

Urban Trail Master Plan

KLAMATH FALLS URBAN TRAIL MASTER PLAN

Klamath Falls, OR

Prepared for:

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Klamath County**

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Urban Trail Master Plan

Klamath Falls Urban Trail Master Plan

Klamath Falls, Oregon

Final

June 2016

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Klamath County

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.



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Section 1
Executive Summary

EXECUTIVE SUMMARY

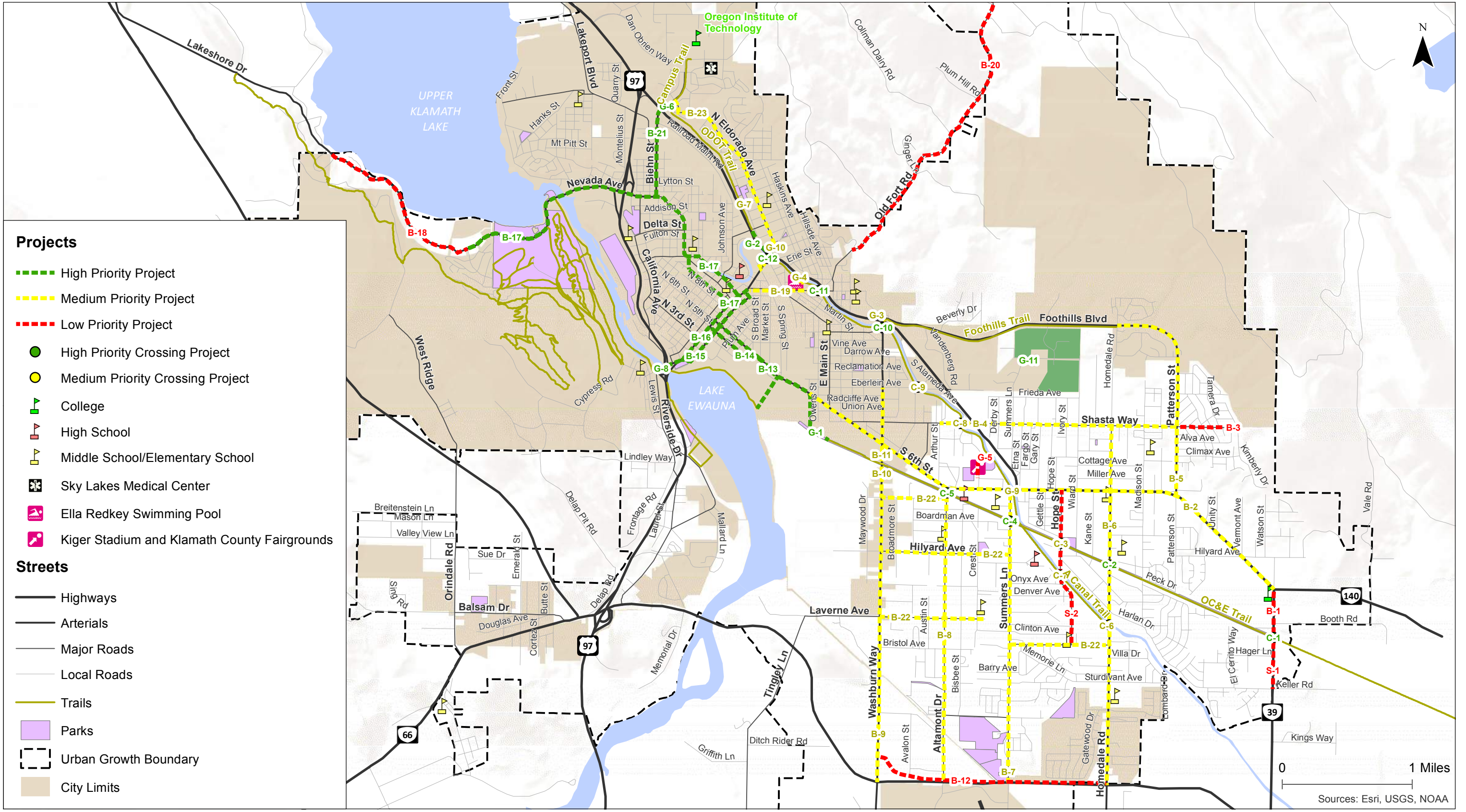
The Klamath Falls Urban Trail Master Plan was developed through a collaborative process involving a team of stakeholders from the community and relying heavily on public input. The plan is intended to guide investment in the urban trail system and connections to nearby facilities and activity centers. It provides a summary of the projects, policies, programs, and studies needed to complete the trail network and outlines priorities for the City and County to implement. Figure EX-1 shows the locations of the plan elements, and Table EX-1 provides a description of them.

The plan includes the following sections:

- **Introduction:** This section highlights the purpose of the plan and overarching goals. This section also describes the document review conducted at the beginning of plan development and summarizes the public engagement process.
- **Urban Trail Master Plan:** This section provides an overview of the existing trail network and provides the final urban trail master plan, which lists the prioritized plan elements and maps the project locations. Basic information, such as priority, description, location, category, estimated cost, and potential funding sources are provided for each element.
- **Implementation Plan:** This section provides an overview of the existing funding sources available and a description of opportunities for additional funding in the future.

The appendices provide additional information to support the plan development, including the Technical Memorandums summarizing the Existing Conditions and Alternatives Analysis.





K:\H_Bendroglou\16074 - Klamath Falls Trail Master Plan\GIS\FinalReport\Figure EX-1 Prioritized Plan Elements.mxd - agriffin - 9:06 AM 1/29/2016

Plan Elements
Klamath Falls, Oregon
Figure EX-1

Table EX-1. Prioritized Plan Elements

ID*	Project Description	Cost Estimate^
High Priority Projects		
G-1	Connect the OC&E Trail to downtown Klamath Falls via 6th Street bridge by widening sidewalk to provide for shared-use path. Provide a connection to the soon to be constructed Lake Ewauna trail. (Note: Lake Ewauna trail connection alignment is not confirmed; cost estimate does not include this connection.)	\$859,500
G-2	Connect the "A" Canal Trail to the ODOT Trail by widening the sidewalks to provide for a shared-use path.	\$166,500
G-6	Connect the Campus Trail to the Biehn Street bike lanes and sidewalk by widening the sidewalk on the south side of Campus Drive to complete the shared-use path connection. Possible modifications are needed at the Crater Lake Parkway intersection.	\$108,800
G-8	Connect Veteran's Park to the Link River Trail by widening the sidewalk on the north side of Main Street to provide for a shared use path. Install a crossing across Main Street west of the park road's access to Main Street to connect Veteran's Park with the path. Sharrows may work as an interim solution.	\$90,600
G-11	Formalize connections between Summers Lane and Steens Sports Park to provide southern connections to the park.	\$150,000
C-1	OC&E Trail crossing of OR 39: TBD by ongoing ODOT and Oregon Parks study	TBD
C-2	OC&E Trail crossing of Homedale Road: TBD by ongoing ODOT and Oregon Parks study	TBD
C-4	OC&E Trail crossing of Summers Lane: TBD by ongoing ODOT and Oregon Parks study	TBD
C-5	OC&E Trail crossing of Altamont Drive: TBD by ongoing ODOT and Oregon Parks study	TBD
C-10	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Washburn Way. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
C-11	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Main Street. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
C-12	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Esplanade Avenue. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
B-13	Install bike lane on 6th Street between Market Street and Main Street.	\$15,700
B-14	Install bike lane on 5th Street between Main Street and 6th Street.	\$19,400
B-15	Install bike lanes on Klamath Avenue between Conger Avenue and Commercial Street. Coordinate with the Blue Zones project.	\$28,700
B-16	Install bike lanes on Main Street between Esplanade Avenue and Mill Street. Coordinate with the Blue Zones project.	\$24,600
B-17	The bicycle facility between Moore Park and downtown Klamath Falls will be determined by an ongoing project.	\$556,200
B-21	Widen the bike lanes on Biehn Street between Crater Lake Parkway and Oregon Avenue by restriping the roadway.	\$33,400
P-1	Develop a program to install and maintain wayfinding signage at all trailheads and trail crossings of public streets. <i>See Appendix F for more information.</i>	--
P-2	Develop a policy that requires bicycle parking to be provided at key locations and pursue grant funding to provide it at key locations where it is missing.	--
Medium Priority Projects		
G-3	Connect the "A" Canal Trail to the Foothills Trail by widening the sidewalk on the east side of the bridge to provide a shared use path between the intersection and the "A" Canal trail. Tighten the curb radius for NB right-turns onto Crater Lake Parkway.	\$153,000
G-4	Connect the "A" Canal Trail to the Ella Redkey Swimming Pool by installing a shared-use path between the parking lot/front entrance to the pool and the existing "A" Canal Trail.	\$55,800
G-7	Connect the ODOT Trail to Kit Carson Park by constructing a connection between the trail and the parking lot or existing sidewalk connecting the street to the park. <i>There are ongoing discussions to implement this as part of a project at the park.</i>	\$22,600
G-9	Connect the "A" Canal Trail to the signalized crossing at SW 6th Street by widening the sidewalk on the south side of SW 6th Street to better accommodate bicyclists.	\$18,700
G-10	Connect the "A" Canal Trail to Klamath Union High School by widening the sidewalk on the north side of Esplanade Avenue to provide a shared-use path to the high school. Coordinate with school for completing the connection.	\$298,500
C-3	Install striped crosswalk and appropriate signage at the OC&E Trail crossing of Hope Street.	\$3,300
C-6	Install marked crosswalk, appropriate signage, and raised median island at the "A" Canal Trail crossing of Homedale Road. Install a gate across the maintenance road on the east side of Homedale Road to indicate that the trail does not extend east of Homedale Road.	\$83,700
C-7	Install marked crosswalk and appropriate signage at the "A" Canal Trail crossing of Hope Street.	\$3,600
C-8	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Shasta Way. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
C-9	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Eberlein Avenue. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
B-2	Identify if there are parallel routes that would provide similar connectivity but greater comfort as an alternative to 6th Street between the railroad bridge and OR 39.	TBD
B-4	Look for opportunities for alternate routes or for traffic calming measures on Shasta Way between Patterson Street and Crater Lake Parkway.	TBD
B-5	Further study required to determine final treatment for bicycle facilities on Patterson Street between 6th Street and Foothills Boulevard. Candidates include buffered bike lanes or a shared-use path.	TBD
B-6 - B-11	Further study required to determine which north-south routes will be designated for bicycle travel in the southeast area of Klamath Falls and what the appropriate treatment is.	TBD
B-19	Install bike lanes on Main Street between Esplanade Avenue and Crater Lake Parkway.	\$30,600
B-22	Further study required to identify which east-west routes should receive shared lane markings, wayfinding, and/or traffic calming in the southeast area of Klamath Falls.	TBD
B-23	Install sharrows and traffic calming on N Eldorado Avenue. Sidewalks should be considered as a traffic calming measure.	\$679,500
P-3	Develop guidelines for how to evaluate trail crossings and determine the appropriate treatment for the City and County to use in applying consistent treatment at crossings for local streets.	--
Low Priority Projects		
G-5	Connect the "A" Canal Trail to the Kiger Stadium and Klamath County Fairgrounds by paving the existing informal service road from the "A" Canal Trail to the Kiger Stadium Parking lot. Install a shared use path along the west side of Crest Street from the Kiger Stadium Parking lot to the Fairgrounds.	\$199,100
B-1	Install protected or buffered bike lanes on OR 39 between the OC&E Trail and OR 140.	\$72,500
B-3	Install sharrows and traffic calming on Shasta Way between Patterson Street and Kimberly Drive.	\$75,500
B-12	Install shared-use path on OR 140 between Washburn Way and Homedale Road.	\$1,633,500
B-18	Widen the pavement to accommodate shoulders or bike lanes on Lakeshore Drive between Lynnewood Boulevard and the west UGB.	\$4,121,000
B-20	Widen the road to add paved shoulders or bike lanes on Old Fort Road between Loma Linda Drive and the UGB.	\$5,037,500
S-1	Install sidewalks on both sides of OR 39 between the OC&E Trail and Keller Road.	\$744,000
S-2	Install sidewalks on both sides of Hope Street between Bristol Avenue and SW 6th Street.	\$2,148,000
P-4	Evaluate the feasibility of installing illumination along the trail system, including type of illumination, priority locations, and cost/maintenance.	--
P-5	Develop a plan for strategic placement of bicycle repair stations and racks throughout the urban trail system.	--

*The prefix on the ID numbers refers to the project category: "G-" refers to trail system projects; "B-" refers to on-street bikeways; "C-" refers to crossings; and "S-" refers to sidewalks; "P-" refers to policies and programs.

^Please note the costs outlined above are for 2015 and are planning level estimates only that do not include right-of-way. An annual inflation rate of 3 to 5 percent should be applied when projecting costs to the future.

Section 2

Introduction



INTRODUCTION

The purpose of the Klamath Falls Urban Trail Master Plan is to plan for a convenient, safe, and comfortable active transportation system. The plan identifies critical missing links in the existing trail system, key road crossing options, key connections to activity centers, policies, programs, studies, preliminary cost estimates, and potential sources of funding while ensuring

compliance with state and local requirements.

This section provides an overview of the purpose and background of the plan, the guiding principles, and the process and public engagement involved in developing the plan.

OVERVIEW

Klamath Falls currently has several well used trails that traverse the urbanized area and connect different subareas. However, gaps in the trail system require users to cross or access busy streets during their trip in order to reach their final destination. The Klamath Falls Urban Trail Master Plan identifies and coordinates opportunities to create comfortable connections between the urban trails and nearby attractions within the Klamath Falls Urban Growth Boundary (UGB).

The plan provides a prioritized list of projects, policies, programs, and future studies to facilitate its implementation. By integrating bicycle and pedestrian facilities throughout the community, particularly to connect residential areas with schools and other activity centers, the plan seeks to reduce vehicle reliance on the urban area highways and arterials to travel to local destinations. The plan focuses on trails that are used for transportation and mobility rather than those that are only used for recreational purposes. The plan is not a full pedestrian and bicycle plan; gaps in the pedestrian and bicycle system that do not relate to trail access are not included in this study and can be found in the Klamath Falls Urban Transportation System Plan.

When implemented, the plan will offer transportation options for residents and tourists in the Klamath Falls urban area. The proposed urban trail routes will provide convenient access to attractors within Klamath Falls, reduce reliance on the automobile, and improve public health.

BACKGROUND/REGULATORY CONTEXT

Existing federal, state, and local plans and policies were reviewed at the beginning of the development of the Urban Trail Master Plan and used to guide the plan's development. The existing plans provided

background information on previously identified issues and gaps in the trail system. The policies provided high-level guidance on the development of the plan. National, State, and local design guidelines also informed the types of projects included in the plan. *The complete review of these documents is located in Appendix A.*

PLAN DEVELOPMENT

Engagement with project stakeholders and the public was sought at regular intervals throughout the project. Public involvement was obtained via regular meetings with a Technical Advisory Committee (TAC), a Citizen Advisory Committee (CAC), a website with project materials, online virtual and in-person open houses, and online interactive maps for public commenting. Finally, public adoption hearings were held at the City of Klamath Falls and Klamath County. Figure 2-1 illustrates the plan development process and the key points of the project when the TAC, CAC, and public provided input.

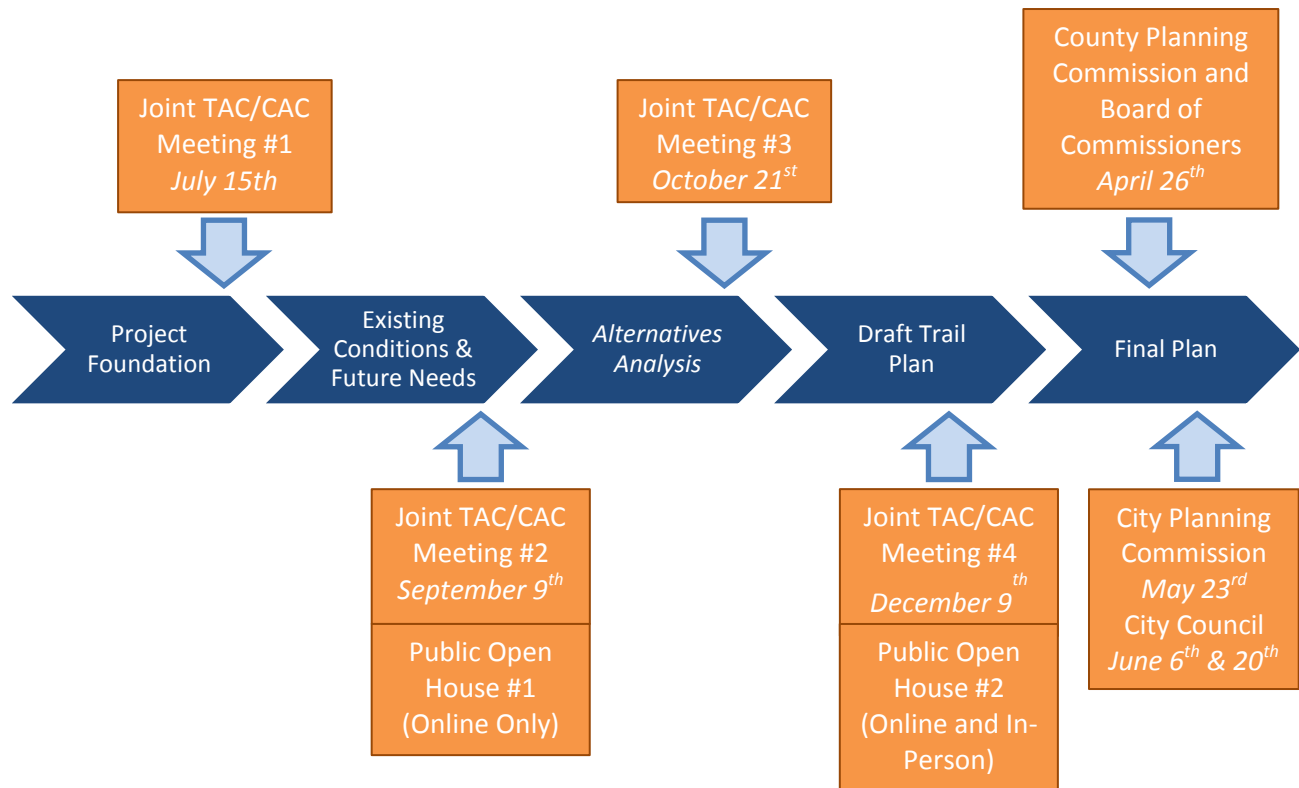


Figure 2-1 Plan Development Process and Stakeholder Engagement

Advisory Committees

The Technical Advisory Committee (TAC) and Citizen Advisory Committee (CAC) were formed at the beginning of the project and met regularly to review project materials and provide feedback to the project team. Committee members were selected to provide representation from a variety of local agencies, businesses, area residents, ODOT departments, etc. The TAC and CAC began the project with a bicycle tour of the existing trail system. Committee members reviewed and provided comments on all

Technical Memorandums prepared during the course of the project, as well as the draft Urban Trail Master Plan.

Project Website

The website for the Klamath Falls Urban Trail Master Plan (<http://klamathfallstrailplan.com/>) provided updates throughout the project and housed draft documents for review, information about meetings and public outreach, final technical memorandums, and the draft and final Klamath Falls Urban Trail Master Plan.



Stop Along the Bike Tour



December Open House

Open Houses

Two online virtual open houses and one in-person open house were held during the plan development process to share project progress with the public and gather input on the draft plan elements. The open houses provided an opportunity for the public to learn about the goals and objectives of the plan, existing plans and previously identified projects, and draft project recommendations and prioritization. The public had the opportunity to comment on proposed plan elements as well as provide input on locations with issues or ideas for alternative treatments. Figure 2-2 shows an example of the first online open house, including the locations where people provided comments and an example of one of those comments. *Appendix B provides a summary of the comments received from the second virtual open house.*

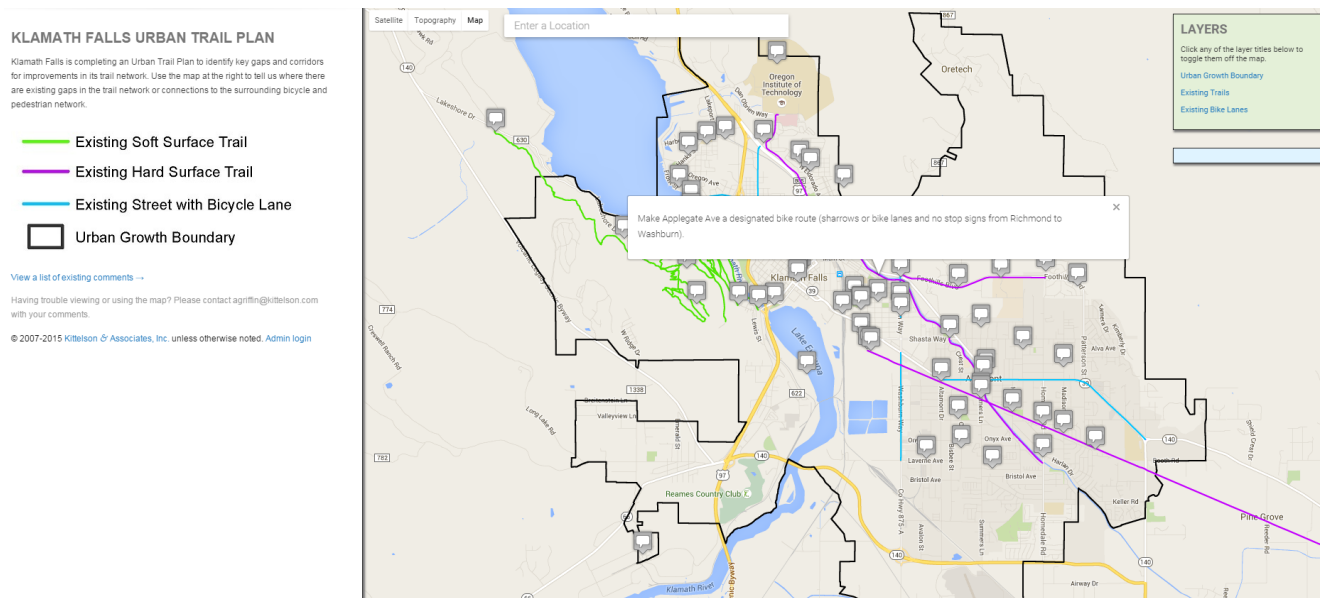


Figure 2-2 Online Open House Screenshot

OBJECTIVES AND GUIDING PRINCIPLES

Project objectives and guiding principles provided broad guidance for the Urban Trail Master Plan that helped direct the priorities and plan elements.

Objectives

Project objectives were identified by the City, County, and ODOT during the project scoping process and refined through the advisory committees. These objectives included the following items:

- To review state, regional, and local transportation plans and policies that the Project and its recommendations must comply and be consistent with;
- To assess the condition of existing individual pathways and trails, and the broader, overall active transportation system;
- To map and inventory the Project Area's existing pathway, trail, sidewalk, and bike lane system;
- To establish a hierarchical trail classification system, with existing pathways classified accordingly;
- To prepare design guidelines for trail system branding, including enhanced way-finding and signage;
- To identify the essential links needed to complete, connect, and enhance the active transportation system;
- To conduct an Obstacles Analysis to identify impediments to closing missing system links and enhancing the active transportation system. Impediments may include physical barriers, safety concerns, non-compatible uses, and broader system deficiencies;
- To create an updated priority project listing, reflective of the identified missing links, community priorities, and fiscal realities;
- To map an ideal, proposed active transportation system. The proposed system will reflect the community's identified priorities and recommendations, but consider alternatives and fiscal realities;
- To propose funding strategies for priority capital projects and ongoing system-wide maintenance.

Guiding Principles

Guiding principles were used throughout the plan development to develop and prioritize projects. The guiding principles included:

- Connect major destinations within the UGB to nearby trails using pedestrian and bicycle facilities;
- Complete existing gaps or deficiencies in the existing trail system;
- Identify low-cost, easy to implement solutions; and
- Provide comfortable and convenient access to the trail system for a wide range of users by providing low-stress connections.

PUBLIC HEALTH

Improving public health in the Klamath Falls urban area was a primary motivator for completing this plan. As of the writing of this plan, there are a number of ongoing activities in Klamath Falls related to public health, in addition to this plan. Many of these initiatives are being spearheaded by Healthy Klamath, a consortium of health focused organizations, which completed a Community Health Improvement Plan in 2013. A primary goal of this plan is to increase the proportion of adult residents who engage in regular physical activity, recognizing that increased activity tends to lead to improved health outcomes with respect to a number of conditions. Providing more quality options for people to walk or bicycle, either for transportation or recreation, by implementing the recommendations of this plan would help the community achieve this goal.

This plan was coordinated with the ongoing public health efforts in Klamath Falls. The Citizen Advisory Committee (CAC) included representatives from Healthy Klamath members. Klamath Falls was accepted into the Blue Zones Project's Oregon initiative during the early stages of this plan. The Blue Zones Project is currently working with community members to develop a holistic action plan for creating a healthier Klamath Falls.

A representative of the Blue Zones Project was added to the CAC to ensure representation from this effort. There are areas of overlap between this plan and the Blue Zones Project's infrastructure team. The Blue Zones Project will likely take a more detailed look at a few of the areas identified for improvement in this plan and may ultimately develop more refined recommendations based on this detailed examination. In the event this occurs, this plan may need to be amended to include the updated recommendation. To facilitate this process, the overlapping projects that may require ongoing coordination with the Blue Zones Project are noted in the tables of recommended projects and in the project prospectus sheets included later in this plan document.

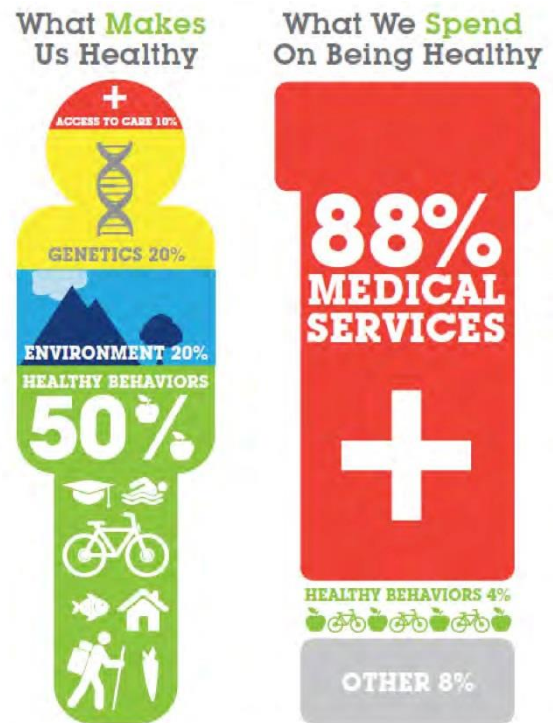


Image Source: Healthy Klamath

Section 3 Urban Trail Master Plan

URBAN TRAIL MASTER PLAN

This section presents the Urban Trail Master Plan for Klamath Falls. Its purpose, as described in Section 2, is to identify and coordinate opportunities to create seamless connections between the urban trails and nearby attractions, as well as nearby pedestrian and bicycle facilities, within the Klamath Falls Urban Growth Boundary (UGB). It considers existing conditions, as well as the need to serve future growth.



EXISTING & FUTURE CONDITIONS

The existing trail system in Klamath Falls was assessed to determine areas where improvements were needed both now and in the future. The findings from this analysis formed the basis for the recommended projects, policies, programs, and studies that make up the Klamath Falls Urban Trail Master Plan.

Figure 3-1 shows the existing trail system and on-street bicycle facilities, and Figure 3-2 shows the existing sidewalk network on arterial and collector streets. These networks were used to identify gaps in the existing trail network and gaps between the trail system and key activity centers, such as schools. The condition of the existing trails was reviewed during a field visit.

The existing trail network was reviewed to identify gaps and deficiencies. A gap is defined as a missing link in the network, such as a missing off-street trail link or an on-street connection on a collector or arterial roadway that is missing sidewalks or a designated bicycle facility. A deficiency, or obstacle, is defined as a bicycle or pedestrian facility that is not up to standards or sufficient to meet users' needs. Examples of deficiencies include:

- On-street connection on a collector or arterial roadway that is not likely to be comfortable for a majority of the population (i.e., has a Bicycle Level of Traffic Stress rating greater than 2 [Interested but Concerned]);
- Arterial or collector roadway crossing where enhancement may be warranted.



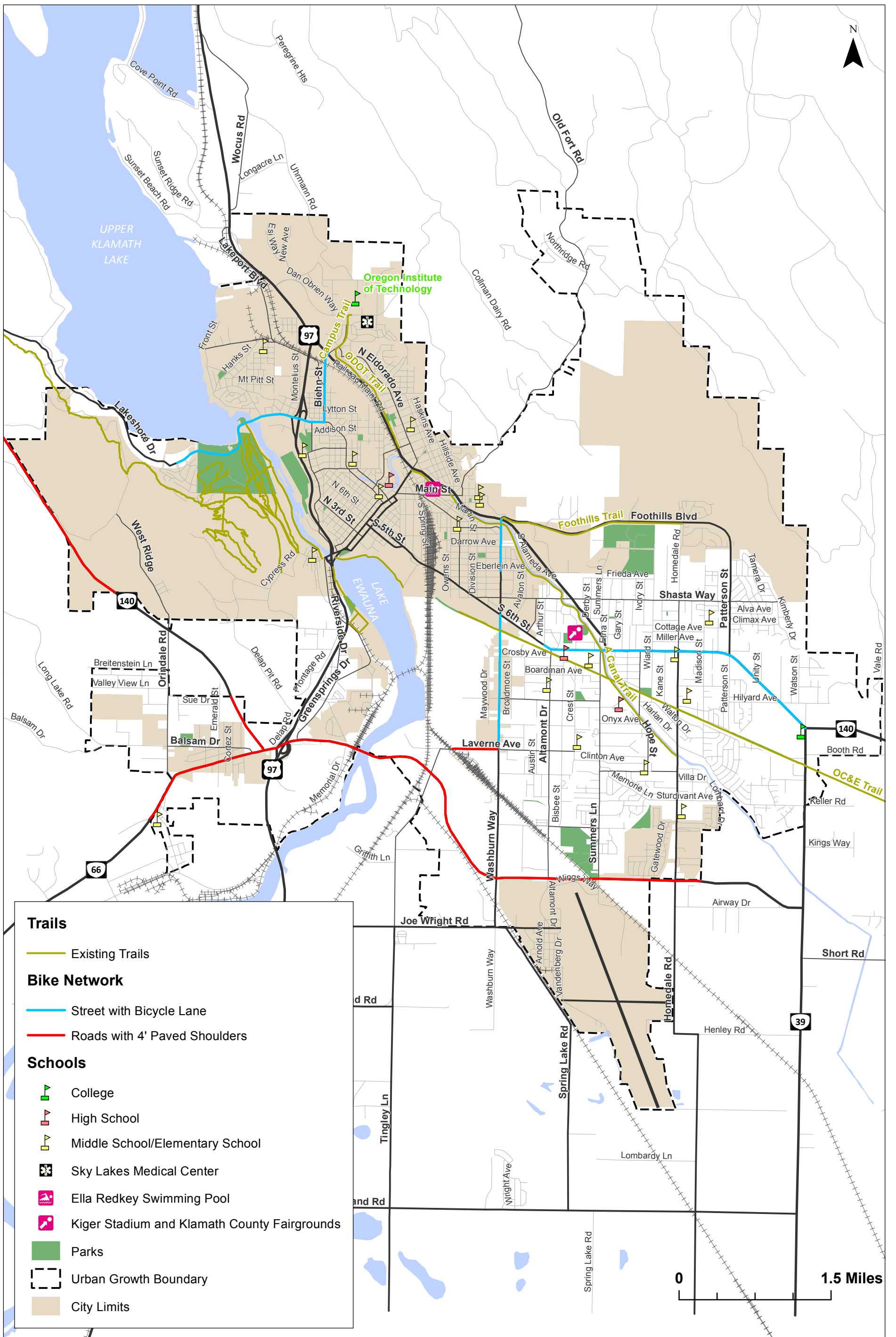
Individuals Classified as “Interested, but Concerned” About Biking Make Up Over Half of the Population

Source: Dill, J. and N. McNeil. “Four Types of Cyclists?” *Transportation Research Record: Journal of the Transportation Research Board*, No. 2387.1 (2013), pp. 129-138.

In addition, an analysis of historical bicycle and pedestrian crash data and roadway crossings was conducted to identify potential safety issues that could be addressed by the Urban Trail Master Plan. These analyses included reviewing historical crash data and examining roadway crossings. Trail crossings at collectors and arterials were identified for improvements when the existing treatments did not meet the recommendations based on National Cooperative Highway Research Program (NCHRP) Report 562 *Improving Pedestrian Safety at Unsignalized Crossings* procedures. NCHRP Report 562 provides guidance on the type of treatments that should be considered for an unsignalized crossing given a number of factors, including the speed limit of the roadway being crossed, pedestrian volumes, motor vehicle traffic volumes, length of the crossing, walk time, and expected compliance of motor vehicle drivers.

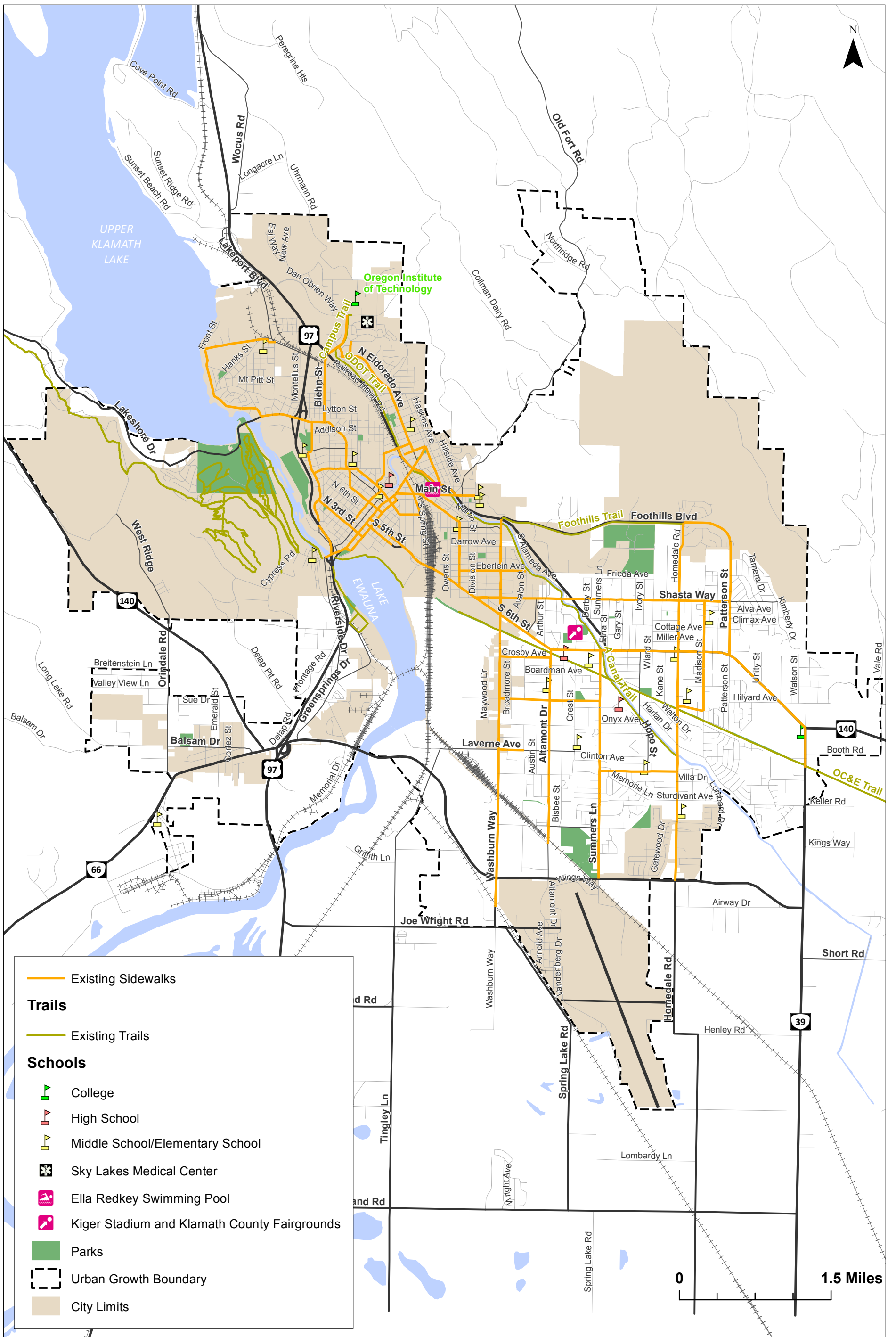
Other system gaps were identified based on connectivity needs and input from the public and advisory committees.

Based on the existing conditions analysis, a set of locations was identified for further review for potential treatments. *Appendix C contains Technical Memorandum 2: Existing Conditions, which provides a detailed summary of the analysis conducted.*



Existing Trail Network and On-Street Bicycle Facilities
Klamath Falls, Oregon

Figure
3-1



Existing Trail Network and Sidewalk Facilities
Klamath Falls, Oregon

Figure
3-2

H:\profiles\18974 - Klamath Falls Trail Master Plan\GIS\FinalReport\Figure 3-2_Existing Trail Network_Sidewalk.mxd - agriffin - 4:21 PM 1/19/2016

PLAN ELEMENTS

The Klamath Falls Urban Trail Master Plan includes the following elements:

- **Projects** – capital investments made to improve the existing trail system and the bicycle and pedestrian system that connect to it. Examples include new shared-use paths, bicycle lanes, sidewalks, and crosswalks. In some cases, these projects could be implemented as pilot, or test, projects for a certain time period and then modified based on the evaluation during this period for final implementation.
- **Policies** – statements adopted in the Klamath Falls Urban Trail Master Plan that are intended to influence and guide decisions and actions related to pedestrian and bicycle planning. As an example, policies could relate to requirements for new developments to incorporate bicycle parking or provide pedestrian and bicycle facilities.
- **Programs** – plans of action aimed at accomplishing an identified County or City goal(s) that commonly include details on what work is to be done, by whom, when, and the intended outcome of the action. An example is implementing a program to install wayfinding signage at trail crossings and trailheads.
- **Future Studies** – research and investigation to be completed after the Klamath Falls Urban Trail Master Plan is completed. Such studies were not done during the Urban Trail Master Plan process due to lack of available data, a need for guidance and/or analysis from responsible agencies, and/or the need for a more focused public involvement and analysis process beyond the scope of work and budget of the Urban Trail Master Plan.

Note that the term “project” is used throughout the remainder of this plan to refer to plan elements for ease and brevity.








Types of Projects




The types of projects recommended vary based on the specific needs of each unique location. In some cases, further study is recommended to identify the preferred project when adequate existing information was not available. In some situations, a standard bike lane may be sufficient, but in other cases, a buffered area may be needed due to motor vehicle traffic volumes and speeds.

Appendix D, which contains Technical Memorandum 3: Alternatives Evaluation, provides the full evaluation matrix to explain why a specific treatment was selected.

The types of projects that are recommended in the plan are summarized in Table 3-1. *These types of facilities are described in greater detail in the toolbox included in Appendix C.*

Table 3-1. Types of Projects Included in the Urban Trail Master Plan

Project Type	Description	Example Photo
Bicycle Projects		
Shared lane facility	Shared lane roadways include roadways without separated bicycle facilities, but that have been optimized to some extent for bicycle travel. They are recommended for lower speed (i.e., 25 MPH or slower) and lower volume (i.e., less than 3,000-4,000 vehicles per day) roadways. They may include shared lane markings (“sharrows”) or signage. Traffic calming may be recommended in conjunction to ensure vehicle speeds are low.	
Parallel routes	Parallel routes are recommended in locations where the road environment is not conducive to adding an on-street bicycle facility. In these situations the recommendation is to identify routes that may work as shared lane facilities.	
Bike lane	A standard bike lane is an on-street facility that provides space designated for bicyclists, separated from vehicles by pavement markings.	
Buffered or protected bicycle lane	Buffered bicycle lanes are on-street lanes that include an additional striped buffer of typically 2-3 feet between the bicycle lane and the vehicle travel lane and/or between the bicycle lane and the vehicle parking lane. Protected bicycle lanes are similar but use a physical barrier, such as planters or posts, in place of the painted buffer.	
Shared-use path	Shared-use paths are paved, bi-directional, trails away from roadways that can serve both pedestrians and bicyclists. In some situations, shared-use paths are recommended by widening existing sidewalks. Signage and/or pavement markings should be included in all projects to ensure clear direction on usage for pedestrians and bicyclists.	
Pedestrian Projects		
Sidewalk	A sidewalk is a dedicated pedestrian facility adjacent to the roadway and separated from traffic by a curb.	
Shared-use path	Shared-use paths are paved, bi-directional, trails away from roadways that can serve both pedestrians and bicyclists.	

Project Type	Description	Example Photo
Trail Crossing Treatments		
<p>Marked crosswalk with signage</p>	<p>In some locations, installing a marked crosswalk with pavement markings and appropriate signage may be sufficient to increase drivers' awareness of the pedestrian and bicyclist crossing. In some locations, a high visibility crosswalk may be preferred. High visibility crosswalks consist of reflective roadway markings and accompanying signage at intersections and priority pedestrian crossing locations.</p>	
<p>Enhanced crossing, which may include RRFBs and/or median refuge islands</p>	<p>Rectangular rapid flashing beacons (RRFBs) are crossing treatments that include signs that have a pedestrian-activated "strobe-light" flashing pattern to attract motorists' attention and provide awareness of pedestrians and/or bicyclists that are intending to cross the roadway. Crossing islands are cut-outs in the median that provide a protected area in the middle of a crosswalk for pedestrians to stop while crossing the street. Also called pedestrian refuge islands or median refuges, they can be used at intersections or mid-block crossings.</p>	
<p>Grade separated crossing</p>	<p>A grade-separated crossing is a bridge (overcrossing) or a tunnel (undercrossing) that carries non-motorized traffic over or under a motorized corridor or other barrier to travel.</p>	

Prioritized Projects

Figure 3-3 illustrates the locations of the projects included in the Urban Trail Master Plan. Table 3-2 provides a summary of all plan elements, the estimated cost of each project, and the priority of each project. Projects were prioritized based on the following guiding principles for this project:

- Provide connections to major destinations;
- Complete existing gaps or deficiencies within the existing trail system;
- Provide comfortable and convenient access to the trail system for a wide range of users; and
- Provide feasible solutions (i.e., affordable and relatively simple to implement).

Projects that satisfied many of these criteria were prioritized higher than those that only satisfied one or two criteria. Feedback from the advisory committee and public was used to calibrate the prioritization and ensure that priorities reflected those of the community. *The complete evaluation matrix is provided in Appendix E.*

Appendix E contains the cost estimate calculations shown for the projects. The cost estimates are high-level conceptual cost estimates based on year 2015 unit costs, with one year of inflation applied, and

do not include right-of-way. Detailed cost estimates should be completed during the design phase of each project.

Several crossing projects are being designed through a separate on-going project. The costs for these projects are likely to range from \$2,000 for a marked crosswalk with appropriate signage up to \$50,000 for an enhanced crosswalk with a pedestrian refuge island and rectangular rapid flashing beacons (RRFBs).

Project Prospectus Sheets

Project prospectus sheets are provided following Table 3-2. These sheets provide project descriptions, location, images, cost estimates, and potential funding sources and partners for each plan element. The prospectus sheets also indicate when there is a “grouping” of projects. Projects in the same grouping complement each other and their implementation should be coordinated when possible (e.g., the connection of the OC&E Trail to downtown as described in project G-1 would be enhanced by the completion of bike lanes on 5th and 6th Streets as described in projects B-13 and B-14).

Icons in the prospectus sheets indicate project type and priority, as summarized below.



Indicates a pedestrian focused project, such as a sidewalk, trail, or crossing.



Indicates a bicycle focused project, which may include on-street bicycle facilities, trails, or parallel routes.



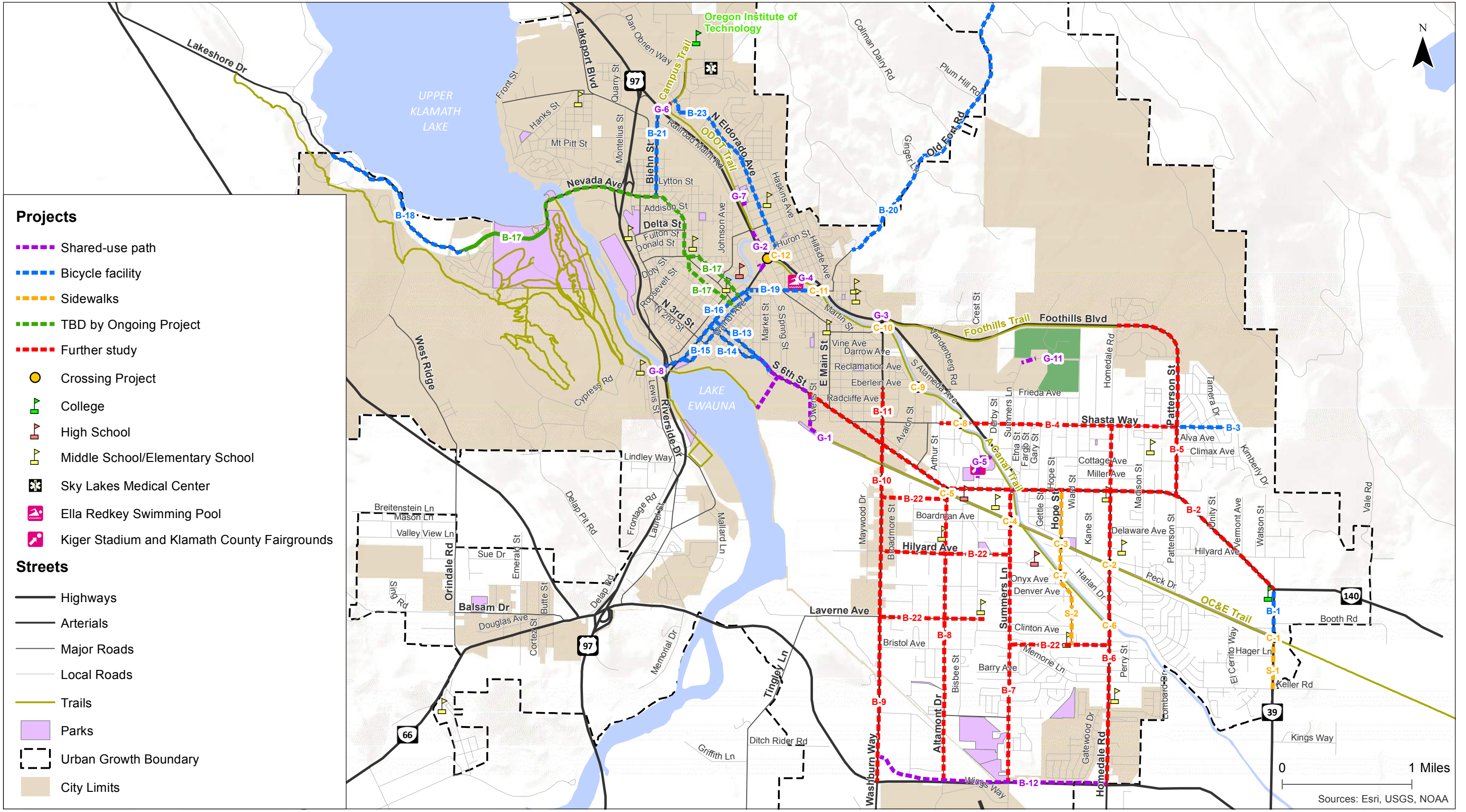
Indicates a *low priority* project.



Indicates a *medium priority* project.



Indicates a *high priority* project.



Plan Elements Klamath Falls, Oregon Figure 3-3

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Table 3-2. Planned Projects

ID*	Project Description	Cost Estimate [^]	Priority
Trail System Gaps			
G-1	Connect the OC&E Trail to downtown Klamath Falls via 6th Street bridge by widening sidewalk to provide for shared-use path. Provide a connection to the soon to be constructed Lake Ewauna trail. (Note: Lake Ewauna trail connection alignment is not confirmed; cost estimate does not include this connection.)	\$859,500	High
G-2	Connect the "A" Canal Trail to the ODOT Trail by widening the sidewalks to provide for a shared-use path.	\$166,500	High
G-3	Connect the "A" Canal Trail to the Foothills Trail by widening the sidewalk on the east side of the bridge to provide a shared use path between the intersection and the "A" Canal trail. Tighten the curb radius for NB right-turns onto Crater Lake Parkway.	\$153,000	Medium
G-4	Connect the "A" Canal Trail to the Ella Redkey Swimming Pool by installing a shared-use path between the parking lot/front entrance to the pool and the existing "A" Canal Trail.	\$55,800	Medium
G-5	Connect the "A" Canal Trail to the Kiger Stadium and Klamath County Fairgrounds by paving the existing informal service road from the "A" Canal Trail to the Kiger Stadium Parking lot. Install a shared use path along the west side of Crest Street from the Kiger Stadium Parking lot to the Fairgrounds.	\$199,100	Low
G-6	Connect the Campus Trail to the Biehn Street bike lanes and sidewalk by widening the sidewalk on the south side of Campus Drive to complete the shared-use path connection. Possible modifications are needed at the Crater Lake Parkway intersection.	\$108,800	High
G-7	Connect the ODOT Trail to Kit Carson Park by constructing a connection between the trail and the parking lot or existing sidewalk connecting the street to the park. <i>There are ongoing discussions to implement this as part of a project at the park.</i>	\$22,600	Medium
G-8	Connect Veteran's Park to the Link River Trail by widening the sidewalk on the north side of Main Street to provide for a shared use path. Install a crossing across Main Street west of the park road's access to Main Street to connect Veteran's Park with the path. Sharrows may work as an interim solution.	\$90,600	High
G-9	Connect the "A" Canal Trail to the signalized crossing at SW 6 th Street by widening the sidewalk on the south side of SW 6th Street to better accommodate bicyclists.	\$18,700	Medium
G-10	Connect the "A" Canal Trail to Klamath Union High School by widening the sidewalk on the north side of Esplanade Avenue to provide a shared-use path to the high school. Coordinate with school for completing the connection.	\$298,500	Medium
G-11	Formalize connections between Summers Lane and Steens Sports Park to provide southern connections to the park.	\$150,000	High
Crossings			
C-1	OC&E Trail crossing of OR 39: TBD by ongoing ODOT and Oregon Parks study	TBD	High
C-2	OC&E Trail crossing of Homedale Road: TBD by ongoing ODOT and Oregon Parks study	TBD	High
C-3	Install striped crosswalk and appropriate signage at the OC&E Trail crossing of Hope Street.	\$3,300	Medium
C-4	OC&E Trail crossing of Summers Lane: TBD by ongoing ODOT and Oregon Parks study	TBD	High
C-5	OC&E Trail crossing of Altamont Drive: TBD by ongoing ODOT and Oregon Parks study	TBD	High
C-6	Install marked crosswalk, appropriate signage, and raised median island at the "A" Canal Trail crossing of Homedale Road. Install a gate across the maintenance road on the east side of Homedale Road to indicate that the trail does not extend east of Homedale Road.	\$83,700	Medium
C-7	Install marked crosswalk and appropriate signage at the "A" Canal Trail crossing of Hope Street.	\$3,600	Medium
C-8	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Shasta Way. Enhanced crossing treatments recommended.	\$2,000 - \$50,000	Medium
C-9	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Eberlein Avenue. Enhanced crossing treatments recommended.	\$2,000 - \$50,000	Medium
C-10	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Washburn Way. Enhanced crossing treatments recommended.	\$2,000 - \$50,000	High
C-11	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Main Street. Enhanced crossing treatments recommended.	\$2,000 - \$50,000	High
C-12	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Esplanade Avenue. Enhanced crossing treatments recommended.	\$2,000 - \$50,000	High
On-Street Bicycle Connections			
B-1	Install protected or buffered bike lanes on OR 39 between the OC&E Trail and OR 140.	\$72,500	Low
B-2	Identify if there are parallel routes that would provide similar connectivity but greater comfort as an alternative to 6 th Street between the railroad bridge and OR 39.	TBD	Medium
B-3	Install sharrows and traffic calming on Shasta Way between Patterson Street and Kimberly Drive.	\$75,500	Low
B-4	Look for opportunities for alternate routes or for traffic calming measures on Shasta Way between Patterson Street and Crater Lake Parkway.	TBD	Medium
B-5	Further study required to determine final treatment for bicycle facilities on Patterson Street between 6 th Street and Foothills Boulevard. Candidates include buffered bike lanes or a shared-use path.	TBD	Medium
B-6 – B-11	Further study required to determine which north-south routes will be designated for bicycle travel in the southeast area of Klamath Falls and what the appropriate treatment is.	TBD	Medium
B-12	Install shared-use path on OR 140 between Washburn Way and Homedale Road.	\$1,633,500	Low
B-13	Install bike lane on 6 th Street between Market Street and Main Street.	\$15,700	High
B-14	Install bike lane on 5 th Street between Main Street and 6 th Street.	\$19,400	High
B-15	Install bike lanes on Klamath Avenue between Conger Avenue and Commercial Street. <i>Coordinate with the Blue Zones project.</i>	\$28,700	High
B-16	Install bike lanes on Main Street between Esplanade Avenue and Mill Street. <i>Coordinate with the Blue Zones project.</i>	\$24,600	High
B-17	The bicycle facility between Moore Park and downtown Klamath Falls will be determined by an ongoing project.	\$556,200	High
B-18	Widen the pavement to accommodate shoulders or bike lanes on Lakeshore Drive between Lynnewood Boulevard and the west UGB.	\$4,121,000	Low
B-19	Install bike lanes on Main Street between Esplanade Avenue and Crater Lake Parkway.	\$30,600	Medium
B-20	Widen the road to add paved shoulders or bike lanes on Old Fort Road between Loma Linda Drive and the UGB.	\$5,037,500	Low
B-21	Widen the bike lanes on Biehn Street between Crater Lake Parkway and Oregon Avenue by restriping the roadway.	\$33,400	High
B-22	Further study required to identify which east-west routes should receive shared lane markings, wayfinding, and/or traffic calming in the southeast area of Klamath Falls.	TBD	Medium
B-23	Install sharrows and traffic calming on N Eldorado Avenue. Sidewalks should be considered as a traffic calming measure.	\$679,500	Medium
Sidewalks			
S-1	Install sidewalks on both sides of OR 39 between the OC&E Trail and Keller Road.	\$744,000	Low
S-2	Install sidewalks on both sides of Hope Street between Bristol Avenue and SW 6 th Street.	\$2,148,000	Low
Policies/Programs			
P-1	Develop a program to install and maintain wayfinding signage at all trailheads and trail crossings of public streets. <i>See Appendix F for more information.</i>	--	High
P-2	Develop a policy that requires bicycle parking to be provided at key locations and pursue grant funding to provide it at key locations where it is missing.	--	High
P-3	Develop guidelines for how to evaluate trail crossings and determine the appropriate treatment for the City and County to use in applying consistent treatment at crossings for local streets.	--	Medium
P-4	Evaluate the feasibility of installing illumination along the trail system, including type of illumination, priority locations, and cost/maintenance.	--	Low
P-5	Develop a plan for strategic placement of bicycle repair stations and racks throughout the urban trail system.	--	Low

*The prefix on the ID numbers refers to the project category: "G-" refers to trail system projects; "B-" refers to on-street bikeways; "C-" refers to crossings; and "S-" refers to sidewalks; "P-" refers to policies and programs.

[^]Please note the costs outlined above are for 2015 and are planning level estimates only that do not include right-of-way. An annual inflation rate of 3 to 5 percent should be applied when projecting costs to the future.

ID: G-1

END OF THE OC&E TRAIL TO DOWNTOWN KLAMATH FALLS

Description:

Connect the OC&E Trail to downtown Klamath Falls via 6th Street bridge by extending the trail to 6th Street and widening sidewalk on one side of the bridge to provide for shared-use path. Provide a connection to the soon to be constructed Lake Ewauna trail. (Note: Lake Ewauna trail connection alignment is not confirmed; cost estimate does not include this connection.)

Purpose:

Connect the OC&E Trail to downtown Klamath Falls and the Lake Ewauna trail.

Category: Trail



Grouping: 6th Street Connections to Downtown (B-13, B-14, G-1)

Priority: High



Cost: \$859,500

Potential Funding Sources: Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: City of Klamath Falls, ODOT, OPRD

Considerations:

May require the crossing of 6th Street on and off ramps. More work will be needed to determine if the bridge can accommodate the additional concrete weight. If possible, the path should be physically separated from motor vehicle traffic by a vertical barrier. By routing the trail connection through the Klamath Works property, the trail will connect to the future pedestrian crossing being installed at SW 6th Street/Adams Street. Signage and/or pavement markings to indicate that bikes and pedestrians share the space on the bridge should be included.

Project Location/Images:



Photo Source: Google Maps

ID: G-2

CONNECTING THE "A" CANAL TRAIL TO THE ODOT TRAIL

Description: Connect "A" Canal Trail to the ODOT Trail using Crater Lake Parkway by widening the sidewalks on the east side of Esplanade Avenue and north side of Crater Lake Parkway to provide for a shared-use path.

Purpose: To provide a complete connection between these two trails.

Category: Trail



Grouping: Esplanade Avenue Crossing

Priority: High



Cost: \$166,500

Potential Funding Sources: Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: ODOT, City of Klamath Falls, Bureau of Reclamation

Considerations: Requires crossing Crater Lake Highway. The Esplanade Avenue bridge may need to be examined further before additional concrete is added. Project design should include evaluating the crossing of Earle Street to determine if drainage improvements are needed. The alley between N Eldorado Avenue and Crater Lake Parkway could be used as an alternative route if an obstacle prevents the recommended improvement from Esplanade Avenue to Melrose Street.

Project Location/Images:

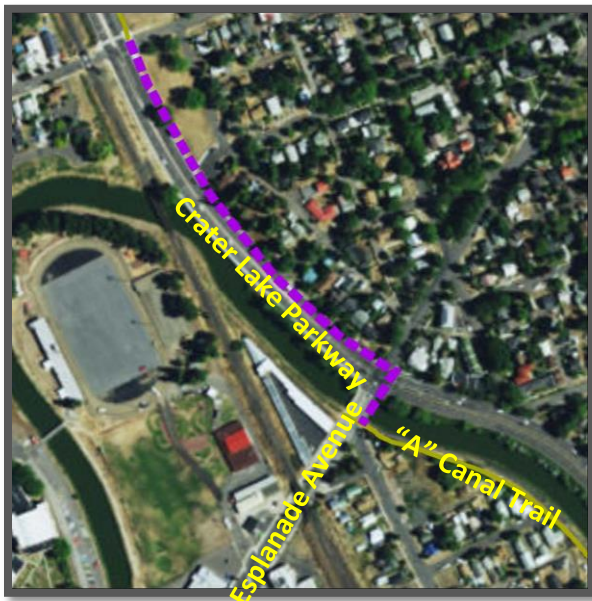


Photo Source: Google Maps

ID: G-3

CONNECTING THE "A" CANAL TRAIL TO THE FOOTHILLS TRAIL

Description:

Widen the sidewalk on the east side of the bridge to provide a shared use path between the Foothills Trail and the "A" Canal trail. Tighten the curb radius for NB right-turns onto Crater Lake Parkway.

Purpose:

To provide a complete connection between these two trails and a comfortable crossing of the Crater Lake Parkway.

Category: Trail



Grouping: G-3, C-10

Priority: Medium



Cost: \$153,000

Potential Funding Sources: Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: Klamath County, City of Klamath Falls, Bureau of Reclamation

Considerations:

Accommodating the shared-use path on the bridge may require either removing the bike lanes or lane width reductions. Project could be phased in. By expanding the sidewalk to a path on the east side, it allows southbound bicyclists to continue from the Foothills Trail to the "A" Canal trail eastbound with only one crossing. Tightening the curb radius will slow down right-turn vehicles making the crossing more comfortable. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:

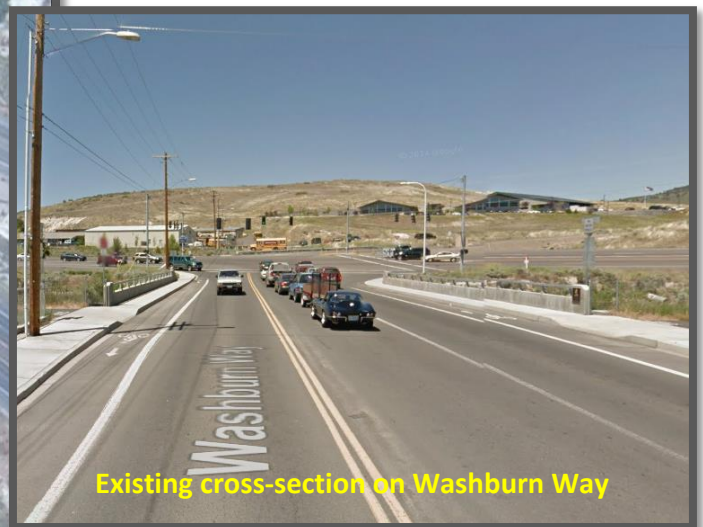
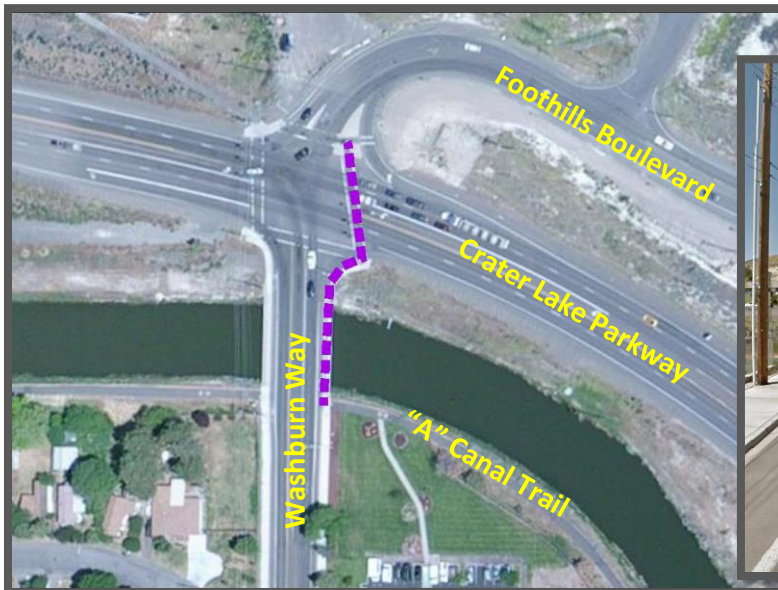


Photo Source: Google Maps

ID: G-4 **CONNECTING THE "A" CANAL TRAIL TO THE ELLA REDKEY SWIMMING POOL**

Description: Connect the trail by installing a shared-use path between the parking lot/front entrance to the pool and the existing "A" Canal Trail.

Purpose: Connects the "A" Canal Trail to a popular destination that it is currently grade-separated from.

Category: Trail



Grouping: None

Priority: Medium



Cost: \$55,800

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: City of Klamath Falls, Bureau of Reclamation

Considerations: May require right-of-way or an easement. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:



ID: G-5 **CONNECTING THE "A" CANAL TRAIL TO THE KIGER STADIUM AND KLAMATH COUNTY FAIRGROUNDS**

Description: Pave the existing informal service road from the "A" Canal Trail to the Kiger Stadium Parking lot. Install a shared use path along the west side of Crest Street from the Kiger Stadium Parking lot to the Fairgrounds.

Purpose: Connects the "A" Canal Trail to popular destinations that it is currently grade-separated from

Category: Trail



Grouping: None

Priority: Low



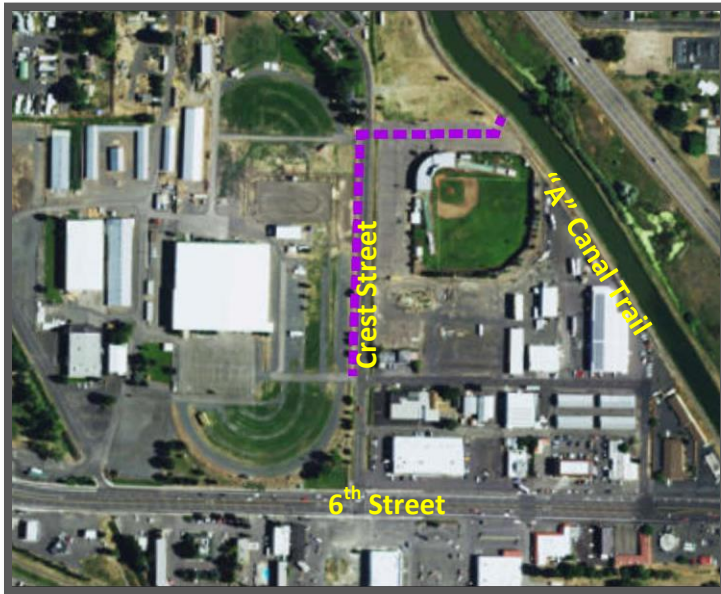
Cost: \$199,100

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: Klamath County, Bureau of Reclamation

Considerations: May require right-of-way or an easement to reach Crest Street. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:



Existing cross-section on Crest Street

Photo Source: Google Maps

ID: G-6

CAMPUS TRAIL TO BIEHN STREET CONNECTION

Description: Widen the sidewalk on the south side of Campus Drive to complete the shared-use path connection. Consider modifications to the Crater Lake Parkway intersection.

Purpose: Connect Campus Trail and the bike lane on Biehn Street, which connects to Oregon Avenue and downtown Klamath Falls, thereby providing a more complete connection between downtown Klamath Falls, OIT, and Sky Lakes Medical Center.

Category: Trail



Grouping: OIT to Downtown (G-6, B-21)

Priority: High



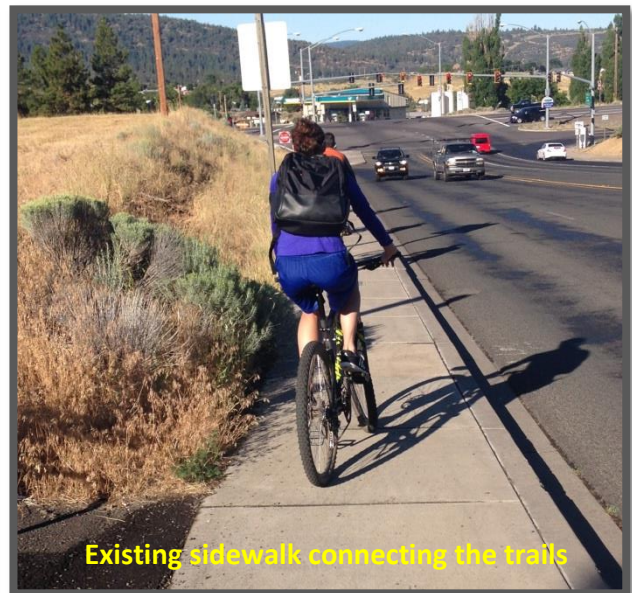
Cost: \$108,800

Potential Funding Sources: Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: ODOT, City of Klamath Falls

Considerations: Southbound cyclists coming from the Campus Trail would use the crosswalks at the signalized intersection to transition to bike lanes. Modifications, such as tightening the northbound right-turn radius from Crater Lake Parkway onto Campus Drive and installing advanced warning signs for the pedestrian crossing at the Crater Lake Parkway intersection may be required to create a comfortable crossing.

Project Location/Images:



Existing sidewalk connecting the trails

ID: G-7

CONNECTING THE ODOT TRAIL TO KIT CARSON PARK

Description: Construct a connection between the trail and the parking lot or existing sidewalk connecting the street to the park.

Purpose: Provide a connection between the ODOT Trail and the park, which is currently separated by a fence.

Category: Trail



Grouping: None

Priority: Medium



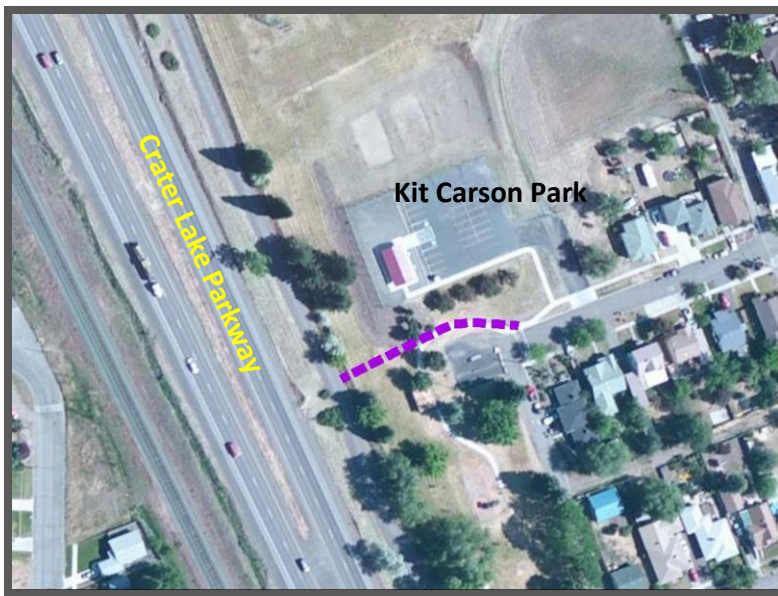
Cost: \$22,600

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: ODOT, City of Klamath Falls

Considerations: May require right-of-way or an easement.

Project Location/Images:



ID: G-8

VETERAN'S PARK TRAIL CONNECTIONS

Description:

Widen the sidewalk on the north side of Main Street to provide for a shared use path to connect Veteran's Park with the Link River Trail. Install a crossing across Main Street west of the park road's access to Main Street to connect Veteran's Park with the path. Sharrows may work as an interim solution.

Purpose:

Provides a separated facility for pedestrians and bicyclists between two popular destinations.

Category: Trail



Grouping: None

Priority: High



Cost: \$90,600

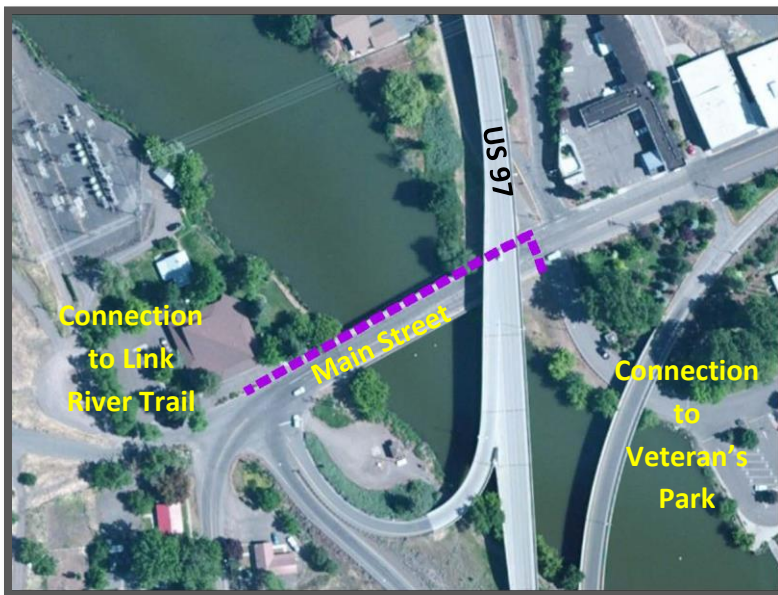
Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: ODOT, City of Klamath Falls

Considerations:

Lanes will have to be narrowed on the bridge to accommodate the shared-use path. An additional crossing of Main Street may be needed on the west side of the bridge. Ultimate configuration should be determined with redesign of interchange area. A connection to the visitor center could be considered as part of this project. Signage will be an important element of this project to direct cyclists and pedestrians to the trail connections.

Project Location/Images:



ID: G-9

“A” CANAL TRAIL TO CROSSING AT 6TH STREET

Description: Widen the sidewalk on the south side of 6th Street to better accommodate bicyclists connecting to the signalized crossing.

Purpose: Provide a wider sidewalk between the trail and signalized crossing (approximately 40’ apart) to allow pedestrians and bicyclists to use the signalized crossing comfortably.

Category: Trail



Grouping: None

Priority: Medium



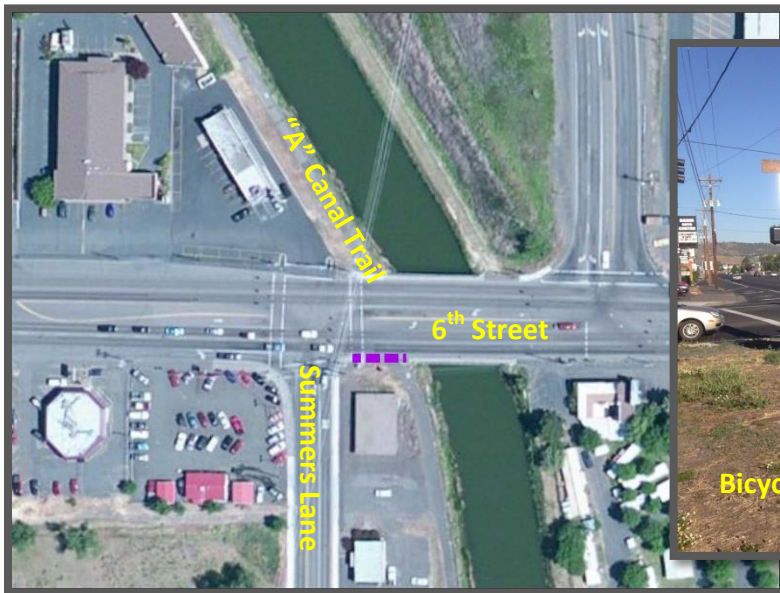
Cost: \$18,700

Potential Funding Sources: Local Sources; External Funds (if packaged with other projects)

Potential Project Partners: ODOT, Klamath County, Bureau of Reclamation

Considerations: Will need to verify there is sufficient right-of-way.

Project Location/Images:



Bicyclists using existing sidewalk to connect to crossing

ID: G-10

"A" CANAL TRAIL CONNECTION TO KLAMATH UNION HIGH SCHOOL

Description:

Widen the sidewalk on the north side of Esplanade Avenue to provide a shared-use path to the high school. Coordinate with school for completing the connection.

Purpose:

Provide a connection for bicyclists between the "A" Canal Trail and Klamath Union High School.

Category: Trail



Grouping: Esplanade Avenue
Crossing (G-10, C-12)

Priority: Medium



Cost: \$298,500

Potential Funding Sources: Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: City of Klamath Falls, Klamath Union High School, Bureau of Reclamation

Considerations:

Coordination with the school will be required. This project assumes there is adequate width available under the railroad bridge to complete the widening for the trail. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:

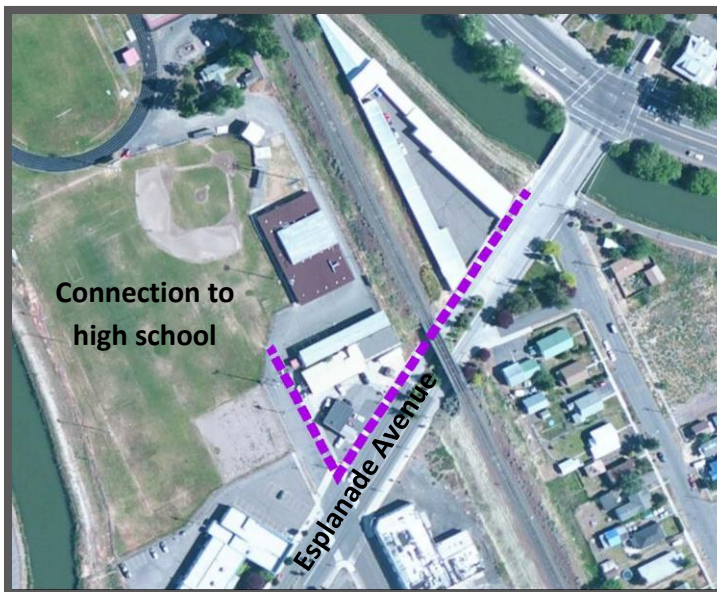


Photo Source: Google Maps

ID: G-11

SOUTHERN CONNECTION TO STEEN SPORTS PARK

Description: Formalize connections between Summers Lane and Steens Sports Park

Purpose: Create a direction connection from Steens Sports Park to the south, where a large residential area is located.

Category: Trail



Grouping: None

Priority: High



Cost: \$150,000

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: City of Klamath Falls, Klamath County, Steen Sports Park

Considerations: May require right-of-way or an easement to complete the connection.

Project Location/Images:



ID: C-1

OR 39: OC&E TRAIL CROSSING

Description: TBD by ongoing ODOT and Oregon Parks study

Purpose: To provide a comfortable crossing of OR 39 for trail users.

Category: Crossing



Grouping: None

Priority: High



Cost: TBD

Potential Funding Sources: TBD by ongoing ODOT and Oregon Parks study

Potential Project Partners: ODOT, Klamath County, OPRD

Considerations: TBD by ongoing ODOT and Oregon Parks study

Project Location/Images:



ID: C-2

HOMEDALE ROAD: OC&E TRAIL CROSSING

Description: TBD by ongoing ODOT and Oregon Parks study

Purpose: To provide a comfortable crossing of Homedale Road for trail users.

Category: Crossing



Grouping: None

Priority: High



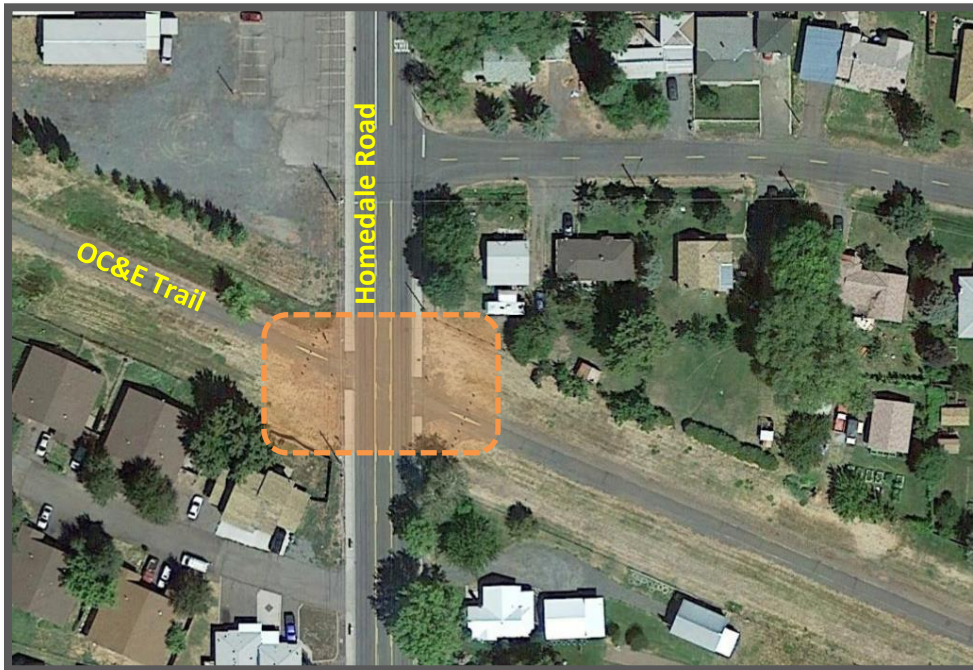
Cost: TBD

Potential Funding Sources: TBD by ongoing ODOT and Oregon Parks study

Potential Project Partners: ODOT, Klamath County, OPRD

Considerations: TBD by ongoing ODOT and Oregon Parks study

Project Location/Images:



ID: C-3

HOPE STREET: OC&E TRAIL CROSSING

Description: Install striped crosswalk and appropriate signage.

Purpose: To provide a comfortable crossing of Hope Street for trail users.

Category: Crossing



Grouping: None

Priority: Medium



Cost: \$3,300

Potential Funding Sources: Local Sources: External Sources (if combined with other projects in a package)

Potential Project Partners: Klamath County, OPRD

Considerations: Consider installing illumination at the crossing as well (it is currently located nearby but not at the crossing).

Project Location/Images:



Photo Source: Google Maps

ID: C-4

SUMMERS LANE: OC&E TRAIL CROSSING

Description: TBD by ongoing ODOT and Oregon Parks study

Purpose: To provide a comfortable crossing of Summers Lane for trail users.

Category: Crossing



Grouping: None

Priority: High



Cost: TBD

Potential Funding Sources: TBD by ongoing ODOT and Oregon Parks study

Potential Project Partners: ODOT, Klamath County, OPRD

Considerations: TBD by ongoing ODOT and Oregon Parks study

Project Location/Images:



ID: C-5

ALTAMONT DRIVE: OC&E TRAIL CROSSING

Description: TBD by ongoing ODOT and Oregon Parks study

Purpose: To provide a comfortable crossing of Altamont Drive for trail users.

Category: Crossing



Grouping: None

Priority: High



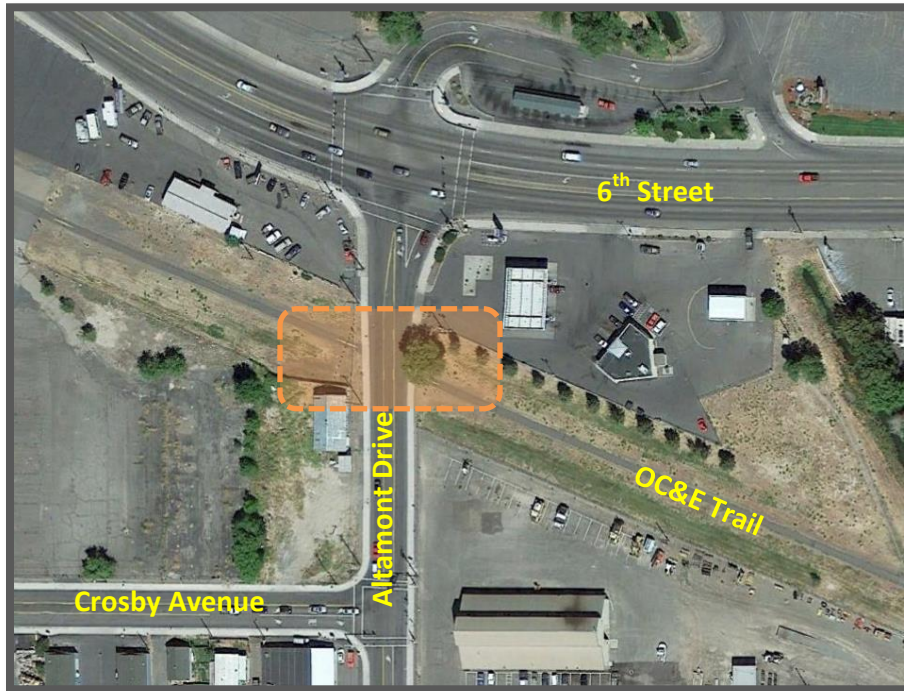
Cost: TBD

Potential Funding Sources: TBD by ongoing ODOT and Oregon Parks study

Potential Project Partners: ODOT, Klamath County, OPRD

Considerations: TBD by ongoing ODOT and Oregon Parks study

Project Location/Images:



ID: C-6

HOMEDALE ROAD: "A" CANAL TRAIL CROSSING

Description: Install marked crosswalk, appropriate signage, and raised median island. Install a gate across the maintenance road on the east side of Homedale Road to indicate that the trail does not extend east of Homedale Road.

Purpose: To provide a comfortable crossing of Homedale Road for trail users.

Category: Crossing



Grouping: None

Priority: Medium



Cost: \$83,700

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources

Potential Project Partners: Klamath County, Bureau of Reclamation

Considerations: Consider installing illumination at the crossing as well (there is not existing illumination on Homedale Road in the crossing vicinity). The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:



Photo Source: Google Maps

ID: C-7

HOPE STREET: "A" CANAL TRAIL CROSSING

Description: Install marked crosswalk and appropriate signage.

Purpose: To provide a comfortable crossing of Hope Street for trail users.

Category: Crossing



Grouping: None

Priority: Medium



Cost: \$3,600

Potential Funding Sources: Local Sources; External Sources (if combined with other projects as a package)

Potential Project Partners: Klamath County, Bureau of Reclamation

Considerations: Consider installing illumination at the crossing as well (there is no existing illumination in the vicinity). Sight distance from the south should be verified. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:



Photo Source: Google Maps

ID: C-8

SHASTA WAY: "A" CANAL TRAIL CROSSING

Description: Further study required to determine final treatment. Active crossing treatments recommended and may include RRFBs and/or a pedestrian refuge island either directly at the trail crossing or at the intersection of Shasta Way/Crest Street.

Purpose: To provide a comfortable crossing of Shasta Way for trail users.

Category: Crossing



Grouping: None

Priority: Medium



Cost: \$2,000 - \$50,000

Potential Funding Sources: TBD

Potential Project Partners: Klamath County, Bureau of Reclamation

Considerations: A median island would require removing the left-turn lane. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:



Photo Source: Google Maps

ID: C-9

EBERLEIN AVENUE: "A" CANAL TRAIL CROSSING

Description: Further study required to determine final treatment. Active crossing treatments recommended and may include a RRFB.

Purpose: To provide a comfortable crossing of Eberlein Avenue for trail users.

Category: Crossing



Grouping: None

Priority: Medium



Cost: \$2,000 - \$50,000

Potential Funding Sources: TBD

Potential Project Partners: City of Klamath Falls, Bureau of Reclamation

Considerations: Close proximity of Avalon Street may present issues. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:

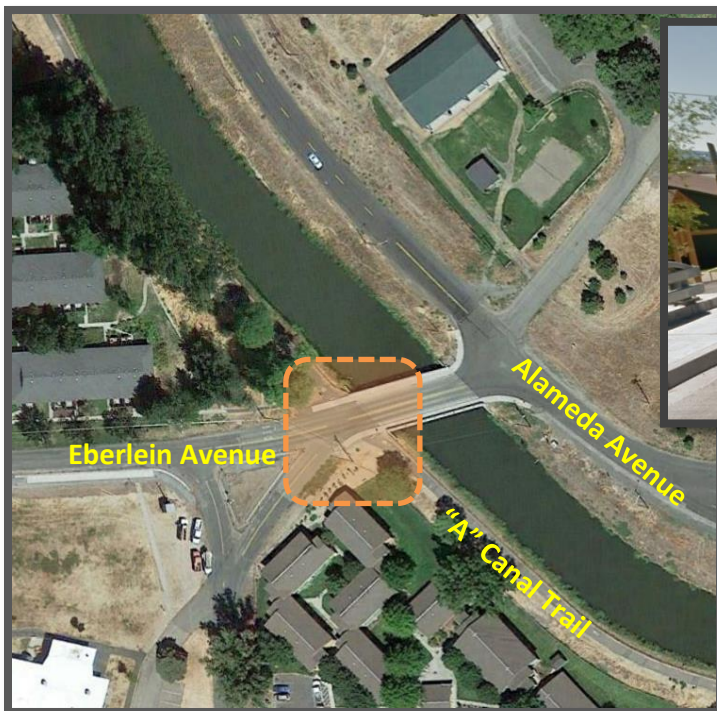




Photo Source: Google Maps

ID: C-10

WASHBURN WAY: "A" CANAL TRAIL CROSSING

Description: Further study required to determine final treatment. Active crossing treatments recommended and may include a RRFB with pedestrian refuge island, connections to the traffic signal, or a grade-separated crossing of Washburn Way.

Purpose: To provide a comfortable crossing of Washburn Way for trail users.

Category: Further Study, Crossing  **Grouping:** G-3, C-10 **Priority:** High 

Cost: \$2,000 - \$50,000 **Potential Funding Sources:** TBD

Potential Project Partners: City of Klamath Falls, Klamath County, Bureau of Reclamation

Considerations: A median island would impact left-turn lane storage. Close proximity to Crater Lake Parkway. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:

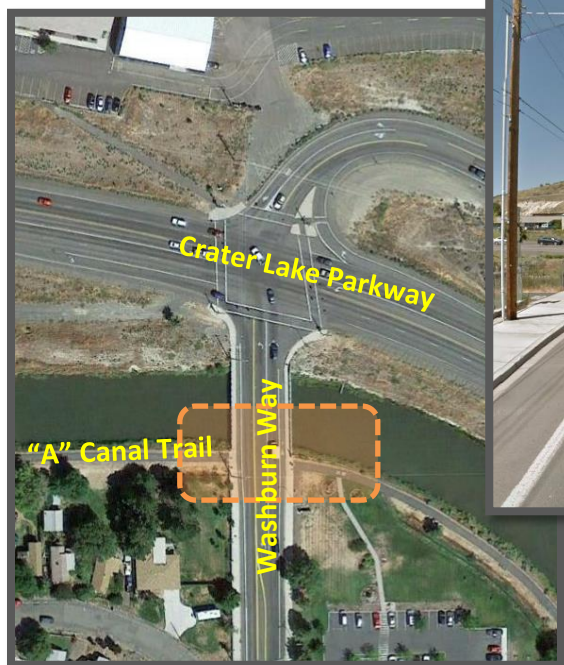


Photo Source: Google Maps

Existing crossing and signage

ID: C-11

MAIN STREET: "A" CANAL TRAIL CROSSING

Description: Further study required to determine final treatment. Active crossing treatments recommended and may include a RRFB with pedestrian refuge island, connections to the traffic signal to encourage crossings there, or a grade-separated crossing of Main Street.

Purpose: To provide a comfortable crossing of Main Street for trail users.

Category: Crossing



Grouping: None

Priority: High



Cost: \$2,000 - \$50,000

Potential Funding Sources: TBD

Potential Project Partners: City of Klamath Falls, Klamath County, Bureau of Reclamation

Considerations: Queuing from the Crater Lake Parkway intersection may block the crossing at times. Free right-turn from Crater Lake Parkway onto Main Street may need to be modified. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:




Photo Source: Google Maps

ID: C-12

ESPLANADE AVENUE: "A" CANAL TRAIL CROSSING

Description: Further study required to determine final treatment. Active crossing treatments recommended and may include RRFBs with pedestrian refuge island using existing median, connections to the traffic signal to encourage crossings there, or a grade-separated crossing of Esplanade Avenue.

Purpose: To provide a comfortable crossing of Esplanade Avenue for trail users.

Category: Further Study, Crossing 

Grouping: Esplanade Avenue Crossing (G-10, C-12)

Priority: High



Cost: \$2,000 - \$50,000

Potential Funding Sources: TBD

Potential Project Partners: City of Klamath Falls, Bureau of Reclamation

Considerations:

A median island would impact left-turn lane storage. Close proximity to Crater Lake Parkway. Queuing from the Crater Lake Parkway intersection may block the crossing at times. The long-term maintenance status of the "A" Canal Trail should be considered before implementing this project.

Project Location/Images:

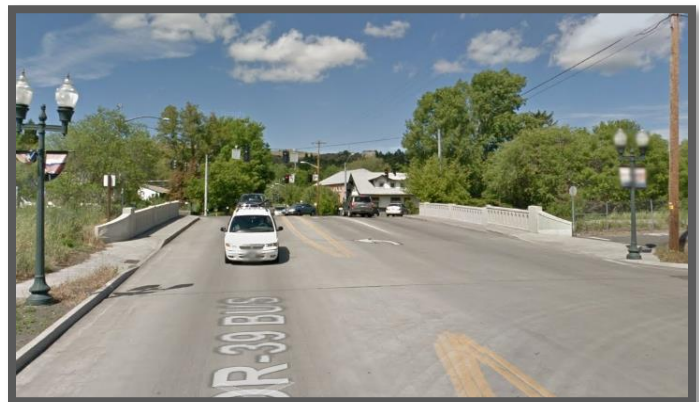


Photo Source: Google Maps

ID: B-1

OR 39 (OC&E TRAIL TO OR 140)

Description: Install protected or buffered bike lanes.

Purpose: To provide a comfortable on-street bicycling connection between the OC&E Trail and areas around OR 39 as they develop.

Category: On-Street Bike Facility



Grouping: None

Priority: Low



Cost: \$72,500

Potential Funding Sources: STIP

Potential Project Partners: ODOT

Considerations: May require additional pavement.

Project Location/Images:

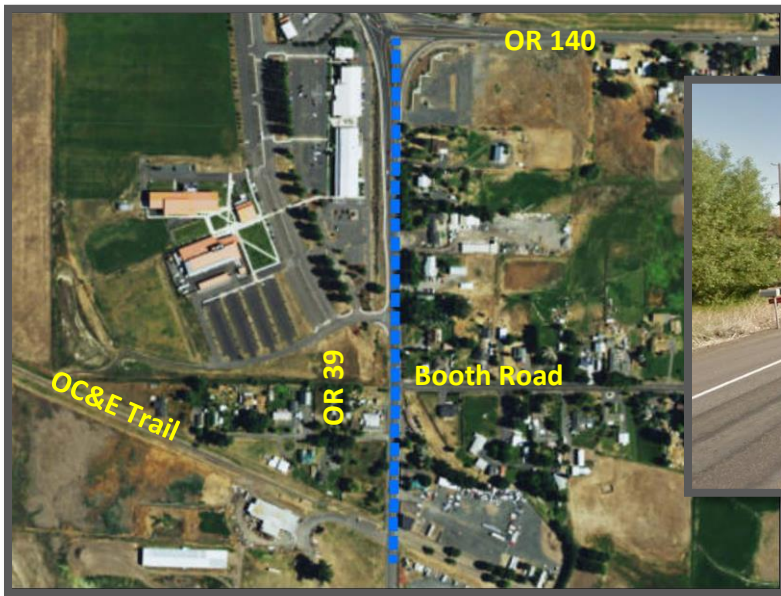


Photo Source: Google Maps

ID: B-2

6TH STREET (RAILROAD BRIDGE TO OR 39)

Description: Identify if there are parallel routes on local streets that would provide similar connectivity but greater comfort

Purpose: To provide a comfortable on-street bicycling connection between land-uses along 6th Street and the surrounding trails.

Category: On-Street Bike Facility



Grouping: None

Priority: Medium



Cost: TBD

Potential Funding Sources: TBD

Potential Project Partners: ODOT, Klamath County, City of Klamath Falls

Considerations: Access to specific destinations on 6th Street will need to be considered. Local street connectivity is fragmented in locations. Use trails whenever possible.

Project Location/Images:



Photo Source: Google Maps

ID: B-3

SHASTA WAY (PATTERSON STREET TO KIMBERLY DRIVE)

Description: Install sharrows and traffic calming.

Purpose: To provide a comfortable on-street bicycling connection between Patterson Street and the residential areas on Shasta Way east of it.

Category: On-Street Bike Facility



Grouping: None

Priority: Low



Cost: \$75,500

Potential Funding Sources: STIP; Local Funds

Potential Project Partners: Klamath County

Considerations: Sharrows alone will not do much for the comfort of people bicycling. Traffic calming will also be required to lower the speed people are driving.

Project Location/Images:



Photo Source: Google Maps

ID: B-4

SHASTA WAY (PATTERSON STREET TO CRATER LAKE PARKWAY)

Description: Look for opportunities for alternate routes on local streets or for traffic calming measures on Shasta Way

Purpose: To provide a comfortable on-street bicycling connection between Crater Lake Parkway and Patterson Street.

Category: On-Street Bike Facility



Grouping: None

Priority: Medium



Cost: TBD

Potential Funding Sources: TBD

Potential Project Partners: Klamath County, City of Klamath Falls

Considerations: Local street connectivity is fragmented in locations.

Project Location/Images:



Photo Source: Google Maps

ID: B-5

PATTERSON STREET (6TH STREET TO FOOTHILLS BOULEVARD)

Description: Further study required to determine final treatment. Candidates include buffered bike lanes or a shared-use path.

Purpose: To provide a comfortable north-south on-street bicycling connection between the Foothills Trail and 6th Street.

Category: On-Street Bike Facility; Trail



Grouping: None

Priority: Medium



Cost: TBD

Potential Funding Sources: TBD

Potential Project Partners: Klamath County

Considerations: Needs to tie into Foothills Trail.

Project Location/Images:



Photo Source: Google Maps

ID: B-6 to B-11

NORTH-SOUTH ROUTES IN SE KLAMATH FALLS

Description:

Further study required to determine which routes will be designated for bicycle travel and what the treatments are. Options include providing buffered or protected bike lanes along the identified routes (i.e., Washburn Way, Altamont Drive, Summer Lane, and Homedale Road) or providing bicycle boulevard style treatments to parallel low-volume, low-speed streets.

Purpose:

To connect the neighborhoods in SE Klamath Falls to the OC&E and “A” Canal Trails with comfortable on-street bicycle routes.

Category: On-Street Bike Facility



Grouping: None

Priority: Medium



Cost: TBD

Potential Funding Sources: TBD

Potential Project Partners: Klamath County, City of Klamath Falls

Considerations: Parallel routes may be an option in certain locations.

Project Location/Images:



Photo Source: Google Maps

ID: B-12

OR 140 (WASHBURN WAY TO HOMEDALE ROAD)

Description: Install shared-use path along the north side of OR 140.

Purpose: To provide a comfortable on-street bicycling connection between Homedale Road and Washburn Way, forming the southern section of a loop around the City for bicyclists.

Category: Trail



Grouping: None

Priority: Low



Cost: \$1,633,500

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP

Potential Project Partners: ODOT, Klamath County

Considerations: Installing the trail along the north side of the road would minimize the number of bicycle crossings of OR 140. One crossing of the railroad is involved. Requires some type of transition between OR 140 and Washburn Way (which is connected by on/off ramps). May require purchasing right-of-way. Treatments may be needed at crossings with minor streets. Project development should include outreach to employees of Kingsley Field, who may use this trail for commuting purposes.

Project Location/Images:



Photo Source: Google Maps

ID: B-13

6TH STREET (MARKET STREET TO MAIN STREET)

Description: Stripe a bike lane on 6th Street from Market Street to Main Street; if space allows stripe as a buffered bike lane.

Purpose: To provide a comfortable on-street bicycling connection between Market Street and Main Street, providing a connection to downtown.

Category: On-Street Bike Facility



Grouping: 6th Street Connections to Downtown (B-13, B-14, G-1)

Priority: High



Cost: \$15,700

Potential Funding Sources: Local Sources (potentially as part of routine maintenance); External Sources (if packaged with other projects)

Potential Project Partners: ODOT, City of Klamath Falls

Considerations: One side of on-street parking may need to be removed. Project should be coordinated with B-14, which will determine whether a one-way or two-way facility is needed.

Project Location/Images:

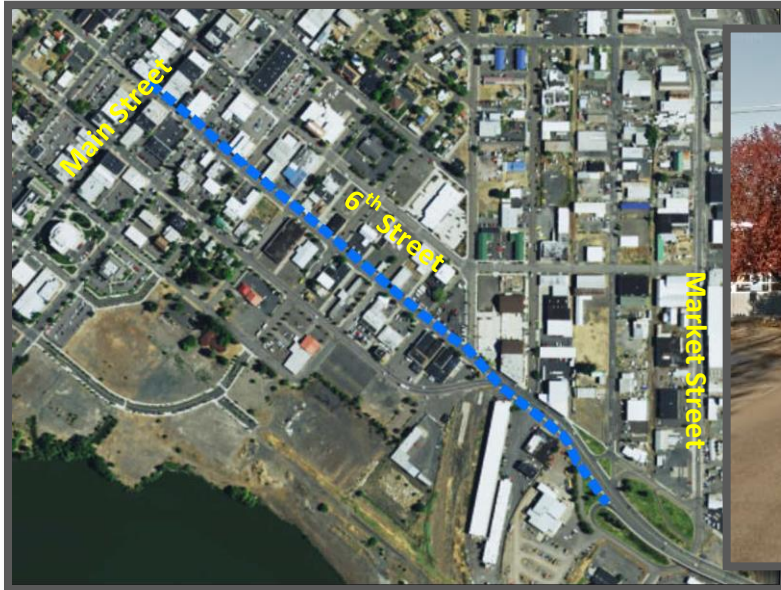


Photo Source: Google Maps

ID: B-14

5TH STREET (MAIN STREET TO 6TH STREET)

Description: Stripe a bike lane on 5th Street from Main Street to 6th Street; if space allows stripe as a buffered bike lane.

Purpose: To provide a comfortable on-street bicycling connection between Main Street and 6th Street, providing a connection to downtown.

Category: On-Street Bike Facility



Grouping: 6th Street Connections to Downtown (B-13, B-14, G-1)

Priority: High



Cost: \$19,400

Potential Funding Sources: Local Sources (potentially as part of routine maintenance); External Sources (if packaged with other projects)

Potential Project Partners: ODOT, City of Klamath Falls

Considerations: Project should be coordinated with B-13, which will determine whether a one-way or two-way facility is needed.

Project Location/Images:



Photo Source: Google Maps

ID: B-15

KLAMATH AVENUE (CONGER AVENUE TO COMMERCIAL STREET)

Description: Stripe bike lanes on Klamath Avenue. *Coordinate with the Blue Zones project for the final facility type.*

Purpose: To provide a comfortable on-street bicycling connection within the downtown area.

Category: On-Street Bike Facility



Grouping: Klamath Avenue and Main Street Downtown (B-15, B-16)

Priority: High



Cost: \$28,700

Potential Funding Sources: Local Sources (potentially as part of routine maintenance); External Sources (if packaged with other projects)

Potential Project Partners: City of Klamath Falls

Considerations: May require the removal of on-street parking on at least one side of the road to accommodate the bike lane width. Project should be coordinated with B-16, which will determine whether a one-way or two-way facility is needed.

Project Location/Images:



Photo Source: Google Maps



ID: B-16

MAIN STREET (ESPLANADE AVENUE TO MILL STREET)

Description: Stripe bike lanes on Main Street. *Coordinate with the Blue Zones project for the final facility type.*

Purpose: To provide a comfortable on-street bicycling connection within the downtown area.

Category: On-Street Bike Facility



Grouping: Klamath Avenue and Main Street Downtown (B-15, B-16)

Priority: High



Cost: \$24,600

Potential Funding Sources: Local Sources (potentially as part of routine maintenance); External Sources (if packaged with other projects)

Potential Project Partners: City of Klamath Falls

Considerations: Project should be coordinated with B-15, which will determine whether a one-way or two-way facility is needed.

Project Location/Images:



Photo Source: Google Maps

ID: B-17

MOORE PARK TO DOWNTOWN BIKE FACILITY

Description: To be determined by ongoing Moore Park to Downtown Klamath Falls Corridor Plan.

Purpose: To provide a comfortable on-street bicycling connection between Moore Park and downtown.

Category: On-Street Bike Facility



Grouping: None

Priority: High



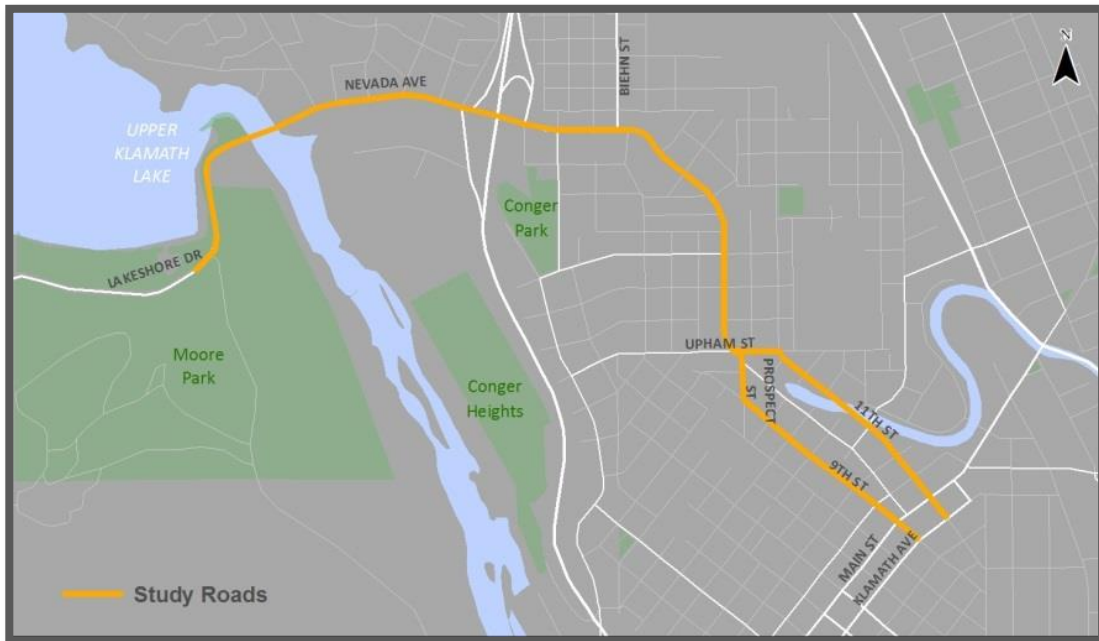
Cost: \$556,200

Potential Funding Sources: TBD by ongoing Moore Park to Downtown Klamath Falls Corridor Plan.

Potential Project Partners: City of Klamath Falls

Considerations: TBD by ongoing project.

Project Location/Images:



ID: B-18

LAKESHORE DRIVE (LYNNEWOOD BLVD TO WEST UGB)

Description: Widen the pavement to accommodate shoulders or bike lanes.

Purpose: To provide a comfortable on-street bicycling facility along Lakeshore Drive, a popular recreational route.

Category: On-Street Bike Facility



Grouping: None

Priority: Low



Cost: \$4,121,000

Potential Funding Sources: Land and Water Conservation Fund; STIP

Potential Project Partners: Klamath County, City of Klamath Falls, Running Y

Considerations:

The road will need to be widened to accommodate paved shoulders, and the some earthwork is likely to be needed with the widening. There may be some ROW impacts associated with roadway widening. Project development should include outreach with Klamath County and Running Y to determine if the bike lanes may be extended to Running Y.

Project Location/Images:



Photo Source: Google Maps

ID: B-19

MAIN STREET (ESPLANADE AVENUE TO CRATER LAKE PARKWAY)

Description: Stripe bike lanes on Main Street, ideally buffered bike lanes.

Purpose: To provide a comfortable on-street bicycling connection between Crater Lake Parkway and downtown. This route serves as a key connection to downtown for cyclists traveling from the “A” Canal Trail and the southeast area of the City.

Category: On-Street Bike Facility



Grouping: None

Priority: Medium



Cost: \$30,600

Potential Funding Sources: Local Sources (potentially as part of routine maintenance); External Sources (if packaged with other projects)

Potential Project Partners: City of Klamath Falls

Considerations: Between Spring Street and Crater Lake Parkway, elimination of the on-street parking or a road diet would be required to accommodate the bike lanes. The eastbound bike lane would require a transition treatment where E Main Street turns off of Main Street. The pavement width is not adequate for adding a bicycle lane under the railroad, so the sidewalk would need to be widened to accommodate bikes. A transition between the bike lanes and sidewalks would also be needed.

Project Location/Images:



Photo Source: Google Maps

ID: B-20

OLD FORT ROAD (LOMA LINDA DRIVE TO UGB)

Description: Widen the road to add paved shoulders or bike lanes.

Purpose: To provide a comfortable on-street bicycling facility on Old Fort Road which is a popular recreational route for bicyclists.

Category: On-Street Bike Facility  **Grouping:** None **Priority:** Low 

Cost: \$5,037,500 **Potential Funding Sources:** Land and Water Conservation Fund; STIP

Potential Project Partners: Klamath County

Considerations: The road appears to have some gravel shoulders today, so widening will be needed.

Project Location/Images:



Photo Source: Google Maps

ID: B-21

BIEHN STREET (CRATER LAKE PARKWAY TO OREGON AVENUE)

Description: Widen the bike lanes by restriping the roadway.

Purpose: To provide a comfortable on-street bicycling connection Crater Lake Parkway and Oregon Avenue, which serves as part of the connection between OIT and downtown.

Category: On-Street Bike Facility



Grouping: OIT to Downtown (G-6, B-21)

Priority: High



Cost: \$33,400

Potential Funding Sources: Local Sources (potentially as part of routine maintenance); External Sources (if packaged with other projects)

Potential Project Partners: City of Klamath Falls

Considerations: No pavement widening is required. Narrowing the motor vehicle travel lanes may also calm traffic.

Project Location/Images:

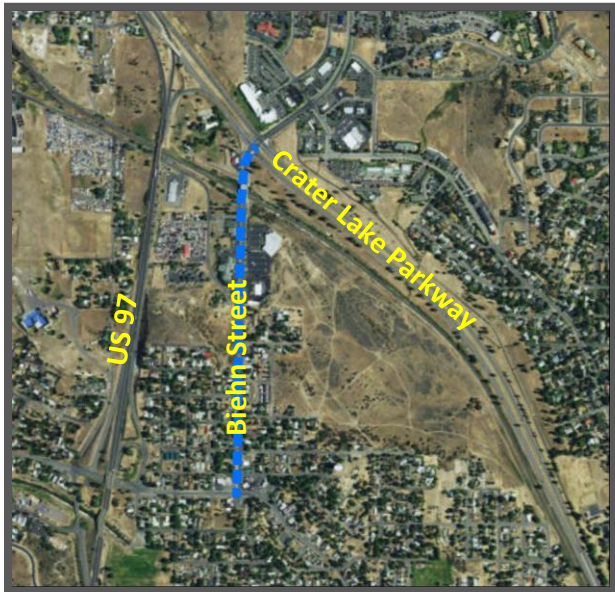


Photo Source: Google Maps

ID: B-22

EAST-WEST ROUTES IN SOUTHEAST KLAMATH FALLS

Description:

Further study required to determine which routes will be designated for bicycle travel and what the treatments are. Options include providing buffered or protected bike lanes along the identified routes (i.e., Crosby Avenue, Hilyard Avenue, Laverne Avenue, and Bristol Avenue) or providing bicycle boulevard style treatments to parallel low-volume, low-speed streets.

Purpose:

To connect the neighborhoods in SE Klamath Falls to north-south routes which connect to the OC&E and "A" Canal Trails with comfortable on-street bicycle routes.

Category: On-Street Bike Facility



Grouping: None

Priority: Medium



Cost: TBD

Potential Funding Sources: TBD

Potential Project Partners: City of Klamath Falls, Klamath County

Considerations:

Further neighborhood outreach and speed studies may be necessary to identify specific treatments.

Project Location/Images:

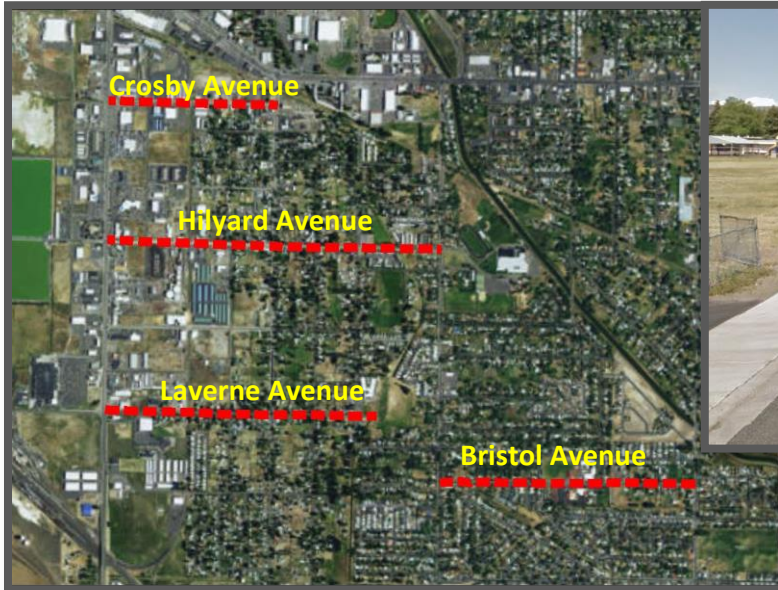


Photo Source: Google Maps

Potential east-west streets for improvements

ID: B-23

N ELDORADO AVENUE

Description: Install sharrows and traffic calming. Sidewalks should be considered as a traffic calming measure.

Purpose: To provide on-street bicycle connections on the popular commute route between the residential areas along N Eldorado Avenue and the OIT and Sky Lakes Healthcare campuses.

Category: On-Street Bike Facility



Grouping: None

Priority: Medium



Cost: \$679,500
(\$645,000 for sidewalk)

Potential Funding Sources: STIP; Local Sources

Potential Project Partners: City of Klamath Falls

Considerations: The higher end of the cost range includes sidewalks, the lower end does not. Posted speed limit indicates that a shared-roadway would be sufficient for bicyclists.

Project Location/Images:



Photo Source: Google Maps

ID: S-1

OR 39 (OC&E TRAIL TO KELLER ROAD)

Description: Install sidewalks on both sides of the road.

Purpose: To provide pedestrian connections between the OC&E Trail and areas around OR 39 as they develop.

Category: Sidewalk



Grouping: None

Priority: Low



Cost: \$744,000

Potential Funding Sources: STIP

Potential Project Partners: ODOT

Considerations: May require ROW.

Project Location/Images:



Photo Source: Google Maps

ID: S-2 HOPE STREET (BRISTOL AVENUE TO SW 6TH STREET)

Description: Install sidewalks on both sides of the road.

Purpose: To provide pedestrian connections between the residential areas along Hope Street and the “A” Canal Trail. It also connects Peterson Elementary school and the OC&E and “A” Canal trails.

Category: Sidewalk



Grouping: None

Priority: Low



Cost: \$2,148,000

Potential Funding Sources: Land and Water Conservation Fund; STIP

Potential Project Partners: Klamath County

Considerations: The bridge over the canal already includes sidewalks. Project may require ROW.

Project Location/Images:



Photo Source: Google Maps

ID: P-1

TRAIL SIGNING/WAYFINDING

Description: Develop a program to install and maintain wayfinding signage at all trailheads and trail crossings of public streets.

Purpose: To provide increase awareness and use of the trail system for residents and visitors.

Category: Program/Policy



Grouping: None

Priority: High



Cost: --

Potential Funding Sources: Oregon Parks Local Government Grants; Recreational Trails Program; Land and Water Conservation Fund; STIP; Local Sources; Public/Private Partnership

Potential Project Partners: ODOT, Klamath County, City of Klamath Falls, US Bureau of Reclamation

Considerations: Will need to determine who is responsible for the signs. See the suggested Wayfinding Guidelines and Best Practices in the Appendix.

Project Location/Images:



Examples of wayfinding signage

ID: P-2

BICYCLE PARKING

Description: Develop policy that requires bicycle parking to be provided at key locations and pursue grant funding to provide it at key locations where it is missing.

Purpose: To encourage future developments and redevelopments obtain bicycle parking. Users are more likely to bike to locations if they know there is a location to park their bike.

Category: Program/Policy



Grouping: None

Priority: High



Cost: --

Potential Funding Sources: External Grants; Public/Private Partnerships; Development Requirements

Potential Project Partners: City of Klamath Falls, Klamath County

Considerations:

Project Location/Images:



ID: P-3

LOCAL STREET TRAIL CROSSINGS

Description: Develop guidelines for how to evaluate trail crossings and determine the appropriate treatment for the City and County to use in applying consistent treatment at crossings for local streets.

Purpose: To provide consistent trail crossings of local streets throughout the City.

Category: Program/Policy



Grouping: None

Priority: Medium



Cost: --

Potential Funding Sources: TBD

Potential Project Partners: City of Klamath Falls, Klamath County

Considerations:

Project Location/Images:



Photo Source: Google Maps

ID: P-4

TRAIL ILLUMINATION

Description: Evaluate the feasibility of installing illumination along the trail system, including type of illumination, priority locations, and cost/maintenance.

Purpose: To provide illumination at key locations within the trail system to help reduce crime.

Category: Program/Policy



Grouping: None

Priority: Low



Cost: --

Potential Funding Sources: TBD

Potential Project Partners: City of Klamath Falls, Klamath County, Bureau of Reclamation, ODOT

Considerations: The location and design of lighting will need to consider impacts to surrounding residents and uses.

Project Location/Images:



Photo Source: <http://www.smartswitchelectrical.com.au/commercial-electrician.html>

Example of pedestrian scale lighting along trail

ID: P-5

BICYCLE REPAIR STATIONS

Description: Develop a plan for strategic placement of bicycle repair stations and bicycle racks throughout the urban trail system.

Purpose: To provide locations for bicyclists to rest and repair their bikes.

Category: Program/Policy



Grouping: None

Priority: Low



Cost: --

Potential Funding Sources: External Grants (from recreational groups); Public/Private Partnerships

Potential Project Partners: City of Klamath Falls, Klamath County, Bureau of Reclamation, ODOT

Considerations: Some stations may feature additional features such as water for cyclists.

Project Location/Images:



Photo Source: ODOT Region 4

Example of bicycle rest area and repair station

Section 4
Implementation Plan

IMPLEMENTATION PLAN

Funding for implementation of the Klamath Falls Urban Trail Master Plan may be identified from a variety of sources. Funding considerations should include the cost of the capital improvement project as well as the ongoing maintenance costs to maintain facilities after they are built. This section provides an overview of the potential funding options that may be used to complete the projects identified in this section.



Figure 4-1 shows the locations of the planned projects by priority, and Table 4-1 summarizes the projects by priority. This section summarizes the funding needs by project type and priority.

Table 4-1. Prioritized Planned Projects

ID*	Project Description	Cost Estimate [^]
High Priority Projects		
G-1	Connect the OC&E Trail to downtown Klamath Falls via 6th Street bridge by widening sidewalk to provide for shared-use path. Provide a connection to the soon to be constructed Lake Ewauna trail. (Note: Lake Ewauna trail connection alignment is not confirmed; cost estimate does not include this connection.)	\$859,500
G-2	Connect the "A" Canal Trail to the ODOT Trail by widening the sidewalks to provide for a shared-use path.	\$166,500
G-6	Connect the Campus Trail to the Biehn Street bike lanes and sidewalk by widening the sidewalk on the south side of Campus Drive to complete the shared-use path connection. Possible modifications are needed at the Crater Lake Parkway intersection.	\$108,800
G-8	Connect Veteran's Park to the Link River Trail by widening the sidewalk on the north side of Main Street to provide for a shared use path. Install a crossing across Main Street west of the park road's access to Main Street to connect Veteran's Park with the path. Sharrows may work as an interim solution.	\$90,600
G-11	Formalize connections between Summers Lane and Steens Sports Park to provide southern connections to the park.	\$150,000
C-1	OC&E Trail crossing of OR 39: TBD by ongoing ODOT and Oregon Parks study	TBD
C-2	OC&E Trail crossing of Homedale Road: TBD by ongoing ODOT and Oregon Parks study	TBD
C-4	OC&E Trail crossing of Summers Lane: TBD by ongoing ODOT and Oregon Parks study	TBD
C-5	OC&E Trail crossing of Altamont Drive: TBD by ongoing ODOT and Oregon Parks study	TBD
C-10	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Washburn Way. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
C-11	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Main Street. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
C-12	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Esplanade Avenue. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
B-13	Install bike lane on 6th Street between Market Street and Main Street.	\$15,700
B-14	Install bike lane on 5th Street between Main Street and 6th Street.	\$19,400
B-15	Install bike lanes on Klamath Avenue between Conger Avenue and Commercial Street. Coordinate with the Blue Zones project.	\$28,700
B-16	Install bike lanes on Main Street between Esplanade Avenue and Mill Street. Coordinate with the Blue Zones project.	\$24,600
B-17	The bicycle facility between Moore Park and Downtown Klamath Falls will be determined by an ongoing project.	\$556,200
B-21	Widen the bike lanes on Biehn Street between Crater Lake Parkway and Oregon Avenue by restriping the roadway.	\$33,400
P-1	Develop a program to install and maintain wayfinding signage at all trailheads and trail crossings of public streets. <i>See Appendix F for more information.</i>	--
P-2	Develop a policy that requires bicycle parking to be provided at key locations and pursue grant funding to provide it at key locations where it is missing.	--
Medium Priority Projects		
G-3	Connect the "A" Canal Trail to the Foothills Trail by widening the sidewalk on the east side of the bridge to provide a shared use path between the intersection and the "A" Canal trail. Tighten the curb radius for NB right-turns onto Crater Lake Parkway.	\$153,000
G-4	Connect the "A" Canal Trail to the Ella Redkey Swimming Pool by installing a shared-use path between the parking lot/front entrance to the pool and the existing "A" Canal Trail.	\$55,800
G-7	Connect the ODOT Trail to Kit Carson Park by constructing a connection between the trail and the parking lot or existing sidewalk connecting the street to the park. <i>There are ongoing discussions to implement this as part of a project at the park.</i>	\$22,600
G-9	Connect the "A" Canal Trail to the signalized crossing at SW 6th Street by widening the sidewalk on the south side of SW 6th Street to better accommodate bicyclists.	\$18,700
G-10	Connect the "A" Canal Trail to Klamath Union High School by widening the sidewalk on the north side of Esplanade Avenue to provide a shared-use path to the high school. Coordinate with school for completing the connection.	\$298,500
C-3	Install striped crosswalk and appropriate signage at the OC&E Trail crossing of Hope Street.	\$3,300
C-6	Install marked crosswalk, appropriate signage, and raised median island at the "A" Canal Trail crossing of Homedale Road. Install a gate across the maintenance road on the east side of Homedale Road to indicate that the trail does not extend east of Homedale Road.	\$83,700
C-7	Install marked crosswalk and appropriate signage at the "A" Canal Trail crossing of Hope Street.	\$3,600
C-8	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Shasta Way. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
C-9	Further study is required to determine final treatment for the crossing of the "A" Canal Trail at Eberlein Avenue. Enhanced crossing treatments recommended.	\$2,000 - \$50,000
B-2	Identify if there are parallel routes that would provide similar connectivity but greater comfort as an alternative to 6th Street between the railroad bridge and OR 39.	TBD
B-4	Look for opportunities for alternate routes or for traffic calming measures on Shasta Way between Patterson Street and Crater Lake Parkway.	TBD
B-5	Further study required to determine final treatment for bicycle facilities on Patterson Street between 6th Street and Foothills Boulevard. Candidates include buffered bike lanes or a shared-use path.	TBD
B-6 - B-11	Further study required to determine which north-south routes will be designated for bicycle travel in the southeast area of Klamath Falls and what the appropriate treatment is.	TBD
B-19	Install bike lanes on Main Street between Esplanade Avenue and Crater Lake Parkway.	\$30,600
B-22	Further study required to identify which east-west routes should receive shared lane markings, wayfinding, and/or traffic calming in the southeast area of Klamath Falls.	TBD
B-23	Install sharrows and traffic calming on N Eldorado Avenue. Sidewalks should be considered as a traffic calming measure.	\$679,500
P-3	Develop guidelines for how to evaluate trail crossings and determine the appropriate treatment for the City and County to use in applying consistent treatment at crossings for local streets.	--
Low Priority Projects		
G-5	Connect the "A" Canal Trail to the Kiger Stadium and Klamath County Fairgrounds by paving the existing informal service road from the "A" Canal Trail to the Kiger Stadium Parking lot. Install a shared use path along the west side of Crest Street from the Kiger Stadium Parking lot to the Fairgrounds.	\$199,100
B-1	Install protected or buffered bike lanes on OR 39 between the OC&E Trail and OR 140.	\$72,500
B-3	Install sharrows and traffic calming on Shasta Way between Patterson Street and Kimberly Drive.	\$75,500
B-12	Install shared-use path on OR 140 between Washburn Way and Homedale Road.	\$1,633,500
B-18	Widen the pavement to accommodate shoulders or bike lanes on Lakeshore Drive between Lynnewood Boulevard and the west UGB.	\$4,121,000
B-20	Widen the road to add paved shoulders or bike lanes on Old Fort Road between Loma Linda Drive and the UGB.	\$5,037,500
S-1	Install sidewalks on both sides of OR 39 between the OC&E Trail and Keller Road.	\$744,000
S-2	Install sidewalks on both sides of Hope Street between Bristol Avenue and SW 6th Street.	\$2,148,000
P-4	Evaluate the feasibility of installing illumination along the trail system, including type of illumination, priority locations, and cost/maintenance.	--
P-5	Develop a plan for strategic placement of bicycle repair stations and racks throughout the urban trail system.	--

*The prefix on the ID numbers refers to the project category: "G-" refers to trail system projects; "B-" refers to on-street bikeways; "C-" refers to crossings; and "S-" refers to sidewalks; "P-" refers to policies and programs.

[^]Please note the costs outlined above are for 2015 and are planning level estimates only that do not include right-of-way. An annual inflation rate of 3 to 5 percent should be applied when projecting costs to the future.

MAINTENANCE AND TRAIL OPERATIONS FUNDING OPTIONS

In addition to the construction of the planned projects, the County and City should identify funds to be used for maintenance of existing and future trails, on-street bicycle facilities, and sidewalks. The goal of any maintenance program is to proactively address declining conditions as soon as possible. Such a program achieves the least cost for maintenance over time and the best condition possible. If maintenance is neglected past a certain point, then more expensive rehabilitation techniques are necessary.



Crack in trail pavement

Table 4-2 summarizes life cycle maintenance costs broken down into annual costs for maintenance need to maintain the existing trails in their current condition. The actual costs in any given year will vary from the annual costs shown in the table because each action is not performed every year (e.g., a two-inch overlay is prorated over a 20-year period of time). The portion of the estimated annual costs that are not outlaid each year for maintenance should be put into a long-term maintenance account and allowed to build for the years when more maintenance is required.

Table 4-2. Estimated Annual Maintenance Costs

Maintenance Action	Frequency	Estimated Annual Cost
Site Visit and documentation of conditions, safety hazards	2x/year (Spring/Fall)	\$900 ¹
Longitudinal striping and repainting of stop bars	Every 5 Years	\$2,000 ²
Crack seal minor cracks less than 1" wide	Every 1 Year	\$2,700 ³
Crack seal major cracks greater than 1" wide	Every 1 Year	\$3,400 ⁴
Repair pot holes with patch	Every 1 Year	\$1,000 ⁵
Inspect signs and replace as needed	Every 5 Years	\$500 ⁵
2" hot mix overlay	Every 20 Years	\$79,000 ⁶
Total Annual Cost (with 20-year overlay)		\$89,500
Total Annual Cost (without 20-year overlay)		\$10,500

¹0.5 hours/mile x 15.3 trail miles x 2 times/year

²\$0.50 x 15.3 miles x 5,280 feet/mile x 25% length / 5 years

³Assumes topical crack seal applied at a cost of \$1/foot of crack, with cracks occurring every 100 feet on 10-foot wide trails.

⁴Assumes sawcutting and hot mix patch is necessary at a cost of \$5/foot of crack, with cracks occurring every 200 feet on 10-foot wide trails.

⁵Lump sum estimate

⁶2" overlay x 0.0065 tons/inch/square foot x 15.3 miles x 5,280 feet/mile x 10 feet wide x \$150/ton / 20 yrs.

Please note the costs outlined above are for 2015. An annual inflation rate of 3 to 5 percent should be applied when projecting costs to the future.

PROJECT AND PROGRAMS FUNDING OPTIONS

As shown in Table 4-3, the total funding needed to accomplish the construction of all the projects identified in the plan is approximately \$17.5 million. Approximately \$2 million is needed to complete the high priority projects. This estimate does not include the funds necessary for construction of the OC&E Trail Crossings (projects C-1, C-2, C-4, and C-5) that are under current design through separate projects and which may already have construction funding in place.

Table 4-3. Total Project Costs

Project Type	Low Priority	Medium Priority	High Priority	Total
Trail	\$199,100	\$548,600	\$1,375,400	\$2,123,100
Crossing	--	\$94,600 – \$190,600	\$6,000 - \$150,000	\$100,600 - \$340,600
On-Street Bicycle Facility	\$10,940,000	\$65,100	\$678,000	\$11,683,100
Sidewalk	\$2,892,000	\$645,000	--	\$3,537,000
Programs and Policies	TBD	TBD	TBD	TBD
Total	\$14,031,100	\$1,353,300 - \$1,449,300	\$2,059,400 - \$2,203,400	\$17,443,800 - \$17,683,800

While on-street bicycle facility projects make up the majority of estimated project costs, trail projects account for much of the high and medium priority project cost estimates, as shown in Figure 4-2.

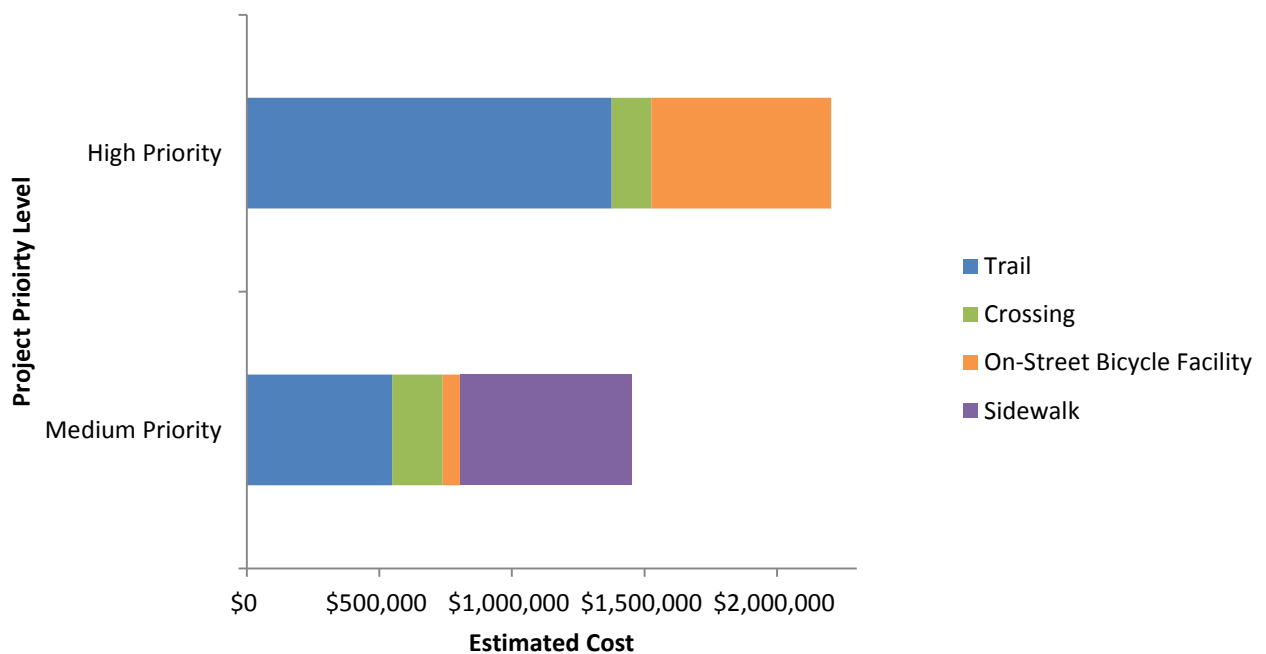


Figure 4-2 Cost Estimates of High and Medium Priority Projects by Project Type

Existing Funding Levels

The City and County have limited existing resources to fund the pedestrian and bicycle projects identified in this plan. One percent of Klamath County's Motor Vehicle Apportionment, which amounts to approximately \$45,000 per year, is dedicated for bicycle trails. This fund is for the entire county and so must cover an area larger than just the urbanized area within Klamath Falls' UGB. These funds may only be used for projects within the County right-of-way. The City has approximately \$12,000 per year in funds dedicated for bicycle and pedestrian projects. These funds could potentially be used for projects that involve only striping modifications or minor construction efforts, but are not sufficient for major capital projects.

Potential Funding Sources

Due to the lack of existing funding to support the recommended plan elements, new funding strategies should be considered to generate additional revenue for the trail system. Potential strategies for addressing these funding needs can generally be grouped into four categories: secure more external funding, identify public/private sponsorship opportunities, raise local revenue through user fees and taxes, and update the development code. Descriptions of the use of these strategies are described below. The strategies are not all mutually exclusive.

Secure External Funding

Projects can be funded from a number of federal, state and local sources. Most federal and state funding programs are grant programs, which typically have eligibility requirements and applications required. Table 4-4 and Table 4-5 document potential federal/state and local funding sources, respectively.

Table 4-4. Potential Federal and State Grants for Klamath Falls Urban Trail Plan Projects

Source	Award Cycle	Intended Use	Applicable Project Types	Administration Agency	Local Match
Rivers, Trails, and Conservation Assistance Program	Annual	Technical assistance for recreation and conservation projects.	Shared-use paths	National Park Service	None
Highway Safety Improvement Program	Annual	Reduce fatalities and serious injuries on all public roads.	On-street bikeways, sidewalks, crossings	ODOT	10%
Oregon Parks and Recreation Local Government Grants	Annual	Primary use is recreation; transportation allowed. Construction limited to outside road right-of-way, only in public parks or designated recreation areas	Shared-use paths	OPRD	20%
Recreational Trails Program	Annual	Recreational trail-related projects, such as hiking, running, bicycling, off-road motorcycling, and all-terrain vehicle riding.	Shared-use paths, including wayfinding	OPRD	20%
Land and Water Conservation Fund	Annual	Acquire land for public outdoor recreation or develop basic outdoor recreation facilities	Shared-use paths, bikeways, sidewalks	OPRD	50%
Enhance (STIP)	Biennial	Activities that enhance, expand, or improve the transportation system. Projects that improve or enhance the state's multimodal transportation system.	All	ODOT	10%
All Roads Transportation Safety (ARTS)	Biennial	Address safety needs on all public roads in Oregon; reduce fatal and serious injury crashes.	Projects consistent with those identified through ODOT's hot spot and systemic efforts.	ODOT	8%

Public/Private Sponsorships

Public/private sponsorships involve a private entity such as a local business owner working with the public agency to fund a project. In return for their investment in the community, these business owners often have recognition for their role, providing a marketing venue for the business. In Klamath Falls, two potential opportunities for this type of partnership are the bicycle wayfinding signage project or additional bike rack/repair stations. Private organizations that sponsor a sign may have the opportunity to provide their logo on a sign and/or bike rack/repair station to help direct cyclists to their community and/or business.



Clif Bar is a Sponsor of this Bike Repair Station at Portland State University

Image Source: Portland State University

Local Taxes and User Fees

Local taxes and user fees may be collected to finance construction and operations. Table 4-5 lists options that the City may wish to consider for funding local roads. The sources include a mix of fees and taxes, some of which if implemented would have implications for other aspects of the City budget. Some of these fees could also be used to provide a local match to obtain greater federal or state funding, further stretching local dollars if used as a local match for a grant. Some of the options identified in Table 4-5 may be better used for projects that include a motor vehicle element. However, obtaining these grants will help free up money for the City and County to use for trail projects.

Table 4-5. Potential Local Funding Sources for Klamath Falls Urban Trail Plan Projects

Source	Description	Comments
General Fund	Property taxes from the county's permanent tax rate.	Diverting general fund revenue to the Road Fund would have significant consequences for other county services.
Supplemental 5-year Serial Levy	Voter approved property tax levied in addition to the county's permanent tax rate.	A road fund serial levy would have to be approved by voters every five years. A one-time approval would buy time for the city and/or county to develop other options. This method could fund operations and capital programs, some of which might reduce future maintenance requirements.
Road Utility Fee	Monthly user fee with revenue dedicated to road operations. May be enacted legislatively but could be challenged and brought to a vote.	This type of fee is becoming more common in cities but would require substantial investment in rate studies, administrative staffing, software and computer systems to enable the county to collect the revenue. This source is generally better suited to funding operations than for capital improvements, but it may free up existing resources for capital projects.
Vehicle Registration Fee	An extra fee on all registered motor vehicles in the county. May be authorized legislatively but could be challenged and brought to a vote.	State must be willing to act as a collection agent for the county, otherwise would be easy to implement. This source could fund operations or capital programs.
Motor Vehicle Title Fee	Require that all motor vehicles registered in the county also have their title recorded as personal property with the City.	This would generate two sources of revenue: from the fee itself and from personal property taxes levied on motor vehicles. This could be problematic for renters and would increase taxable property that the Assessor must account for.
City Gas Tax	May be enacted legislatively but could be challenged and brought to a vote.	A local-option fuel tax would be easy to collect because the infrastructure is already in place. Would generate revenue for the city and/or county from motorists passing through the county. This method could fund operations and capital programs.
Increase Portion of Road Funds Allotted to Bicycle and Pedestrian Projects	The City and County each dedicate a portion of their transportation funds to bicycle-specific projects. This amount could be increased to provide additional funds for implementing this plan.	Doing so would divert funds from other road maintenance/expansion projects.

Development Code Updates

Development code updates may be beneficial to provide an additional funding source. The development code identifies the requirements that a developer must meet before obtaining permission

to build. Klamath Falls and Klamath County may choose to require developers to complete sidewalks, trails, and/or bike lanes in locations where they are identified in the Urban Trail Master Plan and enforce the completion through the development code. The City and County may also choose to collect a payment in lieu of construction from the developers and then use the money to construct complete sections of sidewalk, trail, and bike lanes when enough is collected to create efficiencies.

We recommend, at a minimum, that the City and County consider updating their codes for the Klamath Falls Urban Area to include bicycle parking standards and the build-out of (or payment for) facilities identified in this plan along the development frontage. The bicycle parking standards should include information on the number of bicycle parking spaces required based on the development size and standards for the design of the parking (the Association of Pedestrian and Bicycle Professionals has published design guidelines for bicycle parking that could be incorporated).

