

7. Bicycle Master Plan

Overview

The following chapter summarizes the existing and future bicycle facility needs in the City of Redmond, identify improvement strategies, and recommends bikeway projects for the City.

It is important to note the distinction between the project lists that are used throughout this chapter:

Master Plan: This list includes projects to meet the long-term transportation needs that have been identified but are not necessarily funded (unless the project is also included in the Action Plan list, and thus has funding). As such, these projects cannot be assumed for land use actions under OAR 660-012-0060. The Master Plan includes the US 97 Reroute Phase II.

Action Plan: These are projects that are reasonably expected to be funded to meet the transportation needs of the City identified in this TSP. Many of the projects included in the Master Plan are also included, and funded, under the Action Plan. However, the Action Plan does not include US 97 Reroute Phase II.

Bicycle System Needs

Bicycle goals and policies for the area aim to provide safe, continuous, and accessible facilities. Bicycle facilities that are utilized by the City of Redmond include:

- **Bicycle lanes** - a portion of the roadway designated by striping, signing and/or pavement markings for preferential or exclusive use by bicycles and other nonmotorized vehicles
- **Shoulders** - a paved portion of the roadway to the right of the traveled way designed to serve bicyclists, pedestrians and as a safety strip for motorized vehicles
- **Multiuse paths** – a facility that is physically separated from the roadway and intended for use by bicyclists, pedestrians and others.

Shoulders are generally present on US 97 (except through the downtown 5th/6th Street couplet), Airport Way, and Helmholtz Way. Striped bicycle lanes are present on OR 126 west of US 97 and intermittent locations on other recently constructed collectors and arterials in the City. S Canal Boulevard has bicycle lanes from Highland Avenue to Salmon Avenue on the west, a narrow shoulder to the east, and south of Salmon Avenue the facility degenerates to a narrow separated path on the west only. The design of this path is not optimal due to the width and number of unmarked access point crossings. The Dry Canyon Trail is a popular multiuse trail facility for recreational pedestrian and bicycle use. Connectivity between these bicycle facilities is limited.

Bicycle trips are different from pedestrian and motor vehicle trips. Common bicycle trips are longer than walking trips and generally shorter than motor vehicle trips. Where walking trips are attractive at

lengths of a quarter mile (generally not more than a mile), bicycle trips are attractive up to three miles. Bicycle trips can generally fall into three groups: commuting, activity-based and recreational. Commuter trips are typically home/work/home (sometimes linking to transit) and are made on direct, major connecting roadways and/or local streets. Bicycle lanes provide good accommodations for these trips. Activity-based trips can be home-to-school, home-to-park, home-to-neighborhood commercial or home-to-home. Many of these trips are made on local streets with some connections to arterials and collectors. Their needs are for lower volume/speed traffic streets, safety and connectivity. Recreational trips share many of the needs of both the commuter and activity-based trips, but create greater needs for off-street routes, connections to rural routes and safety.

Bicyclists generally can be categorized into three groups: advanced cyclists, basic cyclists, and children. Advanced bicyclists are the experienced riders who make up the majority of the current users of collector and arterials streets. These advanced cyclists wish to operate at maximum speed with minimum delays and require sufficient space on the roadway shoulder to be treated as vehicles. Basic cyclists and children generally prefer the most comfortable (although sometimes circuitous) access to destinations, using low speed, low volume streets or separate, multiuse paths.

System continuity and connectivity, and safety are key issues for bicyclists. The lack of safe facilities and gaps in the system cause the most significant problems for bicyclists traveling to and from downtown Redmond. The following needs have been identified for bicycle access and circulation within the City of Redmond.

Local/Regional Connectivity- The existing bicycle network in Redmond includes a combination of road shoulders, striped bicycle lanes, and unmarked shared facilities. Dedicated bicycle facilities in the downtown area are limited. Local connectivity can be improved with the dedication of bicycle lanes on new and existing facilities as well as the construction of off-street trails.

By removing parking on both sides of Black Butte Avenue so that six-foot bicycle lanes can be striped and signed, the City will have three well-spaced east-west bicycle lanes (the others being Maple Avenue and Highland Avenue). Another location to consider parking removal in order to add a bicycle lane may be along one side of 5th and 6th Streets since bicycle facilities currently do not exist in the downtown couplet. While motor vehicle volumes will decrease on Business 97 with the opening of the US 97 Reroute, it is likely the volumes through the downtown couplet would continue to exceed safe levels for shared lane use between motor vehicles and bicycles.

North of the couplet on Business 97, motor vehicle volumes will also shift to the US 97 Reroute. While increasing the shoulder would improve bicyclist safety, the existing motor vehicle travel lanes are only twelve feet wide.

Traffic using South Canal Boulevard is expected to continue to increase with the connection to 5th and 6th Streets and congestion along the parallel facility US 97. Bicycle facilities along South Canal Boulevard are composed of a series of shoulders, stenciled bicycle lanes, and a separated path on the west side (of inadequate width and design) that have limited connectivity. If bicycle lanes and shoulders along this street are improved, the facility can serve as a parallel facility to US 97. The highway is a seldom-utilized bicycle route due to high traffic volume, high vehicle speed, numerous vehicle turning movements, and minimal shoulder width.

By addressing these local connectivity needs, the bicycle system will provide a connecting grid that serves most commuter and activity-based riders to access the area between US 97 Reroute and Dry Canyon. Education of both vehicle drivers and bicycle users is essential, as shared roadways require that both user groups respect the other and follow the rules.

Interest was also noted for bicycle facilities connecting to neighboring communities. Due to the limited level of interest expressed, projects for such regional facilities are not included on the list of recommended projects. However, the City should consider a joint regional effort to improve bicycle connections to the surrounding communities of Sisters, Madras, Bend, and Prineville.

Bicycle Parking- The existing bicycle parking (along with connectivity) is limited in downtown Redmond. While providing additional bicycle parking at key destinations was the top bicycle priority based on input from the TAC, connectivity to these destinations needs to be addressed and provided so that the parking can be utilized. Once connectivity is provided, bicycle parking should also be provided with short-term and long-term spaces around key destinations such as schools, the library, retail areas and other activity centers to facilitate trips to these locations.

Short-term spaces should be located within 50 feet of entrances of buildings, with care taken to not conflict with pedestrian access or circulation. Long-term parking (dependent upon commuter demand) should be provided with bicycle lockers or dedicated parking rooms or cages with signage from the street directing cyclists where to access these facilities. To the extent possible, bike parking should be visible, inviting and integrated with building, street front and landscape design. Key destinations that already have bicycle parking include the Jessie Hill Library, Redmond High School, shopping locations (Fred Meyer and Wal-Mart), the Fairgrounds, and the playing fields at Sam Johnson Park. While bicycle access is not provided to 6th Street in downtown, bicycle parking in the vicinity is utilized.

Strategies

Bikeway improvements are aimed at closing the gaps in the bicycle network along arterial and collector roadways, in addition to providing multi-modal links to improve livability. Several strategies were identified to address bicycle system needs and to guide project prioritization. This prioritization process helps to focus community investment on those projects that are most effective at meeting critical needs, while deferring other projects of lesser value. The strategies were ranked by the Technical Advisory Committee (TAC)⁶⁵ and citizen input⁶⁶ for use in this TSP.

The strategies for bicycle facilities (listed in order of importance) are:

- Provide bicycle parking at key destinations as needed when appropriate bicycle facilities exist to provide access
- Construct bicycle lanes on all arterials and collectors to meet City of Redmond, Deschutes County or ODOT standards
- Provide corridors that are separate from roadways (along canal ROWs, development, landscaping, etc)
- Connect key bicycle corridors to schools, parks, employment, and activity centers
- Provide state of the art signage and striping on all bicycle lanes to educate both motor vehicle and bicycle users about bicycle lane location, connection, and etiquette
- Fill in gaps in the network where some bikeways exist (arterials and collectors)
- Provide bicycle corridors that connect to major recreational facilities
- Develop a maintenance program to clean bicycle lanes
- Provide a regional pathway facility connecting to neighboring communities
- Provide arterial crossing enhancements
- Provide bicycle corridors that commuters might use

⁶⁵ Technical Advisory Committee Meeting, September 26, 2007.

⁶⁶ Email from Shirlee Evans, March 28, 2008.

- Provide bicycle corridors that connect neighborhoods
- Provide bicycle corridors that access retail areas

Bicycle Master Plan

A list of bicycle projects to meet the identified needs and achieve these outlined strategies was developed and is shown in Figure 7-1 and summarized in Table 7-1. The list is an overall plan and summarizes the ‘wish list’ of bicycle related projects in Redmond, providing a long-term map for planning bicycle facilities.

Each bicycle project was ranked based on how well it met the improvement strategies that were identified. A high, medium, and low designation was given to each project to indicate a general priority for implementation. Each of these projects will need further refinement to detail right-of-way requirements and costs associated with special design details as projects are pursued.

Table 7-1: Bicycle Master Plan Projects and Cost Estimates

Priority	Project Facility	From	To	Cost (\$1,000s)
<i>Bicycle Lanes on New Arterials and Collectors</i>				
High	NW Quince Ave	NW 10th St	NW Canal Blvd	*
Med	SW Quartz Ave	SW Helmholtz Way	SW 35th St	*
Med	SW Quartz Ave	SW Canal Blvd	SE 1st St	*
Med	SW 27th St	SW Glacier	OR 126	*
Med	NW Maple Ave	NW Helmholtz Way	NW 35 th St	*
Med	NW Maple Ave	NW 35 th St	NW 27 th St	*
Med	SE 9th St extension	OR 126	SE Veterans Way	*
Low	Northwest Way/27th St	NW Maple Ave	NW Greenwood Ave	*
Low	NW Pershall Way	Northwest Way	US 97	*
Low	OR 126	SW Canal Blvd	East UGB	*
Low	NE 15 th St	North UGB	OR 126	*
Low	SW Elkhorn Ave	Existing alignment	SW 19th St	*
<i>Bicycle Lanes on Existing Arterials and Collectors</i>				
High	W Antler Ave	Helmholtz Way	23rd St	*
High	SW Evergreen Ave	SW Canyon Dr	SW Canal Blvd	\$495
High	SW Yew Ave	SW Canal Blvd	SW 19th St	\$465
High	NW 19th St	NW Fir Ave	NW Cedar Ave	\$130
High	SW Obsidian Ave	SW 23rd St	SW Canal Blvd	\$185***
High	SW Black Butte Ave	SW Canyon Dr	SW 2 nd St	\$460
High	SW 7th St	SW Dogwood Ave	SW Indian Ave	\$10
High	SW Odem Medo Rd	SW Salmon Ave	US 97	*
Medium	SW 15th St	SW Evergreen Ave	SW Quartz Ave	\$775
Medium	NW/SW 9th St	NW Negus Pl	SW Highland Ave	\$1,240
Medium	NW/SW 6th St	NW Hemlock Ave	SW Highland Ave	\$30
Medium	NW/SW 5th St	NW Hemlock Ave	SW Highland Ave	\$30
Medium	SW Obsidian Ave	SW Helmholtz Way	SW Canal Blvd	*
Medium	SW Quartz Ave	SW 35th Way	SW Canal Blvd	\$1,050
Medium	SW Wickiup Ave	SW Helmholtz Way	SW 31st St	\$1,170
Medium	SE Quartz Ave	SE 1 st St	SE Airport Way	\$15
Medium	NW Kingwood Ave	NW 23rd St	NW Rimrock Dr	\$420
Medium	NE/SE 9th St	NE Hemlock Ave	OR 126	*
Medium	SW Wickiup Ave	SW 27th St	SW Canal Blvd	\$160
Medium	NW 27 th St	NW Evergreen Ave	NW Glacier Ave	*

Priority	Project Facility	From	To	Cost (\$1,000s)
Medium	NW/NE Maple Ave	NW 27 th St	NW 19th St	*
Medium	NW Kingwood Ave	US 97	NW Canal Blvd	\$90***
Medium	NE Hemlock Ave	NW Canal Blvd	NE 9th St	\$405
Medium	Antler Ave	W 5th St	East UGB	*
Low	Spruce Ave	west UGB	19th St	\$495
Low	NE King Way	NW Canal Blvd	NE 5th St	\$145
Low	NW Hemlock Ave	NW Helmholtz Way	NW Rimrock Dr	\$1,435
Low	NE Hemlock Ave	NE 13th	East UGB	\$195
Low	SW Salmon Ave	SW 31st St	SW 27th St	\$205
Low	NW Upas Ave	west UGB	Dry Canyon Trail	\$355
Low	NW Spruce Ave	NW Canyon Dr	US 97	\$540
Low	NW Quince Ave	west UGB	NW 19th St	\$600
Low	SW Salmon Ave	SW Helmholtz Way	SW 35th St	\$490
Low	NW/SW 35th St	North UGB	SW Salmon Ave	\$2,775
Low	Northwest Way/27th St	NW Pershall Way	NW Maple Ave	\$795
Low	SW 27th St	SW Obsidian Ave	SW Canal Blvd	\$985
Low	SW 23rd St	W Antler Ave	SW Rimrock Way	\$585
Low	SW 23rd St	SW Salmon Ave	SW Canal Blvd	\$430
Low	NW 19th St	NW Spruce Ave	NW Quince Ave	\$225
Low	SW Badger Ave	SW 43rd St	SW Canal Blvd	\$300
Low	SW Elkhorn Ave	SW Helmholtz Way	existing alignment	\$595
Low	NW Rimrock Dr	NW Maple Ave	NW Hemlock Ave	\$400
Low	SW 43rd St	SW Wickiup Ave	SW Badger Ave	\$535
Low	NW Canal Blvd	NW Upas Ave	NW Spruce Ave	\$355
Low	NW 10th St	NW Pershall Way	NW Upas Ave	\$295
			Subtotal	\$19,865
Off-street Bicycle Pathways				
High	Pilot Buttte Canal Trail	Existing Trail (S of Antler)	SW Evergreen Ave	**
High	C Lateral Trail	North UGB	Existing Trail (S of Hemlock)	**
High	NS Canal Trail	North UGB	Existing Trail (S of Hemlock)	**
High	Pilot Butte Canal Trail	SW Highland Ave	Existing Trail (Yew)	**
High	Dry Canyon Trail	SW Highland Ave	SW Quartz Ave	**
High	EW Canal Trail	NE 5th St	East UGB	**
Medium	NS BPA Trail	NW Maple Ave/N UGB	SW Elkhorn Ave	**
Medium	C Lateral Trail	SW Salmon Ave	SW Canal Blvd (near Greens Blvd)	**
Low	Dry Canyon Trail	NW Pershall Way	NW Upas Ave	**
Low	EW Canal Trail	NE Canal Blvd (Quince)	NE 5th St	**
Low	EW Canal Trail	US 97	NW Pershall Way	**
Low	B Lateral Trail	SW Helmholtz Way	SW Canal Blvd	**
Low	E Lateral Trail	NE Maple Ave	Fireman's Pond Park	**
Other Projects				
Bicycle parking		Downtown locations, key destinations, and activity centers		\$10

* Project cost is included in the motor vehicle plan

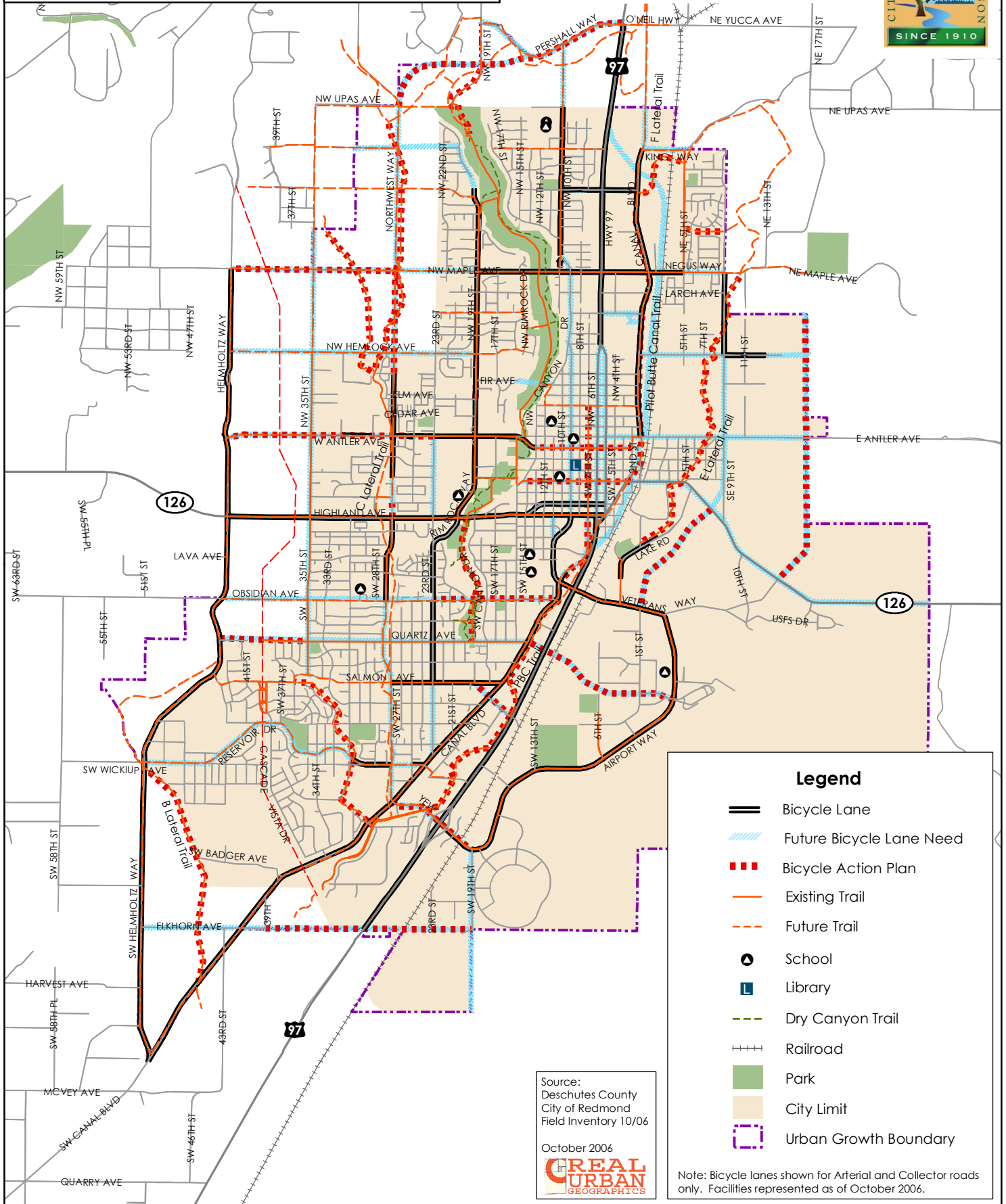
**Project cost is included in the pedestrian plan.

***Project cost is from 2004 CIP cost and is factored 8% annually

**Figure 7-1
BICYCLE MASTER PLAN**



**City of Redmond
Transportation System Plan**



Source:
Deschutes County
City of Redmond
Field Inventory 10/06

October 2006

Legend

- Bicycle Lane
- Future Bicycle Lane Need
- Bicycle Action Plan
- Existing Trail
- Future Trail
- School
- Library
- Dry Canyon Trail
- Railroad
- Park
- City Limit
- Urban Growth Boundary

Note: Bicycle lanes shown for Arterial and Collector roads only. Facilities represented as of October 2006.

Bicycle Action Plan

A bicycle action plan project list was created to identify bicycle projects that are reasonably expected to be funded by the year 2030, meeting the requirements of the updated Transportation Planning Rule⁶⁷. Table 7-2 lists the full action plan identified in the TSP update analysis.

Table 7-2: Bicycle Action Plan Projects and Cost Estimates

Phase	Project Facility	From	To	Cost (\$1,000s)
<i>Bicycle Lanes on New Arterials and Collectors</i>				
1 (2008-2015)	SW 27th St	SW Glacier	OR 126	*
1 (2008-2015)	NW Maple Ave	NW 35 th St	NW 27 th St	*
1 (2008-2015)	SE 9th St extension	OR 126	SE Veterans Way	*
1 (2008-2015)	Northwest Way/27th St	NW Maple Ave	NW Greenwood Ave	*
2 (2016-2020)	SW Quartz Ave	SW Canal Blvd	SE 1st St	*
2 (2016-2020)	NW Maple Ave	NW Helmholtz Way	NW 35 th St	*
3 (2021-2025)	SW Quartz Ave	SW Helmholtz Way	SW 35th St	*
3 (2021-2025)	NW Pershall Way	Northwest Way	US 97	*
4 (2026-2030)	NE 17 th St	North UGB	OR 126	*
4 (2026-2030)	SW Elkhorn Ave	Existing alignment	SW 19th St	*
<i>Bicycle Lanes on Existing Arterials and Collectors</i>				
1 (2008-2015)	W Antler Ave	Helmholtz Way	23rd St	*
1 (2008-2015)	SW Black Butte Ave	SW Canyon Dr	SW 2 nd St	\$460
1 (2008-2015)	SW 7th St	SW Dogwood Ave	SW Indian Ave	\$10
1 (2008-2015)	SW Odem Medo Rd	SW Salmon Ave	US 97	*
1 (2008-2015)	NW 19th St	NW Fir Ave	NW Cedar Ave	\$130
2 (2016-2020)	SW Evergreen Ave	SW Canyon Dr	SW Canal Blvd	\$495
2 (2016-2020)	SW Yew Ave	SW Canal Blvd	SW 19th St	\$465
2 (2016-2020)	SW Obsidian Ave	SW 23rd St	SW Canal Blvd	\$185***
<i>Existing Facilities Subtotal</i>				\$1,745
<i>Off-street Bicycle Pathways</i>				
1 (2008-2015)	Dry Canyon Trail	SW Highland Ave	SW Quartz Ave	\$320
1 (2008-2015)	Pilot Butte Canal Trail	Quince Ave	SW Evergreen Ave	\$960
1 (2008-2015)	Pilot Butte Canal Trail	SW Highland Ave	Existing Trail (Yew)	\$625
2 (2016-2020)	NS Canal Trail	North UGB (Oak)	Existing Trail (S of Hem.)	\$445
2 (2016-2020)	NS Canal Trail	North UGB (Upas)	Existing Trail (S of Hem.)	\$835
2 (2016-2020)	C Lateral Trail	SW Salmon Ave	SW Canal (near Greens)	\$435
3 (2021-2025)	NS Canal Trail	NE Maple Ave	Fireman's Pond Park	\$835
3 (2021-2025)	Dry Canyon Trail	NW Pershall Way	NW Upas Ave	\$250
3 (2021-2025)	EW Canal Trail	NE Canal (@Quince)	NE 5th St	\$225
4 (2026-2030)	EW Canal Trail	NE 5th St	East UGB	\$100
4 (2026-2030)	B Lateral Trail	SW Helmholtz Way	SW Canal Blvd	\$1,050
<i>Off-Street Facilities Subtotal</i>				\$6,080
<i>Other Projects</i>				
1 (2008-2015)	Bicycle parking	Downtown locations, destinations & activity centers		\$10
<i>BICYCLE ACTION PLAN TOTAL</i>				\$7,835

* Project cost is included in the motor vehicle plan

⁶⁷ OAR Chapter 660, Department of Land Conservation and Development, Division 012, Transportation Planning, adopted on March 15, 2005, effective April 2005.