



City of

REDMOND

Transportation System Plan



December 2020



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1

Introduction

In This Chapter

- Why did the Transportation System Plan need to be updated?
- What principles guided the update?
- Who participated in the update's development?

1

Introduction

Welcome to the Redmond Transportation System Plan (TSP). This document establishes a system of transportation facilities and programs to serve the City over the next 20 years. The TSP is the transportation element of Redmond's Comprehensive Plan and updates the TSP adopted in 2008.

The City's transportation system supports how people and goods move from one place to another and affects nearly every aspect of our lives. We import food, clothing, and building materials to our homes. A constant flow of freight supplies many aspects of our lives. We travel to work and school and move about to socialize and play. Streets, pathways, rail lines, and the Redmond Airport create the framework around which our City

is built and helps define our livability. Our personal choices about how we travel affect our daily lives and our physical and mental well-being. Transportation is the backbone that supports our city as it continues to grow and accommodate new citizens.

This TSP update articulates City policies and priorities and provides a list of construction projects and programs to ensure that the transportation system continues to support the City's needs and visions, an economically vital, healthy, and equitable community, and conforms to state and regional policies. The TSP must remain relevant and responsive and will be revisited over time.



TSP Organization

The City of Redmond's TSP is in two volumes. Volume 1 is the main document and includes the items that will be of interest to the broadest audience. Volume 2 contains the technical memoranda, data, and related transportation plans that enhance and support Volume 1.

Volume 1

Volume 1 includes the following:

- **Chapter 1:** a brief overview of the planning context for the TSP
- **Chapter 2:** goals and policies that express the City's long-range vision for the transportation system
- **Chapter 3:** the transportation system deficiencies and needs as well as the process to develop the TSP's list of planned capital improvements and transportation programs
- **Chapter 4:** an overview of the recommended projects for the multimodal system (this chapter also serves as the Transportation Element of the Comprehensive Plan)
- **Chapter 5:** a list of the multimodal projects and the costs estimated for their construction
- **Chapter 6:** a summary of transportation funding and implementation, including estimated revenue stream, cost of 20-year needs, and potential funding sources

Volume 2

Volume 2 includes the following technical documents:

- **Appendix A:** Public Involvement Plan
- **Appendix B:** Plans and Policy Review
- **Appendix C:** Analysis and Assumptions Methodology
- **Appendix D:** Existing Conditions Analysis
- **Appendix E:** Future Systems Conditions
- **Appendix F:** Alternatives Analysis
- **Appendix G:** Redmond Airport Master Plan Update
- **Appendix H:** Identification of Preferred and Cost-Constrained Alternatives
- **Appendix I:** South Corridor Recommendations
- **Appendix J:** Cost Estimates
- **Appendix K:** Quarry Avenue Analysis

While not all of Volume 2 is adopted as part of the TSP, all of the documents provide useful information regarding the basis for the decisions represented in Volume 1.

Purpose

The TSP identifies the transportation facilities and services to support the City’s adopted Comprehensive Plan. This TSP provides for a long-term community approach to accommodate new growth while maintaining and improving transportation facilities for all users over the next 20 years.

The TSP also serves as a resource for future transportation and land use decision-making by providing:

- Solutions to address existing and future transportation needs for biking, walking, using transit, driving, freight, air, and rail;
- A blueprint for investments in transportation projects and programs that improve safety and access for all travelers, improve Regional and State resilience, and support City and Regional economic development priorities;
- A tool for coordination with regional and local agencies and governments;

- Information to ensure prudent land use and transportation choices;
- Order of magnitude cost estimates for transportation infrastructure investments needed to support economic development and growth, and possible sources of funding these improvements;
- Function, capacity and location of future streets, sidewalks, bikeways, pathways, transit, and other transportation facilities; and
- Potential programs to help improve opportunities to travel by walking, bicycling and transit in the future.

The TSP satisfies the state’s requirements for a local transportation system plan as prescribed by Oregon Statewide Planning Goal 12: Transportation.





Guiding Principles And Context

The TSP provides a flexible, adaptable framework for making transportation decisions in an increasingly unpredictable and financially constrained future. Decisions about the City's transportation system will be guided by the goals and policies contained in Chapter 2, but ultimately the decisions will be made within the overall context of the City's land use plans, support for local and regional Economic Development, and the City's role in the Oregon Resilience Plan. These guiding plans and principles provide a foundation for the TSP's goals, policies, and potential actions.

The Oregon Revised Statutes require that the TSP be based on the Comprehensive Plan land uses and provide for a transportation system that accommodates the expected growth in population and employment.

Development of this TSP was guided by Oregon Revised Statute (ORS) 197.712 and the Department of Land Conservation and Development (DLCDC) administrative rule known as the Transportation Planning Rule (TPR, OAR 660-012-0060).

Per the TPR, this TSP identifies multimodal transportation needs to serve users of all ages, abilities, and incomes. As such, solutions to address existing and future transportation needs for bicycling, walking, transit, motor vehicles, freight, and rail, and improved safety for all travelers are included. Further, one of the implementation steps of the TSP will include adoption of land use and land division ordinance amendments needed to protect transportation facilities and provide active transportation facilities between residential, commercial, and employment/institutional areas. Finally, as required by the TPR, this TSP was developed in coordination with local, regional and state transportation plans.

Regional Coordination & Community Engagement

Because traffic and mobility needs do not stop at a city's borders, the City is and remains committed to coordinating transportation plans within Central Oregon. This TSP was collaboratively developed by the City and community members, businesses, ODOT, and Deschutes County. Opportunities for engagement included:

- Project website that included web-based surveys and all technical reports, draft goals and policies, meeting summaries, a document library stocked by members of the public, and links to other planning activities in the region;
- Monthly Project Management Team Meetings attended by City, ODOT and County staff;
- Regular updates and work sessions with the Redmond Urban Area Planning Commission
- Three Public Advisory Committee Meetings;
- Two public open houses co-led with the South Corridor Project;
- One “virtual” Open House on the draft TSP;
- Targeted outreach with local community, neighborhood and social service organizations; and
- City Planning Commission, City Council, and Deschutes County Board of Commissioners work sessions and public hearings.

Through these public involvement activities, the City provided community members with a variety of forums to identify their priorities for future transportation projects, programs, and policies.









2

Goals & Policies

In This Chapter

- What goals guide the 20-year Transportation System Plan
- What policies will be set to carry out these goals?
- What is the difference between goals and policies?

2

Goals & Policies

The TSP Goals are intended to be broad statements that characterize the community's desires and vision for the future transportation system. The goals are intended to be aspirational and may not be fully attained within the 20-year planning horizon of this plan. The goals are intended to be supported by the policies as well as specific implementation items for the City to address after the TSP has been adopted.

TSP Goals

1 Provide a safe and efficient transportation network to complement key economic development priority areas, the comprehensive plan, recreational needs, and adopted state, regional and local plans and policies.

2 Advance community and statewide emergency preparedness efforts through support of the Oregon Resiliency Plan.

3 Provide transportation choices and address the needs and safety of all travelers, including people of all ages, abilities, ethnicities, and incomes.

4 Provide comfortable, convenient and safe pedestrian and bicycle facilities for all users.

5 Provide reliable and convenient transit service to Redmond residents, its businesses, and its connection to surrounding cities, as well as special transit options for the City's elderly and disabled residents.

6 Ensure efficient and effective freight transportation infrastructure is developed and maintained to support local and regional economic expansion and diversification consistent with City and Regional economic plans and policies.

7 Implement the plan in a timely fashion and keep it up to date with respect to local and regional priorities.

Policies

Policies are statements adopted to provide a consistent course of action and move the community toward attainment of its goals. Policies in the TSP guide the work of the City staff in formulating proposed changes to the Zoning Code and other regulatory documents, to guide other work programs and long-range planning projects, and to prepare budget and capital improvement program. These policies will not be used in determining whether the City shall approve or deny individual land use applications.

System Policies to Support Economic Development

Policy 1.1: Manage the City's street, bike, pedestrian, and transit system to facilitate economic growth of existing and future businesses in Redmond.

Policy 1.2: Consider environmental impacts of the overall transportation system and strive to mitigate negative effects and enhance positive features of the natural landscape and topography.

Policy 1.3: Provide a multi-modal transportation system to help reduce reliance on single-occupancy vehicle travel and supports mixed-use areas, employment centers, recreation, commercial, residential, and public developments.

Policy 1.4: Manage the on-street parking system to preserve adequate capacity and turnover for access to businesses in the downtown area.

Policy 1.5: Facilitate prompt emergency responses by ensuring that fire and emergency response routes remain passable by design.

Policy 1.6: Coordinate underground capital improvement projects to coincide with needed transportation project expenditures.

Oregon Resiliency Plan Policies

Policy 2.1: Prioritize transit and roadway improvements that help ensure access to local schools and other public buildings that could be used during emergencies.

Policy 2.2: Prioritize roadway improvements that can be used as alternative routes to US 97 and OR 126 in the case of emergencies

Policy 2.3: Prioritize roadway improvements that provide land-side access to the Redmond Municipal Airport and the BNSF line.



Source: Oregon Department of Transportation



Multimodal Policies

Policy 3.1: Address the mobility and safety needs of motorists, transit users, bicyclists, pedestrians, freight, and the needs of emergency vehicles when planning and constructing roadway system improvements.

Policy 3.2: Consider safety first when making transportation decisions. Strive for zero transportation-related fatalities and severe injuries through design, operations, maintenance, education and enforcement.

Policy 3.3: Foster neighborhoods where all residents can meet many of their basic daily needs without an automobile by providing streets, sidewalks, bike facilities and access to transit in an environment where people feel safe and secure.

Policy 3.4: Expand existing Transportation Demand Management (TDM) programs related to carpooling, alternate work schedules, walking, bicycling, and transit use in order to reduce peak hour congestion and reliance on SOVs.

Bicycle and Pedestrian Policies

Policy 4.1: Maintain and preserve a safe and efficient bike and pedestrian system in Redmond.

Policy 4.2: Strive to increase the percentage of bicycle and pedestrian system users by planning, designing, and managing systems to support the needs of diverse populations and types of users, including meeting Americans with Disabilities Act (ADA) needs.

Policy 4.3: Ensure that there are safe, accessible, comfortable, and direct sidewalk connections between residential areas, schools, major destinations, and transit stops.

Policy 4.4: Improve community health by designing streets and paths to encourage increased physical activity by the public.

Policy 4.5: Prioritize improvements that complement and improve access to the Dry Canyon trail system.

Policy 4.6: Coordinate with Deschutes County and other agencies to provide additional trail extensions throughout the community including connections beyond the city limits.

Transit Policies

Policy 5.1: Coordinate with Cascades East Transit to increase the transit system's accessibility and convenience for all users, including the transportation-disadvantaged population.

Policy 5.2: Prioritize improved transit service in areas with access to key employment and recreational areas.

Freight Policies

Policy 6.1: Manage traffic operation systems for efficient freight and goods movement along designated freight, truck, and rail routes in Redmond.

Policy 6.2: Facilitate efficient access for goods, employees, and customers to and from employment, commercial, and industrial lands, including freight access to the Redmond Municipal Airport.

Policy 6.3: Reduce conflicts between rail and street traffic.

Regional Coordination Policies

Policy 7.1: Coordinate the design of Redmond's transportation system with ODOT, Deschutes County, Cascades East Transit and other relevant local, regional, and state agencies.

Policy 7.2: Support development of a stable and flexible transportation finance system that provides adequate resources for transportation needs identified in the TSP.

Policy 7.3: Build and maintain public support for the TSP through open information, public participation, public discussion of the plan's effects on the community, and periodic reassessment of the plan's goals and policies.

Policy 7.4: Evaluate opportunities for providing Transportation System Management and Operations (TSMO) improvements that address safety and efficiency for all modes.

Policy 7.5: Coordinate with ODOT on the implementation of the South Corridor Plan, including local roadway connections and circulation.







3

Needs Assessment & Evaluation

In This Chapter

- What is Redmond's transportation system like now?
- What types of projects will likely best meet current and future needs?

3

Needs Assessment & Evaluation

The TSP goals, policies, projects, and potential implementing actions are based on analysis by, and input received from, the community, City of Redmond staff, partner agency staff, and City policy-makers. Their review included analysis of existing transportation conditions for all modes of travel, forecast deficiencies in the transportation system, and an evaluation of possible system improvements that can meet the transportation needs for all users (including the transportation disadvantaged) and address the need for movement of goods

and services to support local and regional economic development priorities. The list of recommended projects and programs was identified based on an analysis of the City's transportation needs, potential system alternatives, and a detailed review of relevant state, regional, and local plans, policies, and funding opportunities. The following sections outline the key findings from the existing and future needs analyses that helped shape the recommendations.

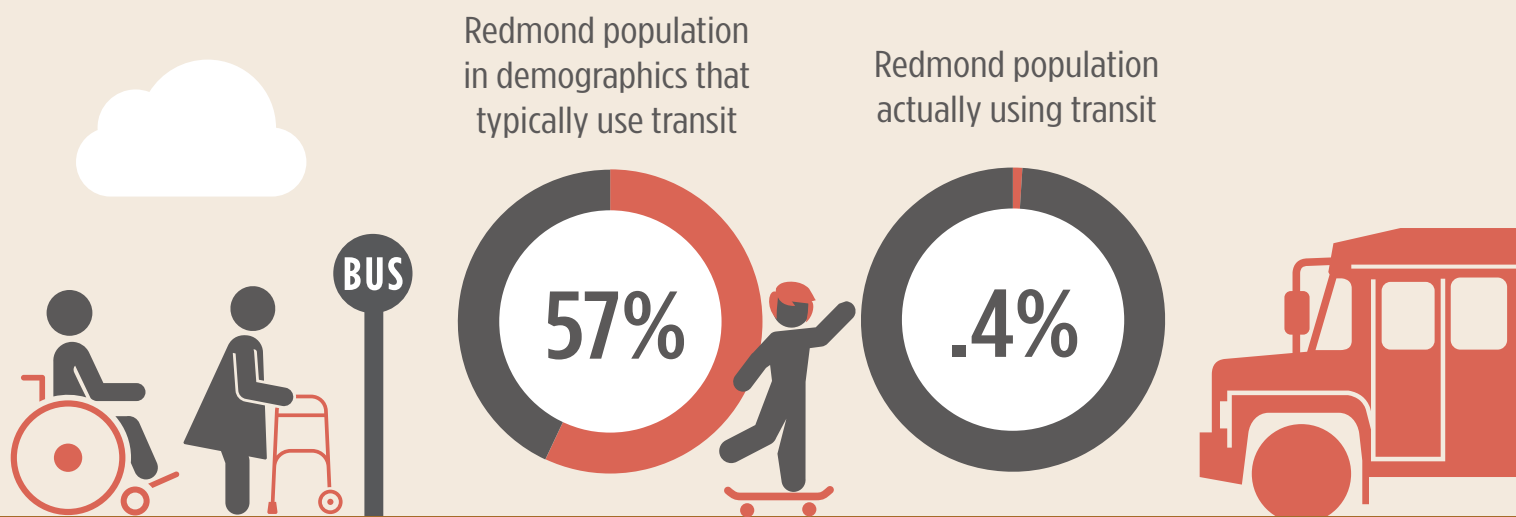


Existing Transportation System Conditions

Existing transportation needs, opportunities, and constraints reflect an inventory of the multimodal transportation system characteristics conducted in 2017. This inventory included all major transportation-related facilities and services within the Urban Growth Boundary (UGB) at that time. Key roadway features, traffic conditions, safety performance, bicycle and pedestrian facilities, and transit service, among other topics, were analyzed. Detailed findings of the technical analysis are summarized in Volume 2, Appendix D: Existing Conditions Analysis. Key findings of this review are outlined below.

Key Findings

- Approximately 57% of Redmond’s population consists of demographic groups related to age, disabilities and income that typically rely on public transportation in other communities; however, less than one percent of the population (0.4%) utilizes public transportation.
- Citywide, sidewalks are frequently missing on one or both sides of the street, there is a lack of consistent street lighting, and there are long distances between protected pedestrian crossings. Walking can be improved by filling gaps in the sidewalk network, improving buffers from traffic, and providing improved crossings and other safety measures.
- A number of arterial roadway corridors and key intersections could benefit from strategic capital improvements to the existing system to provide better connectivity, improved safety measures and an improved walking and cycling effort.
- An increase in low-stress bicycle facilities is needed citywide.
- Freight access, particularly on the east side of town, is a critical component of the Redmond economy.



Basis Of Need Assessment

The TSP addresses the projects, programs, and policies needed to support growth in population and jobs within the Redmond UGB as well as the travel associated with regional and state economic growth between now and the year 2040. Over time, the City, Deschutes County, and ODOT will monitor the multimodal transportation needs and will periodically update the TSP to respond to changing conditions.

The needs assessment and resulting projects (set forth in Chapter 4) intended to meet the identified transportation needs are based upon the land use designations established by the City's Adopted Comprehensive Plan. The TSP reflects Redmond policy makers' and community members' priorities to maintain existing facilities and reduce congestion, save money, and provide health benefits for the entire community by providing alternatives to single occupancy vehicle travel and by making existing streets safer and more efficient without costly increases to automobile-oriented infrastructure.

2040 Population and Employment Forecasts

Table 1 shows the household and job growth forecasts within the City's UGB. The City of Redmond, in coordination with ODOT, allocated this growth to developable areas within the UGB consistent with the land use designations shown in the adopted Comprehensive Plan at the time the TSP was prepared.

Traffic Volume Development

Based on the geographic allocations of future job and household growth within the UGB, ODOT's Transportation Planning and Analysis Unit (TPAU) developed traffic volume forecasts for the City's collector and arterial street system using the Bend-Redmond regional travel demand model, which is a tool that is used to forecast future street volumes based on projected increases in jobs and housing as well as changing travel preferences. This model is calibrated to existing traffic volumes measured on streets and highways within the City. In addition to land use and street network inputs, the model also relies on information about existing traveler behavior and trip-making characteristics derived from surveys, and from research that forecasts how people might use the transportation system in the future.

The travel demand forecasts and measured traffic counts at 45 intersections within the City were used to calculate year 2040 intersection and roadway volumes for use in the analyses of future system deficiencies. The future volume calculations were performed using the procedures outlined in ODOT's Analysis and Procedures Manual (APM).

Table 1: City of Redmond Land Use Estimates

	Year 2010	Year 2040	Growth
Households	10,061	22,433	12,372 (123%)
Employees	10,134	28,550	18,416 (181%)

Baseline Streets and Intersections Analyses

Previously adopted plans and policies for the City, Deschutes County and ODOT all identified a variety of street, pedestrian, bicycle, and transit projects that could be implemented in the future. The Baseline Analysis assumes the 2040 population and employment forecast and the existing transportation system will not change by 2040 except for the construction of transportation improvements that have already been started or for which funding is already allocated. At the time the TSP was prepared, there were no guaranteed funding sources for any major projects that will materially affect traveler behaviors and traffic volumes on the City's street network in the future. This analysis informs the development of the project list reflected in Chapter 4.



Source: Oregon Department of Transportation

Multimodal circulation and capacity improvements are needed to support continued economic growth and vitality.



Identified Transportation Needs

The results of the year 2040 Analyses are summarized in Volume 2, Appendix E: Future Systems Conditions.

Key Findings

- Several primary street corridors are anticipated to experience increased congestion in the future. Notable examples include OR 126 within the UGB, Maple Avenue between US 97 and Northwest Way, Yew Avenue between Airport Way and S 27th Street and US 97 south of SW Glacier Avenue. Multimodal circulation and capacity improvements are needed to support continued economic growth and vitality within the city and to offer a variety of route and mode choices to help alleviate this congestion.
- Many of the arterial and collector intersections are anticipated to need geometric and/or traffic control modifications in the next twenty years to maintain a desired quality of service for future users.
- Several of the streets within the City lack sidewalks, especially in the neighborhoods to the west of US 97. The City should consider prioritization of new sidewalks and pathways that connect neighborhoods to schools, commercial areas, and other key destinations.
- Cyclists are required to “share the road” on most streets within Redmond or ride on busier collector and arterial bike lanes, which are classified as “high-stress” under existing and year 2040 baseline conditions and are not suitable for riders of all ages and abilities. When bike lanes are provided, the facilities are often non-buffered and located on higher volume/higher speed roads, which typically offset the “stress reducing” attributes of the bike lane. Additional low stress bike facilities to support commuting, recreational and personal travel are needed.
- The bicycle trail system should be expanded to encourage greater access, including inter-agency coordination.
- Increased transit options are needed to facilitate travel throughout the City.

Evaluation Of Transportation System Alternatives To Address Identified Needs

The Project Advisory Committee (PAC), Project Management Team (PMT), and participants at open houses and other community forums identified transportation system alternatives that had the potential to address existing and future transportation needs. These alternatives address all modes of travel and include programs that would reduce vehicular travel demand. Further, these potential system alternatives avoid principal reliance on any one mode of transportation and increase transportation choices for all users. The PMT developed these ideas into a potential project list that was screened by agency staff against the TSP's evaluation criteria and ultimately identified for the 20-year list of projects reflected in Chapter 5. This multistep process is described below.

The potential alternatives were first screened against a set of key questions, including:

- Does the project address an identified transportation problem or opportunity?
- Is the project within the City's Urban Growth Boundary? Is it within the City's control, or the control of its partnering agencies, to implement?
- Is it technically feasible to construct and/or implement?
- Could the project be reasonably funded within the next twenty years?

If the answer to any question was "no," the project idea was not further considered. The remaining ideas were evaluated by the PMT against the criteria that are intended to help differentiate between alternatives. The criteria considered included:

- Balances impacts to developable parcels with system and community needs;
- Minimizes impacts to Goal 5 resources;
- Supports or enhances the ability to implement the Oregon Resiliency Plan and/or other key state or regional projects;
- Leverages future transportation investments to reduce access, economic, safety and health disparities between neighborhoods, particularly those with greater populations

of low income, minority, youth and/or elderly population than the City as a whole.

- Addresses key connectivity needs on the collector and arterial street system;
- Addresses known safety issues;
- Supports enhanced multimodal access to major activity centers and/or economic development priority areas within the City as well as the region;
- Provides pedestrian and bicycle connectivity to key transit corridors;
- Provides pedestrian and bicycle connectivity to key routes to school;
- Addresses key gaps in the bicycle system;
- Addresses key gaps in the pedestrian system;
- Improves freight mobility on designated freight, truck, rail and air routes;
- Improves mobility for through traffic on state highways; and,
- Leverages public and private investments.

The resultant 20-year project list is intended to address the identified transportation needs, meet the TSP goals and reflect the criteria included in ORS 660-012-0035. The recommended multimodal transportation projects are organized into the following categories for implementation based on complexity, likely availability of funding and assessment of need:

- Strategic Street Capacity Investment Corridors,
- New Planned Streets,
- Intersection Capacity Improvements,
- Grade-Separated Intersection Improvements,
- Key Multi-Use Pathways,
- Key Bicycle Corridors, and
- Key Pedestrian Improvements.

The draft project lists and a map of the project locations were posted to the City's website prior to adoption. The project lists are provided in Chapter 5.



Source: Wikimedia Commons, by Ian Poellet - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=7327699>





4

Creating Multimodal Systems

In This Chapter

- What types of facilities are needed to support people using different modes of transportation?
- What features characterize Redmond's pedestrian, motor vehicle, bicycle, freight, rail, air, pipeline, and waterway facilities?

4

Creating Multimodal Systems

The TSP is a coordinated set of multimodal policies, programs, and projects that address the transportation needs within Redmond's UGB over the next 20 years. This chapter provides an overview of these programs and projects; the detailed project list and associated cost estimates are shown in Chapter 5.

Planning for a network of "Complete Streets" that can serve the City's identified transportation needs is an integral part of the TSP. Although automobiles will continue to be a primary mode of travel, and preservation and improvement of the existing street system

remains important, the projects, policies, and programs highlight improvements that are designed to increase transportation choices, reduce reliance on the automobile by better accommodating and encouraging travel by foot and bike for short trips, improve safety for all street users, and provide for improved transit service. The TSP, in partnership with the City's adopted land use plans and regulations will ultimately result in land use patterns and transportation systems that make walking, cycling, and use of transit highly convenient so that, on balance, people need to and are likely to drive less than they do today.

Vehicular Needs

The preliminary screening evaluation identified arterial and collector streets that experience or are projected to experience traffic congestion and delay and/or are lacking pedestrian and bicycle facilities that comfortably serve a broad range of users. To meet the identified street system needs, the TSP focuses strategies that improve connections between existing neighborhoods, employment, and commercial areas; provide connections to newly developed areas; improve safety for all travelers; and increase the efficiency of the existing system.

Functional Classification of Streets

The City’s street functional classification system organizes the roadway network as a balanced hierarchy of mobility and access to, through, and between different types of land uses. Some factors that are considered in setting a roadway’s functional classification are average daily traffic (ADT) volumes, street connectivity, spacing of streets, and the mix and amounts of different travel modes on a typical segment (e.g., bikes and cars). As the community continues to grow and mature, the City will revisit functional classifications periodically to ensure that particular street classifications are still appropriate. The functional classification of the roadway system in Redmond is shown in Figure 1.

The functional classification system is intended to provide more certainty for both private development investment expectations as well as for City construction process. This system categorizes streets in the city as:



Street Design Standards

Street design standards provide information on how streets within each of the functional classifications “look and feel.” The City’s Street Design Standards identify how existing streets can be modified and new streets can be constructed to accommodate the needs of people with disabilities, riding bicycles, using transit, walking, driving automobiles, and moving freight. In the past, most street design standards were primarily oriented toward moving vehicular traffic, providing rudimentary bike lanes and sidewalks for pedestrians. The TSP reflects design standards intended to ensure streets provide comprehensive and integrated transportation networks that serve all modes of transportation and create quality facilities that invite people of all ages and abilities to pursue active transportation.

Redmond Engineering Standards maintain more specific design elements for each of these sections, including applicable variances and pavement design requirements. The typical sections included in the TSP are intended to provide general guidance on right-of-way width requirements, number and type of lanes, pedestrian facilities and bicycle facilities by functional classification type. In some cases, additional features may be added on a case-by-case basis and per the direction of the City Engineer, such as wider sidewalks, multi-use paths, protected bicycle facilities, protected parking bays, or medians.

The typical sections are illustrated in Figure 2 through Figure 6.

Figure 1: Functional Roadway System Classification

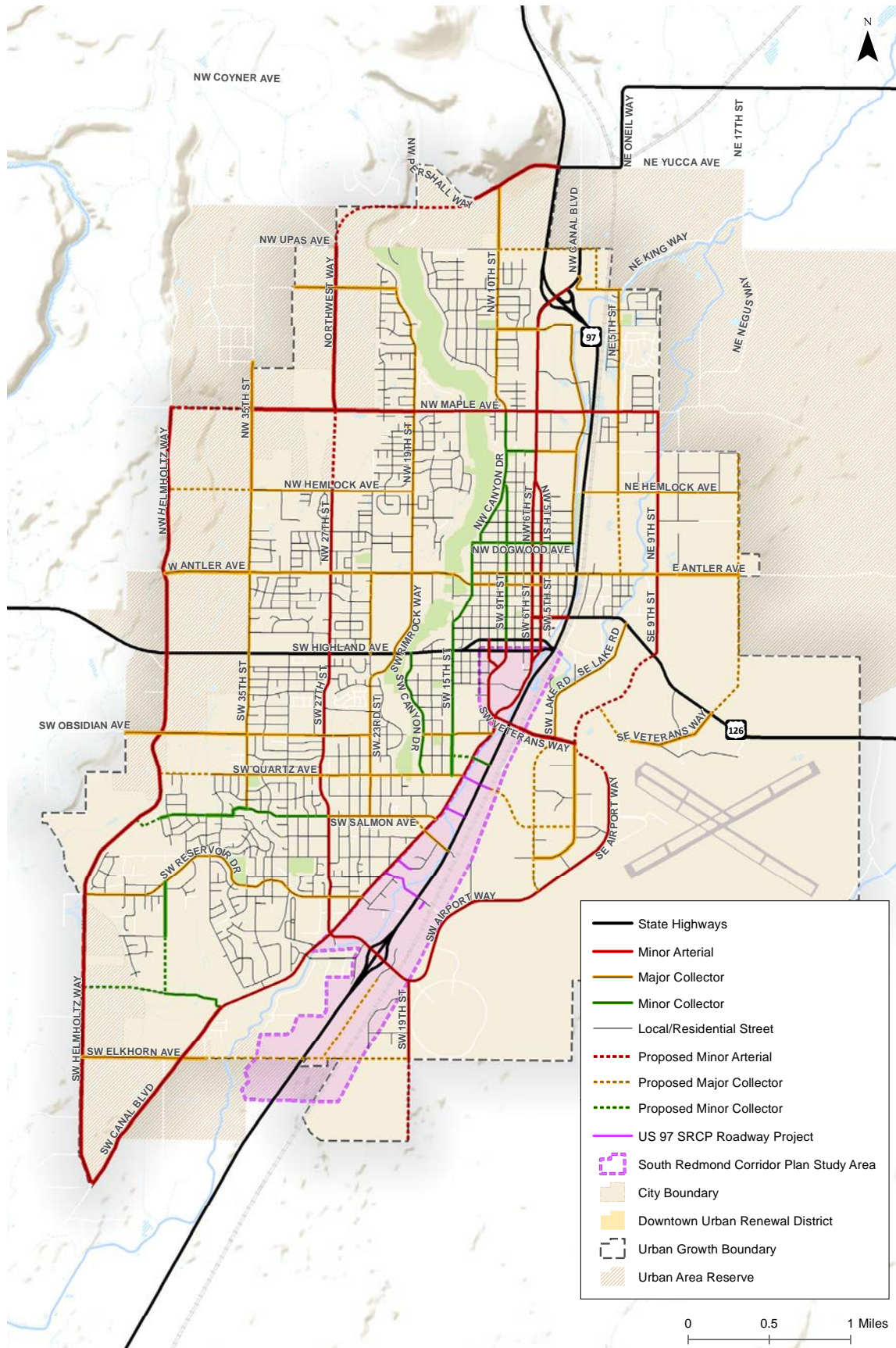
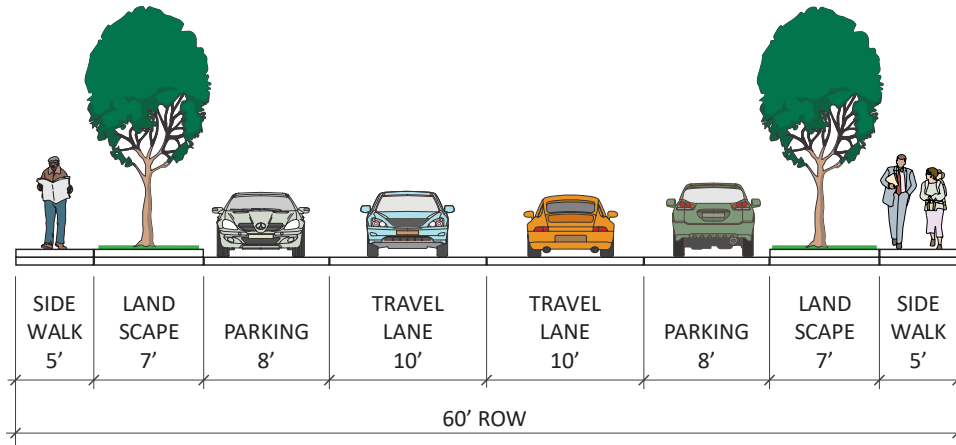
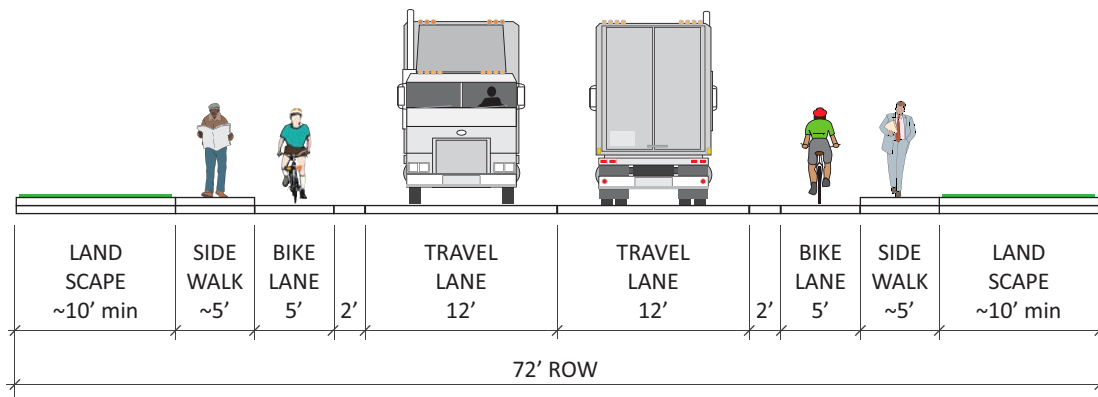


Figure 2: Standard Local Residential Typical Section



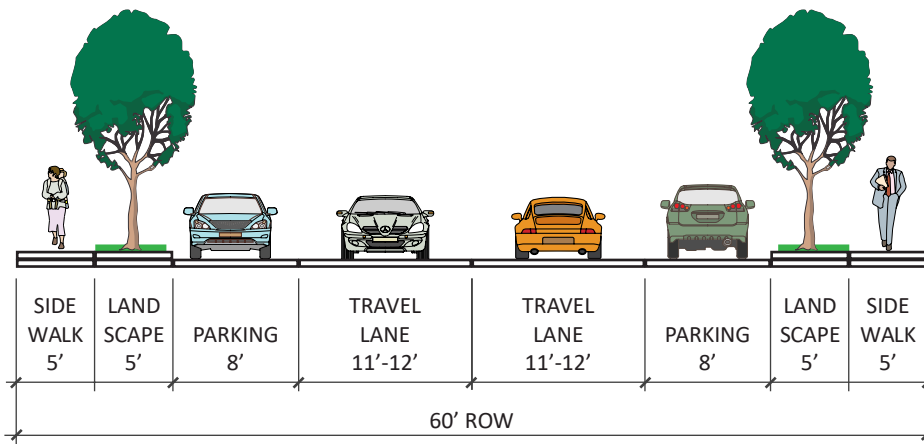
Note: Landscape & sidewalk width can be varied

Figure 3: Industrial Street Typical Section



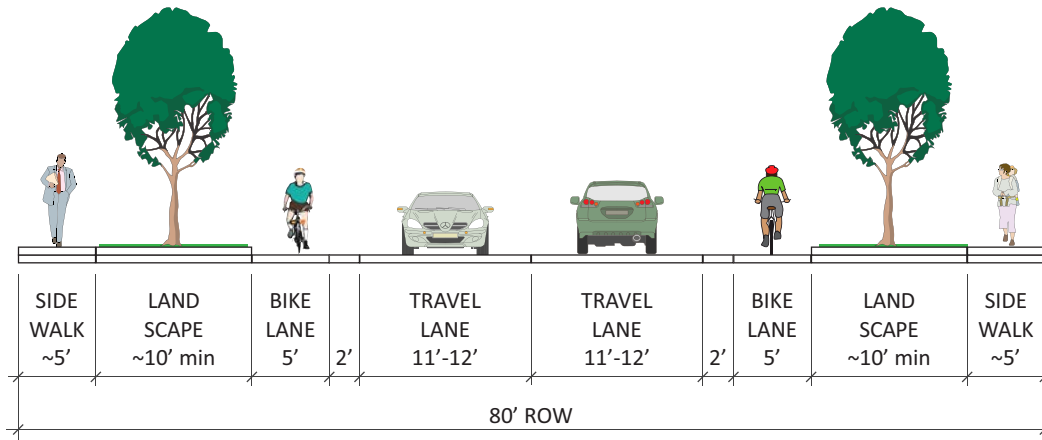
Note: Landscape & sidewalk width can be varied

Figure 4: Minor Collector Typical Section



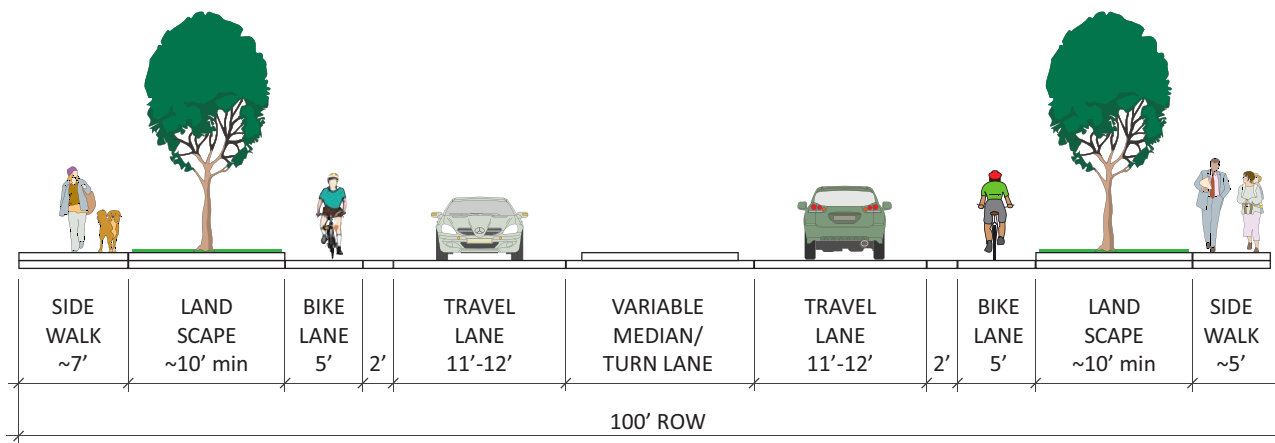
Note: Landscape & sidewalk width can be varied

Figure 5: Major Collector Typical Section



Note: Landscape & sidewalk width can be varied

Figure 6: Minor Arterial Typical Section



Note: Landscape & sidewalk width can be varied

Street Capacity Improvements

The needs analysis identified arterial and collector streets that experience or are projected to experience traffic congestion and delay, lack pedestrian and bicycle facilities to comfortably serve a broad range of users, and/or could hinder implementation of the provision of future reliable transit services in a cost-effective manner. Six corridors reflect the City's current strategic focus for capacity improvements, including: Pershall Way, Northwest Way, SW Helmholtz Way, OR 126 east of US 97, OR 126 west of the downtown, and SW Veteran's Way.

Roadway widening and similar improvements to these key corridors can help accommodate growth and economic development in the region and continue to shape the urban context for the City. Such improvements can improve mobility and connectivity as well as create opportunities to incorporate bicycle, pedestrian, and transit facilities where they do not exist.

New Planned Streets

A number of new streets are planned to improve connectivity between and within existing neighborhoods, employment, and commercial areas; provide connections to newly developed/developing areas; and to provide alternative travel routes for all modes to existing streets. Twenty-three streets were identified for extension and/or providing new connections.

Intersection Capacity Improvements

Intersection capacity improvements are typically related to modifications which are lower in cost than a typical street corridor project and are ones that generally do not often require significant right-of-way acquisition. The TSP is not inclusive of all

of the intersection projects that the City will pursue over the next twenty years. Rather, the projects are those that the City can pursue to strategically improve the operational efficiency of specific intersections and important roadways. These projects can enhance system operations and can be completed as opportunities arise. In all cases, the City will review the appropriate intersection control options at the time of project development and delivery.

Graded-Separated Intersection Improvements

Three intersections were identified for grade separation to eliminate conflict points and improve traffic flows whereas one location was identified for future evaluation.



Source: Oregon Department of Transportation

Key Multi-Use Pathways

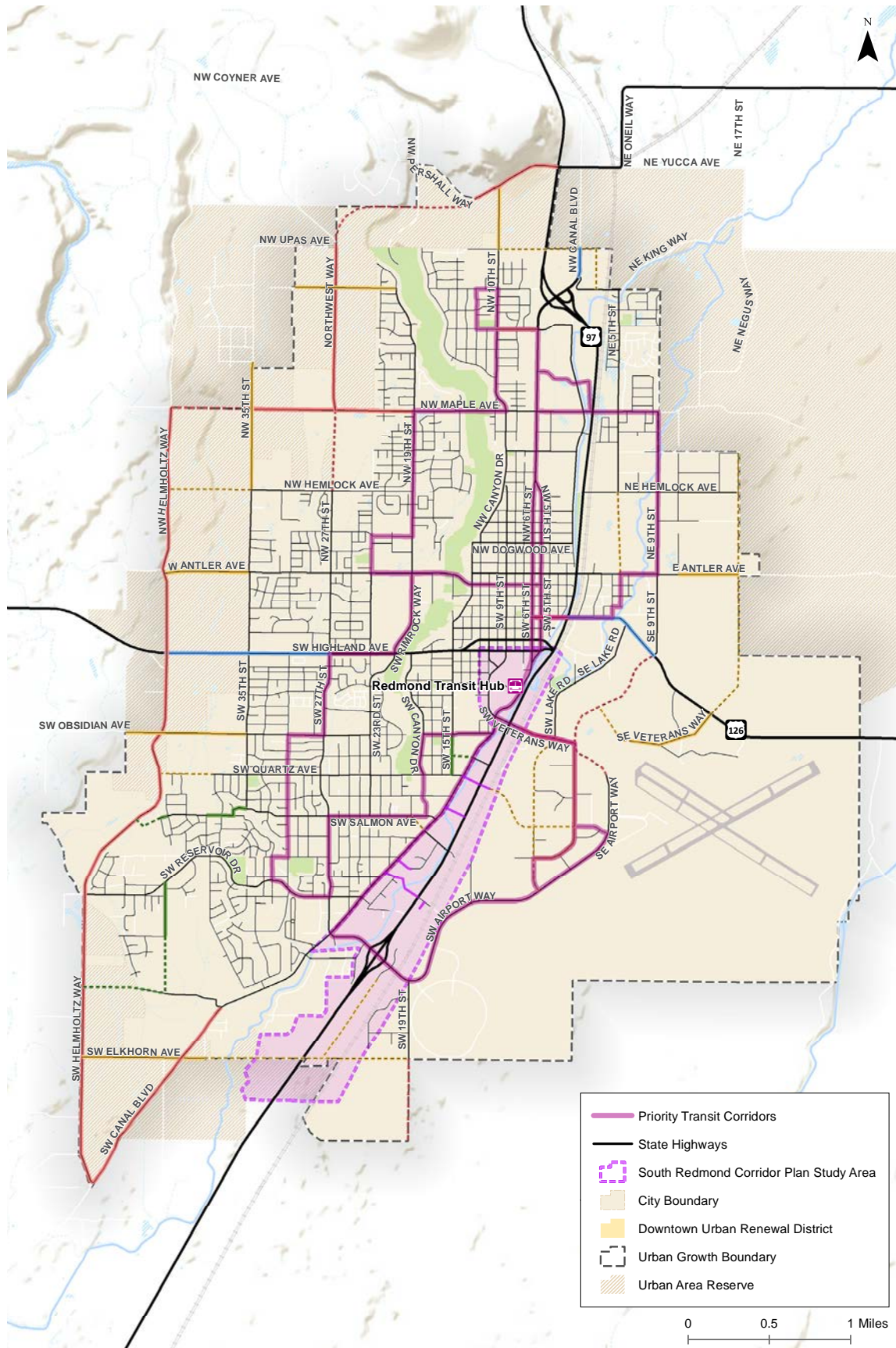
Multi-use pathways are paved and separated from streets and are designed for both walking and bicycling. Where space allows, corridors with high usage may be developed with redundant paths to separate people walking from people biking. The paths for people walking or running may be unpaved depending on the intended use. The multiuse pathway system improves continuity for bicyclists and pedestrians to move freely throughout the transportation network and helps to eliminate north-south barriers for east-west access, particularly through the Dry Canyon and across US 97. Twenty-one new multi-use pathways were identified for inclusion into the TSP.

Key Bicycle Corridors

In addition to the multiuse pathways, new bike lanes, quiet streets and protected bike lanes will serve the cyclists of Redmond in the future. A brief description of each is provided below.

- A quiet street is a bike route on a low-volume, low-speed street that has been optimized for bicycle travel. These streets contain different features depending on adjacent land uses; however, they are all intended to contain wayfinding signs, pavement markings, and intersection treatments. Some may also feature diversion to reduce automobile volumes and traffic calming to slow motor vehicle speeds.
 - A bike lane is a marked space along a length of roadway that is designated for use by people bicycling. Wheelchair users and some motorized scooters are allowed in bike lanes.
 - Buffered bike lanes feature a buffer strip to provide space between the bike lane and the auto lane or parked cars.
 - A protected bike lane, sometimes called a “cycle track”, is an exclusive bicycle facility adjacent to, but separated from, the roadway. Separation is generally achieved using planters, parked cars, curbs, or posts to separate people biking from people driving. They are best on roads with few cross streets and driveways, particularly on roadways with high auto volumes and speeds. A protected bike lane provides a logical extension of a shared use path because it provides the sensation of riding on a path due to the separation from motorized traffic.
- Fifty-two bicycle corridors were identified for inclusion into the TSP.
- Crossing improvements, though not specifically identified in the TSP, may be provided when bicycle facilities are constructed that cross major roads. The need for and type of crossing treatment will be evaluated at the time of project development and design.
- The City of Redmond will consider upgrades to existing bicycle facilities (such as including a marked buffer) on a case-by-case basis. Such upgrades typically occur in conjunction with scheduled maintenance operations.

Figure 7: Future Transit Corridors



Key Pedestrian Improvements

Sidewalks are paved walkways adjacent to streets. Sidewalks are particularly important for providing basic mobility for people with disabilities. Setback sidewalks (featuring a planted barrier between the sidewalk and travel way) can create more comfort and safety for people walking. All streets within the City are anticipated to have sidewalks over time. The identified TSP pedestrian improvements are intended to prioritize sidewalk facilities along ADA routes, as defined by the City of Redmond.

Crossing improvements, though not specifically identified, may be provided when pedestrian facilities are constructed that cross major roads. The need for and type of crossing treatment will be evaluated at the time of project development and design.

Key Transit Corridors

The provision of high-quality, available, and reliable transit service fundamentally supports the environment, economic development, and equity for all travelers. The TSP includes, as shown in Figure 7, both key north-south and east-west transit within all quadrants of the City's UGB between the downtown urban core, residential neighborhoods, existing and planned pedestrian and bicycle corridors, and places of interest. These corridors correlate with the Redmond Transit Hub located at the corner of SW Kalama Avenue and SW Canal Blvd. Multimodal infrastructure along these corridors will be pursued by the City to enhance the accessibility of future transit service.

The City and Cascades East Transit (CET) will continue to work to refine these transit corridors and identify a program to implement more robust transit service within Redmond. Specifically, the City intends to explore various service options in partnership with CET to

better serve the community, including the potential for implementing fixed-route service.

Key Freight Routes

Both the TSP and the many state policies and plans recognize the important role that an efficient and reliable transportation system plays in supporting the region's economy, growth, and quality of life. Within the City, highways, city streets, airports, pipelines, and railways provide freight mobility. Trucks, rail, and air service must function together to ensure the efficient and timely movement of freight to, within, and through the community.

As part of the needs analysis, changes to the existing freight and truck routes were identified to ensure consistency with state and federal designations and guidance and in reflection of ongoing planning efforts. In particular, the TSP includes freight routes that provide alternative access points to the industrial lands east of US 97 both to the north and south of OR 126. These routes utilize SW Airport Way, SE 9th Street, and NE Hemlock Avenue.

Redmond Municipal Airport

The City of Redmond owns and operates Redmond Municipal Airport/Roberts Field for the tri-county area. It is located two miles southeast of downtown Redmond and provides passenger and commercial service, air cargo and general aviation. The airport has two asphalt paved runways – 7,040 by 150 feet and 7,006 by 100 feet. The facility is designated as Category I (Commercial Service Airport) according to the Oregon Aviation Plan and the Redmond Municipal Airport Master Plan. The Oregon Aviation Plan defines Category I airports as airports that “support some level of scheduled commercial airline service in addition to a full range of general aviation aircraft.” The flight destinations can be domestic and international.

Airport development is governed by its own Master Plan, which is included in Volume 2, Appendix G. The recently updated Master Plan includes recommendations to extend the runway, provide additional parking, and evaluate potential development opportunities on lands surrounding the airport. The City, County, ODOT and the Airport will continue to coordinate on future transportation system improvements that support ongoing upgrades to the Airport as well as provide support for the Oregon Resilience Plan.

Rail System

The needs analysis identified rail as an important, energy efficient mode of freight transportation. The TSP supports the continued use of freight rail tracks and service provided in the City by the BNSF Railway and Union Pacific Railroad. These rail services are and will continue to be significant drivers of economic opportunity for Redmond.

The two companies share use of track through Redmond and the ability of Redmond freight shippers and receivers to use either carrier is a competitive privilege infrequently found elsewhere. The rail line interfaces with the Redmond community between US 97 and the industrial area near the airport. The TSP supports continued coordination between the rail providers, ODOT, the City and Deschutes County to ensure multimodal safety is provided in the future at the seven at-grade crossings of the railroad within the City as well as to ensure support of the Oregon Resilience Plan.

Waterways/Pipelines

Central Oregon Irrigation District (COID) maintains the Pilot Butte Canal, which runs north-south through the City of Redmond and connects to Terrebonne to the north and Bend to the south. This canal diverts water from the Deschutes River for a variety of purposes, including to provide water to the City of Redmond. The TSP supports the continued coordination with COID, the City of Bend, Deschutes County and ODOT.

Vehicular System Performance

The City uses motor vehicle level of service (LOS) standards to evaluate acceptable vehicular performance on the local, collector, and arterial streets. LOS standards are presented as grades A (free flow traffic conditions) to F (congested traffic conditions). ODOT uses mobility targets based on volume to capacity (V/C) ratios to evaluate acceptable vehicular performance on state facilities. As V/C ratios approach 1.0, traffic congestion increases.

In some cases, it may not be possible or desirable to meet the designated mobility target or LOS standard. In those cases, an alternative mix of strategies such as land use, transportation demand management, safety improvements or increased use of active modes may be applied.

The LOS and mobility targets to be applied in Redmond are listed below. ODOT mobility targets apply to state highways as well as to city streets near highway interchanges; this interchange influence area is generally defined as one-quarter mile from a ramp terminal or as the area between the ramp terminal and the first public street intersection.

- City signalized intersections: LOS E
- City unsignalized intersections: LOS E and volume-to-capacity ratio less than 0.9 for critical approach
- US 97 and OR 126: volume-to-capacity ratio of 0.8 or 0.85, depending on location. In addition, the City will work with ODOT to adopt alternative mobility targets at the Evergreen Avenue/US 97 and Veteran's Way/US 97 intersections.

As part of implementation of the TSP, the City and ODOT will collaborate on establishing and adopting alternative mobility targets on the state facilities, as needed to address future year traffic volumes.



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5

Transportation Priorities & Project Categories

In This Chapter

- What are the priority projects for roadways, intersections, and bicycle and pedestrian facilities?
- What specific needs do the South Redmond and South Redmond US 97 corridor areas have?

5

Transportation Priorities & Project Categories

The TSP recommends transportation programs and infrastructure improvements to fulfill the plan's goals and policies. These are organized into the following five categories that suggest timeframes for implementation based on complexity, likely available funding (including potential funding sources), and assessment of need:

- Strategic Street Capacity Investment Corridors
- New Planned Streets
- Intersection Capacity Improvements
- Grade-Separated Intersection Improvements
- Key Multi-Use Pathways
- Key Bicycle Corridors
- Key Pedestrian Improvements

Some projects may be accelerated, and others postponed due to changing conditions, funding availability, public input, or more detailed study performed during programming and budgeting processes. Further, the projects included in the preferred TSP list represent the best estimation for appropriate design available at this time. Because the TSP is being drafted at a citywide scale, project design may change before construction commences as public input, available funding, and unique site conditions are taken into consideration. Projects identified herein may be funded through a variety of sources including federal, state, or local transportation funds, system development charges (SDCs), through partnerships with private developers, or a combination of these sources.

Project Costs

The estimated construction costs for each project are provided in the subsequent tables. These costs are order-of-magnitude (e.g., planning-level) estimates that account for right-of-way, design engineering, and construction and generally include a 30 percent contingency factor. The costs were calculated for each project using the methodology and procedures recommended by the American Association of Cost Engineers (Class 5 estimates). All costs are rounded to the nearest \$100,000 and provided in 2018 dollars. Detailed cost estimate sheets are included in Volume 2, Appendix H. The detailed costs include all estimation assumptions as well as any deviations related to unique topographic, right-of-way, or other constraints.

Costs for individual transit corridors are not provided. The City and Cascades East Transit are working to refine the transit corridors and

identify a list of capital improvements and strategic policies that can help implement more robust transit service within Redmond. These efforts are currently ongoing, and the results can be incorporated into future updates of the TSP.

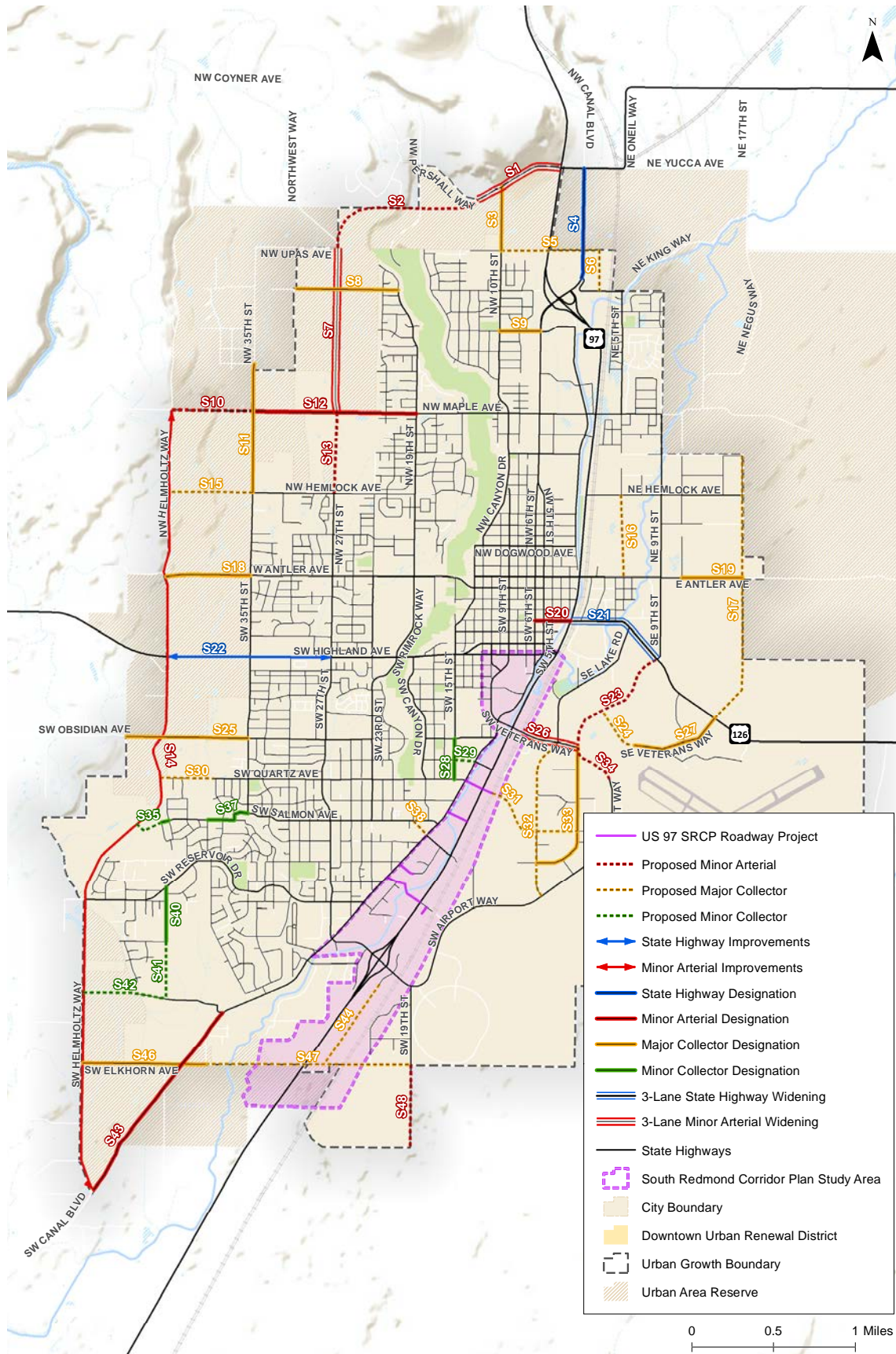
Strategic Street Capacity Investment Corridors

The projects shown in Table 2 represent the City’s current priorities for street capacity investments. Improvements to these key corridors help accommodate growth and economic development in the region and continue to shape the urban context for the City. Such improvements can strengthen mobility and connectivity as well as create opportunities to incorporate bicycle, pedestrian, and transit facilities where they do not exist. These projects are illustrated in Figure 8.

Table 2: Priority Street Capacity Investments

Map ID	Corridor	S-W Limit	E-N Limit	Improvement	Length (miles)	2020 Cost Estimates
S1	Pershall Way	New Pershall Arterial	US 97	Widen to 3-Lane Arterial	0.6	\$3.2M
S7	Northwest Way	Maple Ave	NW Upas Ave	Widen to 3 Lanes	1.0	\$5.8M
S14	SW/NW Helmholtz Way	SW Canal Boulevard	NW Maple Avenue	Widen roadway to add center turn lane	5.0	\$29.0M
S21	OR 126	US 97	SE 9th St	Widen to 3 Lanes	0.6	\$5.4M
S22	OR 126	SW Helmholtz Way	SW 27th St	Provide a 3-lane cross-section with sidewalks and bicycle lanes throughout entire corridor	1.0	\$8.7M
S26	SW Veterans	Railroad	SE 1st St	Widen to 3 Lanes (turn lanes where needed)	0.4	\$2.0M
TOTAL:						\$54.1M

Figure 8: Planned Roadway Projects



New Planned Streets

The projects shown in Table 3 represent the City’s current priorities for planned new streets to improve connectivity between and within existing neighborhoods, employment, and commercial areas; provide connections to newly developed or developing areas; and to provide alternative travel routes for all modes to existing streets. These projects are illustrated in Figure 8.

Table 3: Priority Planned New Streets

Map ID	Corridor	S-W Limit	E-N Limit	Improvement	Length (miles)	2020 Cost Estimates
S2	NW Pershall Way	NW Upas Way	NW Pershall Way	Proposed 3-Lane Arterial	1.0	\$8.9M
S5	NW Upas Ave	NW 10th St	East of NW Canal Blvd	Proposed Collector & Overcrossing	0.6	\$11.0M
S6	NE 3rd	King Way	UGB	Proposed Collector	0.3	\$1.5M
S10	NW Maple Ave	SW Helmholtz Way	NW 35th St	Proposed 3-Lane Arterial	0.5	\$4.3M
S13	NW 27th St	NW Hemlock Ave	NW Maple Ave	Proposed Arterial	0.5	\$4.3M
S15	NW Hemlock Ave	NW Helmholtz Way	NW 35th St	Proposed Collector	0.5	\$2.9M
S16	NE 5th St	E Antler Ave	NE Hemlock Ave	Proposed Collector	0.5	\$2.9M
S17	SE/NE 17th St	OR 126	NE Kingwood	Proposed Collector	1.7	\$9.6M
S23	SE 9th St	Veterans Way	OR 126	Proposed Arterial	0.8	\$6.8M
S24	SE Veterans Way	SE 1st St	SE Veterans Way	Proposed Collector	0.4	\$2.1M
S29	SW Pumice Ave	SW 15th St	SW Canal Blvd	Proposed Collector	0.1	\$0.7M
S30	SE Quartz Ave	SW Helmholtz Way	SW 37th St	Proposed Collector	0.3	\$1.9M
S31	SE Salmon Dr	SW Quartz Ave	S 1st St	Proposed Collector	0.4	\$2.3M
S32	SW 6th St	SE Airport Way	SE Veterans Way	Proposed Collector	1.0	\$3.7M
S34	SE Airport Way	SE Airport Way	SW Veterans Way	Proposed Arterial	0.3	\$2.3M
S35	SW 45th St	SW Salmon Ave	SW Helmholtz Way	Proposed Collector	0.1	\$0.6M
S38	SW Odem Medo	SW Canal Blvd	SW 19th St	Proposed Collector	0.1	\$0.7M
S41	SW 43rd Street	SW Badger Avenue	SW Yew Street	Proposed Collector	0.4	\$2.0M
S42	SW Badger Avenue	SW Helmholtz Way	SW 43rd Street	Proposed Collector	0.5	\$2.9M
S44	SW 21st Street	SW Elkhorn Avenue	South of SW Airport Avenue	Proposed Collector	0.6	\$3.5M

Table 3: Priority Planned New Streets (continued)

Map ID	Corridor	S-W Limit	E-N Limit	Improvement	Length (miles)	2020 Cost Estimates
S47	SW Elkhorn Ave	SW 39th St	SW 19th St	Proposed Collector and Overcrossing	1.3	\$26.0M
S48	SW 19th St	UGB	SW Elkhorn Ave	Proposed Arterial	0.5	\$4.3M
US 97 SRCP	North Connection (Motel 6)	SW Canal wBlvd	US 97	Proposed Roadway Connection with Canal Crossing	0.2	N/A
US 97 SRCP	SW 17th Pl	SW Canal Blvd	SW 17th Pl	Proposed Roadway Connection (Extension)	0.1	N/A
US 97 SRCP	SE Airport Way	SW Canal Blvd	US 97	Proposed Roadway Connection with Canal Crossing	0.3	N/A
US 97 SRCP	Local Access Road	Possibilities Thrift Store	SE Airport Way	Proposed Roadway Connection	0.1	N/A
TOTAL:						\$105.2M

Intersection Capacity Improvements

The projects shown in Table 4 and Table 5 represent the City's current priorities for intersection capacity improvements. The TSP is not inclusive of all of the intersection projects that the City will pursue over the next twenty years. Rather, these are those that the City can pursue to strategically improve the operational efficiency of specific intersections and important roadways. These projects can enhance system operations and can be completed as opportunities arise. In all cases, the City will review the appropriate intersection control options at the time of project development and delivery. These projects are illustrated in Figure 9.

Table 4: Priority Intersection Capacity Improvements

Map ID	N-S Street	E-W Street	Improvement	Note ¹	2020 Cost Estimates
I3	NW Canal Blvd	NE Upas Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I4	NW Helmholtz Way	NW Maple Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I5	NW 35th St	NW Maple Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I6	NW 27th St	NW Maple Ave	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I7	NW 19th St	NW Maple Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I8	NW 9th St	NW Maple Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I10	NE 5th St	NE Maple Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I11	NE 9th St	NE Maple Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)

¹ Intersection control preference noted where applicable. However, specific intersection control decisions will be made at the time of project development and project delivery.

Table 4: Priority Intersection Capacity Improvements (continued)

Map ID	N-S Street	E-W Street	Improvement	Note ¹	2020 Cost Estimates
I13	NW 6th St	NW Kingwood Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I14	NW 27th St	NW Hemlock Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I15	NE 9th St	NE Hemlock Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I16	NW 27th St	W Antler Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I17	NE 9th St	E Antler Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I22	SW Helmholtz Way	OR 126	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I23	SW 35th St	OR 126	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I25	SW 15th St	OR 126	Consider traffic signal modification or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I29	SE 9th St	OR 126	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I30	SW Helmholtz Way	SW Obsidian Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I31	SW 27th St	SW Obsidian Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I34	SE 9th St	SW Veterans Way	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I36	SE Veterans Way	OR 126	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I37	SW Canal Blvd	SW Pumice	Consider traffic signal or roundabout	Disconnect SW Obsidian Ave	\$0.5M (signal) or \$3.2M (roundabout)
I38	SW Canal Blvd	SW Quartz Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I39	SW Helmholtz Way	SW Salmon Ave	Consider traffic signal or roundabout		\$0.5M (signal) or \$3.2M (roundabout)
I40	SW 27th St	SW Salmon Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M
I41	SW Helmholtz Way	SW Wickiup Ave	Consider traffic signal or roundabout	Signal Preferred	\$0.5M

¹ Intersection control preference noted where applicable. However, specific intersection control decisions will be made at the time of project development and project delivery.

Table 4: Priority Intersection Capacity Improvements (continued)

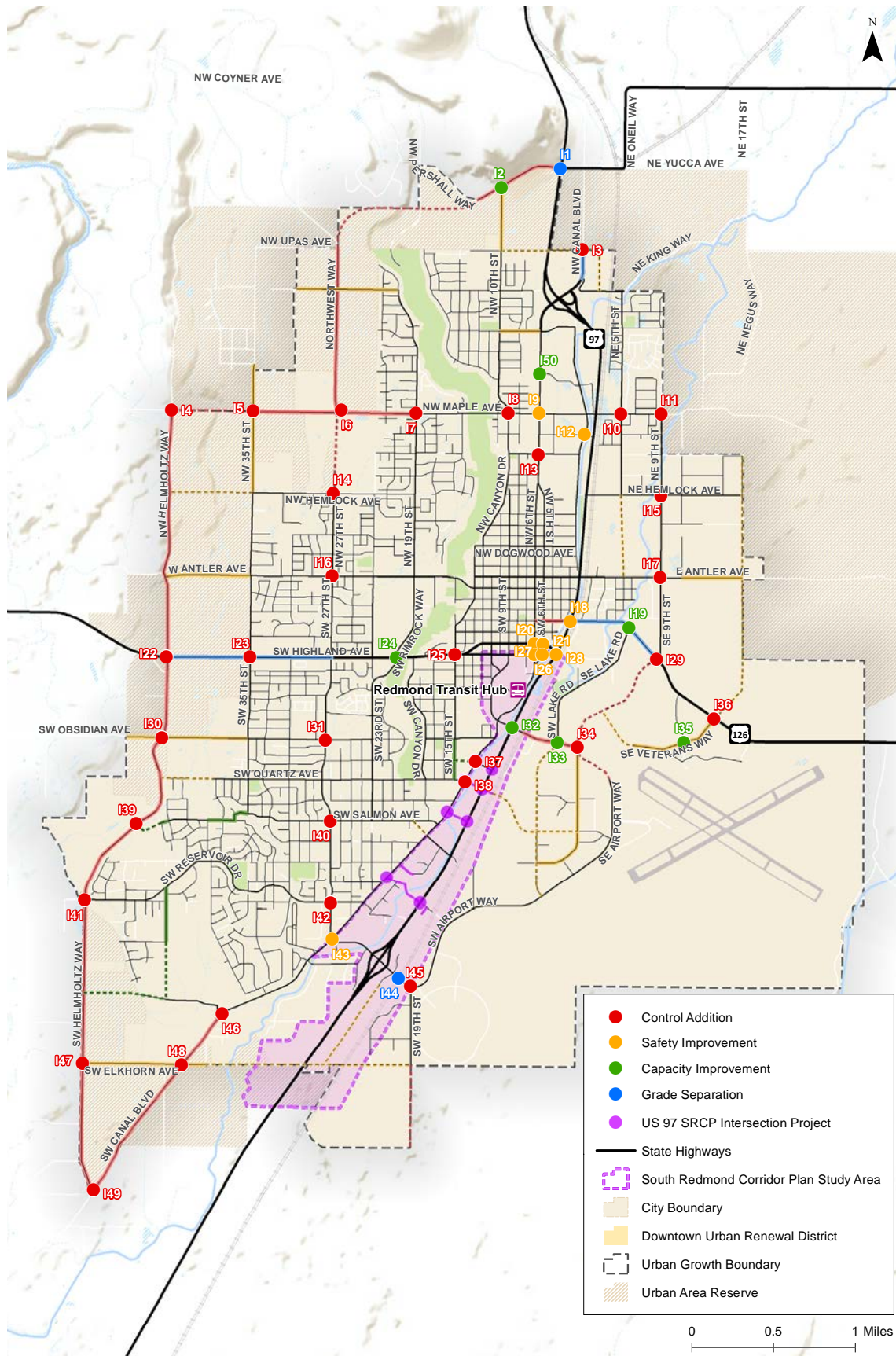
Map ID	N-S Street	E-W Street	Improvement	Note ¹	2020 Cost Estimates
I42	SW 27th St	SW Wickiup Ave	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I45	SW 19th St	SW Airport Way	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I46	SW Canal Blvd	SW Badger Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I47	SW Helmholtz Way	SW Elkhorn Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I48	SW Canal Blvd	SW Elkhorn Ave	Consider traffic signal or roundabout	-	\$0.5M (signal) or \$3.2M (roundabout)
I49	SW Helmholtz Way	SW Canal Blvd	Consider traffic signal or roundabout	Roundabout Preferred	\$3.2M
I50	NW 6th St	NW Oak Ave	Traffic Signal Modification	-	\$0.5M
US 97 SRCP	SW Canal Blvd	SE Pumice Ave	Roundabout	-	Included in SRCP
US 97 SRCP	US 97	SE Pumice Ave	Traffic Signal	-	Included in SRCP
US 97 SRCP	SW Canal Blvd	SW Quartz Ave	Roundabout	-	Included in SRCP
US 97 SRCP	US 97	SW Quartz Ave	Traffic Signal	-	Included in SRCP
US 97 SRCP	SW Canal Blvd	New Northern Roadway Connection (Motel 6)	Roundabout	-	Included in SRCP
US 97 SRCP	US 97	New Northern Roadway Connection (Motel 6)	Traffic Signal	-	Included in SRCP
US 97 SRCP	SW Canal Blvd	SE Airport Way	Roundabout	-	Included in SRCP
US 97 SRCP	US 97	SE Airport Way	Traffic Signal	-	Included in SRCP
TOTAL INTERSECTION CAPACITY IMPROVEMENTS:					\$35.4M to \$70.5M depending on control type selected

¹ Intersection control preference noted where applicable. However, specific intersection control decisions will be made at the time of project development and project delivery.

Table 5: Other Priority Intersection Capacity Improvements

Map ID	N-S Street	E-W Street	Improvement	Note ¹	2020 Cost Estimates
I2	NW 10th St	NW Pershall Way	Consider Additional Lanes	Add Eastbound Right-Turn	\$0.3M
I19	SE Lake Rd	OR 126	Consider Access Management	Create Right-In/Right-Out in Conjunction with 9th Street Project	\$0.1M
I24	SW Rimrock Way	OR 126	Consider Capacity Improvement	Intersection improvement should consider westbound lane drop	\$0.7M
I32	US 97	Veterans Way	City of Redmond to Pursue Alternative Mobility Standard		-
I33	SW Lake Rd	SW Veterans Way	Consider Access Management	Create Right-In/Right-Out in Conjunction with 9th Street Project	\$0.1M
I35	SE 10th St	SE Veterans Way	Consider Intersection Control Change	Remove Stop Signs on Veterans in Conjunction with 9th Street Project	\$0.5M (signal) or \$3.2M (roundabout)
Total for Other Intersection Capacity Improvements:					\$1.7M to \$4.4M depending on intersection control type selected

Figure 9: Planned Intersection Projects



Grade-Separated Intersection Improvements

Three intersections were identified for grade separation to eliminate conflict points and improve traffic flows. One intersection was identified for future evaluation. These are identified in Table 6 and shown in Figure 8 and Figure 9. A brief description of each is included below:

- **US 97/O’Neil Highway:** The Interchange Area Management Plan (IAMP) for this location identified the need to provide a grade-separated overcrossing of US 97 that would connect O’Neil Highway to Pershall Way. An interim option is to restrict the US 97/O’Neil Highway intersection to right-in, right-out.
- **Airport Way Rail Crossing:** Airport Way connects US 97 to the Redmond Airport. US 97 and the Redmond Airport are both critical statewide infrastructure as identified in the Oregon Resilience Plan. The planned grade-separation would eliminate the at-grade rail crossing between the highway and airport.
- **US 97/Elkhorn Avenue:** Construct overcrossing of US 97 as part of the Elkhorn Avenue extension from Canal Boulevard to SW 19th Street.
- **US 97/Hemlock Avenue:** Conduct a study to evaluate a possible grade-separated crossing of US 97.

Table 6: Identified Grade-Separated Intersection Improvements

Map ID	N-S Street	E-W Street	Improvement	Description	2020 Cost Estimates
I1	US 97	O’Neil Hwy	North Interchange IAMP Project	Interim project would modify US 97/O’Neil Hwy intersection to right-in/right-out; eventual project would result in grade-separation	\$0.1M
I44	Railroad	SW Airport Way	Grade Separated Crossing	Remove Existing At-Grade Rail Crossing	\$16.8M
S47	US 97	Elkhorn Avenue	Grade Separated Crossing	Construct US 97 overcrossing at part of roadway extension.	\$26.0M
Total Grade-Separated Intersection Improvements					\$42.9M

Key Multi-Use Pathways

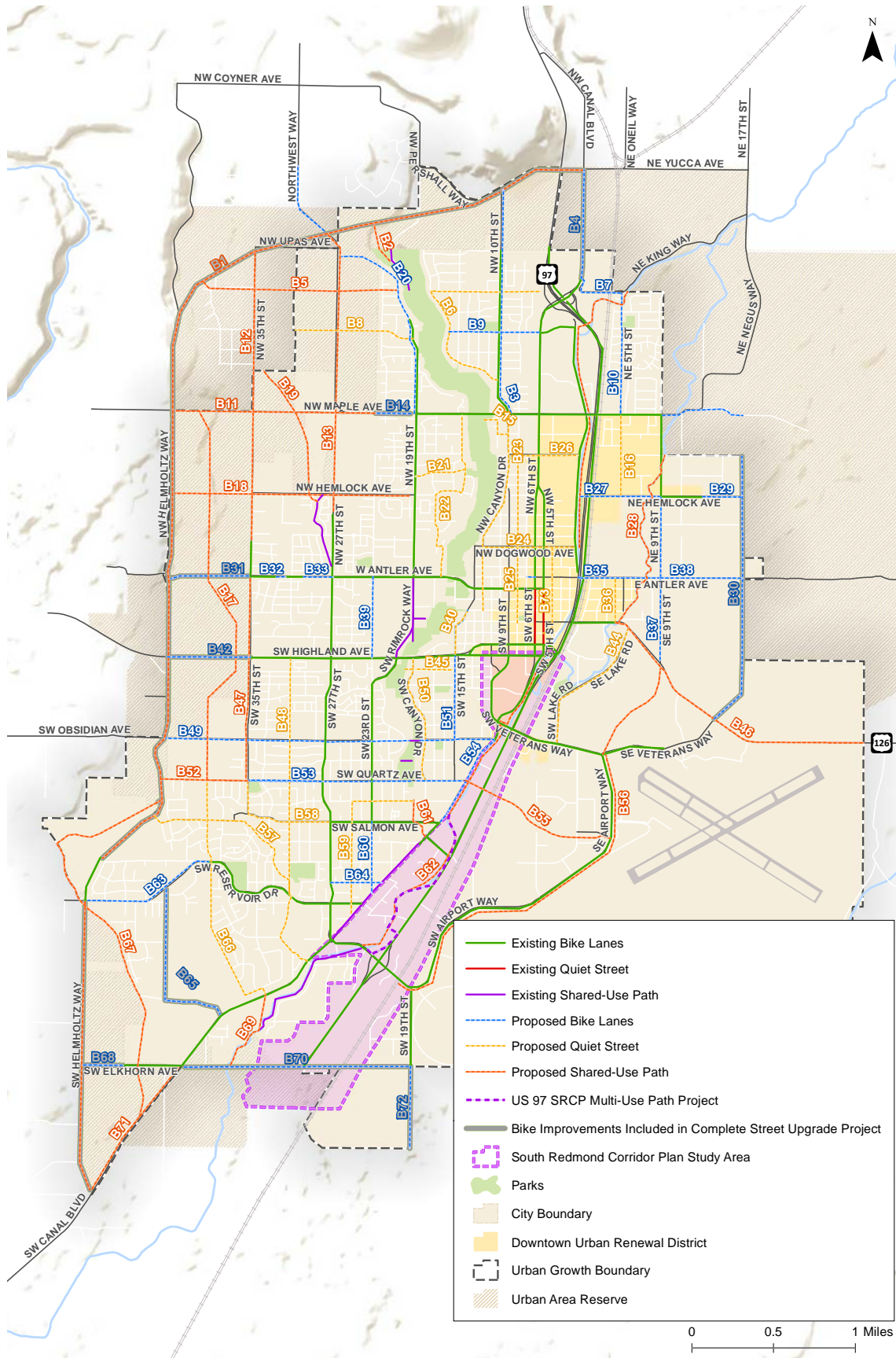
The projects shown in Table 7 represent the City’s current priorities for multi-use pathways. The multiuse pathway system is intended to improve continuity for bicyclists and pedestrians to move freely throughout the

transportation network and help to eliminate north-south barriers for east-west access, particularly through the Dry Canyon and across US 97. These projects are shown in Figure 8. Table 7 identifies the associated costs.

Table 7: Priority Multi-Use Pathways

Map ID	Corridor	S-W Limit	E-N Limit	Length (miles)	2020 Cost Estimates
B1	SW/NW Helmholtz Way	SW Canal Blvd	NW Canal Blvd	8.0	Costs included in S14
B2	NW Pershall Way	Dry Canyon Trail	B1	0.3	\$1.0M
B5	NW Spruce Ave	NW Helmholtz Way	NW 19th St	1.2	\$4.6M
B11	NW Maple Ave	NW Helmholtz Way	west of NW 22nd St	1.2	\$4.7M
B12	NW 35th St	NW Dogwood Ave	NW Upas Way	1.8	\$6.7M
B13	NW 27th St	NW Greenwood Ave	NW Upas Way	1.7	\$6.6M
B17	SW 39th St	SW Quartz Ave	NW Maple Ave	2.4	\$9.2M
B18	NW Hemlock Ave	NW Helmholtz Way	NW 19th St	1.4	\$5.5M
B19	NW 29th St	NW Hemlock Ave	UGB	0.9	\$3.5M
B28	Lateral E Pilot Butte Canal	OR 126	NE Kingwood Ave	1.2	\$4.8M
B46	OR 126	SE Jackson St	UGB	1.8	\$7.0M
B47	SW 35th St	SW Quartz Ave	W Antler Ave	1.2	\$4.7M
B52	SW Quartz Ave	SW Helmholtz Way	SW 35th St	0.5	\$2.1M
B55	SW Quartz Ave	SW Canal Blvd	SE Airport Way	1.0	\$7.5M
B56	SE Airport Way/SE 9th St	Railroad	OR 126	3.0	\$11.4M
B61	SW 19th St	SW Canal Blvd	SW Reindeer Ave	0.3	\$1.0M
B62	SW Canal Blvd/Pilot Butte Canal	SW 27th St	NE King Way	2.4	\$9.1M
B67	SW Helmholtz Way	SW Canal Blvd	SW Reservoir Dr	2.5	\$9.8M
B69	Pilot Butte Canal	SW Elkhorn Ave	SW Canal Blvd	0.5	\$2.0M
B71	SW Canal Blvd	SW Helmholtz Way	SW Elkhorn Ave	0.9	\$3.5M
US 97 SRCP	SW Canal Blvd/US 97	SW Yew Ave	New Northern Roadway Connection (Motel 6)	1.3	Included in SRCP
Total Multi-Use Pathways					\$104.7M

Figure 10: Existing and Planned Bicycle Facilities



Key Bicycle Corridors

More than forty bicycle corridors were identified as the City's current priorities for inclusion into the TSP. Crossing improvements, though not specifically identified in the TSP, may be provided when bicycle facilities are constructed that cross major roads. The need for and type of crossing treatments will be evaluated at the time of project development and design. Further, the City of Redmond will consider upgrades to existing bicycle facilities (such as including a marked buffer) on a case-by-case basis. Such upgrades typically occur in conjunction with scheduled maintenance operations.

These projects are shown in Figure 10. Table 8 identifies the associated costs.

Table 8: Current Bicycle Corridor Priorities

Map ID	Corridor	S-W Limit	E-N Limit	Improvement	Length (miles)	2020 Cost Estimates
B3	NW 10th St	NW Maple Ave	NW Pershall Way	Bike Lanes	1.0	\$0.2M
B6	NW Canyon Dr/NW Spruce Ave	NW 10th St	US 97	Quiet Street	1.4	\$0.4M
B7	NE King Way	NW Canal Blvd	NE 5th St	Bike Lanes	0.3	\$0.5M
B8	NW Quince Ave	UGB	NW 19th St	Quiet Street	0.7	\$0.2M
B9	NW Quince Ave	NW Canyon Dr	NW 6th St	Bike Lanes	0.3	\$0.5M
B10	NE 5th St	NE Negus Way	NE King Way	Bike Lanes	0.7	\$1.1M
B15	NW 10th St/NW Larch/NW Rockcrest Ct	Dry Canyon Trail	NW 9th St	Quiet Street	0.2	\$0.1M
B16	NE 5th St	NE Hemlock Ave	NE Maple Ave	Quiet Street	0.5	\$0.1M
B20	NW 19th St	NW Maple Ave.	Northwest Way	Bike Lanes	0.7	\$0.5M
B21	NW Ivy Ave	NW 19th St	NW Rimrock Ct	Quiet Street	0.3	\$0.1M
B22	NW 17th St/NW Rimrock Ct	W Antler Ave	NW Maple Ave	Quiet Street	1.2	\$0.4M
B23	NW Canyon Dr	SW Deschutes Ave	NW Maple Ave	Quiet Street	1.2	\$0.4M
B24	NW Dogwood Ave	NW Canyon Dr	NW Canal Blvd	Quiet Street	0.5	\$0.2M
B25	SW 8th St	SW Evergreen Ave	NW Kingwood Ave	Quiet Street	1.0	\$0.3M
B26	NW Kingwood Ave	NW Canyon Dr	NW Canal Blvd	Quiet Street	0.4	\$0.1M
B27	NE Hemlock Ave	NW Canal Blvd	NE 9th St	Bike Lanes/ Crossing	0.5	\$0.7M
B29	NE Hemlock Ave	west of NE 15th St	NE 17th St	Bike Lanes	0.2	\$0.1M
B32	W Antler Ave	NW 32nd Ct	SW 31st St	Bike Lanes	0.1	\$0.1M
B33	W Antler Ave	NW 29th St	SW 27th St	Bike Lanes	0.2	\$0.3M

Table 8: Current Bicycle Corridor Priorities (continued)

Map ID	Corridor	S-W Limit	E-N Limit	Improvement	Length (miles)	2020 Cost Estimates
B35	E Antler Ave	SW 7th St	NE 17th St	Bike Lanes/ Crossing	0.8	\$1.1M
B36	SE Jackson St	OR 126	E Antler Ave	Quiet Street	0.3	\$0.1M
B37	SE 9th St	OR 126	NE Hemlock Ave	Bike Lanes	1.0	\$1.4M
B38	E Antler Ave	SE 9th St	NE 17th St	Bike Lanes	0.1	\$0.2M
B39	SW 23rd St	SW Highland Ave	W Antler Ave	Bike Lanes	0.5	\$0.1M
B40	SW 15th St	SW Highland Ave	SW Deschutes Ave	Quiet Street	0.3	\$0.1M
B44	SW Lake Rd	SW Veterans Way	OR 126	Quiet Street	0.9	\$0.3M
B45	SW Juniper Ave	Dry Canyon Trail	SW 15th St	Quiet Street	0.3	\$0.1M
B48	SW 31st St	SW Canal Blvd	SW Highland Ave	Quiet Street	2.0	\$1.0M
B49	SW Obsidian Ave	SW Helmholtz Way	SW Canal Blvd	Bike Lanes	1.4	\$0.3M
B50	SW Canyon Dr	SW Quartz Ave	SW Highland Ave	Quiet Street	0.8	\$0.2M
B51	SW 15th St	SW Obsidian Ave	SW Highland Ave	Bike Lanes	0.5	\$0.7M
B53	SW Quartz Ave	SW 35th St	SW Canal Blvd	Bike Lanes	1.3	\$0.3M
B54	SW Canal Blvd	SW Salmon Ave	SW Obsidian Ave	Bike Lanes	0.6	\$0.9M
B57	SW Salmon Ave/SW Valleyview Dr/SW 32nd Ct	SW Helmholtz Way	SW 31st St	Quiet Street	0.9	\$0.3M
B58	SW 35th St/SW Salmon Ave	SW Quartz Ave	SW 27th St	Quiet Street	0.7	\$0.2M
B59	SW 25th St/SW Reindeer Ave	SW Canal Blvd	Dry Canyon Trail/ SW 19th St	Quiet Street	1.1	\$0.3M
B60	SW 23rd St	SW Canal Blvd	SW Salmon Ave	Bike Lanes	0.4	\$0.6M
B63	SW Reservoir Dr	SW Helmholtz Way	SW 39th St	Bike Lanes	0.8	\$1.2M
B64	Volcano Avenue	27th Street	SW Canal Boulevard	Bike Lanes	0.3	\$0.2M
B66	SW Cascade Vista Dr/SW Antelope Ave	SW Canal Blvd	SW Quartz Ave	Quiet Street	1.5	\$1.3M
B73	SW 4th St/SW Forest/SW 5th	SW Highland	SW Dogwood Ave	Quiet Street	0.6	\$0.2M
Total Bicycle Corridors						\$17.4M

Key Pedestrian Improvements

Key priority sidewalk investment areas are intended to prioritize new sidewalk facilities along ADA routes and provide key missing connections in the pedestrian system. Pedestrian crossing improvements at intersections, though not specifically identified, may be provided when pedestrian facilities are constructed that cross major roads. The need for and type of crossing treatments will be evaluated at the time of project development and design.

These projects are shown in Figure 11. Table 9 and Table 10 identify the associated costs.

Table 9: Priority New Sidewalk Facilities Along ADA Routes

Map ID	Corridor	S-W Limit	E-N Limit	Street Side	Note	Length (miles)	2020 Cost Estimates
P4	NW 10th St	NW 9th St	NW Quince Ave	West	Add Sidewalk or Ramps	0.4	\$0.4M
P8	NW 9th St	NW Hemlock Ave	NW Maple Ave	Both	Add Sidewalk or Ramps	0.9	\$0.9M
P9	NW 6th St	North of NW Larch Ave	NW Maple Ave	Both	Add Sidewalk or Ramps	0.2	\$0.2M
P11	NW 6th St	NW Jackpine Ave	NW Larch Ave	East	Add Sidewalk or Ramps	0.1	\$0.1M
P12	NW 6th St	South of NW Kingwood Ave	South of Larch Ave	West	Add Sidewalk or Ramps	0.1	\$0.1M
P13	NW Larch Ave	NW 6th St	NW 4th St	Both	Add Sidewalk or Ramps	0.1	\$0.1M
P14	NW Larch Ave	NW 4th St	West of NW Canal Blvd	South	Add Sidewalk or Ramps	0.1	\$0.1M
P16	NW Kingwood Ave	NW 6th St	NW Canal Blvd	Both	Add Sidewalk or Ramps	0.4	\$0.4M
P18	NW 6th St	North of NW Jackpine Ave	South of NW Kingwood Ave	West	Add Sidewalk or Ramps	0.04	<\$0.1M
P19	NW 6th St	NW Jackpine Ave	NW Kingwood Ave	East	Add Sidewalk or Ramps	0.1	\$0.1M
P20	NW Canal Blvd	NW Elm Ave	NW Larch Ave	West	Add Sidewalk or Ramps	0.4	\$0.4M
P21	NW Hemlock Ave	NW Canyon Dr	NW 9th St	Both	Add Sidewalk or Ramps	0.03	<\$0.1M
P23	NW 9th St	W Antler Ave	NW Greenwood Ave	Both	Add Sidewalk or Ramps	0.5	\$0.5M
P24	NW Dogwood Ave	NW Canyon Dr	NW 10th St	South	Add Sidewalk or Ramps	0.1	\$0.1M
P37	SW Highland Ave	SW Indian Cir	SW 27th St	South	Add Sidewalk or Ramps	0.1	\$0.1M
P57	SW Canal Blvd	North of SW Salmon Ave	South of SW Obsidian Ave	West	Add Sidewalk or Ramps	0.4	\$0.4M
P59	SW Salmon Ave	SW 31st St	SW 29th St	South	Add Sidewalk or Ramps	0.1	\$0.1M
P66	SW Xero Ln	West of SW 34th St	SW 31st St	Both	Add Sidewalk or Ramps	0.3	\$0.3M
P67	SW 31st St	SW 33rd St	SW Savannah Ct	West	Add Sidewalk or Ramps	0.03	<\$0.1M
P69	SW 31st St	SW Timber Ct	SW 33rd St	East	Add Sidewalk or Ramps	0.1	\$0.1M

Table 9: Priority New Sidewalk Facilities Along ADA Routes (continued)

P70	SW 31st St	SW Xero Ln	SW Volcano Way	Both	Add Sidewalk or Ramps	0.5	\$0.5M
P71	SW Canal Blvd	SW 27th St	SW Timber Ave	East	Add Sidewalk or Ramps	0.8	\$0.7M
Total New Sidewalk Facilities							\$5.5M

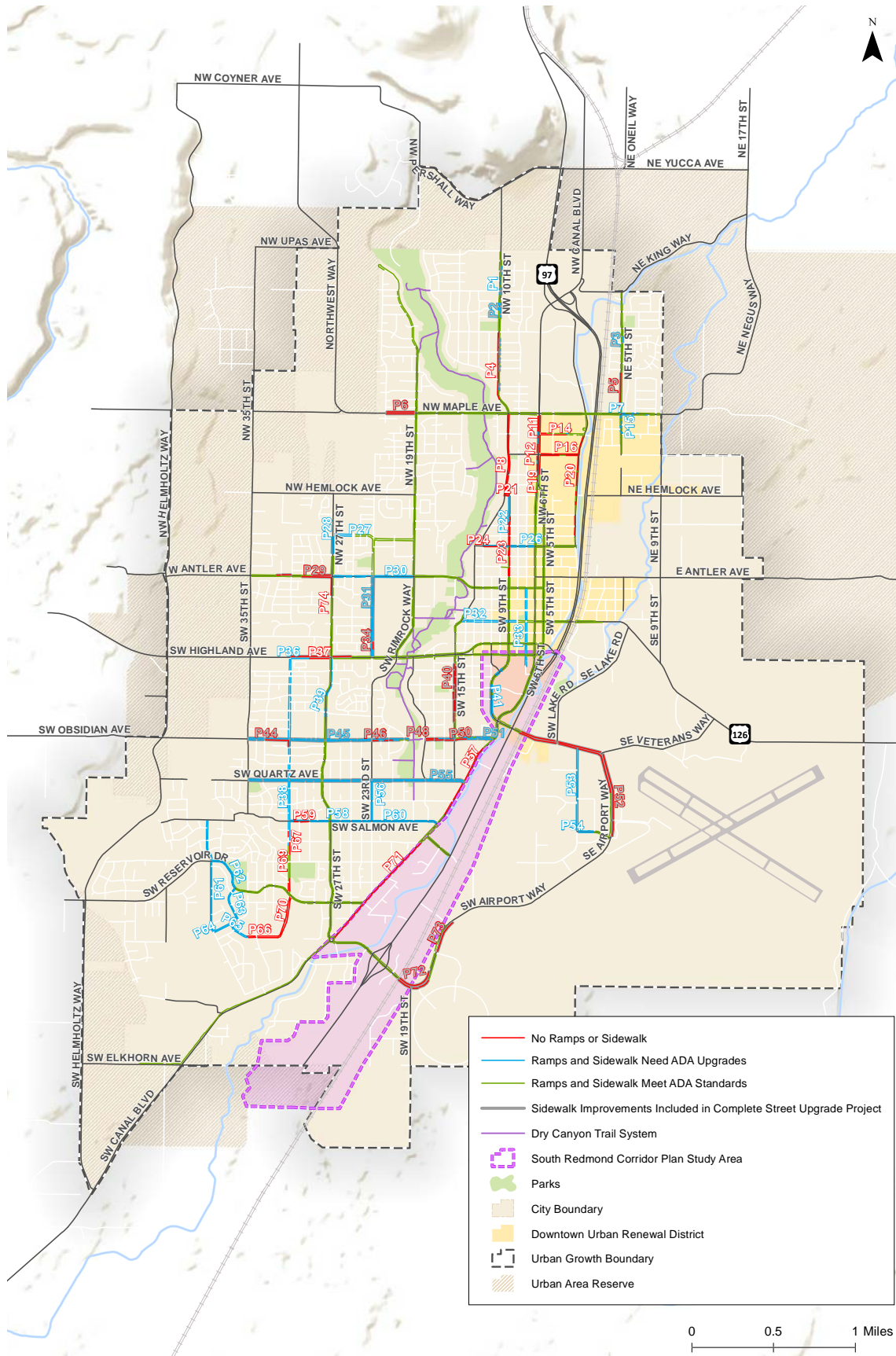
Table 10: Priority New Sidewalk Facilities Along ADA Routes

Map ID	Corridor	S-W Limit	E-N Limit	Street Side	Note	Length (miles)	2020 Cost Estimates
P1	NW 10th St	NW Redwood Ave	NW Teak Ave	West	Upgrade Sidewalk or Ramps	0.1	\$0.1M
P7	NE Negus Way	NE 5th St	NE 7th St	Both	Upgrade Sidewalk or Ramps	0.1	\$0.1M
P10	NW 6th St	North of NW Kingwood Ave	North of NW Larch Ave	West	Upgrade Sidewalk or Ramps	0.1	\$0.1M
P15	NE 5th St	NE Larch Ave	NE Negus Way	Both	Upgrade Sidewalk or Ramps	0.1	\$0.1M
P17	NW 6th St	NW Jackpine Ave	NW Kingwood Ave	West	Upgrade Sidewalk or Ramps	0.03	<\$0.1M
P22	NW 9th St	NW Fir Ave	NW Hemlock Ave	Both	Upgrade Sidewalk or Ramps	0.3	\$0.3M
P25	NW Dogwood Ave	NW Canyon Dr	NW 10th St	North	Upgrade Sidewalk or Ramps	0.1	\$0.1M
P26	NW Dogwood Ave	NW 10th St	NW 6th St	Both	Upgrade Sidewalk or Ramps	0.3	\$0.3M
P27	NW Elm Ave	NW 27th St	NW 25th St	Both	Upgrade Sidewalk or Ramps	0.2	\$0.2M
P28	NW 27th St	NW Cedar Ave	NW Elm Ave	Both	Upgrade Sidewalk or Ramps	0.2	\$0.2M
P30	W Antler Ave	SW 27th St	SW Rimrock Way	Both	Upgrade Sidewalk or Ramps	0.8	\$0.8M
P32	W Evergreen Ave	SW Canyon Dr	SW 8th St	Both	Upgrade Sidewalk or Ramps	0.6	\$0.5M
P33	SW 7th St	SW Indian Ave	SW Black Butte Blvd	Both	Upgrade Sidewalk or Ramps	0.7	\$0.7M
P36	SW Highland Ave	SW 31st St	SW Indian Cir	South	Upgrade Sidewalk or Ramps	0.1	\$0.1M
P38	SW 31st St	SW Savanna Ct	SW Highland Ave	Both	Upgrade Sidewalk or Ramps	1.6	\$1.6M
P39	SW 27th St	SW Metolius Ave	SW Highland Ave	East	Upgrade Sidewalk or Ramps	0.3	\$0.3M
P41	SW Veterans Way	SW Canal Blvd	SW Indian Ave	Both	Upgrade Sidewalk or Ramps	0.4	\$0.4M
P53	S 1st St	SE Salmon Dr	SW Veterans Way	Both	Upgrade Sidewalk or Ramps	0.9	\$0.9M
P54	SE Salmon Dr	S 1st St	West of Timber Ave	Both	Upgrade Sidewalk or Ramps	0.2	\$0.2M
P56	SW 23rd St	SW Salmon Ave	SW Quartz Ave	Both	Upgrade Sidewalk or Ramps	0.5	\$0.4M
P58	SW Salmon Ave	SW 31st St	SW Canal Blvd	North	Upgrade Sidewalk or Ramps	0.8	\$0.7M

Table 10: Priority New Sidewalk Facilities Along ADA Routes (continued)

P60	SW Salmon Ave	SW 29th St	SW Canal Blvd	South	Upgrade Sidewalk or Ramps	0.7	\$0.6M
P61	SW 39th St	SW 35th St	SW Salmon Ave	Both	Upgrade Sidewalk or Ramps	1.2	\$1.2M
P62	SW Reservoir Dr	SW 39th St	SW 36th St	Both	Upgrade Sidewalk or Ramps	0.5	\$0.5M
P63	SW 36th St	SW 35th St	SW Reservoir Dr	Both	Upgrade Sidewalk or Ramps	0.4	\$0.4M
P64	SW 35th St	SW Cascade Vista Dr	SW 36th St	Both	Upgrade Sidewalk or Ramps	0.2	\$0.2M
P65	SW Xero Ln	SW 35th St	West of SW 34th St	Both	Upgrade Sidewalk or Ramps	0.2	\$0.2M
Total Sidewalk and ADA Ramp Upgrades							\$11.3M

Figure 11: Priority Pedestrian Routes and Projects



South Redmond Transportation Needs

The Oregon Department of State Lands (DSL), in partnership with the City, Deschutes County, and the Oregon Military Department, pursued an amendment to the City's UGB to allow annexation of 949 acres for expansion of the Deschutes County Fairgrounds, potential National Guard and military maintenance facilities, and 789 acres of future large lot industrial uses. To support development of these lands, the following transportation improvements were identified for implementation within the TSP:

- SW 19th Street/Airport Way – installation of a roundabout; this improvement is included in the list of prioritized intersection improvements identified in the above section of priority improvements.
- OR 126/Veterans Way – installation of a traffic signal or roundabout; this improvement is included in the list of prioritized intersection improvements identified in the above section of priority improvements.
- SE 9th Street Extension
- Airport Way extended north to connect with OR 126/SE 9th Street; this improvement is included in the above section of priority projects.
- Veterans Way/Airport Way/SE 9th Street – installation of a roundabout; this improvement is included in the improvement is included in the above section of priority projects.
- OR 126/SE 9th Street – installation of a traffic signal; this improvement is included in the list of prioritized intersection improvements.
- A future northbound connection at OR 126/Veterans Way to provide access to industrial lands; this improvement is included in the list of prioritized new street improvements identified above.
- SW 21st Avenue/SE Airport Way – construction of a raised median to limit movements SW 21st Street to right-in-right-out; the construction of a median at this location will need to consider how local properties are provided access and the timing of roundabout construction at SW 19th Avenue/SE Airport Way.
- Canal Boulevard/Yew Avenue – potential expansion of this roundabout; the operational benefits of an improvement should be balanced against the cost and potential impacts to adjacent properties.

US 97 South Redmond Corridor Facility Plan

The City, ODOT and Deschutes County adopted the US 97 South Redmond Corridor Facility Plan to address traffic congestion, safety, local access needs, and noted pedestrian and bicycle needs adjacent to US 97 between Yew Avenue and Highland Avenue. The City of Redmond adopted the plan in 2019. The adopted plan concept is included in Appendix I and includes the improvements outlined below.

- New roadway connections that cross the COID canal and connect US 97 with neighborhoods to the west via Quartz Avenue, a new roadway south of Reindeer Avenue, and Volcano Avenue.
 - New access roadways and alleys to provide alternative access to parcels adjacent to US 97.
 - A center median with new signals along US 97 to facilitate protected left-turn movements and U-turns at existing signalized intersections to support the new connections.
 - Pedestrian refuge islands on US 97.
 - New sidewalks and cycle tracks along US 97 and the east-west streets connecting to the highway
- A new multi-use path along Canal Boulevard and the COID canal.
 - Roundabouts at Quartz Avenue/Canal Boulevard, the new roadway south of Reindeer Avenue/Canal Boulevard, Volcano Avenue/Canal Boulevard.
 - Gateway and streetscape treatments to improve the aesthetics and the comfort and convenience of pedestrians and cyclists along the corridor.

The Facility Plan recommended concept is estimated to cost \$55 million–\$60 million. Current estimates are based on the adopted conceptual plan. The conceptual plan is a generalized look at possible improvement needs and will be refined before final design. The refinement of the plan, including additional citizen outreach on the details of the final plan will occur before the right of way needs, easements, detailed design, and associated cost estimates are approved by the City engineer and/or City Council. Subsequent to the adoption of the TSP, ODOT anticipates forwarding the Facility Plan to the OTC for state adoption.



Source: US Bureau of Land Management

US 97/QUARRY AVENUE INTERCHANGE

To serve the urbanization of lands in the south part of the existing Urban Growth Boundary (UGB) and to alleviate travel demands at the Yew Avenue/US 97 interchange, the City, County and ODOT have explored the need to replace the existing at-grade SW Quarry Avenue/US 97 intersection with a new interchange. SW Canal Boulevard and the extension of SW 19th Street could connect this new interchange with the existing UGB.

The new interchange and the north-south connections into the UGB can help:

- Serve future development areas, especially the large lot industrial lands located near the Fairgrounds;
- Provide alternative grade-separated access to US 97, especially for travelers between Redmond and Bend and other destinations to the south; and
- Increase access to the Airport and provide alternative travel routes to US 97 in accordance with TSP Policy 2.2 and the Oregon Resilience Plan.

Providing an interchange at SW Quarry Avenue and extending SW 19th Street to the south would occur outside of the UGB; because these roadways would serve land uses within the City, Oregon's Transportation Planning Rule (TPR) Section 660-012-0070 requires approval of an "Exception for Transportation Improvements on Rural Lands." Accordingly, the City, County and ODOT will monitor the need for planning, designing and constructing a SW Quarry Avenue as part of TSP implementation. This interchange is not part of the 20-year list of projects considered to be reasonably likely to be funded within the TSP.

To assist with future monitoring efforts, the potential for a US 97/Quarry Avenue interchange and the associated roadway extensions/upgrades was evaluated as part of the update of this TSP. The key findings from that analysis are included in Appendix K and revealed a new interchange:

- Will not measurably reduce traffic volumes anticipated on the arterial and collector streets in the south part of the City or at the US 97/Yew Avenue Interchange;
- Can provide an alternative connection to US 97 for the large lot industrial lands near the Fairgrounds; however, the majority of the traffic anticipated from these lands over the next 20 years is anticipated to use the Yew Avenue Interchange; and
- The SW Quarry Avenue Interchange is not needed to meet the identified transportation needs within the TSP and would therefore be considered part of a "illustrative list" of potential projects for the City to consider at a future date.


Based on these findings, it does not appear that the requirements of a "Goal Exception" per the TPR is warranted at this time nor should the SW Quarry Avenue/US 97 Interchange be included in the list of reasonably funded TSP projects.





6

Transportation Funding & Implementation



In This Chapter

- What resources are available to fund Redmond's transportation projects?

6

Transportation Funding & Implementation

The TSP includes projects under the jurisdiction and ownership of ODOT, Deschutes County, the City of Redmond, and Cascade East Transit (CET), as well as projects that will be implemented by private developers. Individual TSP projects will be funded through a different combination of federal, state, City, county, SDC revenue, and or private sources. This chapter discusses current and possible new funding mechanisms that may be available to implement projects during the life of the TSP. A complete list of the multimodal projects and planning level cost estimates is provided in Chapter 5.

Today's fiscal environment is beset by uncertainty about future federal, state, and local funding for transportation projects. This uncertainty provides challenges to accurately forecast the amount of funding available for transportation investments and what projects or programs will receive funding. In this context, the TSP provides a prudent and conservative list of capital construction projects, an emphasis on lower cost methods of improving personal mobility within the City, and an increased reliance on technologies that can improve the efficiencies of our streets.

Further, the City policies and priorities seek to include strategic investments that support

mixed-use, pedestrian-friendly neighborhoods, increase use of active modes of transportation, and reduce reliance on travel by single-occupant automobile. These priorities include improved convenience and safety for walking and biking, and continued support for the economic health and prosperity of the region.

The highest priority projects for strategic investments are those that (1) protect the existing system and (2) improve the efficiency and safety of existing multimodal facilities. These projects are to be implemented first unless a lower priority measure is demonstrated to be more cost-effective or is one that better supports safety, growth management, or other livability and economic considerations. Further, the list of projects identified above are intended to make streets safer for all users as well as more efficient with use of emerging technologies.

The timing of project implementation will depend on future policy direction and funding availability at the federal, state, or local level; changes in local development priorities; or the formation of public-private or public-public partnerships.

Transportation Revenue

Revenue forecasts from the City provided a basis for extrapolating an estimate of revenues that might be available for transportation projects over the next twenty years. Table 11 summarizes the potential revenue forecast and sources for the identified list of strategic priorities.

Table 11: Forecast Revenue Sources

Revenue Source	Average Annual Income	20-Year Revenue Forecast
SDC Improvement Sub-Fund	\$1.02M	\$20.35M
SDC Reimbursement Sub-Fund	\$0.12M	\$2.35M
Capital Projects Sub-Fund	\$0.85M	\$17.07M
Total Revenue	\$1.99M	\$39.77M

Summary Of Transportation System Costs

Table 12 summarizes the total cost by category of recommended multimodal transportation projects.

Table 12: Project Costs

Revenue Source	Average Annual Income
Strategic Street Capacity Investment Corridors	\$54.1M
New Planned Streets	\$105.2M
Intersection Capacity Improvements	\$35.4M to \$70.5M depending on intersection control type selected
Other Priority Intersection Capacity Improvements	\$1.7M to \$4.4M depending on intersection control type selected
Grade-Separated Intersection Improvements	\$42.9M
Key Multi-Use Pathways	\$104.7M
Key Bicycle Corridors	\$17.4M
New Sidewalk Facilities along ADA Routes	\$5.5M
Sidewalk and ADA Ramp Upgrades	\$11.3M
US 97 South Redmond Concept Facility Plan	\$55 - \$60M
Total Cost	\$433.2M to \$476M depending on intersection control type selected

Funding Gap

Comparing Tables 11 and 12 demonstrate that City funding alone is insufficient to address the TSP needs. As such, the City will need to partner with other agencies, the private development community and pursue alternative funding sources to address the 20-year list of prioritized projects.

Potential Funding Sources

While highway user taxes and fees, including Oregon State fuel taxes, licensing, and registration fees, as well as local fuel taxes, are available to fund transportation-related projects in the City, per local policy these sources have increasingly been devoted to operations, maintenance, and preservation. This practice diverts funds away from capacity development or expansion projects. The City will need to develop a strategy to fund the improvements identified in the TSP. Possible elements of this strategy are outlined below.

Local Funding Mechanisms

Table 13 outlines potential funding sources at the local level that either can currently be used to fund future projects or that the City Council may want to consider adopting as a new funding source. The City has used some of these funding mechanisms in the past; others would be new. Inclusion of this table in the TSP does not create a new funding source but rather is intended to the various funding sources that local governments throughout Oregon utilized. In general, local funding sources are more flexible than funding obtained from state or federal grant sources.

Table 13: Potential Local Funding Mechanisms

Funding Source	Description	Potential Application
Street Utility Fees (also called road maintenance fees)	A fee based on the number of automobile trips a particular land use generates; usually collected through a regular utility bill. Fees can also be tied to the annual registration of a vehicle to pay for improvements, expansion, and maintenance of the street system.	System-wide transportation facilities including streets, sidewalks, bike lanes, and shared use paths.
Transportation Systems Development Charge (SDC)	SDCs are impact fees assessed to development for the capacity demand it creates on public infrastructure systems. SDCs may be an improvement fee, a reimbursement fee, or a combination thereof. Reimbursement fee revenues are dedicated to capital projects that increase capacity to meet the needs of growth. SDC credits are provided to developers for public improvements they construct which add capacity to the system beyond that required to serve their development. SDC credits may also be given for development provisions that reduce vehicular capacity demand on the transportation system, such as providing end-of-trip bike facilities within the new development.	The City currently has an SDC program. They may update the SDC to reflect the adoption of projects included in the updated TSP after adoption.
Stormwater SDCs, grants, and loans	SDCs, grants, loans, and stormwater improvement fees can be obtained for improving stormwater management facilities constructed as part of transportation system improvements.	SDCs may only be used for that portion of transportation improvements which generate additional stormwater management capacity related to growth.
Local gas tax	A local tax can be assessed on the purchase of gas within the City. This tax is added to the cost of gasoline at the pump, along with the state and federal gas taxes.	System-wide transportation facilities including streets, sidewalks, and bike lanes.

Table 13: Potential Local Funding Mechanisms (continued)

<p>Parking in-lieu fees</p>	<p>Parking in-lieu fees are developer fees paid if they cannot or do not want to provide on-site parking for the development. The idea behind these fees is to decrease the amount of off-street, private parking and consolidating parking supplies on-street or in parking garages as a way to decrease parking demand on the development site. In-lieu fees may benefit developers by reducing costs and allowing more intensive development on a site.</p>	<p>System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.</p>
<p>Incentives</p>	<p>The City provides enticements such as bonus densities and flexibility in design in exchange for a public benefit. Examples might include a commute trip reduction (CTR) program or transit facilities in exchange for bonus densities. Incentives may be used with SDC methods to reduce transportation impacts from new development.</p>	<p>System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.</p>
<p>Public/private partnerships</p>	<p>Public/private partnerships have been used around the country to provide public transportation amenities within the public right-of-way in exchange for operational revenue from the facilities. These partnerships could be used to provide services such as vehicle charging stations, public parking lots, bicycle lockers, or car share facilities.</p>	<p>System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.</p>
<p>Tax Increment Financing (TIF)</p>	<p>TIF is a tool that cities may use to create special districts (tax increment areas) where public improvements are made to generate private-sector development. During a defined period, the City freezes the tax base at the pre-development level. Property taxes for that period can be waived or paid, but taxes derived from increases in assessed values (the tax increment) resulting from new development can go into a special fund created to retire bonds issued to originate the development or leverage future improvements. A number of small-to-medium sized communities in Oregon have implemented, or are considering implementing, urban renewal districts that will result in a TIF revenue stream.</p>	<p>System-wide transportation facilities including streets, sidewalks, bike lanes, shared use paths, and transit.</p>
<p>Streets District</p>	<p>Oregon state law (Oregon Revised Statute [ORS] 371) allows for the formation of special streets taxing districts for purposes of constructing and maintaining streets within the taxing district boundaries. A Streets District would be a separate entity from the City of Redmond, with its own property tax levy rate and an elected board of commissioners. Those within the potential district boundaries must vote on the creation of a Streets District.</p>	<p>Roadway improvement projects.</p>
<p>Revenue and general obligation bonds</p>	<p>Bonding allows municipal and county government to finance construction projects by borrowing money and paying it back over time, with interest. Financing requires smaller regular payments over time compared to paying the full cost at once, but financing increases the total cost of the project by adding interest. General obligation bonds are often used to pay for construction of large capital improvements and must be approved by a public vote. These bonds add the cost of the improvement to property taxes over time.</p>	<p>Construction of major capital improvement projects within the city, street maintenance and incidental improvements.</p>
<p>Reimbursement Districts</p>	<p>Also called Zones of Benefit or Advance Financed Districts, a city determines the boundary of the district. Property owners of new development or large redevelopment permits pay a fee for the installation of public improvements. They then recover some portion of the cost over a period of years (often 15).</p>	<p>Construction of major capital improvement projects within the city (possibly in Study Areas).</p>

State and Federal Grants

In addition to local funding sources, the City can seek to leverage opportunities for funding from grants at the state and federal levels for specific projects. Table 14 outlines state and federal sources and their potential applications.

Potential state funding sources are extremely limited, with some having significant competition. Any future improvements that rely on state funding may require City and regional consensus that these improvements are more important than transportation needs elsewhere in the region and the state. It will likely be necessary to combine multiple funding sources to pay for a single improvement project (e.g., combining state, regional, or City bicycle and pedestrian funds to pay for new bike lanes and sidewalks).

Table 14: Potential State and Federal Grants

Funding Source	Description	Potential Application
Statewide Transportation Improvement Program (STIP)	STIP is the State of Oregon's four-year transportation capital improvement program. ODOT's system for distributing these funds has varied over recent years. Generally, local agencies apply in advance for projects to be funded in each four-year cycle.	Projects on any facility that meet the benefit categories of the STIP.
Statewide Transportation Improvement Program-Urban (STIP-U)	STIP-U is the State of Oregon's four-year transportation capital improvement program for urban areas. ODOT's system for distributing these funds has varied over recent years. Generally, local agencies apply in advance for projects to be funded in each four-year cycle.	Projects on any facility that meet the benefit categories of the STIP-U.
Transportation and Growth Management (TGM) Grants	TGM Grants are planning grants administered by ODOT and awarded on an annual basis. The TGM grants are generally awarded to projects that will lead to more livable, economically vital, transportation efficient, sustainable, and pedestrian-friendly communities. The grants are awarded in two categories: transportation system planning and integrated land use/transportation planning.	Refinement of any identified study projects.
Transportation Alternatives Program (TAP)	TAP is a federal program that provides funding for pedestrian and bicycle facilities, projects for improving public transit access, safe routes to schools, and recreational trails. Local governments, regional transportation authorities, transit agencies, school districts or schools, natural resource or public land agencies, and tribal governments are all eligible to receive TAP funds.	Bicycle and pedestrian facilities, shared use paths.
All Roads Transportation Safety Program (ARTS)	The federal Highway Safety Improvement Program is administered as ARTS in Oregon. ARTS provides funding to infrastructure and non-infrastructure projects that improve safety on all public roads. ARTS requires a data-driven approach and prioritizes projects in demonstrated problem areas.	Areas of safety concerns within the city, consistent with Oregon's Transportation Safety Action Plan.
Immediate Opportunity Fund (IOF)	This fund is discretionary and provides funding for transportation projects essential for supporting site-specific economic development projects. These funds are distributed on a case-by-case basis in cooperation with the Oregon Economic and Community Development Department. These funds can only be used when other sources of financial support are insufficient or unavailable. These funds are reserved for projects where a documented transportation problem exists or where private firm location decisions hinge on the immediate commitment of road construction. A minimum 50 percent match is required from project applications.	Any identified projects that would improve economic development in the city and where there are documented transportation problems.

Table 14: Potential State and Federal Grants (continued)

Connect Oregon	Lottery-backed bonds distributed to air, marine, rail, transit, and pedestrian and bicycle projects statewide. No less than 10 percent of Connect Oregon IV funds must be distributed to each of the five regions of the state, if there are qualified projects in the region. The objective is to improve the connections between the highway system and other modes of transportation.	System-wide transportation facilities.
Oregon Parks and Recreation Local Government Grants	Oregon Parks and Recreation Department administers this program using Oregon Lottery revenues. These grants can fund acquisition, development, and major rehabilitation of public outdoor parks and recreation facilities. A match of at least 20 percent is required.	Trails and other recreational facility development or rehabilitation.
Oregon Transportation Infrastructure Bank (OTIB)	A statewide revolving loan fund is available to local governments for many transportation infrastructure improvements, including highway, transit, and non-motorized projects. Most funds made available through this program are federal; streets must be functionally classified as a major collector or higher to be eligible for loan funding.	Infrastructure improvements to major collectors or higher classified roads for vehicle, transit, and non-motorized travel.
State highway gas tax increase or user fee	ODOT is currently researching a state user fee for drivers to address steady or declining state gas tax revenues. An increase in the state gas tax or a user fee would need to pass through state legislation and would increase the state's transportation funds.	System-wide transportation facilities including streets, sidewalks, bike lanes, and transit.
Oregon Statewide Transportation Improvement Fund (STIF)	HB 2017 established a new dedicated source of funding for improving or expanding public transportation service in Oregon. New revenue from this source is allocated across four programs, three of which apply to public transportation service in Redmond; Formula program, Discretionary program, and Intercommunity Discretionary program.	Public transportation facilities and services.



