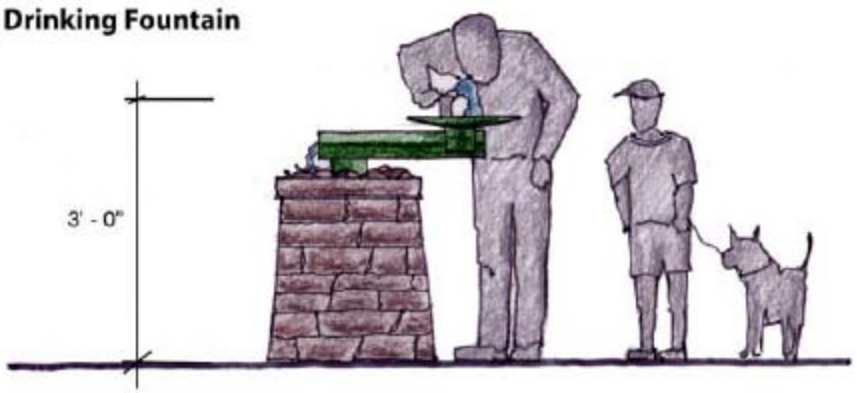
Litter receptacles are essential in promoting the tidy appearance of trail corridors. Receptacles should be placed at trail heads and along trail corridors where maintenance personnel can easily access them for dumping. In more natural areas, the receptacles should have wildlife proof lids to prevent the scavenging.

Restrooms

Restrooms should be placed at major trailheads and in community parks. The restrooms could either be a vault/portable toilet or a flushing toilet if utilities are available.

Water Fountains

Bicycling, running and walking are aerobic activities. Water fountains provide water for people (and pets, in some cases). The importance of hydration becomes a big factor in the hot dry months of July and August. Fountains should be placed in developed areas with high activity. Lake Hills Golf Course has a good example of a relatively simple fountain, hydrating mist that is located along Lake Hills Drive. This fountain only functions in the summer and can be controlled by an irrigation control timer.



Public Art

Trail corridors provide an excellent opportunity for public art installations. Art can be commissioned through local artists. This can range from sculptures, murals, site furniture and architectural design. Communities like Coeur d'Alene, Idaho have a "one percent for art" funding requirement" on their public works projects.

Public art installations need to be properly insured and may require some maintenance (murals for example).

6.5.2 Bikeway and Trail Wayfinding Program

Wayfinding is the process of using landmarks, signs, and environmental cues to help navigate and experience the bikeway and trail system. The goal of wayfinding is to create a sense of empowerment and security by providing directional cues to inform a person how to reach a destination without confusion.

Wayfinding is an important element in all circulation systems. Anyone who has ever driven a car recognizes the importance of wayfinding. Road signs direct vehicle traffic to destinations and provide information along a route reinforcing a driver's confidence as they travel to a destination. This same level of guidance is equally important to helping non-motorized users navigate through their environment.

Designing wayfinding systems for bicycles, equestrians and pedestrians should reflect specific attributes of riding and walking. Traditional elements of a wayfinding system include signs, pavement markings, and maps. Interactive web mapping and hand held digital devices are also becoming popular tools. This document provides an overview of how to develop a wayfinding system, the elements of wayfinding and best practices from national and international cities with successful bicycle and pedestrian wayfinding systems.

Elements of Wayfinding

Wayfinding elements are cost-effective and highly visible treatments that improve the walking and riding environment. Not only does wayfinding improve the legibility of the non-motorized network by identifying routes to pedestrians, bicyclists, equestrians and motorists, it also acts as a passive marketing tool that

increases awareness of the walking and riding network as well as area destinations. The following elements are common tools used in wayfinding.

Signs and Markers

Wayfinding signs and features display destinations, distances and walking and/or riding time. Signs often dispel common misperceptions about time and distance. Wayfinding elements are typically placed at key locations leading to destinations and along trail and bicycle routes, including where multiple routes intersect and at key "decision points."

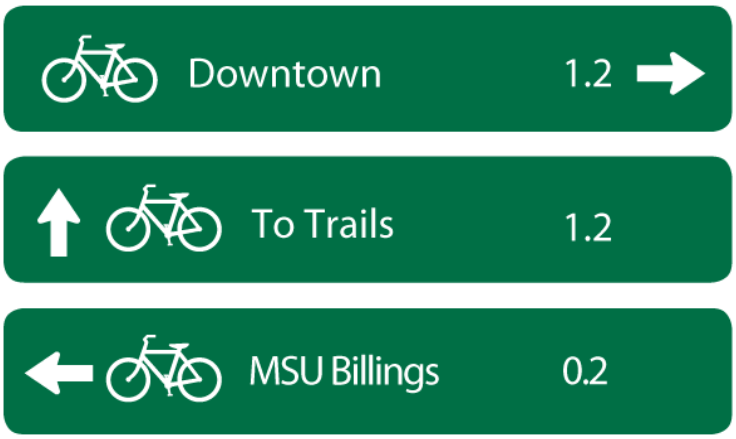
Signage can serve both wayfinding and safety purposes including:

- Helping to familiarize users with the pedestrian and bicycle network
- Helping users identify the best routes to destinations
- Helping to address misperceptions about time and distance
- Helping overcome a "barrier to entry" for infrequent cyclists or pedestrians (e.g., "interested but concerned" cyclists)

Concept of Trail Wayfinding Sign in Billings

Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Including mileage and travel time estimates minimize the tendency to overestimate the amount of time it takes to travel by bicycle or foot. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes. In its placement of signs, Billings must be aware of "sign clutter" that can diminish the effectiveness of signage overall.

- Sign Design -panel size(s), shape, material and mounting design
- Sign Graphics – symbols, icons, logos (trail, agency and/or funder), colors, themes
- Sign Text – content, font, size, colors



Concept of Horizontal On-Street Wayfinding Signs in Billings

Concept of Vertical On-Street Wayfinding Sign in Billings

Recommended uses for on-street signage include:

- Confirmation signs confirm that a cyclist is on a designated bikeway. Confirmation signs can include destinations and their associated distances, but not directional arrows.
- Turn signs indicate where a bikeway turns from one street onto another street. Turn signs are located on the near-side of intersections.
- Decision signs mark the junction of two or more bikeways. Decision signs are located on the near-side of intersections. They can include destinations and their associated directional arrows, but not distances.

Pavement Markings

- On street markings for bicyclists (bike lane stencils and bike boulevard markings)
- Sidewalk markings for pedestrians (painted, inlayed, sandblasted)
- Trail markings for a variety of trail user types

Markers

- Stone cairns
- Posts, bollards or in ground markers inlaid with directional information

Tactile and Auditory Cues

- Wayfinding for the visually impaired - tactile warning strips, material changes, auditory systems

Maps and Kiosks

- Paper maps (regional city bike maps, trail maps).

- Map kiosks – static and interactive
- Inlaid maps or art features

Interactive Web Sites

- Route planning
- Route sharing
- On-line maps and guides
- 'Smart Phone' applications

6.6 Cycle Zones Analysis

The Cycle Zone Analysis (CZA) tool allows the community to better understand which parts of the City are best suited for capturing large numbers of cycling trips, which have greater potential to do so than they are currently, which areas are best suited for strategic investments, and which areas may need innovative bikeway treatments to maximize cycling potential. By breaking the City into zones sharing similar characteristics, it is possible to capture and compare snapshots. Overall, the Cycle Zone Analysis provides:

- A more fine-grained understanding of how cycling conditions differ across Billings
- Divisions to be created that allow custom tailored treatments to improve conditions
- An understanding of where conditions offer the highest potential to create improved bicycling conditions

6.6.1 Data Gathering and Synthesis

The analysis was based on existing data from the City of Billings and Yellowstone County. Existing neighborhood planning boundaries were used to define the cycle zone boundaries used in the analysis—12 zones in total.

The measures that were chosen and the reasoning for their inclusion in the cycle zone analysis equation are discussed in more detail below. In many cases, the selected measures were translated into density units – square acre or linear feet - to account for size variations between zones. The following measures were used for cycle zone analysis:

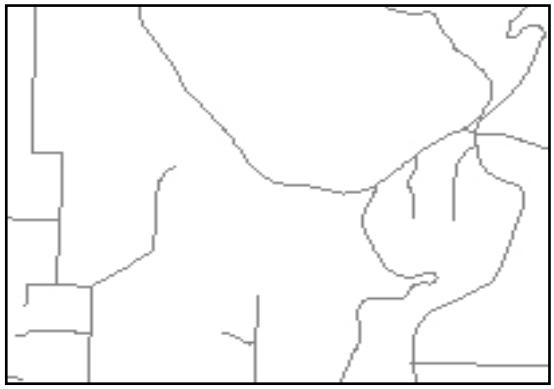
Table 6.7 – CZA Data Measures

Factor	Description
Road Network Density	Road network length divided by cycle zone area
Road Network Connectivity	Connected Node Ratio (ratio of intersections to dead ends) of the road network in the cycle zone
Topography	Percentage of road network with slope of 5% or greater
Land Use (Population)	Average number of persons per acre in the cycle zone
Land Use (Zoning)	Weighted area of the cycle zone zoned for higher densities of institutional and commercial use
Permeability	Average distance between access points along the perimeter of the cycle zone
Bicycle Network Connectivity	Connected Node Ratio (ratio of intersections to dead ends) of the bicycle network in the cycle zone

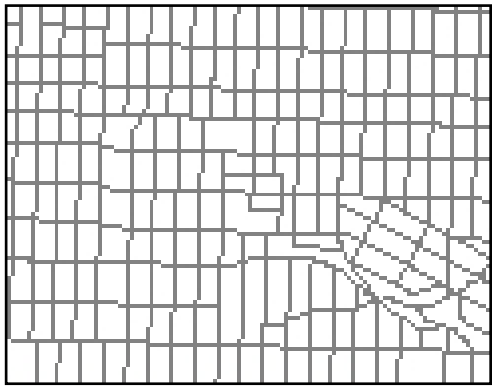
Road Network Density: (ft/square acre)

Definition: The density in linear feet per square acre of all roads in the cycling zone. This includes roads of all types, including local streets, arterials, highways and freeways.

Example:



Sparse network limits rider choice



Dense network facilitates rider choice

Reasoning: A zone with a greater density of roads will facilitate a better cycling experience. Riders will be able to go more places and have greater route choice.

Basic Methodology: GIS tools were used to determine the overall length of roads falling within each cycle zone. This was divided by the zone's acreage to obtain an average road network density.

Bike Network Density: (ft/square acre)

Definition: The density in linear feet per square acre of all the City of Billings' bicycle facilities within a specific cycling zone. The facilities used for this analysis include only existing facilities.

Example:

Pavement markings help cyclists identify and follow bicycle boulevards

Example bicycle lane

Reasoning: The presence of facilities designed for bicyclists increases their comfort and safety. A greater presence of cycle facilities will improve the cycling experience.

Basic Methodology: The bicycle network layer was intersected with the cycle zone boundary, and then the lengths of each segment or partial segment that fell within a specific zone were summed. The resulting number was divided by acreage to obtain the average density

Road Network Connectivity

Definition: A measure of road network connectivity, this number ranging from 0 – 1 represents the ratio of cul-de-sacs and three-way intersections to four- or more way intersections. The closer to one, the more grid-like the street pattern. An overall average score was calculated for each zone.

Example:

Many dead-ends and 3-way intersections are indicators of poor connectivity.

Many 4-way intersections are indicators of good connectivity.

Reasoning: A zone with greater roadway connectivity will facilitate a better cycling experience. Riders will be able to easily go more places and have greater route choice.

General Methodology: GIS was used to determine all points in the City where one road was intersected by at least one other road. The location and number of roads at each intersection point were recorded. For each cycle zone, the overall number of intersections was summed up as well as the number of intersections that were at least four ways. These numbers were used to determine the percentage of intersections that were four-ways or more.

Bike Network Connectivity

Same measure and use as road network connectivity, but applied specifically to the existing on-street bicycle and trail network

Slope: (% greater than 5%)

Definition: The percentage of roads and bikeways with slope greater than 5% for each cyclezone.

Reasoning: Topography can decrease the ease of cycling. A great cycle zone will be relatively flat. Topography is an issue that is difficult or impossible to change and is very important to consider when evaluating the bikability of a zone.

General Methodology: Elevation data from the United States Geologic Service was used to determine the elevation at all starting and ending points of the road segments in the City. The elevations were used to calculate the overall slope for each road segment.

Land Use Mix:

Definition: This factor calculates the degree of concentration of cycling generating land uses in a Cycle Zone.

Reasoning: Commercial and dense residential land use zones generate significantly higher numbers of potential cycling trips than other land uses, such as industrial or low density residential.

Calculation: The methodology involves calculating the overall level of land use mix and assigning weights to the more suitable land use types. All values are then totaled and an average is taken for each zone. Higher scores indicate land uses with greater potential to generate bicycling trips.

Permeability:

Definition: This factor calculates average distance between access points along the perimeter of the cycle zone.

Reasoning: Cycle zones with higher numbers of entrance and exit points provide a greater degree of access to the jobs and housing located within those zones.

Calculation: The methodology involves calculating the density of entry and exist points per square mile.

6.6.2 Model and Zone Scores

Once the cycle zone analysis is complete, the scoring, normalization and weighting of the data occurs. Positive Z-Scores are calculated for each major metric of the Cycle Zone Analysis and then weighting is applied

Table 6.8 – CZA Factors

	Weight			
Factor	Cycling Potential	Existing Bicycle Network Conditions	Overall Existing Conditions	Future Cycling Conditions
Road Network Connectivity	*20%*	-	*10%*	-
Road Network Density	*20%*	-	*10%*	-
Topography	*20%*	-	*10%*	-
Land Use (Zoning)	*40%*	-	*20%*	-
Permeability	-	-	*10%*	-
Bicycle Network Connectivity (existing)	-	*50%*	*20%*	-
Bicycle Network Connectivity (planned)	-		-	*50%*
Bicycle Network Density (existing)	-	*50%*	*20%*	-
Bicycle Network Density (planned)	-		-	*50%*
Total	***100%***	***100%***	***100%***	***100%***

Normalization

Because each input factor is measured differently, values must be normalized before being combined and weighted to provide a total score for each cycle zone. Normalized values for each factor scale the lowest-scoring cycle zone's value to zero and the highest-scoring cycle zone's value to one, and preserve the relative value for each cycle zone in between.

Implementation

Composite scores showing the relative quality of the cycling experience in each zone are displayed on maps attached to this report. Higher scores represent areas that have the best cycling conditions. Table 6.9 – Summary of CZA Factor Scores shows the scores for each zone from low to high. This table can be used to understand the existing conditions in each zone, understand the factors that can be changed, and develop a strategy to develop each zone to its maximum cycling potential. In this way projects might be ranked based on their potential to improve the overall cycle zone score. For example, Zone 4 exhibits strong roadway density, good land use, and minimal topography, but has poor bikeway density and connectivity. A potential strategy for Zone 4 would be to prioritize the development of bikeway facilities in that zone over other cycle zones because of its strong bicycle trip generating attributes.

Table 6.9 – Summary of CZA Factor Scores

#	Cycle Zone	Road Density	Road Connectivity	Bikeway Density	Bikeway Connectivity	Land-use	Topography	Permeability	Composite Score (Existing Conditions)
1	West Shiloh								
2	West Central								
3	North Central								
4	East Central								
5	West Alkali Cr								
6	Highlands								
7	South Side								
8	South Central								
9	Blue Creek								
10	Lockwood								
11	North Side								
12	Heights								

Low

High

6.6.3 Outcomes

The existing cycle zone conditions map (Figure 6.11 – Billings Existing Cycle Zone Conditions) provides the baseline conditions for the 12 separate cycle zones. Each cycle zone was analyzed and weighted based on the criteria in Table 6.8 – CZA Factors. The results of the analysis indicate what might be expected—bicycling conditions tend to improve with proximity to downtown Billings. Intuitively this makes sense, given the higher roadway densities and higher commercial land use mix in the inner core. A closer look at Zone 4 however shows that this trend does not automatically hold true. A comparison of the Existing Conditions map (Figure 6.11) and the Cycle Potential map (Figure 6.12 – Billings Cycle Zone Potential) demonstrates that more may be done to improve bicycling conditions in many cycle zones.

The Cycle Zone Potential map (Figure 6.12) illustrates the zones where the existing road network, topography, and land use are conducive to a good bicycling network. The higher the score, the more potential the zone has for generating bicycling trips. Zones with high potential scores and low existing scores are ripe for bikeway development.

Figure 6.13 – Billings Future Cycle Zone Conditions – Full Build-out, shows the improved cycle zone scores with the proposed bikeway network fully built (from Figure 6.1 – Proposed Bikeway and Trail Network). A comparison between Figure 6.12 and Figure 6.13 demonstrates how the proposed bikeway network is maximizing the assets of each cycle zone to reach the highest potential cycle zone score.

Figure 6.11 – Billings Existing Cycle Zone Conditions

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Figure 6.12 – Billings Cycle Zone Potential

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Figure 6.13 – Billings Future Cycle Zone Conditions – Full Build-out

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7 Program and Policy Recommendations

7.1 Introduction

Bicycle and pedestrian programs enhance the biking and walking experience and can be a cost-effective complement to infrastructure investments. Support programs include educational programs, the provision of bicycle parking, and various city programs and policies. This chapter recommends bicycle and pedestrian programs to be implemented in Billings. The goal of these recommendations is to:

- Support and enhance the infrastructure recommendations in this Plan;
- Increase the number of people walking and riding bicycles in the Billings area; and
- Create a safer and more comfortable environment for walking and bicycling.

Recommended programs are organized into the following categories:

- Education
- Outreach
- Enforcement
- Evaluation and Policy
- Safe Routes to School
- Bicycle Parking
- Bicycle /Pedestrian Access to Transit

Recommended programs have been classified by priority to guide the City/County with implementation by the following categories:

1. Short term is defined by action or implementation in the years 2011-2013
2. Medium term is defined by action or implementation in the years 2013-2016
3. Long term is defined by action or implementation after the year 2016. Long term programs are intended to be complimentary to other programs to be implemented in the short and medium term.

7.2 City/County Policy & Procedure Recommendations

The following recommendations represent changes the City of Billings or Yellowstone County can make to existing procedures, policies, and ordinance to positively impact conditions for bicycling / trail use in the Billings Area.

7.2.1 Trail/Bicycle User Counts

The City of Billings has conducted manual counts since 2003 and scanner counts since 2008. This memorandum presents two recommended count schedules. The first recommendation assumes the City of Billings purchases a second automatic counter. The second recommendation assumes the City purchases two additional automatic counters for a total of three.

The bicycle and pedestrian counts program can serve a number of valuable functions that will help the Billings area maintain and improve conditions in an efficient and effective manner.

Grant/Funding Programs: Count data can support grant applications for facility implementation. Improved count data will also allow for improved estimates of activity levels and for likely greenhouse gas levels that a bicycle project will potentially remove from the environment, which is a metric that is increasingly required on grant applications.

Monitoring of Goals: The counts collection program should be organized to systematically calculate performance measures that indicate use and how well the city is achieving its goals for bicycling and walking. This includes conducting counts so that they are comparable with each other.

Project Evaluation: Count data is often used to evaluate newly implemented projects. Staff can use bicycle data to demonstrate the effectiveness of new or temporary programs and infrastructure implementations to their council. Effective project validation can influence the permanence of a particular facility or program, as well as the possibility of expanding a pilot project to other locations.

Conducting robust bicycle and trail counts will provides a mechanism for tracking trends and progress in Billings over time.

Future Network/Facility Planning: An ongoing and consistent data collection program will provide a rich data source that can be used to identify trends and justify the allocation of resources for bicycle infrastructure. Effective monitoring of past investments will provide important lessons learned that will inform the location future cycling routes and best practices in terms of facility design. Bicycle data can also serve as an input in the project prioritization process.

Existing Count Methodology

The current Billings data collection efforts include variation in type of count (manual and automatic) and variation in count dates.

Table 4.4 – Summary of Existing Count Practices and Figure 4.2 – Trail Counts (in Chapter 4 – Existing Conditions) presents the 29 count locations along with count type and description of when counts have been collected. Trail Census data (manual counts) are collected on a regular biennial basis each May however, scanner counts have historically been collected April through October. Year over year scanner counts at the same location are not always collected during the same month.

The variation in the time of year for counts poses a variety of problems. The first issue is that the manual counts may not easily compare to the scanner counts conducted during different seasons. Counts levels in May are likely to differ from count levels in July and August when school is not in session. September and October counts may also differ from May counts because of weather related differences.

Recommended Count Methodology

The City of Billings collects count data for a variety of reasons including for grant application support, monitoring city and community goals, project evaluation, and future planning and it is important that counts are consistent and comparable year over year and to each other. A count program can vary in its comprehensiveness and scope. As with any data collection effort, the benefits of the data volume must be weighed against its intended use and its comparability. In the context of the City of Billings Count Program this can be thought of in terms of variations in 1) the number of count locations and 2) the quality and comparability of data.

The following includes two scanner count schedule recommendations that will be consistent with the manual count effort. Alta recommends that counts are conducted so that they are comparable to each other, while school is in session, and during moderate weather. In order to have comparable count data, the recommended count months are May and June. This two month period allows for a relatively similar comparison between the counts because of the similar weather and time of year. This specific time frame was chosen because school is in session, it does not include traditional family vacation times, and it avoids the colder winter months. Additionally, spring was chosen rather than fall to be consistent with the historic manual counts conducted since 2003.

The first recommendation assumes use of two scanners. The second recommendation assumes use of three scanners.

Schedule A: Two Scanners

Schedule A assumes the City will acquire a second automatic counter. The schedule outlined below in Table 7.1 – Count Schedule A includes a two month count period from May to June and allows for 16 automatic count locations and 6 manual count locations. Where count locations are near schools, the recommended count week is scheduled before the end of the school year. The schedule recommends counts after the school year has ended at the following locations: Coulson Park, Mystic Park, Rimrock Road Trail, Bannister Drain Trail, Midland Trail and at Transtech. These locations are less likely to have school related activity than the others. Count Schedule A requires moving the two automatic counters on a weekly basis. Locations in Tables 7.1 and 7.1 with strikethrough text are locations that the City of Billings is not recommended to continue with.

Table 7.1 – Count Schedule A

Scanner ID	Site	Location	Count Type	Month
~~01~~	~~Kiwanis Trail~~	~~Fence post north of Wicks~~	~~Scanner Count~~	Removed, duplicated by manual counts
01.A	Kiwanis Trail	By Bitterroot School access	Manual Count	May
02	Two Moon Park Trail	On post entering the park	Scanner Count	May (week 1)
~~03~~	~~Metra Park Trail~~	~~By Two Moon Access Road~~	~~Scanner Count~~	Removed, duplicated by manual counts
03.A	Metra Park	By Frasier Bridge over Alkali Creek	Manual Count	May
04	Coulson Park	By fishing access on fence post	Scanner Count	June (week 2)
05	Mystic Park	Two Moon Park	Scanner Count	June (week 2)
06	Alkali Creek Road	Pedestrian light by Alkali Creek School	Scanner Count	May (week 1)
07	Aronson Road	Pull out just north of the Alkali Cr bridge	Scanner Count	May (week 2)
~~08~~	~~Swords Park Trail~~	~~Sign post just east of trailhead at crossing~~	~~Scanner Count~~	Removed, duplicated by manual counts
08.A	Swords Park	By parking lot	Manual Count	May
09	So. Billings Blvd.	north of Newman Elementary	Scanner Count	May (week 2)
~~10~~	~~Norm's Island~~	~~On post after bridge at access to right~~	~~Scanner Count~~	Removed, duplicated by manual counts
10.A	Norm's Island	By Riverfront Park	Manual Count	May
11	Rimrock Road Trail	Post west of 46th St. W.	Scanner Count	June (week 3)
~~12~~	~~Big Ditch Trail~~	~~On sign just east of Larchwood~~	~~Scanner Count~~	Removed, duplicated by manual counts
12.A	Big Ditch Trail	38th St. W, east of Shiloh underpass, in line with Colton Blvd.	Manual Count	May
13	Zimmerman Road	Light pole north of Ave. E	Scanner Count	May (week 3)
14	Will James Cut	City ROW between Will James & Broadwater	Scanner Count	May (week 3)
~~15~~	~~Descro Park~~	~~On shelter corner towards trail intersection~~	~~Scanner Count~~	Removed, duplicated by manual counts
15.A	Descro Park	By bridge	Manual Count	May
16	Stewart Park Trail	On fence by water pump	Scanner Count	May (week 4)
17	Lampman Strip Park	On directional sign where trail goes along road	Scanner Count	May (week 4)
18	Bannister Drain Trail	Curve Sign south of King by HDR Engineering	Scanner Count	June (week 3)
19	Midland Trail	Tree by Hilton Garden Hotel	Scanner Count	June (week 4)
20	TransTech	By Stillwater Mining	Scanner Count	June (week 4)
21	King Ave. W.	3rd light pole east of Meadowbroon	Scanner Count	June (week 1)
22	Shiloh Trail (New)	Location To be determined	Scanner count	June (week 1)

Schedule B: Three Scanners

Schedule B assumes the City will purchase two automatic counters and use three total for the count effort. The schedule outlined below in Table 7.2 – Count Schedule B includes a two month count period from May to June and allows for 16 automatic count locations and 6 manual count locations. Count Schedule B requires moving the three automatic counter on a weekly basis however it includes counts while school is in session at all locations with the exception of TransTech.

Table 7.2 – Count Schedule B

Scanner ID	Site	Location	Count Type	Month
~~01~~	~~Kiwanis Trail~~	~~Fence post north of Wicks~~	~~Scanner Count~~	Removed, duplicated by manual counts
01.A	Kiwanis Trail	By Bitterroot School access	Manual Count	May
02	Two Moon Park Trail	On post entering the park	Scanner Count	May (week 1)
~~03~~	~~Metra Park Trail~~	~~By Two Moon Access Road~~	~~Scanner Count~~	Removed, duplicated by manual counts
03.A	Metra Park	Two Moon Park	Manual Count	May
04	Coulson Park	By fishing access on fence post	Scanner Count	May (week 1)
05	Mystic Park	By Frasier Bridge over Alkali Creek	Scanner Count	May (week 1)
06	Alkali Creek Road	Pedestrian light by Alkali Creek School	Scanner Count	May (week 2)
07	Aronson Road	Pull out just north of the Alkali Cr bridge	Scanner Count	May (week 2)
~~08~~	~~Swords Park Trail~~	~~Sign post just east of trailhead at crossing~~	~~Scanner Count~~	Removed, duplicated by manual counts
08.A	Swords Park	By parking lot	Manual Count	May
09	So. Billings Blvd.	north of Newman Elementary	Scanner Count	May (week 2)
~~10~~	~~Norm's Island~~	~~On post after bridge at access to right~~	~~Scanner Count~~	Removed, duplicated by manual counts
10.A	Norm's Island	By Riverfront Park	Manual Count	May
11	Rimrock Road Trail	Post west of 46th St. W.	Scanner Count	May (week 3)
~~12~~	~~Big Ditch Trail~~	~~On sign just east of Larchwood~~	~~Scanner Count~~	Removed, duplicated by manual counts
12.A	Big Ditch Trail	38th St. W, east of Shiloh underpass, in line with Colton Blvd.	Manual Count	May
13	Zimmerman Road	Light pole north of Ave. E	Scanner Count	May (week 3)
14	Will James Cut	City ROW between Will James & Broadwater	Scanner Count	May (week 3)
~~15~~	~~Descro Park~~	~~On shelter corner towards trail intersection~~	~~Scanner Count~~	Removed, duplicated by manual counts
15.A	Descro Park	By bridge	Manual Count	May
16	Stewart Park Trail	On fence by water pump	Scanner Count	May (week 4)

Scanner ID	Site	Location	Count Type	Month
17	Lampman Strip Park	On directional sign where trail goes along road	Scanner Count	May (week 4)
18	Bannister Drain Trail	Curve Sign south of King by HDR Engineering	Scanner Count	May (week 4)
19	Midland Trail	Tree by Hilton Garden Hotel	Scanner Count	June (week 1)
20	TransTech	By Stillwater Mining	Scanner Count	June (week 2)
21	King Ave. W.	3rd light pole east of Meadowbroon	Scanner Count	June (week 1)
22	Shiloh Trail (New)	Location to be determined	Scanner count	June (week 1)

September Scanner Counts

In addition to the recommended spring count effort, Alta recommends the City of Billings conduct four scanner counts in September. September is the official count month of the National Bicycle and Pedestrian Documentation project (NBPD). NBPD is a pro bono effort by Alta with support from the Institute of Transportation Engineers (ITE) created to fulfill the need for documentation of bicycle and pedestrian usage and demand. NBPD's basic assumption is that in order to understand existing, future use and demand, agencies need to conduct counts in a manner consistent with each other. Participation by the City of Billings will allow the City to contribute to a growing national database of counts and help researchers and policy experts understand need, exposure and demand.

Table 7.3 – Recommended September Count Schedule, presents a recommended September Count Schedule. The locations were chosen because they represent trails likely to experience the greatest use and benefit from increased trail expansion. This schedule assumes the availability of two automatic counters. If only one counter is available, the schedule may be revised to conduct two counts per week. Official NBPD count days are available at www.bikepeddocumentation.org.

Table 7.3 – Recommended September Count Schedule

Scanner ID	Site	Location	Count Type	Month
04	Coulson Park	By fishing access on fence post	Scanner Count	Week 2
08	Swords Park	Close as possible to manual count location	Scanner Count	Week 2
07	Aronson Road	Pull out just north of the Alkali Cr bridge	Scanner Count	Week 3
16	Stewart Park Trail	On fence by water pump	Scanner Count	Week 3

On-Street Automatic Bicycle Counts

In addition to manual and scanner counts, automatic counts of on-street bicyclists can also provide the City of Billings with important information while minimizing staff time. Manual counts require significant staff time to schedule, coordinate and train volunteers. Automatic bicycle counts on-streets are a more efficient use of staff time.

There are a number of ways to conduct automatic on-street bicycle counts including in-pavement detection and pneumatic tubes. In-pavement detection requires installation of relatively permanent equipment in the street pavement and equipment can cost $2,000 in addition to installation costs. Pneumatic tubes are a more

affordable option to conduct on-street bicycle counts, particularly if the City already has tubes that detect bicycles. Pneumatic tubes have many benefits including:

1. Easy to move
2. High accuracy
3. Inexpensive
4. Grouping does not pose a significant problem
5. Many can measure travel direction
6. Ideal for temporary counting

It would be a useful exercise for the City of Billings to conduct on-street bicycle counts on roadways in which bicycle lanes are about to be installed to catalogue 'before and after' behavioral changes of corridor roadway users. The City of Bozeman performed such a count in 2005 and recorded a 256% increase in bicycling and walking when bike lanes and sidewalks were installed along West Babcock Street.

Table 7.4 – On-Street Bike Lane Count Locations presents recommended locations for on-street bicycle counts (with established bike lanes). Other locations should be added to this table just prior to bicycle lane addition if the section is over ¾ mile long, or if in the downtown area.

Table 7.4 – On-Street Bike Lane Count Locations

Location ID	Site	Location	Count Type	Month
01	Rimrock Road	Near MSU Billings	Automatic Count	May (Week 1)
02	Poly Drive	13th Street West	Automatic Count	May (Week 2)
03	N. 30th Street	9th Avenue North	Automatic Count	May (Week 3)
04	9th Avenue North	N. 28th Street	Automatic Count	May (Week 4)

7.2.2 Bicycle Parking Recommendations

The City of Billings currently has no requirement for the provision of bicycle parking within its Municipal Code. This lack of a requirement has resulted in a built environment where bicyclists cannot count on secure bicycle parking being available at their destinations. As a result, bicycles are seen locked to signs, railings, trees, and other pieces of street furniture in an unsightly and sometimes insecure manner.

Billings City Code section 24-601. Parking deals with bicycle parking and states:

a) No person shall park a bicycle upon a street, other than upon the roadway against the curb or upon the sidewalk in a rack to support the bicycle or against a building or at the curb, in such a manner as to afford the least obstruction to pedestrian traffic.
b) No person shall leave a bicycle unsecured in a public place.
c) "Unsecured bicycle" shall be defined as an unattended bicycle which does not have an independent locking device affixed thereto in a manner so as to deter theft of the bicycle.

(Code 1967, § 11.48.100)

Without requiring bicycle parking the above code renders most bicycle parking methods illegal where there are no bicycle racks, therefore no legal method is typically available to the bicyclist.

Bicycle Parking Recommendations by Land Use

The City of Billings should require bicycle parking by land use, and type of parking. The following suggestions may be incorporated into existing City Municipal Code either within Section 24-601 or as an attachment to the table in Section 6-1203. Off-street parking requirements.

Short Term Bicycle Parking - Bicycle parking meant to accommodate visitors, customers, and others expected to depart within two hours. Standard bicycle racks are typically employed as short-term parking.

Table 7.5 – Recommended Short-Term Bicycle Parking Requirements

Short Term Bicycle Parking Requirements	
Use Type	**Required Bicycle Parking Spaces**
Warehouses, and freight terminals	1 per 5,000 sq ft of floor space
Wholesale business	10 percent of required auto parking
Food or beverage places with sale and consumption on premises	10 percent of required auto parking
Motor vehicle, machinery, plumbing, heating, ventilating, building material supplies, sales and services	The greater of 2 or 20 percent of required auto parking
Retirement homes and housing projects for the elderly which have received a declaratory ruling from the Montana Human Rights Commission allowing sale or lease of the units exclusively to persons sixty (60) years of age or older	1 per 4 employees
Motel and motor courts	1 per 10 rooms
Hotels	1 per 10 rooms
Hospitals (with less than 100 beds based upon state licensed bed count) and institutions	15 percent of required auto parking
Hospitals (with over 100 beds based upon state licensed bed count)	10 percent of required auto parking
Theaters	The greater of 10 spaces or 5 percent of seating capacity
Churches, auditoriums, bingo parlors 1 and similar places of assembly	10 percent of required auto parking
Stadiums, sports arenas and similar open assemblies	The greater of 10 spaces or 5 percent of seating capacity
Bowling alleys	10 percent of required auto parking
Medical doctor and dental clinics or offices located within the medical corridor:	15 percent of required auto parking
Medical doctor and dental clinics located outside the medical corridor	15 percent of required auto parking
Medical and dental clinic	15 percent of required auto parking
Banks, business and professional offices	1 per 300 sq. ft. of gross floor area
Mortuaries	The greater of 2 or 10 percent of required auto parking
Other retail:	
If less than 5,000 sq. ft. of floor area	15 percent of required auto parking
If over 5,000 sq. ft. of floor area	10 percent of required auto parking
Manufacturing uses, research testing and processing, assembling, all industries	10 percent of required auto parking

Short Term Bicycle Parking Requirements	
Libraries and museums	20 percent of required auto parking
School, elementary, and junior-high public, private or parochial	1 per 5 students
School, high school, college-public or private	1 per 10 students
Service stations, and drive-in restaurants	1 per 4 employees
Residential, single-family or duplex	None
Residential, multifamily	The greater of 2, or 1 per unit (if no garage is available)
Fraternity and sorority	1 per bedroom
Boarding houses, lodging homes and similar uses	1 per 3 bedrooms
Convalescent homes, nursing homes, rest homes	1 per 4 employees

Long Term Bicycle Parking - Bicycle parking meant to accommodate employees, students, residents, commuters, and others expected to park more than two hours. This parking is to be provided in a secure, weather-protected manner and location. The City of Billings should consider the following long-term bicycle parking recommendations. Covered bicycle racks or lockers are typically used as long-term bicycle parking.

Table 7.6 – Recommended Long-term Bicycle Parking Requirements

Long Term Bicycle Parking Requirements	
Use Type	**Required Bicycle Parking Spaces**
Residential Categories Multi-Family Single Family	 The greater of 2, or 1 per unit (if no garage is available) None
Commercial Office	The greater of 2 or 10 percent of required auto parking
Restaurants, cafes, bars and similar uses	The greater of 2 or 5 percent of required auto parking
Retail store and service establishments	The greater of 2 or 5 percent of required auto parking

Recommended Bicycle Rack Design

Billings may wish to provide guidance to developers who are selecting bicycle racks for installation by specifying rack designs specifically in city code. Many commercially available rack types do not provide a high standard of service to the user. The following is based on guidance published by the Association of Pedestrian and Bicycle Professionals (APBP).

Encouraged Bicycle Rack Types

'Inverted U', or 'Staple' Rack

This type of rack is typically secured to a concrete base and is very secure and easy to use.

Coat Hanger Rack

This rack if used properly can support a bicycle at two points and can operate fixed to a concrete base or can be moved where needed.

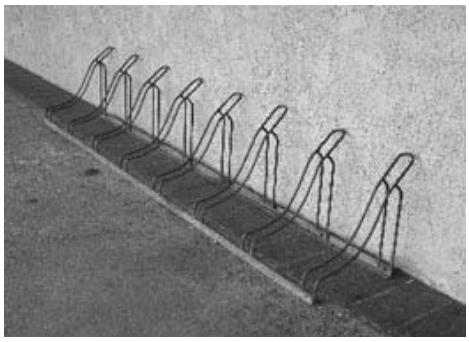
Post and Loop or 'Lollypop' Rack

This rack has many of the same characteristics as the Inverted U rack, but is more compact. Can be installed in series (shown) or along a curb line in the sidewalk furnishing zone.

Discouraged Bicycle Racks

Wheelbender Rack

This rack only supports the wheel of the bicycle and can cause serious damage to the bicycle if twisted while secured in the rack. This rack also does not work with all types of locks.



Comb Rack

This rack suffers from many of the same shortcomings as the wheelbender type rack where only the front or rear wheel of the bicycle is supported. Many users of this rack type lift there bicycle over the top and rest the frame on the rack to allow use of a bicycle lock.

Wave Rack

To properly use this rack the cyclist places the bicycle through the 'wave' pattern where it is only supported at one point. Bicycles parked in these racks are unstable and frequently tip over. Many cyclists park their bicycle sideways in this rack to gain stability, thereby reducing the capacity by 60-80 percent.

Downtown Billings Bicycle Parking Recommendations

Central Business Districts (CBDs) are often hotbeds for bicycle activity due to the high density of employment, restaurants and services. CBDs are often under supplied in free vehicle parking, with many visitors unable to find parking in the immediate vicinity of their destination. Riding a bicycle downtown can offer many advantages to driving, including the ability to park a bicycle at the visitor's intended destination. Billings has recently installed bicycle racks as part of the new Broadway Streetscape Project.

Bicycle-Transit Parking Considerations

The MET already has bike racks on all buses available at no charge, providing a tangible multimodal benefit for Billings bicyclists. Clear directions for loading and unloading bikes on buses are available on the MET Transit web page. In addition, bike racks are available at transfer stations. In the future as bus shelters are built, a bike rack should be provided so that if the bus racks are full the bicyclist will have the option of securely leaving the bicycle behind.

7.2.3 Bicycle and Pedestrian Advisory Committee

Like many cities, Billings already has a designated Bicycle and Pedestrian Advisory Committee (BPAC) made of citizen volunteers to advise the community leaders on bicycling and pedestrian issues and to make recommendations for CTEP projects. The BPAC establishes the area's commitment to making bicycling and walking safer and more desirable, and has the potential to assist the City in securing funding for bicycle and pedestrian projects. Having an established BPAC is also desirable for receiving Bicycle-Friendly Communities (BFC) designation.

The charges of the BPAC may include some or all of the following:

- Review and provide citizen input on capital project planning and design as it affects bicycling and walking (e.g., corridor plans, street improvement projects, signing or signal projects, and parking facilities)
- Review and comment on changes to zoning, development code, comprehensive plans, and other long-term planning and policy documents
- Participate in the development, implementation, and evaluation of Bicycle/Pedestrian Master Plans and bikeway and pedestrian facility standards
- Provide a formal liaison between local government, staff, and the public
- Develop and monitor goals and indices related to bicycling and walking in the jurisdiction
- Promote bicycling and walking, including bicycle and pedestrian safety and education

Because BPAC members are volunteers, it is essential to have strong staffing supporting the committee in order for it to be successful. The Alternate Modes Coordinator is the logical liaison to the BPAC and should take charge of managing the application process, managing agendas and minutes, scheduling meetings, bringing agency issues to the BPAC, and reporting back to the agency and governing body about the BPAC's recommendations and findings.

7.2.4 Alternate Modes Coordinator

The City of Billings currently contracts a part time (25 hour-a-week) designated Alternate Modes Coordinator for services previously provided by a part time employee. Since 1999, this position has had a profound impact on the growth of the Billings area non-motorized system and been involved with over $10 million in project grants, a large portion of which would not have been secured without the focus provided by this dedicated position. In order for the goals of this plan to be realized, the Alternate Modes Coordinator should be the primary staff person overseeing implementation. In addition, the Alternate Modes Coordinator may have many other duties, including:

- Monitoring the design and construction of bikeways and trails, including those constructed in conjunction with private development projects
- Ensuring bicycle and pedestrian facilities identified in specific plans are designed appropriately and constructed expediently
- Serving as the staff liaison to the Bicycle and Pedestrian Advisory Committee
- Coordinating implementation of the recommended projects and programs listed in this Plan
- Identifying new projects and programs that would improve the community's environment for bicycling and walking
- Coordinating evaluation of projects and programs
- Pursuing funding sources for project and program implementation
- Updating the City website about bicycling, walking, and trail resources
- Completing the Bicycle-Friendly Communities application to the League of American Bicyclists

It is recommended that the City of Billings provide dedicated funding for this important position and re-instate it as a staff position. The City/County should also consider designating this position as a full time position in the future.

7.3 Recommended Education Programs

7.3.1 Bicycling Skills Courses

Purpose: Provide bicyclists with needed road handling skills

Audience: Current and potential bicyclists

Most bicyclists do not receive any training on safe cycling practices, the rules of the road, and bicycle handling skills. Cycling skills courses can address this education gap. Two League-Certified Instructors are currently available in Billings to teach the League of American Bicyclists curriculum. These courses, currently offered through BikeNet and the City of Billings Recreation Division, should continue to be offered in the future.

Sample programs:

- CAN-bike, Canada: http://www.toronto.ca/cycling/canbike/canbike.htm
- League of American Bicyclists, USA: http://bikeleague.org/programs/education/courses.php

7.3.2 Bicycling Legal Guide

Purpose: Educate the public about the legal rights and responsibilities of bicycling

Audience: Current and potential bicyclists

Many bicyclists do not receive complete information about the legal status of bicycles on roadways or their rights and responsibilities. This is not surprising considering that most children do not receive bicycle education in school, nor do most drivers receive information about bicycling when they get a driver's license. A clear Bicycling Legal Guide will help to fill this information gap. The guide should be developed with input from the legal profession. It may be possible to identify a core team of volunteers or from the Bicycle and Pedestrian Advisory Committee who can develop the guide.

Sample guide: http://www.stc-law.com/pdf/Pedal_Power_Jun19.pdf

7.3.3 Law Enforcement Training

Purpose: Educate law enforcement officers on bicycle laws and safety

Audience: Police officers

Most law enforcement professionals do not receive training specific to bicycle laws, handling, or safety. Police education efforts can help officers improve public safety and enforce existing laws more effectively by providing them with training about laws and statutes pertaining to bicycling; information about common crash types and causes; how to prevent and enforce against the most serious offenses; knowing options for enforcement and education (e.g. when a citation vs. warning should be issued, diversion class options, and safety materials that can be handed out during a traffic stop or public event).

Currently, Billings Police Department Bike Patrol members receive training through the International Police Mountain Bike Association. The training covers bicycle handling and maintenance, riding skills, and bicycle patrol procedures. It is recommended that further training about Montana-specific laws and statutes pertaining to bicycling, common crash types and causes, and how to prevent and enforce against the most serious offenses be offered to supplement these topics. The training should be offered to all officers who may be involved in traffic stops.

There are numerous program models and resources available on the subject of law enforcement and bicycles. The National Highway Traffic Safety Administration (NHTSA) developed a national training course covering many topics, including why and where people bicycle, the role of law enforcement in bicycle safety, problem identification, bicycle safety self-assessment, department bicycle safety assessment, building community partnerships, and creating and promoting bicycle safety programs. NHTSA also developed a short roll call video on the subject of enforcing law for bicyclists. The NHTSA program could be used as a basis for a local program, but it will be essential to develop the Montana-specific legal section. If the Bicycling Legal Guide (referenced above) has been created before the police training is implemented, it can serve as a textbook for the legal portion of the training.

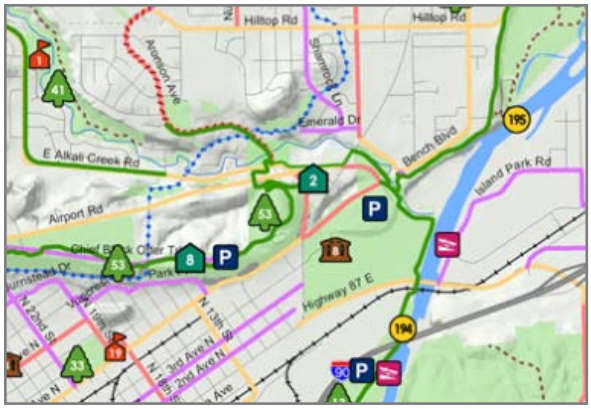
More information: http://www.bicyclinginfo.org/enforcement/training.cfm

7.3.4 Bicycle and Trails Map

Purpose: Encourage walking and biking by providing route and facility information and highlighting walking and bicycling destinations

Audience: General public

One of the most effective ways of encouraging people to bike and walk is through the use of maps and guides to show that the infrastructure exists, to demonstrate how easy it is to access different parts of the city by bike and on foot, and to highlight unique areas, shopping districts or recreational areas. Biking/trail maps can be used to promote tourism to an area, to encourage residents to bike or walk, or to promote local business districts. Maps can be citywide, district-specific, or neighborhood/ family-friendly maps. Maps can be paper or interactive online maps.



Bicycling and trail maps should be kept up to date and made readily available.

The City of Billings already has a recently-updated Tour Map showing bikeways and trails. The Alternate Modes Coordinator is in charge of managing Tour Map updates in the future as new facilities are implemented, as well as managing printing and distributing maps to bike shops and public buildings. Future maps should provide additional focus to the on-street bikeway network of bike lanes, routes and boulevards.

Sample maps:

- Des Moines (IA) Regional Trails Map (online): http://www.dsmbikecollective.org/node/74/zoomify
- Long Beach (CA): http://admin.longbeach.gov/civica/filebank/blobdload.asp?BlobID=27418

7.3.5 Diversion Class

Purpose: Educate motorists, bicyclists, and pedestrians on roadway safety and traffic laws

Audience: General public, usually first-time offenders of particular traffic violations

A diversion class is offered to first-time offenders of certain bicycle-related traffic violations, such as cyclists running a stoplight or motorists speeding in a school zone. It can be aimed at bicyclists and/or motorists. In

lieu of a citation and/or fine, individuals can take a one-time free or inexpensive class instead. In Marin County (CA), interested citizens can take the class even if they did not receive a ticket. This program is a good way to educate road users about bicycle rights and responsibilities, and can also increase public acceptance of enforcement actions against bicyclists. The BPAC and the Alternate Modes Coordinator should seek funding and partnership to create and implement a diversion class.

Sample program:

- Marin County (CA): http://www.marinbike.org/Campaigns/ShareTheRoad/Index.shtml#StreetSkills

7.4 Recommended Outreach Programs

7.4.1 Bike Month

Purpose: Encourage bicycling to work and school through fun, social activities and incentives

Audience: Commuters

Bicycling to work is a great way to get exercise, save money, reduce pollution, and have fun. Cities and towns across the country participate in Bike to Work Week, Month, or Day. The City of Billings has helped to organize a Bike Month activities, which have included a commuter challenge. The City should continue and expand this event.

Bike Month encourages bicycle commuting through incentives and supportive activities.

The League of American Bicyclists (LAB) hosts a website for commuters and event organizers. The website contains information on nationwide and local events, an organizing handbook, and tips for commuters. Common elements include:

- Commute 101 workshops in advance of Bike-to-Work Day
- Guided commutes or group rides to increase comfort and familiarity with bicycling routes
- "Energizer Stations" to reward commuters with treats and incentives
- Workplace/team bicycling challenges for most miles, highest percentage of days, etc.
- Celebrity events (e.g. Mayor bikes to work with news team, bike/bus/car race)
- Post-work celebration
- Bike-to-school events

More information: http://www.bikeleague.org/programs/bikemonth/

7.4.2 Helmet Giveaways

Purpose: Provide low-cost or free helmets to children

Audience: Children

Helmets are required for bicyclists under the age of 16 by ordinance in Billings. Many children do not currently have a helmet, perhaps because their parents do not feel they have the resources to provide one, or because their parents do not understand the value of helmets. St. Vincent's Hospital currently operates a helmet giveaway program and the City could partner with them. Simple, but safe helmets can be purchased very inexpensively in bulk (generally for less than ten dollars). It may be possible to partner with local hospitals, health care providers, or public health agencies to fund and promote this program.

7.4.3 *Lights On* Campaign

Purpose: Encourage bicyclists to use lights after dark

Audience: Bicyclists

While Montana state law requires bicyclists to use lights at night, bicyclists riding without lights are common in Billings. Many bicyclists, especially students, are unaware that lights are required by law, or they have simply not taken the trouble to purchase or repair lights. Research shows that bicyclists who do not use lights at night are at much greater risk of being involved in bike-car crashes. For these reasons, increasing bicycle light usage is a top priority for Billings, and a successful effort will reduce crash risk for bicyclists.

This poster from Marin County, CA uses simple graphics to communicate the importance of using bicvcle liahts.

Every fall in the Netherlands, as days get shorter, a national *Lights On* campaign reminds bicyclists to use bicycle lights. This campaign focuses several complementary strategies into a short time frame for maximum impact, pairing media messages (ads, posters, radio spots, and TV ads) with police enforcement of 'fix it' tickets.

A similar *Lights On* campaign is recommended for Billings. This type of campaign is most effective in the fall, tied either to the start of the school year or the end of daylight savings time. *Lights On* campaigns can target university students if there is a perceived problem with light use by that population.

The Billings *Lights On* campaign should include the following elements:

- Well-designed **graphic ads**, to be placed on transit benches, transit vehicles, and local newspapers. Ad space may be purchased or donated. Small-format ads can be placed on bike handlebars as well if desired.
- **Police enforcement** of bike light laws. This enforcement will be most likely to result in behavior change if the bicyclist is able to avoid penalty if they obtain a bike light. Ideally, the police give a warning, explain the law, and then install a bike light on the spot. If this is not possible, the bicyclist should receive a 'fix it ticket' along with a coupon for a free or discounted light at a local bike shop; once the bicyclist shows proof that they have purchased a bike light, their fine will be waived.

- **Partnership with local cycling groups** to get the word out to their members and partners. These groups can be counted as campaign partners at no cost to them, enhancing the campaign's credibility and community exposure. Groups should be supplied with key campaign messages to distribute to their constituents along with coupons for free or discounted bike lights.
- **Earned media outreach**: The City of Billings should distribute media releases with statistics about the importance of using bike lights, relevant legal statutes, and the campaign's goal, timing, activities, and partners. If possible, a meeting with local media editorial boards should be sought.

Every fall, Dutch cyclists find these bike hangers on their bikes to remind them to use lights.

Depending on partners, volunteer capacity and interest, the Billings *Lights On* campaign may also include the following:

- **In-school presentations** about bike lights, including reflective material giveaways
- A community **bike light parade** with prizes
- **Discounts on bike lights and reflective gear** at local bike shops during the campaign (publicized through the campaign outreach)
- Volunteers stationed at key intersections on trails and bikeways who **thank bicyclists using bike lights** and reward them with a small gift

Sample programs:

- Fietsersbond (national bicycle organization) - The Netherlands: http://www.fietslichtaan.nl/
- San Francisco Bicycle Coalition: http://www.sfbike.org/?lights
- Portland (OR) Bureau of Transportation: http://www.portlandonline.com/transportation/index.cfm?&c=deibb&a=bebfjh

7.4.4 SmartTrips Program

Purpose: Decrease car use and increase bicycling, walking, and transit use

Audience: General public within a defined target area

Residents often do not know where to find walking and cycling resources; a SmartTrips program delivers brochures, maps and incentives directly to their homes.

SmartTrips programs are shown to reduce drive-alone trips by approximately 10 percent and increase bicycling, walking, and transit use within a target area. The program invites residents or employees of the target areas to order a customized information packet containing travel information (e.g. an event calendar, walking and bicycling maps, a bicycling guide, transit maps and schedules, etc.). Customized packets are assembled and delivered (by bicycle where possible) to residents at their homes or employees at their workplaces, along with an incentive gift of their choice.

In addition to the customized information packet, the program also hosts numerous encouragement activities such as group walks, guided bicycle rides, and classes and workshops. Trained staff appear at community or employer events to answer questions about walking, bicycling, and transit use.

This approach is based on the annual award-winning City of Portland (Oregon) *SmartTrips* program, which has consistently shown a 9-13 percent reduction in drive-alone trips in the selected target area since 2004 at a cost of approximately $20 per household.

This evidence-based program should be a key aspect of the City of Billings' efforts to increase bicycling and trails use. A thoughtful rollout strategy will select appropriate target areas based on factors known to indicate that a *SmartTrips* program can be successful (moderate to high residential density, availability of walking/bicycling infrastructure and transit service, commercial and community destinations within reasonable distance of homes, etc.) and work closely with local partners and agency staff to implement a pilot program.

Implementation of a SmartTrips Program would likely require additional staffing within the City.

Sample Programs:

- Portland (OR) SmartTrips: http://www.portlandonline.com/transportation/index.cfm?c=43801
- SmartTrips St. Paul (MN): http://www.smart-trips.org/

7.4.5 Road User Respect Campaign

Purpose: Increase respectful behavior between bicyclists, pedestrians, and motorists

Audience: All road users

A high-profile marketing campaign that highlights the importance of respect between bicyclists, pedestrians, motorists, and professional drivers (such as transit drivers) is an important part of creating awareness of walking and bicycling and improving safety for all road users. A well-produced safety campaign will be memorable and effective. Most importantly, the campaign should emphasize responsibility and respect between road users.

Campaigns that appeal to road users' sense of shared responsibility and respect are more effective than those that lecture the public.

One good example is the New York City "Biking Rules" campaign, which encourages bicyclists to pledge to respect pedestrians through a simple code of conduct as well as community-produced videos. Other examples include the Portland (Oregon) "I Brake for People" campaign and the Sonoma County (California) Transit "You've got a friend who bikes!" campaign.

Respect campaigns increase the general public's awareness of bicycling and can be used to promote safe roads for all users.

A Respect Campaign in the City of Billings should combine compelling graphics and messages with an easy-to-use website focused at motorists, pedestrians, and bicyclists. The safety and awareness messages can be displayed near high-traffic corridors (e.g., on billboards), printed in local publications, and broadcast as radio and/or television ads.

Sample programs:

- NYC Biking Rules Campaign: http://bikingrules.org/
- Sonoma County (CA): http://www.sctransit.com/bikesafe/bikes.htm
- Portland (OR) "I Brake for People": http://bikeportland.org/2007/10/15/pdot-to-launch-pedestrian-safety-campaign-5564

7.4.6 Share the Trail Campaign

Purpose: Encourage responsible, respectful behavior by trail users

Audience: Users of shared-use trails

As Billings' trail system expands, it is likely to experience a high level of enthusiastic community use. Based on the experience of other towns and cities, conflicts between trail users may become an issue as more and more people use trails. Some communities have launched successful "Share the Trail" events to help educate users about safety and courtesy. Share the Trail campaigns can be run by agencies, nonprofits, or any user group (equestrians, hikers, etc.). These programs educate users about expected behavior and how to limit conflicts. Volunteers often give out brochures and engage with users in a non-confrontational way. Volunteers can also report back to trail agencies about trail damage, erosion, or vandalism. Media outreach should be included as

well. Common strategies include a bicycle bell giveaway, handing out maps and information, posting signs, informational booths, and 'stings' that reward good behavior.

Sample programs:

- Share the Trail (Marin, CA): http://www.sharethetrail.org/about/
- Share the Path (Portland, OR): http://www.bta4bikes.org/btablog/2007/07/24/path-users-share-300-bike-bells-and-50-scoops-of-ice-cream-on-saturday/

7.4.7 Bicycle-Friendly Communities Designation

Purpose: Assess progress and celebrate success made towards improving bicycling conditions

Audience: N/A

The League of American Bicyclists has a well-respected Bicycle-Friendly Communities (BFC) award program. Communities fill out a detailed application that covers bike-related facilities, plans, education efforts, promotion initiatives, and evaluation work that has been completed by the jurisdiction. The award is designed to recognize progress that has been made, as well as assist communities in identifying priority projects to improve bicycling conditions. Receiving the award is a media-worthy event, and may give elected officials the opportunity to receive media coverage for the positive work they are doing. Awards are granted for Bronze, Silver, Gold, and Platinum bicycle-friendly communities.

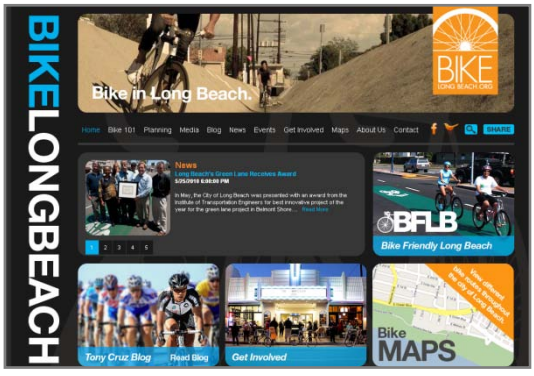
Billings has already received a Bronze rating from the League of American Bicyclists in 2008. As progress towards implementing this Plan is made, the Alternate Modes Coordinator should complete a new Bicycle-Friendly Community application to request promotion to Silver, Gold and, eventually, Platinum ranking.

7.4.8 Bicycling and Trails Website

Purpose: Provide Billings bicycling information on a single website

Audience: General public

The City of Billings website has information about bicycling in numerous locations, including information about the Heritage Trail System (on the Billings Parks and Recreation website), the Bike & Ride Program (on the MET Transit web page), bicycle registration (on the Crime Prevention web page), the Bicycle Patrol (on the Police web page), and Transportation Options (on the Wellness web page). In addition, the BikeNet website offers resources for bicyclists such as maps, safety materials, and event news. It would benefit existing and potential bicyclists to have a single website to reference for information about laws, route planning, tips, and groups and events. Using the resources found on existing websites, the City of Billings, in partnership with the BPAC, should consolidate resources into a "one-stop shopping" website aimed at bicyclists.



A "one-stop" bicycling and trails website can help eliminate barriers to bicycling.

The consolidated Billings bicycling website should contain existing and new elements, which may include:

- A list of all bicycling groups, including clubs, racing teams, and advocacy groups

- Information about the Bicycle and Pedestrian Advisory Committee (including how to get involved, meeting times and dates, agendas and minutes, etc.)
- Information about current projects and how to get involved (e.g., public meetings, comment periods)
- Maps and brochures (e.g., links to online maps and brochures, where to find in person, and how to request mailed materials)
- Links to laws and statutes relating to bicycling
- Information about bicycling events (e.g., rides, classes, volunteer opportunities) and an events calendar
- A list of local bike shops, including phone number and address
- Relevant City and Recreation Department phone numbers
- Popular riding routes

Sample website: Bike Long Beach (CA) - http://www.bikelongbeach.org/

7.4.9 Municipal Bike Fleet

Purpose: Promote work-related trips by bicycle; reduce daytime auto trips

Audience: City employees

Cities are starting to see the benefits of establishing bike fleets for employee use during the day. They can be used for errands or meetings during the day or recreational rides during lunch. Many of these daytime trips, particularly within a downtown or employment center, are within bicycling distance. Bike fleets reduce a public agency's dependence on automobile fleets or personal vehicles and associated employer reimbursements. Because Billings is compact, a municipal bike fleet would be a great asset to city employees.

City of Billings fleet bikes should have racks and fenders, and should be available for check out from administrative staff. Periodic safety checks and necessary maintenance should either be assigned to a City employee with appropriate skills and interest, or can be contracted with a local bike shop.

Sample Program: Humana's Freewheelin' program: http://www.freewheelinwaytogo.com/FWWelcome.aspx

7.4.10Bicycle Benefits Program

Purpose: Create incentives for bicycling

Audience: Current and potential bicyclists

The Billings Bicycle Club launched a Bicycle Benefits program, which offers discounts to local shops for bicyclists. Participants identify themselves through a sticker on their bicycle helmet. It is recommended that the Billings Bicycle Club or Billings BPAC continue and expand this program. The Bozeman Area Bicycle Advisory Board has recently inherited stewardship of the program in Bozeman.

Program Website: http://www.bicyclebenefits.org

7.5 Recommended Evaluation Activities

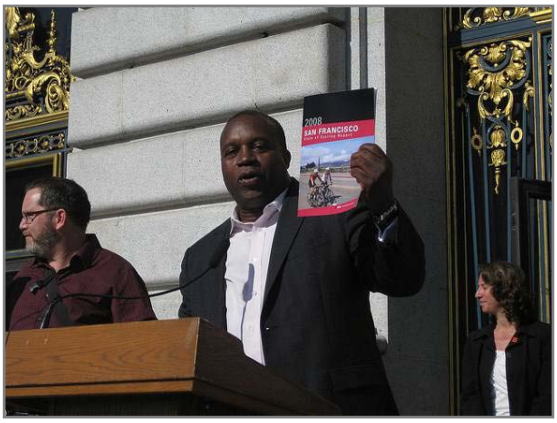
7.5.1 Bicycle and Trails Report Card

Purpose: Assess progress towards achieving the goals of this Plan

Audience: City staff, elected officials, and the general public

In order to assess the effectiveness of the Billings Bikeway and Trails Plan, it is important to track accomplishments and whether the Plan is meeting its stated timeline and objectives.

An annual report should include relevant cycling metrics (number of riders, new on-street and off-street biking facility miles, major completed projects, crashes) and may also include information on user satisfaction, public perception of safety, or other qualitative data that have been collected related to walking and bicycling. Cumulative bikeway and trail mileage should be shown to demonstrate long-term progress in improving infrastructure.



Reports should be shared with the public to demonstrate the region's commitment to improving walking and cycling.

In addition, a report assessing completion of Plan goals and objectives should be included (e.g. progress towards objective 2H ("Complete a 30-mile loop trail that would surround the Billings urban area").

The annual report should be shared with funders, stakeholders, decision makers, and the general public.

Sample annual reports:

- City of New York (NY): http://www.nyc.gov/html/dcp/pdf/transportation/bike_survey.pdf
- City of San Francisco (CA): http://www.sfbike.org/download/reportcard_2006/SF_bike_report_card_2006.pdf
- City of Copenhagen, Denmark: http://www.vejpark2.kk.dk/publikationer/pdf/464_Cykelregnskab_UK.%202006.pdf

7.5.2 Crash Reporting Policies

Purpose: Create reliable database of bicycle and pedestrian crashes

Audience: Agency staff

In order to assess whether safety for bicyclists and trail users is improving, it is essential to create a system to track crashes involving bicycles and gather complete crash data. In order to assess whether safety for bicyclists and trail users is improving, it is essential to create a system to track crashes involving bicycles and gather complete crash data. The current crash reporting system is difficult to use, especially for locating and mapping multiple crash sites. It is recommended that the City of Billings work with the Montana Highway Patrol and the Montana Department of Transportation to update the Statewide crash reporting and records systems to better track pedestrian and bicycle involved crashes.

The resulting system should:

- Record the location of crashes using coordinates (permitting the location to be automatically mapped)
- Use consistent crash type codes that differentiate between common crash types (e.g. left-hook vs. right-hook crashes)
- Include non-injury crashes
- Include crashes on private property
- Include crashes on trails/shared-used paths
- Include non-vehicle crashes

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8 Complete Streets

8.1 Introduction

A complete street is one that is designed and operated to safely accommodate all users, including: motorists, pedestrians, bicyclists, transit, and people of all ages and abilities. A complete street policy causes transportation agencies to design and operate the entire right of way to encompass users of all types and to promote safe access and travel for the users. A complete street policy is put in place to ensure that the streets are safe for bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors.

Complete Streets are designed for all users (image: Complete Streets Coalition – www.completesteets.org)

A complete street may be comprised of many different elements; these elements may include, but are not limited to: sidewalks, bike lanes, crosswalks, wide shoulders, medians, bus pullouts, special bus lanes, raised crosswalks, audible pedestrian signals, sidewalk bulb-outs, and more. The elements that are used can vary from project to project, but the end result is still to achieve a connected network that is safe and effective for all modes of travel.

Aronson Avenue is a Complete Street

8.2 History of Complete Streets in Billings

Complete Streets are nothing new in Billings and have been in existence since the first streets were developed in the downtown area. Over time as technology changed, the focus of road building changed from accommodating all modes including pedestrians, bicyclists, street cars and horses, to the sole purpose of moving large amounts of motor vehicle traffic. The impacts of the change in urban form that resulted from wider auto-centric streets are being felt in society today.

The Alliance for Healthy Places has been one of the most vocal entities for the adoption of a Complete Streets Policy in Billings. Created in 2001, the Alliance is an affiliated partnership of the Chief Executive Officers from the area's two hospitals (Billings Clinic and St. Vincent Healthcare) and RiverStone Health, who are committed to working collaboratively on community and regional health projects. In 2006, the Alliance sponsored a comprehensive Community Health Assessment (CHA) which used national (Healthy People 2010) and state benchmarks to identify opportunities for community health improvement. The results of the CHA were generalizeable to the entire county.

8.2.1 Results of the Community Health Assessment

Results of the CHA illustrate that physical activity rates in Yellowstone County warrant immediate attention. More specifically, over three-fourths (76.4%) of community members do not participate in a regular fitness program. Of those who report non-participation, 22.9% cite not having enough time and 21.4% say the expense of a program deters them from partaking.

Yellowstone County statistics pertaining to physical activity are less favorable than state and national findings, and fail to meet Healthy People 2010 standards. There is a strong correlation between income and physical activity rates. Yellowstone County residents living at low income levels report not getting any physical activity (37.5%) in their leisure time within the last 30 days than middle to high income persons (21.9%).

Creating ways to make physical activity a part of everyday living (i.e., creating mixed use developments that offer convenient places to work and shop within walking distance of residences, encouraging physical activity for school-aged children by providing safe routes to school, developing trails that can be utilized for transportation to destinations, etc.), will help address matters of time and money limitations for physical activity among local residents.

To further address local health issues, the Alliance's member organizations concluded that a Healthy Places Initiative could help improve several indicators in the population's health, specifically those identified in the CHA. The purpose of the Healthy Places Initiative is to provide a framework for Billings to create a community that is healthy by design, (i.e., to intentionally influence the environment in which people live, work and play) so that positive health effects are enhanced and negative health effects are mitigated. Recent rapid development and growth in Billings has also made the need for thoughtful and deliberate plans more immediate.

The creation of the Healthy Places Initiative brought together a valuable network of assets including infrastructure; engineering and planning; the largest medical center in a 500-mile radius; a strong network of non-profits and community action groups; and significant professional expertise.

There has also been a lot of work and collaborating with the City of Billings Planning Department. With support from the Alliance and the Healthy Places Initiative, RiverStone Health, in coordination with the City of Billings Planning Department, began a health impact assessment (HIA) to evaluate and revise the 2003 Yellowstone County/City of Billings Growth Policy. A critical result of the HIA was an understanding of the need to incorporate a community health component into the updated Growth Policy. This community health component has been adopted into the revised 2008 Growth Policy which will guide the growth and development of the local community for the next five years.

The community health component of the 2008 Growth Policy identifies seven public health issues that Yellowstone County is currently experiencing, seven policies to deter each issue, and 40 strategies to be implemented to support the policies. Many of the issues, policies and strategies focus on promoting physical activity as part of everyday living. More overarching, they recognize the benefits of healthy community design and intentionally influencing the way the community develops; is not a matter of whether we grow, but rather how well we grow. Therefore, the Growth Policy has been used as a starting point for collaboration among area partners for coordinating and planning a community which provides its residents a foundation for everyday opportunities for physical activity through smart growth principles.

8.2.2 Complete Streets as a Goal

In 2009 the Healthy Places Advisory Committee identified the adoption of a Complete Streets policy for the City of Billings as a goal. One of the first priorities was to host a Complete Streets Workshop for key stakeholders in the community. The all day workshop occurred in April 2010 and had 35 attendees representing health, planning, City Council, County Commissioners, emergency services, transit, public works, Chamber of Commerce, Safe Routes to School, economic development and parks and recreation.

As a follow-up to this workshop Healthy Places invited back stakeholders for a follow-up meeting in October 2010. In this follow-up meeting the group discussed the obstacles of a Complete Streets policy and the potential benefits of a policy. The group decision was to write a Complete Streets policy for the City of Billings.

8.3 Elements of a Complete Street Policy

All existing Complete Streets policies contain standard elements that together, create an effective and adoptable policy that benefits all roadway users. A complete street policy is put in place to create a standard for complete street implementation. Complete streets are designed and operated to create safe access and travel for 'all users', including pedestrians, bicyclists, transit vehicles and users, and motorists, of all ages and abilities. A complete street policy seeks to create a comprehensive, integrated, and connected network and

promotes transportation agencies to use complete street designs in all appropriate road projects. A Complete Streets policy recognizes the need for flexibility: that all streets are different and user needs should be balanced. Any exceptions to complete street implementation must be clearly and specifically stated within the policy and require high-level approvals so that there is no confusion what type of design needs to be used is required. Standard design places the emphasis on level of service and traffic. A complete street policy should balance the needs of all the users within the design. The design must fit in with the context of the community while using the latest and best standards.

Standards within the policy must be put in place to ensure that an effective policy is created. The policy must create a network that is complete and connected while still allowing for flexibility within the design. All streets are unique and require different levels of attention, so the policy must be flexible enough to accommodate all types of roads and be adoptable by every agency. The policy must apply to both new and reconstruction projects at all levels including planning, design, maintenance, and operations.

Major street improvements are not a requirement during maintenance activities and should not be expected. Maintenance activities do present some opportunities that can improve the environment for other roadway users. While the construction of a sidewalk is not appropriate as part of maintenance activities, facilities such as improved crosswalks, or bike lanes, or a shoulder stripe may be included in a routine re-stripe of a roadway if adequate space exists and the facility is designated to have such facilities in the Billings Area Bikeway and Trail Master Plan or the Billings Urban Area Long-Range Transportation Plan.

Roadway re-striping is a good time to add bike lanes to designated roadways

8.4 Policy Recommendation

The City of Billings should adopt a Complete Streets Policy in 2011 following adoption of the Billings Area Bikeway and Trail Master Plan. The specific language of the policy will need to be drafted with close coordination of the appropriate jurisdictions including city and county departments, MDT and the Healthy Places Initiative.

8.5 Implementation

After adoption of the Complete Streets Policy, effective implementation requires additional steps to ensure success. The City of Billings will need to review their procedures and, if necessary, restructure them, to accommodate all users on every project. In addition, applicable changes to design manuals or public works standards will need to be made to fully encompass the safety and needs of all users by employing the latest in design standards and innovation. Periodic education and training of planners and engineers is also recommended to ensure the latest techniques in balancing the needs of roadway users are being applied. Finally, existing data sources and projects can be tapped to track how well the streets are serving all users.

9 Implementation

9.1 Bikeway and Trail Network Prioritization

This section summarizes the methodology for prioritizing recommended improvements to the Billings bikeway network. Prioritizing these projects will allow Billings to identify high priority projects and provide a foundation for implementation phasing. The prioritization framework relies upon facility-based criteria, as described in the following sections.

9.1.1 On-Street Bicycle Facility Scoring Criteria

Public Input

The Billings Area Bikeway and Trail Master Plan has engaged the public through the public workshop and mapping exercise. Feasible recommended projects with demonstrated public endorsement will qualify for this prioritization criterion.

Proximity to Schools

To encourage more students to walk and bicycle to school, proposed facilities that connect to, or travel within ¼ mile of K-12 schools (public and private), Montana State University-Billings and Rocky Mountain College would qualify for this prioritization criterion.

Connectivity to Existing Facilities

Bicycling is typically higher along designated facilities. Creating connectivity to existing bike facilities enable more trips to be made by bike, and provides bicyclists of varying capabilities multiple routes for reaching their destination. Facilities that connect to an existing bikeway will receive this scoring criterion.

Connectivity to Proposed Facilities

In addition to the existing bikeway network, the Billings Area Bikeway and Trail Master Plan will be proposing the addition of many projects throughout the Billings area. While not as immediately effective for bikeway continuity, facilities that connect to proposed facilities will help create a robust network. Proposed facilities that intersect with other proposed facilities will be awarded this criterion.

Network Gaps

Gaps in the bikeway network discourage bicycling because they limit route continuity or require bicyclists to choose less direct paths to access their destinations. Some bicyclist feel "stranded" when a facility abruptly ends, sometimes forcing them to ride on a street that does not accommodate their proficiency level. Facilities that fill gaps in the existing bikeway network will qualify for this criterion.

Connections to Activity Centers

Activity centers are the major trip-driving destinations within Billings (e.g. parks, commercial districts, large employment centers, etc.). By increasing bicycle accessibility to major activity centers, the Billings Area Bikeway and Trail Master Plan can reduce traffic congestion and support residents and visitors who choose to bicycle or walk for transportation. Projects that connect to these centers qualify for this prioritization criteria.

Street Widening Projects
Street widening often accompanies new development or other street projects. As Billings continues to expand, bicycle facilities should be installed when a street is scheduled to be widened. Furthermore, when bike facilities are included in the Bike Plan, developers may be required to construct the bike facilities that are located on the streets they are developing. This can be an added benefit to the city as Billings will not have to pay for the construction of these bikeways. Facilities that coincide with street widening projects will meet this scoring criterion.

Downtown
Downtown Billings is a major trip generator for the region. Downtown is a major entertainment, commercial and employment hub. As such, it is the destination for many daily trips in Billings. Providing adequate, and a variety of bikeway connections to downtown can positively impact daily bicycle use in the City. Bikeway facilities that provide direct or secondary connectivity to downtown will quality for this criterion.

Cycle Zone Analysis Scoring
The Cycle Zone Analysis (CZA) tool allows the City to better understand which parts of the City are best suited for capturing large numbers of cycling trips. Using the CZA tool for the proposed bikeway facilities, bikeways that score high in terms of generating more bicycle trips will meet this scoring criterion. See section 6.6 for background and methodology regarding Cycle Zones Analysis.

Ease of Implementation
Bike facilities range in project readiness and amount of reconfiguration or prior work that needs to be completed before a facility can be installed. Some streets can accommodate bike lanes with little effort; where as other projects may require significant changes to the travel lanes, medians, street parking, etc. Many cities choose to pursue the "low-hanging fruit" projects to achieve quick wins and build support for more politically complex projects. Bikeway projects that require minimal changes to the built environment will score higher on this criterion.

9.1.2 Trail Scoring Criteria

Public Input
Identical to On-Street Criteria.

Proximity to Schools
Identical to On-Street Criteria.

Connectivity to Existing Facilities
Identical to On-Street Criteria.

Connectivity to Proposed Facilities
Identical to On-Street Criteria.

Network Gaps
Identical to On-Street Criteria.

Connections to Activity Centers
Identical to On-Street Criteria.

Jurisdiction
The proposed trail network encompasses projects within the Billings city limits and within unincorporated Yellowstone County. Trails that exist completely within the Billings city limits or within existing public right-of-way have both a more central location and may be more useful as a starting point during network expansion efforts. Conceptual trails over privately held property in unincorporated areas may not represent high value investments until the network is more developed.

Cycle Zone Analysis Scoring
Identical to On-Street Criteria.

Ease of Implementation
Trail facilities can vary considerably in their ease of implementation. Trail alignments that deal with utility companies, private land owners and railroads may be the most difficult and expensive to realize. Conversely, trails within public rights-of-way and on public lands may be much more straight forward to develop. Topography, length, cost, underlying land ownership, and barriers due to natural features such as the Yellowstone River, or the rim can all impact a project's ease of implementation.

9.1.3 Scoring Measures
The criteria discussed in the previous section were applied to each facility. Each on-street bikeway recommended in Chapter 6 was assigned a numeric value to the degree it meets the criteria requirements. The criteria values are outlined in Table 9.1 – On-Street Bikeway Criteria Scoring and Weight. Proposed trail projects were also assigned criteria values outlined in Table 9.2 – Trail Criteria Scoring and Weight. The criteria scoring (multipliers) were provided by the Billings Area Bikeway and Trail Master Plan Project Steering Committee to emphasize, or de-emphasize its relationship to the overall bikeway network. Tables 9.3 through 9.6 apply the scoring criteria and weights to each proposed facility segment for bike lanes, bike routes, bicycle boulevards and trails. A higher score indicates a particular segment will have a high value to the on-street bikeway network. In general, it is recommended that higher scored facilities should be implemented first; however, the City of Billings should also be opportunistic and construct lower scored bikeway projects when they can be integrated into larger or previously scheduled projects. Private developers should be encouraged to construct bikeways where they lie within project boundaries or within mitigated areas.

Table 9.1 – On-Street Bikeway Criteria Scoring and Weight

Criteria	Score	Multiplier	Total	Description
Public Input	2	2.0	4	Street was identified by the public as desirable for a future facility (multiple times).
	1	2.0	2	Street/location was identified by the public as desirable for a future facility (once).
	0	2.0	0	Was not identified by the public as desirable for a future facility.
Proximity to Schools	2	3.0	6	Direct access to a Billings school.
	1	3.0	3	Secondary access to a Billings school (within 1/4 mile).
	0	3.0	0	Does not directly or indirectly access a Billings school.
Connectivity - Existing	2	3.0	6	Direct access to an existing bicycle facility.
	1	3.0	3	Secondary connectivity to an existing bicycle facility.
	0	3.0	0	Does not directly or indirectly access an existing bicycle facility.
Connectivity - Proposed	2	1.0	2	Direct access to a proposed bicycle facility.
	1	1.0	1	Secondary connectivity to a proposed bicycle facility.
	0	1.0	0	Does not directly or indirectly access an proposed bicycle facility.
Network Gaps	2	3.0	6	Facility fills a network gap between two existing facilities.
	1	3.0	3	Facility fills a network gap between an existing facility and a proposed facility.
	0	3.0	0	Does not directly or indirectly fill a network gap.
Connectivity - Activity Centers	2	2.0	4	Connects to a major trip-driving destination in Billings.
	1	2.0	2	Secondary connectivity to a major trip-attracting destination in Billings.
	0	2.0	0	Bikeway is located on a project scheduled for street widening (1-5 years).
Street Widening Projects	2	3.0	6	Bikeway is located on a project scheduled for street widening (5-10 years).
	1	3.0	3	Bikeway is not located on a project scheduled for street widening.
	0	3.0	0	Does not directly or indirection access a transit station with a half mile.
Connectivity - Downtown	2	1.0	2	Direct access to downtown.
	1	1.0	1	Provides secondary connectivity (located within 1 mile radius) of downtown.
	0	1.0	0	Does not directly or indirectly connect to downtown.
Cycle Zone Analysis Scoring	2	2.0	4	CZA rates this bikeway in a zone best suited for capturing large volumes of bicycle trips.
	1	2.0	2	CZA rates this bikeway in a zone where that is under-serving bicyclists.
	0	2.0	0	CZA does not address this recommended bikeway.
Ease of Implementation	2	2.0	4	Bikeway can be constructed/installed with little configuration to the existing roadway.
	1	2.0	2	Bikeway can be constructed/installed with minor alterations to the existing roadway.
	0	2.0	0	Bikeway project requires major alterations to the existing roadway.

Table 9.2 – Trail Criteria Scoring and Weight

Criteria	Score	Multiplier	Total	Description
Public Input	2	2.0	4	Trail was identified by the public as desirable for a future facility (multiple times).
	1	2.0	2	Trail was identified by the public as desirable for a future facility (once).
	0	2.0	0	Trail was not identified by the public as desirable for a future facility.
Proximity to Schools	2	3.0	6	Direct access to a Billings school.
	1	3.0	3	Secondary access to a Billings school (within 1/4 mile).
	0	3.0	0	Does not directly or indirectly access a Billings school.
Connectivity - Existing	2	3.0	6	Direct access to an existing bicycle or trail facility.
	1	3.0	3	Secondary connectivity to an existing bicycle or trail facility.
	0	3.0	0	Does not directly or indirectly access an existing bicycle or trail facility.
Connectivity - Proposed	2	1.0	2	Direct access to a proposed bicycle or trail facility.
	1	1.0	1	Secondary connectivity to a proposed bicycle or trail facility.
	0	1.0	0	Does not directly or indirectly access an proposed bicycle or trail facility.
Network Gaps	2	3.0	6	Facility fills a network gap between two existing facilities.
	1	3.0	3	Facility fills a network gap between an existing facility and a proposed facility.
	0	3.0	0	Does not directly or indirectly fill a network gap.
Connectivity - Activity Centers	2	2.0	4	Connects to a major trip-attracting destination in Billings.
	1	2.0	2	Secondary connectivity to a major trip-driving destination in Billings.
	0	2.0	0	Does not directly or indirectly connect to an Activity Center.
Jurisdiction	2	3.0	6	Trail is located within the city limits or within public right-of-way.
	1	3.0	3	Trail is partially located within either the city limits or within public right-of-way.
	0	3.0	0	Trail is not within the city limits or within public right-of-way.
Cycle Zone Analysis Scoring	2	2.0	4	CZA rates this trail in a zone best suited for capturing large volumes of bicycle trips.
	1	2.0	2	CZA rates this trail in a zone where that is under-serving bicyclists.
	0	2.0	0	CZA does not address this recommended trail.
Ease of Implementation	2	2.0	4	Trail project can be constructed/installed with the least difficulty.
	1	2.0	2	Trail project can be constructed/installed with minor/moderate difficulty.
	0	2.0	0	Trail project will require major effort and possibly expense to implement.

Table 9.3 – Bike Lane Implementation Matrix

Corridor	Length	Limit 1	Limit 2	Classification	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Street Paving Projects	Downtown	Cycle Zone Analysis	Ease of Implement ation	Score Total
				WEIGHT	2	3	3	1	3	2	3	1	2	2	
17th St	1	Rimrock Rd	Grand Ave	Ready	0	2	2	2	2	2	2	0	2	2	38
S 24th St W/Gabel Rd	2.53	King Ave W	Zoo Dr	Ready	2	2	2	2	1	2	2	0	1	2	37
Governors Blvd/W Hilltop Rd/Hilltop Rd	2.35	W Wicks Ln	Main St	Ready	0	2	2	2	2	2	2	0	1	2	36
Grand Ave	2.83	17th St W	Forest Park Dr	Ready	2	1	2	2	1	2	2	0	2	2	36
Monad Rd	3	S Shiloh Rd	Daniel St	Ready	2	1	2	1	1	2	2	0	1	2	33
13th St W	1	Poly Dr	Lewis Ave	BL - Remove Parking	1	2	2	2	1	1	2	0	2	0	31
Colton Blvd	1.5	Rehberg Ln	17th St W	Ready	2	2	2	2	1	1	0	0	2	2	31
Central Ave	2.54	Shiloh Rd	19th St W	BL - Add Pavement	2	2	2	2	2	2	0	0	1	0	30
Poly Dr	0.56	11th St W	Emerson Pl	Ready	2	1	2	2	1	1	0	2	2	2	30
Rehberg Ln	1	Rimrock Rd	Grand Ave	Ready	2	1	2	2	1	2	0	0	2	2	30
Wicks Ln	2.5	Bench Blvd	High Sierra Blvd	BL - Reconfigure	2	1	2	2	2	2	0	0	1	1	29
Rimrock Rd	1.97	17th St W	Edmond St	BL - Remove Parking	2	2	2	2	1	1	0	2	2	0	29
E Airport Rd	2.68	HWY 3	Alkali Creek Rd	Ready	1	1	2	2	2	1	0	1	1.5	2	29
N 18th St	0.35	6th Ave N	1st Ave N	Ready	0	2	0	2	0	2	2	2	2	2	28
N 27th St	0.96	Rimrock Rd	6th Ave N	BL - Reconfigure	2	2	1	2	0	2	0	2	2	1	27
Poly Dr	0.98	30th St	11th St W	BL - Reconfigure	2	2	1	2	0	2	0	2	2	1	27
Zimmerman Trail	3.8	Rimrock Rd	Gabel Rd	BL - Reconfigure	0	2	2	2	2	1	0	0	1.5	1	27
Broadwater Ave	1.6	35th St W	N 24th St W	Ready	1	1	2	2	2	1	0	0	1	2	27
Bitterroot Dr	2.17	Yellowstone River Rd	Plateau PL	BL - Add Pavement	1	1	2	2	1	0	2	0	1	0	24
Parkhill Dr	2.03	N 32nd St	19th St W	BL - Remove Parking	2	2	1	2	0	1	0	2	2	0	23
1st Ave N	2.03	Division St	Exposition Dr	Ready	2	1	0	2	0	2	0	2	2	2	23
6th Ave N	1.96	Grand Ave	Exposition Dr	Ready	2	1	0	2	0	2	0	2	2	2	23
Poly Dr	0.75	32nd St W	38th St W	BL - Add Pavement	2	1	2	2	1	0	0	0	2	0	22

Corridor	Length	Limit 1	Limit 2	Classification	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Street Paving Projects	Downtown	Cycle Zone Analysis	Ease of Implementation	Score Total
				WEIGHT	2	3	3	1	3	2	3	1	2	2	
Billings Blvd	1.1	Laurel Rd	Midland Rd	BL - Reconfigure	0	2	2	2	0	2	0	0	1	1	22
19th St W	1.37	Parkhill Dr	Central Ave	BL - Remove Parking	2	2	0	2	0	1	2	0	1	0	22
Virginia Lane	0.75	Poly Dr	Grand Ave	BL - Remove Parking	0	2	2	2	1	0	0	1	2	0	22
9th Ave N	0.71	N 32nd St	N 22nd St	Ready	0	2	0	2	0	2	0	2	2	2	22
N 24th St W	2.51	King Ave W	Colton Blvd	Ready	1	2	0	2	0	2	0	2	1	2	22
King Ave E	1.38	Laurel Rd	Orchard Ln	BL - Remove Parking	0	1	2	2	1	2	0	0	1	0	20
Orchard Ln	0.88	Frances Ave	King Ave E	Ready	0	1	2	2	1	0	0	0	1	2	20
Colton Blvd	0.5	Rehberg Ln	Zimmerman Trail	BL - Add Pavement	2	1	2	2	0	0	0	0	2	0	19
High Sierra Blvd	0.37	W Wicks Ln	Siesta Ave	BL - Add Pavement	0	2	2	2	1	0	0	0	1	0	19
King Ave E	1.7	Orchard Ln	Sugar Ave	BL - Add Pavement	0	2	2	2	1	0	0	0	1	0	19
Lewis Ave	2.95	N 24th Ave	Division St	BL - Remove Parking	2	2	1	2	0	1	0	2	0	0	19
4th Ave N	2	Division St	Exposition Dr	Ready	0	1	0	2	0	2	0	2	2	2	19
S 27th St	1.3	1st Ave S	Garden Ave	BL - Reconfigure	0	0	1	2	1	1	0	2	2	1	18
46th St W	0.5	Rimrock Rd	Rangeview Dr	Ready	0	0	2	2	2	0	0	0	0	2	18
Yellowstone River Rd	1.23	Bitterroot Dr	Bench Blvd	BL - Add Pavement	2	0	2	2	1	0	0	0	1	0	17
Zoo Dr	0.91	40th St W	I-90 Frontage	BL - Reconfigure	1	0	2	2	1	0	0	0	1	1	17
8th St W	1.39	Parkhill Dr	Central Ave	BL - Remove Parking	0	2	1	2	0	1	0	0	1	1	17
Lake Elmo Dr	2.3	Robertson Rd	Hwy 10 W	BL - Road Diet	0	1	2	2	1	1	0	1	0	0	17
N 22nd St	0.47	Burnstead Dr	6th Ave N	Ready	0	1	0	2	0	1	0	2	2	2	17
Wicks Ln	1	Bench Blvd	Bitterroot Dr	BL - Add Pavement	0	2	2	2	0	0	0	0	1	0	16
HWY 3	3.92	Zimmerman Trail	N 27th St	Ready	0	1	0	2	0	1	0	2	1	2	15
S Billings Blvd/Blue Creek Rd	2.9	Midland Rd	Briarwood Blvd	BL - Add Pavement	0	0	2	2	0	2	0	0	1	0	14
11th Ave N	0.71	N 32nd St	N 22nd St	BL - Remove Parking	1	0	0	2	0	2	0	2	2	0	14

Corridor	Length	Limit 1	Limit 2	Classification	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Street Paving Projects	Downtown	Cycle Zone Analysis	Ease of Implement ation	Score Total
				WEIGHT	2	3	3	1	3	2	3	1	2	2	
Central Ave W	1.67	19th St W	Access St	BL - Road Diet	2	0	2	2	0	1	0	0	0	0	14
Hilltop Rd	0.26	Bench Blvd	Hwy 10 W	BL - Road Diet	0	1	1	2	0	2	0	0	1	0	14
Babock Blvd	0.93	W Wicks Ln	Governors Blvd	Ready	0	1	1	2	0	0	0	0	1	2	14
Overland Ave	0.66	S 24th St W	King Ave	Ready	0	0	0	2	0	1	2	0	0	2	14
Alkali Creek Rd	0.24	Main St	Airport Rd	BL - Reconfigure	2	0	1	1	0	0	0	1	1	1	13
Jackson St	0.89	State Ave	Murphy Ave	BL - Remove Parking	0	2	1	2	0	0	0	0	1	0	13
Riverside Rd	1	King Ave E	State Ave	BL - Add Pavement	2	1	0	2	0	0	0	1	1	0	12
Rod and Gun Club Rd	0.54	Ironhorse Trail	Airport Rd	BL - Add Pavement	0	0	2	2	1	0	0	0	0	0	11
5th St W	0.96	Montana Ave	Grand Ave	BL - Remove Parking	1	2	0	2	0	0	0	1	0	0	11
S 20th St W	0.51	Monad Dr	King Ave	Ready	0	0	1	2	0	1	0	0	0	2	11
S 34th St	0.5	1st Ave S	State Ave	BL - Add Pavement	0	2	0	2	0	0	0	0	1	0	10
State Ave	1.52	1st Ave S	S 27th St	BL - Road Diet	0	0	0	2	0	0	0	1	1	0	5
Sugar Ave	0.7	State Ave	King Ave E	BL - Add Pavement	0	0	0	2	0	0	0	0	1	0	4

Table 9.4 – Bike Route Implementation Matrix

Corridor	Length	Limit 1	Limit 2	Classification	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Street Paving Projects	Downtown	Cycle Zone Analysis	Ease of Implement ation	Score Total
				WEIGHT	2	3	3	1	3	2	3	1	2	2	
Avenue C	0.3	3rd St W	N 32nd St	Bike Route	2	2	2	2	1	1	0	2	2	2	33
13th St	0.25	Rimrock Rd	Poly Dr	Bike Route	1	2	2	2	2	0	0	0	1	2	28
Virginia Ln	0.26	Rimrock Rd	Poly Dr	Bike Route	1	1	1	2	1	1	0	1	2	2	24
28th St W	0.55	Grand Ave	Broadwater Ave	Bike Route	0	2	2	2	1	0	0	0	1	2	23
Lewis Ave	0.4	N 24th St W	Parkview Dr	Bike Route	2	0	2	2	1	1	0	0	1	2	23
Crist Dr	0.34	Main St	Yellowstone River Rd	Bike Route		0	2	2	2	0	0	0	1	2	20
Wingate Ln	0.52	Rimrock Rd	Colton Blvd	Bike Route	0	1	2	2	1	0	0	0	1	2	20
10th St W	1.4	Parkhill Dr	Central Ave	Bike Route	0	2	0	2	0	2	0	0	1	2	18
12th St W	0.75	Lewis Ave	Central Ave	Bike Route	1	1	1	2	0	2	0	0	0	2	18
15th St	1.9	Parkhill Dr	Monad Rd	Bike Route	1	1	0	2	0	2	0	0	1	2	17
Simpson St	0.87	Newman Ln	Jackson St	Bike Route	0	2	1	2	0	0	0	0	1	2	17
Wentworth Dr	1.4	Annandale Rd	Wicks Ln	Bike Route	0	0	1	2	0	2	0	0	1	2	15
Calendula Cir-Butterfly Lake Ln	0.73	Nutter Blvd	Uinta Park Dr	Bike Route	0	0	0	1	0	0	0	0	1	2	7

Table 9.5 – Bicycle Boulevard Implementation Matrix

Corridor	Length	Limit 1	Limit 2	Classification	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Street Paving Projects	Downtown	Cycle Zone Analysis	Ease of Implement ation	Score Total
				WEIGHT	2	3	3	1	3	2	3	1	2	2	
Miles Ave – Terry Ave	3.3	28th St W	Montana Ave	Bicycle Boulevard	1	2	2	2	1	2	0	2	0.5	1	28
Avenue D	2.02	21st St W	Virginia Ln	Bicycle Boulevard	0	2	1	2	1	2	0	1	2	1	25
N 32nd St	0.82	Grand Ave	Poly Dr	Bicycle Boulevard	0	2	1	2	0	1	0	2	2	1	21
Kooteniza Ave – Constitution Ave	1.2	Calico Ave	Nutter Blvd	Bicycle Boulevard	0	2	1	2	0	1	0	0	1	1	17
Yellowstone Ave	2.9	22nd St W	Division St	Bicycle Boulevard	1	1	0	2	0	2	0	1	1	1	16
Berthoud Dr - Santa Fe Dr	0.69	Monad Rd	St Johns Ave	Bicycle Boulevard	0	2	1	2	0	1	0	0	0	1	15
4th Ave S	0.92	S 27th St	State Ave	Bicycle Boulevard	0	1	1	2	0	1	0	1	1	1	15
2nd St W	0.82	Ave C	Miles Ave	Bicycle Boulevard	0	1	1	2	0	0	0	1	1	1	13

Table 9.6 – Trail Implementation Matrix

Corridor	Length	Limit 1	Limit 2	Class	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Jurisdiction	Cycle Zone Analysis	Ease of Implement ation	Score Total
				WEIGHT	2	2	3	2	3	2	1	2	2	
BBWA to Swords Park Trail	5.5	Aronson Avenue	Lillis Park	Trail	1	2	2	2	2	2	2	2	0	32
Broadwater/Arnold Drain Trail	1	Zimmerman Trail	Shiloh Road	Trail	2	1	2	2	2	1	2	1	2	32
Alkali Creek Trail	0.5	Aronson Avenue	Black Pine Street	Trail	2	1	2	1	2	1	2	1	2	30
Colton Connector Trail	1	32nd Street West	38th Street West	Trail	0	2	2	2	2	1	2	2	0	28
Yellowstone River Trail	2.5	Mystic Park Trails	Riverfront Park Trails	Trail	2	0	2	2	2	2	2	1	0	28
Broadwater Trail	0.5	Broadwater Trail Crossing	Zimmerman Trail	Trail	0	1	2	2	2	1	2	1	2	28
Heights BBWA Trail	3	Aronson Avenue	Lake Elmo State Park	Trail	1	1	2	2	2	2	2	1	0	28
Zimmerman Trail Trail	1	Highway 3	Poly Drive	Trail	1	0	2	2	2	1	2	2	0	26
King Avenue Trail	1	S 44th Street West	Hogans Slough	Trail	2	0	2	2	1	1	2	1	1	25
Arnold Drain/ Shiloh Road Connector Trail	1	Broadwater Avenue	Shiloh Road	Trail	2	0	2	2	1	2	2	1	0	25
ACEC Trail	0.5	Riverfront Park Trail	Josephine Crossing Trail	Trail	0	0	2	2	2	1	2	1	1	24
Four Dances Connector Trail	1	Lockwood Trail	Four Dances Natural Area Trails	Trail	0	0	2	2	2	1	2	0	2	24
Will James Middle School Connector Trail	0.5	Will James School	Broadwater Avenue	Trail	0	2	1	2	2	1	2	1	0	23
Canyon Creek Trail	6	ZooMontana	BNSF Rail with Trail	Trail	0	2	2	2	1	1	1	1	0	22
ACEC Connector Trail	0.5	ACEC Trails	Mullowney Lane	Trail	0	0	2	2	1	1	2	1	1	21
Spring Creek Extension Trail	1	24th Street West	15th Street West	Trail	0	2	2	2	1	1	2	0	0	21
Rimrock Road Trail	1.5	54th Street West	Cove Ditch	Trail	1	0	2	2	1	0	2	0	2	21
Big Ditch Trail	2.5	Rimrock West Trail	Hogans Slough	Trail	0	1	2	2	1	0	2	0	2	21
Snow Ditch Trail	2	Shiloh Road	Big Ditch	Trail	0	2	2	2	1	0	2	0	1	21
Transtech Connector Trail	0.5	Transtech Way	BBWA Trail	Trail	0	0	2	2	2	0	2	1	0	20
Hogans Slough Trail	5.5	Shiloh Road	BNSF Rail with Trail	Trail	1	2	1	2	1	0	2	1	0	20
Downtown Connector Trail	1	S 25th Street and 7th Avenue South	Coulson/ Mystic Park Trail	Trail	0	0	2	1	1	2	2	1	0	19

Corridor	Length	Limit 1	Limit 2	Class	Public Input	Schools	Connectivity - Existing	Connectivity - Proposed	Gaps	Activity Centers	Jurisdiction	Cycle Zone Analysis	Ease of Implement ation	Score Total
				WEIGHT	2	2	3	2	3	2	1	2	2	
High Ditch Trail	4	Rimrock West Trail	Hogans Slough	Trail	0	0	2	2	1	0	2	0	2	19
Monad Trail	1	S 45th Street West	Hogans Slough	Trail	0	1	2	2	1	0	1	1	0	18
Inner Belt Loop Trail	6.5	Governors Boulevard	Highway 3	Trail	0	1	1	2	0	1	1	1	2	18
Arnold Drain Trail	0.5	Arnold Drain Connector	Grand Ave	Trail	2	0	0	2	0	1	2	1	2	18
Rehberg Ranch Trail	1	End of Trail in Rehberg Ranch Subdivision	Inner Belt Loop	Trail	0	0	2	2	1	0	2	0	1	17
Two Moon Park to Five Mile Creek Trail	3	Kiwannis Trail	Five Mile Creek	Trail	0	0	2	2	1	0	2	1	0	17
Western Yellowstone River Trail	5	Josephine Crossing Trail	Shiloh Road Trail	Trail	2	0	1	2	0	1	1	1	0	16
Senators Park Trail	1	Aronson Avenue	Inner Belt Loop Trail	Trail	0	1	0	2	0	1	2	1	2	16
MRL Rail with Trail	9	I-90	Shiloh Road	Trail	1	1	0	2	0	2	1	1	0	15
Briarwood to Blue Creek School Trail	1.5	Briarwood Boulevard	Blue Creek School	Trail	2	2	0	2	0	0	2	0	0	14
Monad Trail	2.5	BBWA Canal Trail	48th Street West	Trail		0	1	2	0	0	2	0	2	13
25th Street Railroad Bridge	0.5	Montana Avenue	Minnesota Avenue	Trail	0	0	0	2	0	2	2	1	0	12
South Hogans Slough Trail	1	Suburban Ditch	MRL Rail with Trail	Trail	1	0	0	2	0	1	2	1	0	12
Heights Upper Loop Trail	4.5	Yellowstone River	Alkali Creek Road	Trail	0	0	0	2	0	0	1	1	2	11
Zimmerman Trail Trail	1	Highway 3	Poly Drive	Trail	0	0	0	2	0	0	1	1	2	11
Lockwood Trail	6	I-90	Bobolink St and Dickie Rd	Trail	0	1	1	2	0	0	1	0	0	10
Castle Rock Trail	1	Governors Boulevard	BBWA Canal	Trail	0	0	0	2	0	0	2	1	1	10
Cove Ditch Trail	2	Molt Road	Hogans Slough	Trail	2	0	0	2	0	0	0	0	1	10
Briarwood to Pictograph Caves Trail	2.5	Briarwood Boulevard	Pictograph Caves Sate Park	Trail	0	0	0	0	0	2	2	0	0	6
Birely Drain to Big Ditch Trail	3	Big Ditch and Hogans Slough	Canyon Creek	Trail	0	0	0	2	0	0	1	0	0	5
BNSF Rail with Trail	15	MRL Rail with Trail	Highway 3	Trail	0	0	0	2	0	0	1	0	0	5

9.2 Maintenance Costs

9.2.1 On-street Bikeway Maintenance

This section is intended to provide clarification of trail maintenance provided by Public Works Department (PWD). The City of Billings, Public Works Department does provide maintenance for on street bikeways and trails constructed within City right-of-way. All maintenance will be dependent on available funding.

The following maintenance is accomplished for on-street bike lanes constructed along Arterial and Collector streets:

Snow

Arterial and Collector Streets are the first priority. Once snow removal is completed on these streets staff is assigned to plow snow from the trails accompanying the roadways.

Sweeping

All on-street bike lanes along Arterial and Collector Streets are swept in the spring of each year. Trails are monitored and may be swept up to two additional times during the year as needed.

Repairs

All asphalt surfaces will be repaired.

Maintenance of trails constructed within Residential Street and Alley right-of-way:

Sweeping

All trails are swept in the spring of each year. Trails are monitored and may be swept up to two additional times during the year as needed.

Repairs

All asphalt trail surfaces will be repaired.

For information about off-street trail maintenance in Billings, please reference the Billings Area Trail Asset Management produced as a parallel effort to the Billings Area Bikeway and Trail Master Plan by Sanderson Stewart. This document is provided as Appendix B.

9.3 Bikeway and Trail Funding Sources

The following section outlines sources of funding for bicycle and pedestrian projects in Montana. The chapter identifies Federal, State, and private sources of funding. Funding sources can be used for a variety of activities, including: planning, design, implementation and maintenance. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

9.3.1 Federal

Federal funding is primarily distributed through a number of different programs established by the Federal Transportation Act. The latest federal transportation act, The Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU) was enacted August 2005, as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and

transit for the 5-year period 2005-2009. Since 2009 extensions of SAFETEA-LU have been passed to maintain funding levels. The scheduled update to the Federal Transportation bill has yet to be passed. All Federal funding sources are State administered.

Petroleum Violation Escrow Account (PVEA)

PVEA funds come from fines paid by oil companies in the 70's for violating oil price caps set by the federal government. The Department of Energy's State Energy and Weatherization Assistance Program distributes the money at the state level through grants. PVEA funds projects with an emphasis on energy saving, including public transportation and bridge construction or maintenance. This source of funding is not managed by MDT.

Transportation, Community, and System Preservation Program (TCSP)

Implementation grants under the TCSP Program are intended to provide financial resources to States, metropolitan planning organizations, local governments and tribal governments to enable them to carry out activities that address transportation efficiency while meeting community preservation and environmental goals. Examples of such policies or programs include spending policies that direct funds to high-growth regions of the country; urban growth boundaries to guide metropolitan expansion; "green corridors" programs that provide access to major highway corridors in areas targeted for efficient and compact development.

National Highway System (NHS)

This program funds improvements to rural and urban roads that are part of the National Highway System (NHS), including the interstate system. Bicycle and pedestrian facilities within NHS corridors are eligible activities for NHS funds.

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides States with flexible funds, which may be used for a wide variety of projects on any Federal-aid Highway including the NHS, bridges on any public road, and transit facilities.

Bicycle and pedestrian improvements are eligible activities under the STP. This covers a wide variety of projects such as on-road facilities, off-road trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. SAFETEA-LU also specifically clarifies that the modification of sidewalks to comply with the requirements of the Americans with Disabilities Act is an eligible activity.

As an exception to the general rule described above, STP-funded bicycle and pedestrian facilities may be located on local and collector roads that are not part of the Federal-aid Highway System. In addition, bicycle-related non-construction projects, such as maps, coordinator positions, and encouragement programs, are eligible for STP funds.

Federal Transit Funds

Transit Funds may be used on an 80 percent federal and 20 percent state or local basis for bicycle and pedestrian access to transit facilities, or to install racks or other equipment for transporting bicycles on transit vehicles.

9.3.2 State Administered Funding Sources

Historically, MDT has been actively involved in the funding of bicycle and pedestrian facilities. The 1985 Footpath and Bicycle Act (Montana Code Annotated 60-3-301) is the only Montana statute that specifically addresses bicycle and pedestrian funding. This act sets a minimum annual spending requirement for footpaths and bicycle trails. Through the federal programs and other initiatives, MDT has consistently exceeded this minimum requirement.

Montana Safe Routes to School (SRTS) Program

The Safe Routes to School Program was created under Section 1404 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The objective of SRTS is to encourage children K-8 to walk and bike to school. Consistent with other federal-aid programs, each State Department of Transportation (DOT) is held responsible for the development and implementation of grant funds made available to the states through this program throughout the life of SAFETEA-LU. Montana is a minimum apportionment state and receives $1,000,000 annually. The Montana Department of Transportation (MDT) solicits grant applications on a yearly basis. In addition, reauthorization of the federal transportation bill is underway in the U.S. Congress at the present time, and it is unclear what funding level will be allocated to the SRTS program going forward.

Montana's Community Transportation Enhancements Program (CTEP)

MDT is responsible for administering federal funds allocated to the state for transportation related projects designed to strengthen the cultural, aesthetic, and environmental aspects of Montana's multi-modal transportation system. Federal legislation requires that 10 percent of the Surface Transportation Program (STP) funds each state receives annually must be spent on eligible projects in 12 designated Transportation Enhancement Categories. Three of the CTEP eligible categories can directly apply to bikeway and trail development:

- Pedestrian and bicycle facilities
- Preservation of abandoned railway corridors (including the conversion and use for pedestrian and bicycle trails)
- Safety education activities for pedestrians and bicyclists.

CTEP funding requires a 13.42 percent local match. The program is a federal reimbursement program. Funds are distributed to the eligible local governments based on population figures from the U.S. Bureau of the Census. The City of Billings currently receives approximately $600,000 from CTEP annually.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program, provides a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act, and its amendments. CMAQ funds support transportation projects within areas designated by the Environmental Protection Agency as nonattainment or maintenance areas by reducing mobile source emissions. Eligible projects include transit improvements, bicycle and pedestrian facilities. Missoula and Lincoln are the only non-attainment area in the State of Montana as of 2009.

Recreational Trails Program (RTP)

The Recreational Trails Program provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include

hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses. The Montana Fish, Wildlife & Parks (FWP) administers RTP funds in the form of grants. FTP grants may not exceed 80 percent of the total of an individual project and funding is provided as a reimbursement for project expenditures incurred.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails.
- Development and rehabilitation of trailside and trailhead facilities and trail linkages.
- Purchase and lease of trail construction and maintenance equipment.
- Construction of new trails (with restrictions for new trails on federal lands).
- Acquisition of easements or property for trails.
- State administrative costs related to this program (limited to seven percent of a State's funds).
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

Land & Water Conservation Fund Program –LWCF

The Land and Water Conservation Fund Act of 1965 established a federal grants program encouraging a full partnership between national, state, and local governments in planning and funding outdoor recreation projects. The LWCF Program in Montana is administered by FWP. The program is a competitive grant process. Trails are an eligible facility type. LWCF helped provide funding for the construction of the Descro Trail in Billings.

9.3.3 Local Funding Sources

Park District Formation

The existing subdivision policy requires new subdivisions to create a park maintenance district to maintain new public parks and trails created within the subdivision. This mechanism can only be used for parks and trails located in new subdivisions. It cannot be used for new trails created within existing parks. Individual park maintenance districts create a fragmented system and an incomplete mechanism for maintaining the entire system of parks and trails. A city-wide or county-wide maintenance district would provide a more comprehensive approach to system-wide funding for park and trail maintenance.

Park maintenance districts generally fund maintenance of landscaping, trees, irrigation systems, trails, sidewalks, lighting and park equipment. The purpose of the district is to provide perpetual maintenance of the improvements. Maintenance costs are estimated and approved by the City Council on an annual basis and each lot within the district is assessed an equal amount.

Private Donations

The City of Billings and Yellowstone County can receive donations of money or materials for trail development.

Local Bond Measures

Local bond measures, or levies, are usually initiated by voter-approved general obligation bonds for specific projects. Bond measures are typically limited by time based on the debt load of the local government or the project under focus. Funding from bond measures can be used for right-of-way acquisition, engineering,

design and construction of pedestrian and bicycle facilities. Jackson, Wyoming recently passed a $6 million bond for trail/pathway construction.

Street Maintenance Fees

The City of Billings administers street user maintenance fees generated from individual property owners. The revenue generated by the fee is used for operations and maintenance of the street system, and priorities are established by the Public Works Department. Revenue from this fund should be used to maintain on-street bicycle and pedestrian facilities, including routine sweeping of bicycle lanes and other designated bicycle routes. The City of Bozeman recently increased its street maintenance fees to pay for increased levels of service to the community.

Gas Tax Apportionment

Revenues are generated though State gasoline taxes apportioned from the State of Montana. Transfers are made from this fund to the General Fund to reimburse expenditures for construction, reconstruction, repair and maintenance of streets. Half of the City's allocation is based on population, and half is based on the miles of streets and alleys in the City. It is recommended that 5% of Yellowstone County and the City of Billings' apportionment be dedicated to non-motorized facility maintenance for facilities within public rights-of-way.

Developer Impact Fees

These fees are paid by developers to help finance improvements to the street network. The fee structure is based on the number of residential units or gross square footage of commercial buildings being constructed.

Developer Exactions

Road construction or roadway improvements (including bike lanes and trails) are performed by developers as a condition of approval for their development project pursuant to the Montana Subdivision and Platting Act. Improvements are typically limited to the local roads within, and the road system adjacent to, the proposed development.

Tax Increment Financing (TIF)

TIF districts have been used in the Billings area or more than 30 years. When a district is created, property values are established at a base level. After that, any taxes generated by increased property values are diverted from traditional taxing entities and invested into public infrastructure such as streets, water and sewer or new buildings for a specified number of years. TIF money can be used for bicycle racks, and pedestrian/trail connections. TIF districts are now in existence in downtown Billings, in the area between downtown and MetraPark and in south Billings near Cabela's. Laurel also has a TIF district.

Dedicated City/County funding source

Many cities also provide an annual amount from the city general fund for the expressed purpose of developing or supporting bicycle, pedestrian and/or trail projects. This fund can be managed by the Alternate Modes Coordinator, or by the Bicycle and Pedestrian Advisory Committee (PBAC). Funds can be used for infrastructure, programs, or other supporting activities and allow the City of Billings/Yellowstone County to be flexible and pursue projects that are backed by strong community need.

9.3.4 Private & Non Profit

The following are funding sources capable of supporting bicycle and pedestrian facilities and programs from private and non-profit sources.

Bikes Belong Coalition, Ltd.

The Bikes Belong Coalition is sponsored by the American Bicycle Industry with a mission of encouraging more people to ride bicycles throughout the United States. Grants of up to $10,000 are administered to develop bicycle facilities through the Federal Transportation Act. The City of Billings has previously secured $22,500 from this source and it may be some time before additional funds can be secured.

Robert Wood Johnson Foundation (RWJF)

RWJF funds are designed to improve health and health care in the United States. RWJF funds approximately 12 percent of unsolicited projects with grant-funds ranging from $2,000 to $14 million. Bicycle and pedestrian projects applying for RWJF funds would qualify under the programs goal to "promote healthy communities and lifestyles."

St. Vincint's Hospital & Billings Clinic

St. Vincent Healthcare and Billings Clinic are the two major hospitals in the Billings area. As health care providers, St. Vincent and Billings Clinic are promoting healthy lifestyles for Billings' residents. As part of promoting healthy lifestyles, they could be a partner for education and encouragement programs. One example of a program that both hospitals participate in is the THINK first bicycle helmet program. This program provides discounted helmets to children.

Adopt-a-mile markers can reinforce the "brand" of a trail while acknowledging donor support. source: aboitenewtrails.com

Concept of a Adopt-a-Mile marker with changeable donation sign and optional supplemental mile number plaque

BikeNet

BikeNet is a non-profit group that supports trails in the Billings Area. BikeNet has been a major contributor of funding for the building of new trails in the Billings area. BikeNet funds are generally used as a local match to the Community Transportation Enhancement Program. BikeNet raises money through events, donations and membership. BikeNet has also lent support in education, by providing League of American Bicyclists education courses.

9.3.5 Donor Recognition: Garnering Financial Support and Enhancing Trail Systems

Background

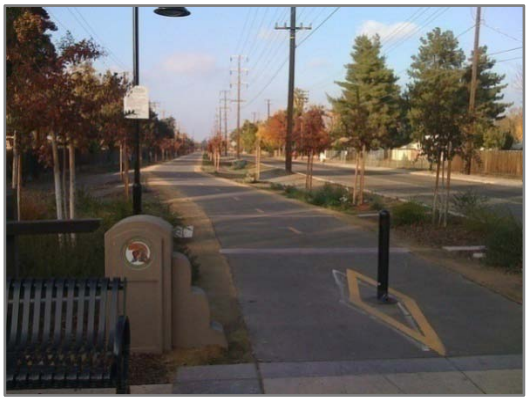
Planning and construction costs for bicycle trails are just the beginning in developing bikeway systems. Trails require ongoing maintenance and monitoring,

to ensure that the trails are safe, hazard-free, and in a condition where users may enjoy them freely.

To assist with the ongoing costs of trail supervision and maintenance, cities and organizations have developed different ways to raise funds in support of these facilities. One method of collecting financial support for trail systems is by allowing individuals and organizations to sponsor portions of a trail, to donate specific amenities to be used along the trail, or to make general contributions to the trail network. These three options are outlined below.

Adopt-a-Mile

An "adopt-a-mile" program will allow individuals or organizations to sponsor segments of the Billings trail system. Annual estimates for maintaining one mile of trail in Billings varies depending on whether the trail is within an existing parks district, within a City of Billings roadway right-of-way or as a trail in a separate alignment. Depending on the maintenance needs this amount can vary from approximately $2,600 to $4,000 (*Billings Area Trail Asset Management Plan, 2011 – Appendix B*). In order to supplement these costs, it is recommended that a floating scale of $2,000-$5,000 for annual mile sponsorships be implemented. The price for sponsorship will depend on the trail segment's location, proximity to other facilities, popular destinations, and so forth. "High profile" segments will have more riders, and therefore give more exposure to the donors.



Benches and other trail amenities welcome users and provide additional opportunities for trail branding and donor recognition

The suggested duration of the sponsorship is three years, with discounts for subsequent renewals. Some of the funds generated from this program should be diverted to staff responsible for administering this program. Donors will be notified that while their recognition will be designated over a specific mile, their funding will be used to support the entire trail system. Mile markers should be installed along existing trail segments. Mileage over gaps in the system should be estimated to the greatest degree possible with mile markers continuing on subsequent segments. It may be possible for some trails to have segments that would be under a mile in length. Such segments could be sponsored at a pro-rated discount. As the trail network in Billings continues to grow, so will the potential financial support through the 'Adopt-a-Mile' program.

Ideally, a non-profit organization such as BikeNet, the Yellowstone River Parks Association (YRPA) or the Billings Parks, Recreation and Preservation Foundation will administer the program and collect funds so that they are tax deductible to donors. The funds would be allocated to either the City or County for trail maintenance purposes based on the proportion of maintenance contributed to the system.

Trail Amenity Donation

In addition to the upkeep and maintenance of trails, amenities can have a strong influence on the trail "experience" and encouraging its active use. A system is recommended whereby individuals or organizations can purchase trail amenities to be installed at locations along the Billings trail system. Billings Parks & Recreation has received interest from residents in the past for providing amenities. Locations for the specific amenities can be recommended by the donor, but ultimately will be determined at the City's discretion. Prices for trail amenities range between $200-$5,000. Billings Parks & Recreation should provide a standardized

model of each amenity listed in Table 9.7. It is envisioned that these models become standardized through the development and design of the Swords Park Trail in 2011.

Table 9.7 – Recommended Trail Amenities for Donation

Amenity	Donation Level
Bike Rack	$200
Bench	$600
Plaque at Trailhead	$1,000
Water Fountain	$2,000
Lamp/Lighting Fixture	$3,500
Information Kiosk	$5,000
Public Art Installation	Varies
Play Equipment	Varies

9.3.6 General Donations

Some individuals or organizations may not be interested in the adopt-a-mile or amenity sponsorship programs. For donors who can afford higher levels of contribution, the City can set up a general donation program that creates a "tiered" form of recognition. Donations can range from $5,000-$75,000 dollars and could be acknowledged on a special "friends of the Billings Trail System" website. Larger donors could be recognized at trailheads, or be included in special donor appreciation events/fundraisers. Such events acknowledge the generosity of the community, and can serve as a further promotional tool for additional donors.

Since much of the existing trail network in Billings has been assisted through private donations it would be beneficial to recognize past contributions. BikeNet and YRPA could each provide a monument of their choosing at a location along the trail system. Past and future donors could be recognized within these monuments. Billings Parks, Recreation and Public Lands Department should work with BikeNET and YRPA to locate a suitable location for monument installation. High exposure areas such as intersections of several major trails would be most visible to users.