Chapter 4:
The Multimodal Transportation System Plans

Introduction

The multimodal transportation system plans in this chapter describe the aspirational transportation network that Redmond will need to support the City's vision. This chapter contains modal system plans for streets, transit, pedestrians, and bikes along with plans for freight mobility, parking, and transportation demand management. Together these elements complete the Multimodal Transportation System Plan. Each of the system plans has a specific vision, a strategic approach for delivering the needs specific to that system plan, and implementation guidelines that provide direction and intent for system development, facilities design, and integration within the overall transportation network. The multimodal plans are also intended to implement the overarching transportation strategies described below:

Prepare for Light Rail – The system plan articulates that an extension of the regional light rail network will include two stations in Overlake, a station in Downtown Redmond, and a station and large park and ride facility in Southeast Redmond. Street grid networks around light rail stations have been planned to provide multimodal access to stations as well as to encourage transit oriented development (TOD) land use patterns. Light rail will significantly increase mobility between Redmond's urban centers and the region.

East Link light rail is scheduled to arrive in Overlake in 2030.

Support for Urban Centers – New street connections are planned for Downtown and Overlake to improve the "grid" and connectivity within the two urban centers. In addition, Downtown and Overlake will each have a "Main Street" (Cleveland Street and 152nd Avenue NE, respectively). The intention is to elevate both of these main street corridors to "great streets," distinguish them from other streets, and use them as catalysts for building a stronger sense of community within each center. This is partly accomplished through the incorporation of a full range of both temporary and permanent cultural arts within the streetscape. Regular event programming for the two "Main Streets" will help them become activated people places. Finally, the plans include implementation of effective parking management so that parking supply will be reasonable in meeting demand, but limited in order to reduce automobile trips.

Travel Choices/Mobility – Every street in Redmond's transportation system will be a complete street for all travel modes. Key bottlenecks will be improved to support mobility for all traveling modes. In addition, transportation demand management (TDM) techniques and advanced traffic operations technology will ensure that the available infrastructure and services are used effectively.

Neighborhood Connections – A connected network of transportation facilities and services for each travel mode has been mapped throughout the city. Streets and trails are designated as modal corridors to ensure improved connections between major destinations, including Redmond's neighborhoods and regional centers.

Freight Mobility – A network of freight routes is planned for moving goods and freight. In addition, guidelines are provided for loading and unloading zones in urban centers to support business activities.

The multimodal plans will also meet community priorities that include safety, maintenance, economic vitality, and environmental stewardship. A particular aspect of the environmental stewardship principle, air quality, deserves a special emphasis here because of how it is improved through a multimodal approach to transportation.

Meet the Broad Range of Travel Needs of Redmond Community

One fundamental objective in creating system plans is that the aspirational transportation network meets the broad range of travel needs of the entire Redmond community. Throughout this chapter, this objective is primarily reflected through the following:

- Providing "complete streets" to meet the needs of a broad range of users for a variety of travel choices.
- Incorporating Americans with Disabilities Act requirements as part of standard street design and maintenance.
- Improving the pedestrian environment on the Safe Routes to School networks.
- Developing bicycling facilities that are safe, accessible, and comfortable for a wider segment of the community.
- Supporting an interconnected network of transit services that are able to provide for more types of trips throughout the entire day.

The 2007 Redmond Complete Streets ordinance (RMC 12.06.10) commits the City to designing its streets to accommodate all users.

Developing facilities and services that provide broad mobility for everyone helps support access and mobility for the community as a whole, and maximizes the value of limited resources.

Air Quality Benefits from a Multimodal Approach to Transportation

Clean air is a basic need that keeps Redmond residents and employees healthy, supports economic development by meeting EPA air quality standards, and allows us to see and enjoy the fantastic views of the Pacific Northwest.

Key Connections

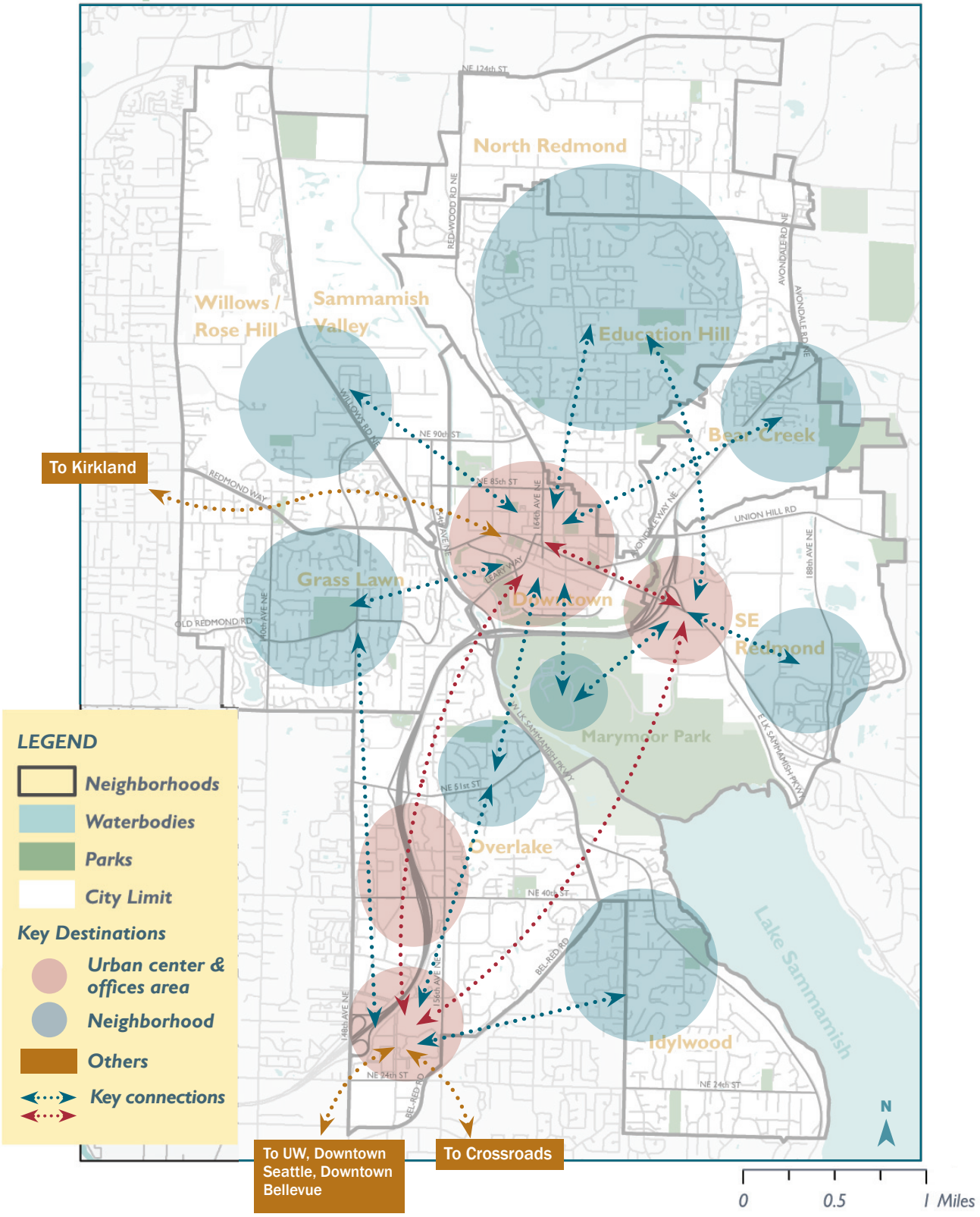


Figure 26. Key connections between major destinations

Transportation is by far the greatest source of air pollution in the central Puget Sound region (50 percent of Greenhouse Gas emissions [PSRC VISION 2040, page 40]), essentially controlling whether our air is clean.

Air quality in Redmond will improve through increases in the use of cleaner and more efficient travel, and as vehicle technology improves. These improvements will include:

- Increases in transit use and carpooling for more efficient trips.
- Increases in trips on electric light rail vehicles.
- Increases in the number of walking and biking trips.
- Fuel-efficient vehicles.
- Electric vehicles which have essentially no air emissions in Redmond because most electrical generation is hydro power. Even when plugging into an electrical grid powered by a traditional power plan, electric cars are 250 percent more carbon efficient than gasoline-powered automobiles.

Modal Corridor System

A fundamental function of the transportation system is connecting destinations, i.e., serving planned land uses. Critical corridors including streets and trails are identified that can best serve as the connections among destinations. These corridors are referred to as Modal Corridors and are a subset of the facilities in the city's transportation network. Though a subset of the transportation network, future completion and improvements of Modal Corridors are critical to ensuring high-quality connections among major destinations (Figure 1). Each Modal Corridor emphasizes one or more modes of travel. This is accomplished through specific design treatments, while also accommodating safe and efficient travel for the other modes consistent with the policy for "complete streets." Modal Corridors with multiple modes require careful balancing of space allocation along with an integrated design that allows the needs for each mode to be fully satisfied.

Modal Corridors help City planners and engineers weigh priorities during street design efforts.

Modal Corridor Identification

Though only a small portion of the transportation system, Modal Corridors form the foundation for strategically providing complete mobility and travel choices between key destinations for Redmond residents, employees, visitors, and shippers. The Modal Corridor designation is important in prioritizing future improvements and guiding street design.

Modal Corridors have been identified based on the specific requirements of each mode, the need for route continuity and directness of travel, historical travel patterns, the presence of existing facilities in the corridor, and future growth plans and opportunities.

Additional considerations affecting the identification of Modal Corridors include:

- The assumption that SR 520 will continue to be Redmond's primary regional connection.
- Vehicular modal corridors include principal arterials and other streets with high current and expected vehicular or truck travel demand.
- The recognition that pedestrians generally travel over short distances. Therefore, for pedestrians, priority zones instead of Modal Corridors are designated as a means to recognize areas where high pedestrian demand occurs today or will occur in the future. For example, both the Downtown and Overlake Urban Centers are designated as pedestrian priority zones.

Modal Corridors

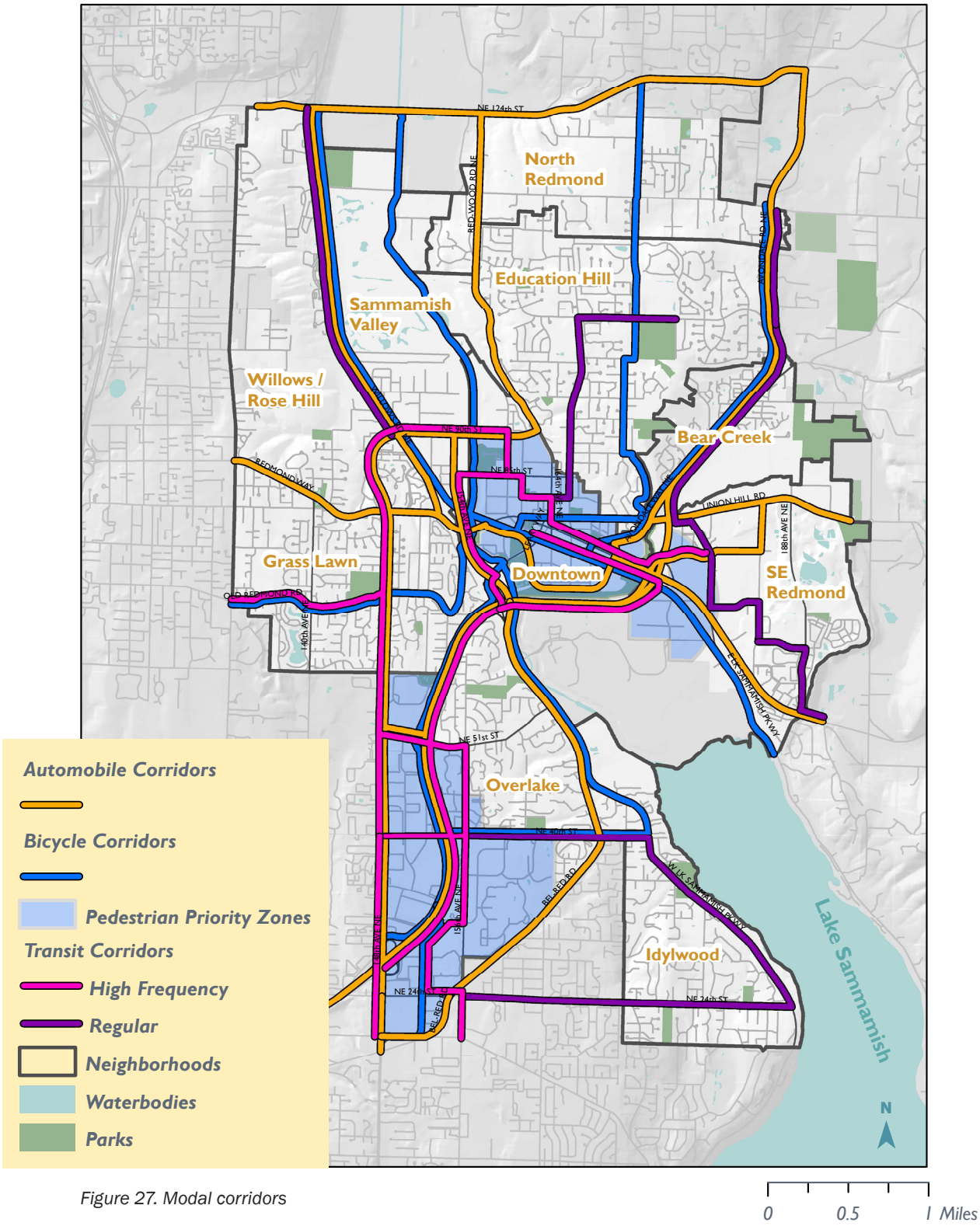


Figure 27. Modal corridors

Multimodal Corridors

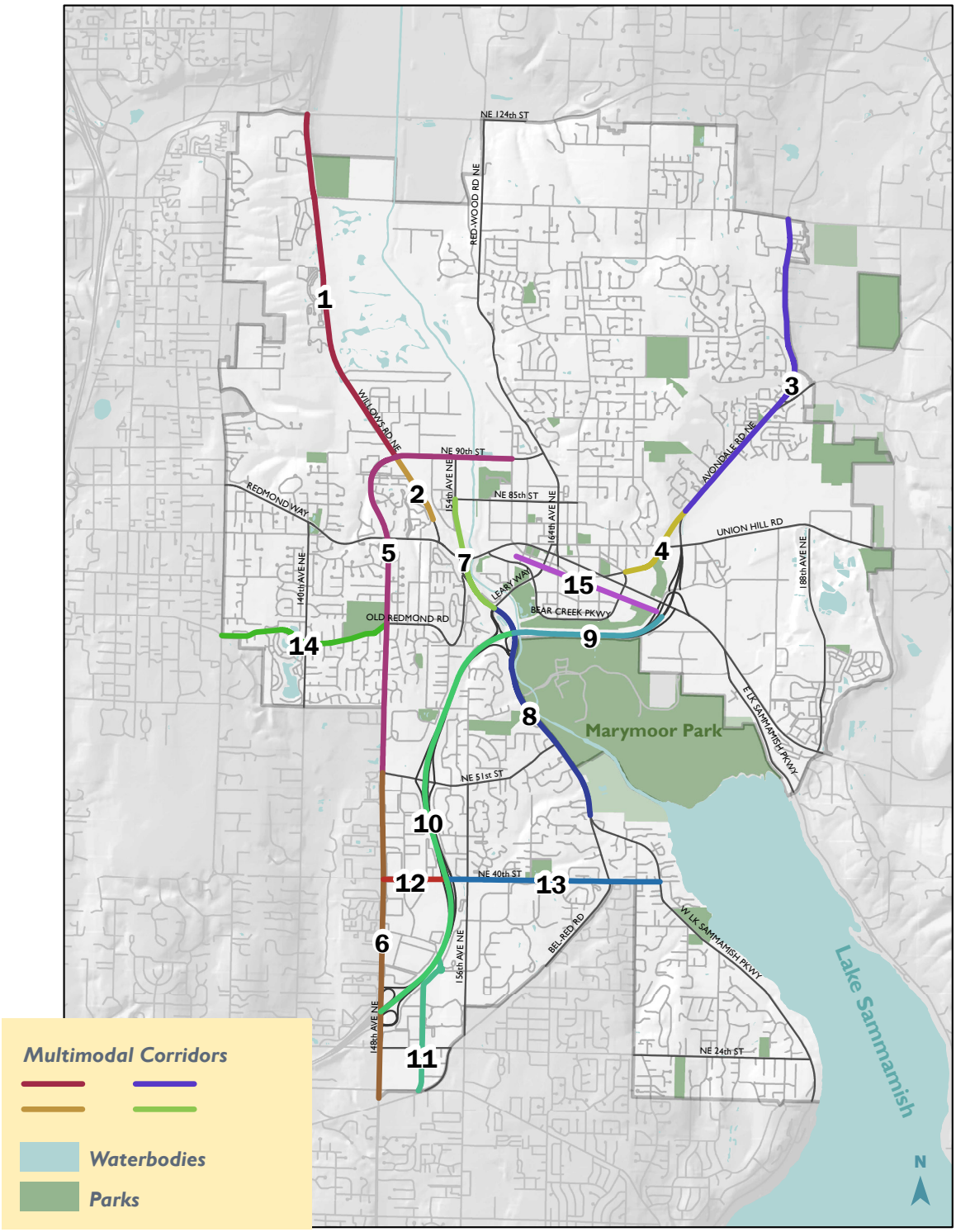


Figure 28. Modal corridors with multiple modal priorities

0 0.5 1 Miles

- Bicyclists need route directness and a reasonable level of safety and comfortable riding experience. Therefore, separation from high-speed traffic and high volumes of traffic are key factors in identifying priority Bicycle Modal Corridors.
- Transit Modal Corridors include streets that are ideally suited to serve as the primary connections between major destinations, as well as those streets that already have high-frequency transit service (every 15 minutes or better). Other key factors in identifying transit Modal Corridors are pedestrian access, land use density, the need for efficient travel time, and the ability to serve multiple markets and needs.

Designated Modal Corridors are shown in Figure 28. These corridors are also shown separately for automobiles in the Street System Plan and for transit and bicyclists in their respective system plans. The Pedestrian System Plan shows the specific pedestrian priority zones. The performance objectives for each type of the modal corridors/zones are:

- Automobile – Provide for reliable progression of vehicular travel.
- Transit – Provide high-quality pedestrian access to and from transit stops, and support transit operating speed and on-time reliability.
- Bicycle – Provide high comfort bicycle facilities where deemed feasible and cost-effective.
- Pedestrian – Locate pedestrian zones in the urban centers and near light rail stations. Provide high-quality sidewalks and frequent crosswalks, including mid-block crossings or pathways where higher pedestrian volumes are anticipated, such as connecting the interior pathway system in Downtown across arterial streets like NE 85th Street.

Each of the system plans refers to the special needs of these corridors relative to that particular mode (see Table 4).

Table 4. Guidance for developing modal corridors with multiple modal priorities

ID	Combined Modal Description
1	**Street –** Minor arterial. Provide for freight movements and general vehicular travel. Ultimate cross-section includes two general purpose lanes in each direction and turn lanes where warranted.
	Transit – Medium demand corridor. Improve transit stop facilities and access by installing additional crossings and sidewalks. Support transit speed and reliability through signal priority and measures that assist transit vehicles to merge back into traffic.
	Bicycle – Paved, Shared-Use Path (Redmond Central Connector). Complete the Redmond Central Connector as a separate but adjacent bicycle and pedestrian corridor. Provide access to and from the Central Connector to land uses across Willows Road by installing additional crossings with appropriate safety devices.
2	**Street –** Minor arterial. Provide for freight movements and vehicle travel.
	Bicycle – Paved, Shared-Use Path (Redmond Central Connector). Complete the Redmond Central Connector as a separate but adjacent bicycle and pedestrian corridor. Provide access to and from the Central Connector to land uses across Willows Road by installing additional crossings with appropriate safety devices.

Table 4. Guidance for developing modal corridors with multiple modal priorities (continued)

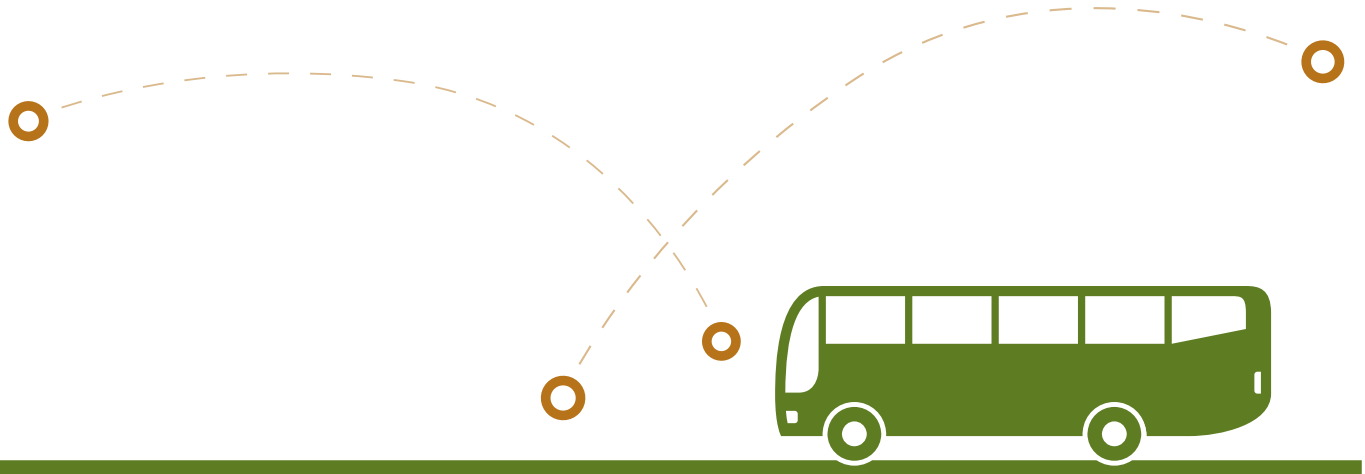
ID	Combined Modal Description (continued)
3	**Street –** Principal arterial. Provide for freight movements and vehicle travel. Provide safe and convenient bidirectional access for residents. Improve access management and discourage speeding.
	Transit – Medium demand corridor. Improve transit access through additional or better aligned crossings. Improve transit speed and reliability through signal priority and measures that decrease delay for transit vehicles. Stop treatments and location should avoid conflicts with cyclists.
	Bicycle – Provide one-way raised cycle track where existing bicycle lanes are located. Provide high-quality access across corridor to encourage use and discourage wrong-way riding.
4	**Street –** Minor arterial. Provide for vehicle travel.
	Bicycle – Bicycle Lane. As a modal corridor bicycle lane, provide bicycle lanes up to stop bar at intersections and provide bicycle positioning markings through intersections. Support high-quality transition to Bear Creek Trail.
5	**Street –** Principal arterial. Provide for freight movements and vehicle travel.
	Transit – High Demand Corridor with Bus Rapid Transit service. Improve transit speed and reliability through signal priority and measures that decrease delay for transit vehicles, in particular at BRT stops and for turns from NE 51st Street to 148th Avenue NE.
6	**Street –** Principal arterial. Provide for freight movements and vehicle travel. Add northbound lane from south city limit with Bellevue to the eastbound SR 520 on-ramp.
	Transit – High Demand Corridor with Bus Rapid Transit service. Improve transit speed and reliability through signal priority and measures that decrease delay for transit vehicles, in particular at BRT stops and for turns from NE 40th Street to 148th Avenue NE. Transit stops locations should be coordinated with existing and new signalized crossings.
	Pedestrian – Provide signalized crossings to support significant pedestrian volumes. Provide trail to support bicycle and pedestrian travel on east side of roadway.
7	**Street –** Principal arterial. Provide for freight movements and vehicle travel.
	Transit – High Demand Corridor, critical to regional routes on SR 520. Support access through improved crossings, improved sidewalks (none exist along most of the corridor), and connections to the new Redmond Central Connector. Evaluate potential for relocating stops closer to Leary Way intersection.
8	**Street –** Principal arterial. Provide for freight movements and vehicle travel.
	Bicycle – Paved, Shared-Use Path. Complete the Sammamish River Trail along the east side of West Lake Sammamish Parkway as a separate but adjacent bicycle and pedestrian corridor. Provide access to and from the land uses across West Lake Sammamish Parkway.

Table 4. Guidance for developing modal corridors with multiple modal priorities (continued)

ID	Combined Modal Description (continued)
9	**Street –** Limited Access Freeway. Provide for high vehicle and freight speeds and volumes.
	Transit – East Link Light Rail. Support extension of rail alignment adjacent to Marymoor Park and into Downtown, crossing under SR 520. In addition, the light rail extension needs to accommodate a SR 520 grade separation for the East Lake Sammamish Trail.
10	**Street –** Limited Access Freeway. Provide for high vehicle and freight speeds and volumes.
	Transit – East Link Light Rail. Support rail alignment along SR 520. Support station access and provide for very high volumes of pedestrians, including new bridges over SR 520 for bicycles and pedestrians.
	Bicycle – Paved, Shared-Use Path (520 Trail). Complete the 520 Trail projects identified in the 520 Corridor Planning Study, including undercrossings at NE 51st Street, NE 40th Street, and 148th Avenue NE, as well as bicycle/pedestrian bridges over SR 520.
11	**Transit –** High Demand Corridor with Bus Rapid Transit service. Improve transit speed and reliability through signal priority and measures that decrease delay for transit vehicles, in particular turns to and from NE 24th Street. Support fast, convenient transfers to light rail station.
	Pedestrian – Main Street. Provide an experience that draws regional and national visitors to stroll along the 152nd Avenue NE main street. High-quality furnishings, pedestrian crossings, programmed and unprogrammed spaces, sidewalk cafes.
	Bicycle – Cycle Track. Provide one-way raised cycle track at road grade buffered from on-street parking by raised planter strip. Provide Bike Boxes at intersections.
12	**Street –** Minor arterial. Provide for high vehicle volumes.
	Transit – High Demand Corridor with Bus Rapid Transit service. Improve transit speed and reliability through signal priority and measures that avoid delay for transit vehicles, in particular turns to and from 156th Avenue NE and 148th Avenue NE. Support fast, convenient transfers to light rail station.
	Pedestrian – Provide for comfortable walking space for high pedestrian volumes.
13	**Street –** Minor arterial. Provide for vehicle travel.
	Pedestrian – Provide for comfortable walking space for high pedestrian volumes.
	Bicycle – Bicycle Lane. As a modal corridor bicycle lane, provide bicycle lanes up to stop bar at intersections and provide bicycle positioning markings through intersections.
14	**Transit –** High Demand Corridor. Support and maintain speed and reliability through signal priority and measures that avoid delay for transit vehicles and avoid conflicts with cyclists.
	Bicycle – Bicycle Lane. As a modal corridor bicycle lane, provide bicycle lanes up to stop bar at intersections and provide bicycle positioning markings through intersections.

Table 4. Guidance for developing modal corridors with multiple modal priorities (continued)

ID	Combined Modal Description (continued)
15	**Transit –** East Link Light Rail. Complete light rail into Downtown consistent with the Infrastructure Alignment Plan. Ensure high-quality light rail travel time reliability and moderate speed. Support transfers to and from arterial bus service.
	Bicycle – Complete Redmond Central Connector Master Plan quality of materials, spaces, and connections, consistent with the Infrastructure Alignment Plan.

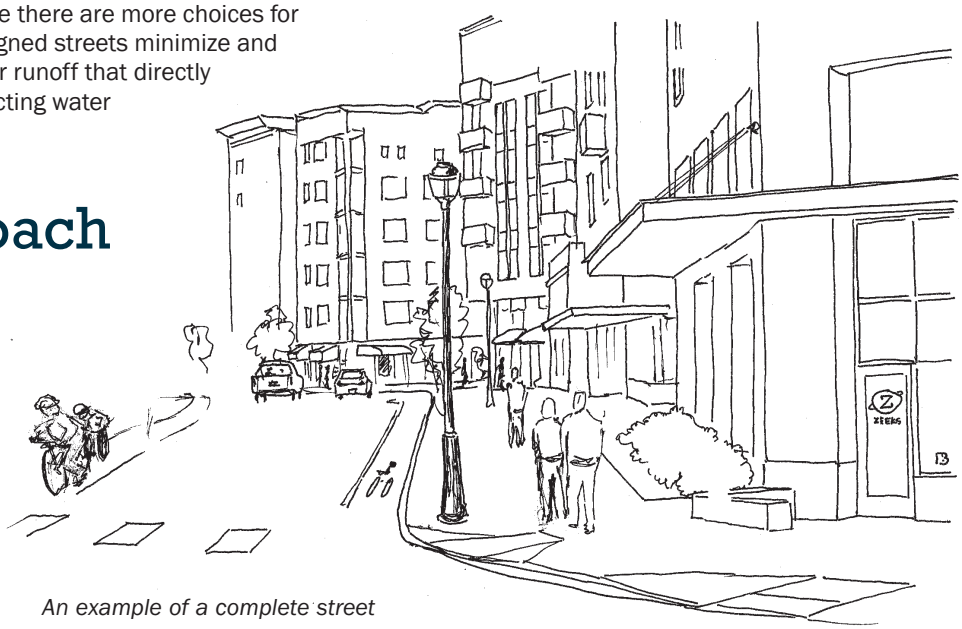


Chapter 4.1:
Street System Plan

Introduction

Streets are the backbone of the transportation system in Redmond, serving all modes of travel including automobiles, trucks, transit, bicycles, and pedestrians. The Street System Plan is an interconnected network of "complete streets" that accommodates all modes of travel for users of all ages and abilities and safely connects people to where they need to go. Since streets are more than just places for automobile travel, the design needs to start with the safety requirements along the outer edges where people gather, pedestrians walk, bicyclists ride, transit provides access, and people park their vehicles.

In addition to their multimodal mobility function, well-designed streets shape the urban character and vitality of places. The "grid" of streets in the two urban centers also means that fewer lanes are needed on each street because there are more choices for access and turns. Finally, efficiently designed streets minimize and better manage the amount of stormwater runoff that directly impacts the natural environment by affecting water quality in surface streams and lakes.



An example of a complete street

Strategic Approach for Streets

The strategic approach for streets establishes the direction for developing the street system in Redmond that is consistent with the TMP strategies. The strategic approach includes:

- All Redmond streets are part of an integrated street system.
- All Redmond streets are "Complete Streets."
- All streets are walkable.
- Automobile modal corridors ensure good connections for vehicles.

All Redmond Streets Are Part of an Integrated Street System

Individual streets do not serve travel needs independent of each other. Rather, they function (or not) as part of a network. In order for the street network to operate in a logical and efficient manner, Redmond considers each street and its role or function within the context of the overall street network using a functional classification system. This system identifies the role of each street along with its planned future size and profile. In addition to their specific functional classification, selected streets are designated as modal corridors, freight routes, or main streets to indicate their special roles in the street system.

New Street Connections

Providing new street connections has been an emphasis for Redmond to complete the grid street network, both in the two urban centers and neighborhoods. New street connections have been planned for areas where the City expects significant growth. For example, the City is planning for new connections in Southeast Redmond to support existing and planned land uses (Figure 29). The TMP recognizes the need for having a connected street grid and includes a Three-Year Action Plan item for developing these plans in more detail. In Downtown and Overlake, examples of new street connections include:

- Improvements to currently confusing street patterns; i.e., the one-way couplet in Downtown and new north-south street connections as part of the efforts to form the ultimate street grid network.
- The Overlake Access Ramp that helps eliminate "bottlenecks" that contribute to congestion.

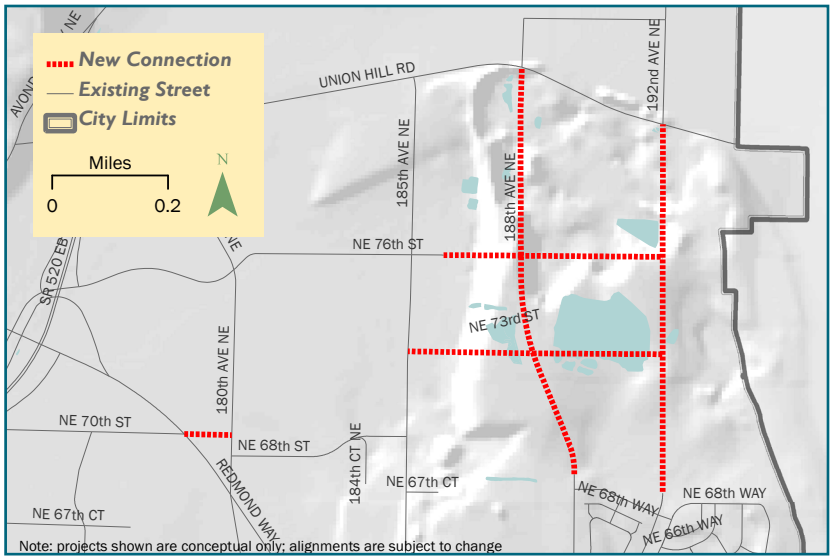


Figure 29. Southeast Redmond new street and trail connections

All Redmond Streets Are "Complete Streets"

It is the City's policy that all streets in Redmond eventually become "Complete Streets." The Complete Streets approach is about building an integrated driving, walking, cycling, and transit network, giving residents, commuters, visitors, and shippers more travel choices. Complete Streets can also include treatments such as natural vegetation and pervious sidewalks that reduce water flow and polluted runoff into streams and lakes.

Streets Are Walkable

Streets can be great places for people to socialize and connect when they are interesting, attractive, safe, and walkable. Cleveland Street in Downtown and 152nd Avenue NE in Overlake Village will be exceptionally walkable "Main Streets" intended to become important public places and activity corridors within Redmond's two urban centers.

Automobile Modal Corridors Ensure Good Connections for Vehicles

Vehicular traffic will remain a significant part of daily travel in the future. While this plan emphasizes travel choices for all modes of travel, it recognizes the importance of ensuring good connections for vehicles. This plan designates automobile modal corridors (Figure 30) to provide a high standard of functionality and priority for travel by cars and trucks. Automobile modal corridors connect major local and regional destinations for trucks and cars while accommodating all modes of travel. A critical part of ensuring good function of automobile modal corridors is managing congestion, which keeps congestion at a reasonable level (see Chapter 3 for congestion targets). However, it is not Redmond's goal to eliminate congestion or provide free-flow travel conditions.

Automobile Modal Corridors

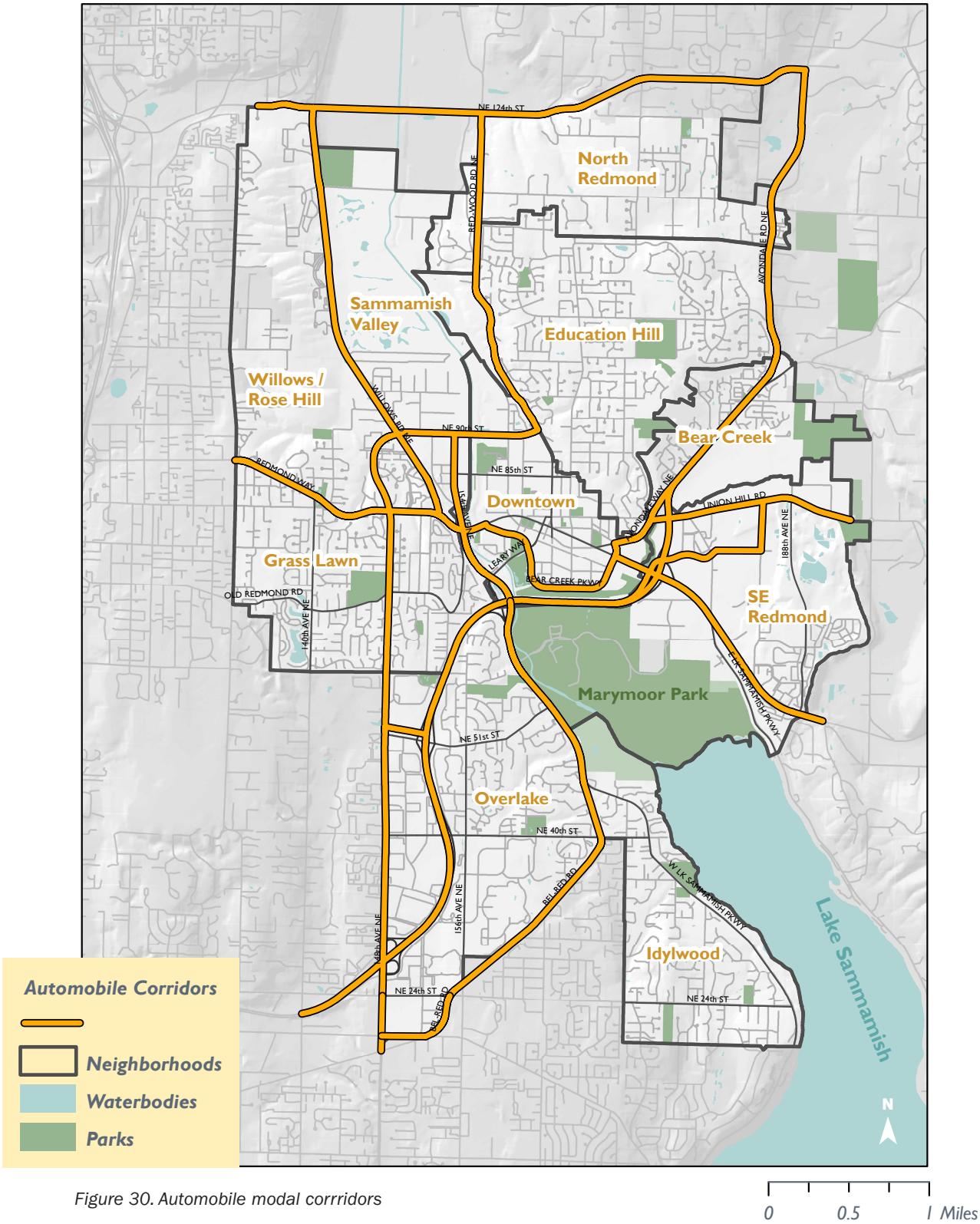


Figure 30. Automobile modal corrridors

Street System Development

To guide the development of the street system consistent with the strategic approach described in this chapter, the City employs tools as follows to guide planning and design of its street system:

- Functional classification system
- Street design framework
- Main street characteristics

The Street Functional Classification System

These functional classes establish a common understanding of the intended use and desired character of each street. The system will guide decisions about access to abutting land parcels, and will be used to determine how the costs of street construction shall be shared between the City and affected properties. Each street in the city's network is classified and the ultimate right-of-way width is set.

Redmond's roadway functional classifications include:

- SR 520
- Principal arterial
- Minor arterial
- Collector arterial
- Local streets
  - Connectors
  - Local access
  - Shared streets.

Redmond streets will not be wider or faster than necessary.

See Appendix D for a complete description of the functional classification system. For more information about SR 520, refer to Chapter 5 - Regional Transportation.

Street Design Framework

The street design framework guides the design, construction, and maintenance of streets in a manner that aligns with the direction established in this chapter. The framework clarifies the underlying intent of design standards, guidance, and regulations contained in the Redmond Zoning Code, Appendix F, and other relevant City documents. In applying design standards, guidance, and relevant regulations, decision making must achieve the intent described in the street design framework. For example, the establishment or update of design standards and guidance is consistent with the intent of the street design framework. Similarly, when deviations from design standards and guidance are sought for either capital improvements or private developments, decision making achieves the intent of the street design framework.

Streets are designed from the outside toward the center

Redmond streets will not be wider or faster than necessary. Greatest attention needs to be given to the design and separation of sidewalks and bike facilities from vehicular traffic. All appurtenances to the street, such as signs, fire hydrants, street lighting, and utility boxes, shall be designed so they do not interfere with, or present barriers to, walking and bicycling. Designs for landscaping, lighting, treatment of stormwater runoff, artwork, places for events, and other unique design features all begin outside of the traveled way or behind the curbs. Design elements and treatments then extend into the traveled way (vehicular portion of the street) as needed. Traffic control devices (signs, markings, and traffic signals) regulating or informing all users must be highly visible and easy to distinguish. They need to be designed to integrate aesthetically with the street and the character of both the surrounding natural and built environments.

Roadway Functional Classification

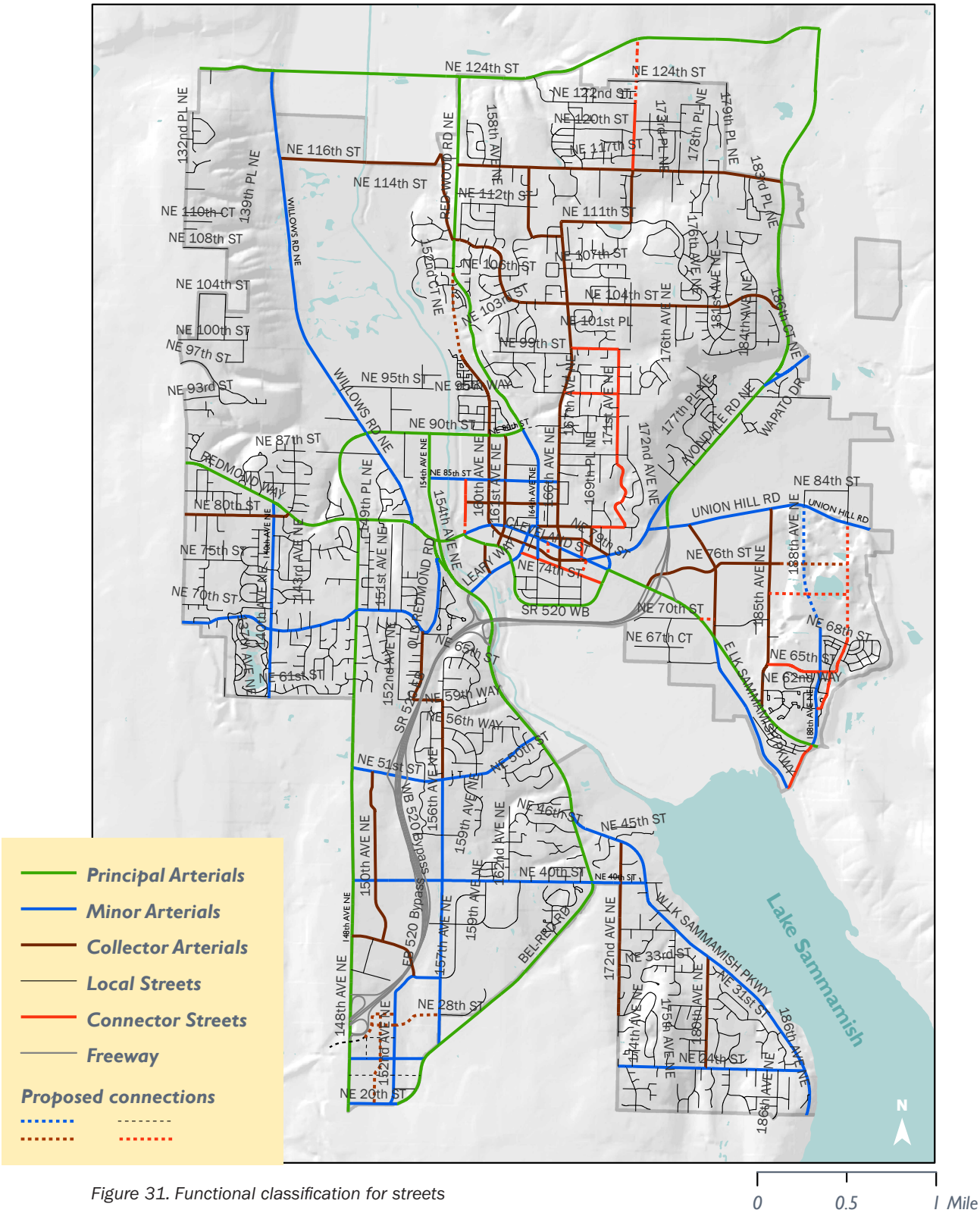


Figure 31. Functional classification for streets

With particular emphasis on the two urban centers, improvements to streets and bridges will include integrated public art and interesting design treatments to enhance street aesthetics and create lively streetscapes that contribute to a greater sense of community and enjoyment. Design and public art installations will reflect the unique identity and character of Redmond's urban centers and neighborhoods.

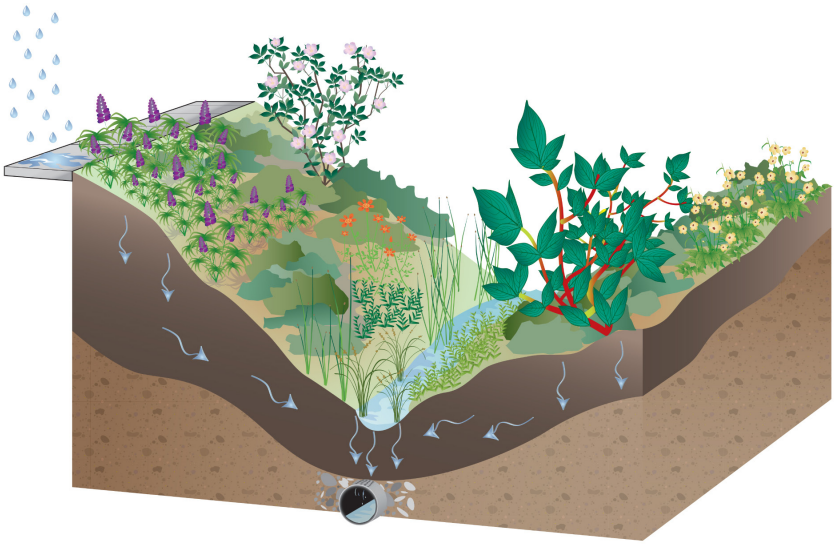
Narrow streets encourage lower travel speeds, reclaiming the street and right-of-way for all users. Redmond will ensure that all modes are adequately accommodated within city street corridors consistent with the City's "Complete Streets" policy. This includes appropriate accommodations for trucks, transit, and emergency vehicles. Because of right-of-way limitations, the City will have to weigh tradeoffs in trying to meet the needs of all users. For example, a street may not be able to accommodate bicycle lanes and parking lanes in both directions.

The posted speed limit on each street (target speed) shall strike a balance between accommodating traffic movement and providing a safe environment for pedestrians and bicyclists. At places where high concentrations of pedestrians and bicyclists are expected, providing a safe environment for pedestrians and bicyclists will be a priority consideration for setting the target speed. A lower speed is a key characteristic of walkable streets in urban areas. For a balanced approach to set the speed limit for individual streets, refer to Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (Institute of Transportation Engineers, 2010). Also, the Three-Year Action Plan calls for a near-term action to assess speed limits on select streets.

Redmond will integrate transportation and stormwater improvements

To protect water resources including surface water, groundwater, and stormwater, Redmond will reduce hydrologic impacts in its street improvements by:

- Designing narrower streets that help the environment by reducing impervious and pollution–generating surfaces that impact the volume and quality of stormwater runoff.
- Using a watershed management approach to investing in stormwater infrastructure instead of project-by-project stormwater impact mitigation.
- Considering impacts to streams as part of planning street improvements.
- Using green infrastructure preferentially to gradually absorb and treat stormwater originating from transportation facilities.
- Adding stormwater controls to project areas to retrofit existing impervious areas.
- Supporting routine maintenance and cleanup measures such as street sweeping, along with other pollution source control efforts, through design and maintenance/operations of the transportation system.



Main Street Characteristics

Main Streets are important public places in Redmond, and are located in the heart of Redmond's two urban centers. Main Streets are "signature streets" characterized by superior urban streetscape design, unique design features, slow vehicle speeds, wide sidewalks, ample pedestrian amenities, safe and convenient pedestrian crossings, the presence of public art, and the programming of public events — all within a street that is enclosed by active storefronts. Main Streets are the centers for community activity and will be designed first and foremost to support safe, comfortable, and convenient pedestrian access

and interaction. These streets will be able to support high-density residential livability and a strong local business environment.

Redmond's two Main Streets are Cleveland Street in Downtown and 152nd Avenue NE in Overlake Village.

A well-designed Main Street becomes an important destination in its own right. The unique character of place and the active presence of local people will attract others from throughout the region. Each Main Street will have distinctive features that are designed as an integrated whole and that reflect the surrounding urban area. For more information about specific guidelines for Cleveland Street, refer to the 2013 amended "Downtown East West Corridor Study." For more specific design details for 152nd Avenue NE, refer to the 2010 "Overlake Village Street Design Guidelines."

Implementation

- Build new street connections in urban centers and Southeast Redmond to enable planned or approved land use growth.
- Transition existing streets into complete streets.
- Develop the two designated main streets: the Cleveland Street and 152nd Avenue NE.
- Improve modal corridors for quality connectivity between key destinations including Redmond neighborhoods, urban centers, and other regional destinations.
- Improve SR 520 interchange areas for multimodal traffic operations and connections.

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Chapter 4.2:
Transit System Plan

Introduction

A comprehensive system of interconnected transit services is critical to improve and sustain Redmond's economic vitality, support the growth and development of Redmond's urban centers, and meet the mobility needs of Redmond residents, visitors, and employees. There are three key elements that will help the transit system grow to meet a broader range of travel needs throughout the day: 1) support a core network of frequent transit service and a complementary network of supporting services, as part of a comprehensive transit system; 2) leverage the mobility provided by transit investment by incorporating transit into the City's planning processes to improve access to, and the speed and reliability of, transit; and 3) identify key priorities, strategies, and actions between now and 2030 that leverage new opportunities and future light rail investment.

Strategic Approach to Transit

In order to be successful and meet Redmond's travel needs, the transit network must provide high-quality connections between the places that residents, visitors, and employees want to travel to and from with service that is fast, frequent, and available during the times of day when needed. Transit routes and stops must also be accessible, particularly because every transit trip starts and ends via another mode of travel, such as walking, biking, or driving.

Transit service that is frequent, accessible, and connects between local and regional destinations is necessary to support the growth and development of Redmond's urban centers. Redmond is already a major regional destination for employment, and is the second most dense city in the region in terms of jobs and housing, with over 8,300 people and jobs per square mile. Redmond's Overlake and Downtown urban centers will accommodate the majority of new housing growth. In addition, a significant amount of employment growth will occur in both of these urban centers, as well as in the Southeast Redmond neighborhood (see Figure 32).

This chapter identifies appropriate levels of service and strategic roadway corridors to support this growth, as well as provide robust neighborhood connections to the amenities, services, and jobs in our urban centers. These connections are particularly important in an environment of constrained roadway infrastructure. The images in Figure 29 illustrate one of the fundamental challenges we face and why a transportation network with increased reliance on alternative transportation modes is envisioned: moving 200 people in a two-block space means total gridlock by vehicle (even with five lanes) or needs only one lane width of two buses or one light rail train.

In addition, the priorities and actions identified in this chapter play two critical roles in support of light rail. First is leveraging existing and future frequent bus service to build the market along the future light rail corridor. This enables the City and the private sector to plan and build for future light rail capacity today. The second is prioritizing local transit connections to major regional transit hubs and future light rail stations, which leverages and extends the benefits of these important regional transit investments into adjacent Redmond neighborhoods, and reduces reliance on park and rides.

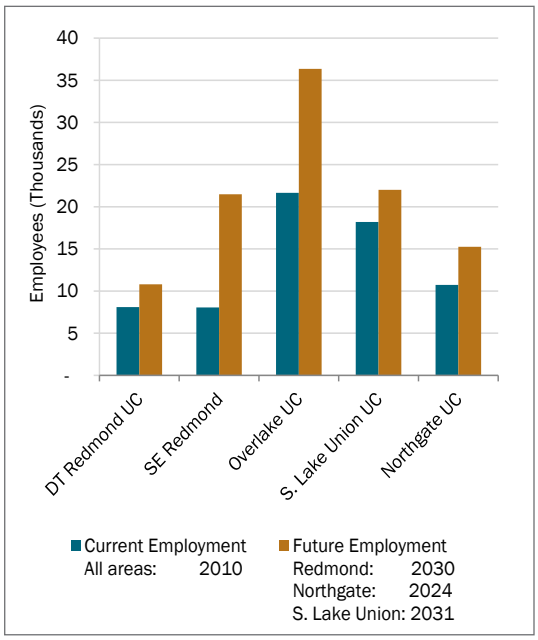
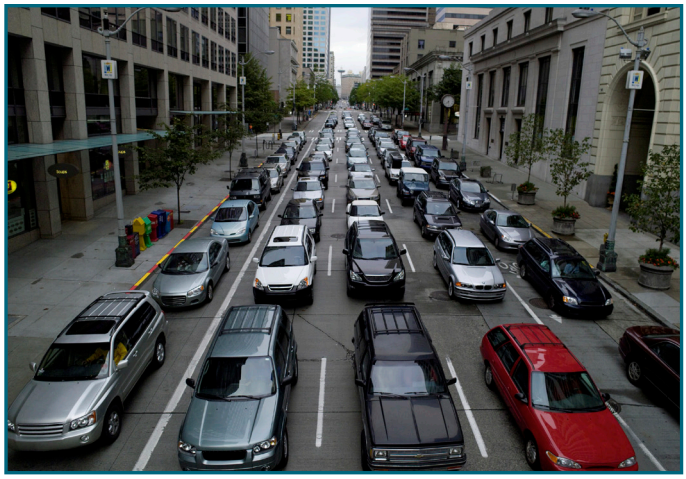
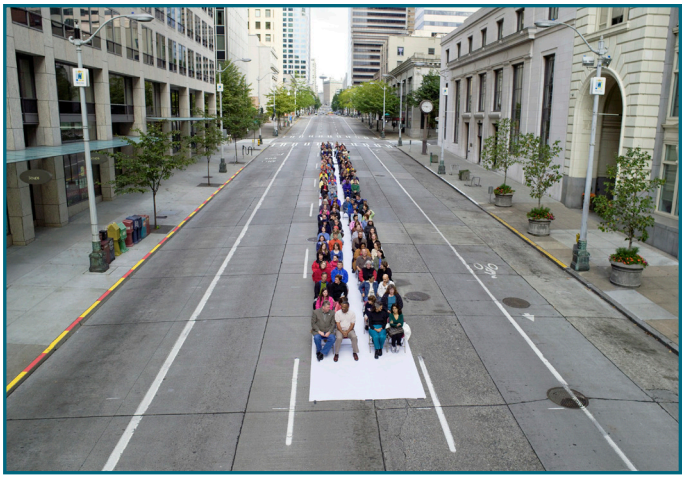


Figure 32. Employment growth





A light rail vehicle, simulated in the picture on the right, can hold as many people as this street full of automobiles

During the interim period, when East Link will terminate at Overlake, maintaining and improving transit connections from Downtown Redmond and East King County to the Overlake Station will be particularly important because there is not adequate parking or roadway capacity to accommodate ridership growth through park and ride access in the Overlake neighborhood.

A common theme expressed by the community during the TMP outreach process is the ability to travel without a car, including by transit. Improvements to the quality of transit service, as well as increasing access to transit, will be critical to provide travel choices and mobility and enhance Redmond's quality of life for citizens, visitors, students, and employees. In the central Puget Sound region, transportation emissions account for the largest category (50 percent)[1] of all greenhouse gas emissions and are a major source of water pollution. Accommodating travel growth via transit, as well as other alternative modes, is a significant step towards achieving the City's environmental stewardship goals.

Transit System Development

The primary transit agencies operating in Redmond are Sound Transit and King County Metro. While Redmond does not provide transit service directly, it does play a role in identifying priorities and strategies for transit service implementation in collaboration with these transit agencies. Both Metro and Sound Transit face an uncertain funding environment today and into the foreseeable future. It is important for the City to identify the priorities for adding and maintaining transit service. The City will use the transit connections and level of service standards specified in this chapter to guide investments in transit service over time. These standards identify the most important "priority connections" between local and regional destinations, and specify appropriate levels of transit investment. In addition, these standards will be used to evaluate and assess the transit network as changes, restructures, and reinvestments occur. Where appropriate, the City may partner with transit agencies, employers, and nearby jurisdictions to help support the funding of key transit connections as described in the "Transit Service Program" in the TFP. These actions can help meet transit frequency and hours of operation standards.

The City plays a more direct role in facilitating bus transit speed and reliability, as well as improving access to bus and rail transit corridors and stops. Improving speed and reliability, as well as improving access for pedestrians and bicyclists, are critical for these corridors to meet community travel needs. The Transit Corridor Design Standards section of this chapter identifies the key strategic roadways for transit, and provides basic guidelines and strategies to help maximize benefits to the community provided by local and regional transit investment.

[1] *Puget Sound Regional Council, Vision 2040*

Transit Connections and Level of Service Standards

Identifying Priority Connections and Level of Service Standards

The priority connections and service standards in Figure 33 identify the most important local and regional connections for Redmond, and the levels of service needed to meet community needs and travel demand. The following process was used to develop the priority connections and service standards:

- Identify priority connections between key destinations, including neighborhood centers and major regional destinations, based on travel needs and demand, and desired connections between transit services.
- Apply network design principles, focusing on providing frequent transit service that connects Redmond's urban centers to the region, and Redmond neighborhoods to urban centers and the regional transit spine. Each connection is designed to meet a wide variety of user groups and trip purposes, and meet the needs of multiple markets.
- Identify preferred travel paths that represent a balance between travel speed and coverage (access to transit) for Redmond's urban centers and neighborhoods.
- Set appropriate "Service Families" that define the desired level of service in terms of the frequency of service by time of day. These standards are established by identifying potential transit demand based on population and employment density measures (persons and jobs per acre), as well as overall travel demand measures (all-day person trips) along the corridor.

Local connections are important: over one-half of employees working in Redmond live in surrounding Eastside neighborhoods.

Overview of Key Regional and Local Destinations

Connections to and from Seattle are important, representing the top transit travel destination for Redmond residents, employees, students, and visitors, and account for one-fourth of all work trips to and from Redmond. In addition to Downtown Seattle, the University of Washington is an important transit node for Redmond, not only because transit provides a connection between the region's primary learning institution and high-tech employment center, but also because it will connect with the developing North Link corridor and the region's second largest transit hub, which will be located in the University District.

The demand for connections between Redmond and key Eastside destinations creates a significant travel market that will be important to serve with transit. Combined, Eastside neighborhoods represent over one-half of employee home locations for Redmond employees.[2] The communities of Kirkland, Totem Lake, Downtown Bellevue, East Bellevue, Eastgate, and Sammamish are major destinations for employees, residents, and visitors in Redmond.

Local connections within Redmond are also important for Redmond's mobility and growth. The single largest job location for Redmond residents is Redmond; out of 22,000 workers living in Redmond, 9,000 (40 percent) live and work in Redmond. The overall market for local travel is large, with trips of less than five miles accounting for three-fourths of all daily person trips in Redmond. These short "local" trips are projected to grow at a faster rate than regional trips.

King County Metro RapidRide coach

[2] *From 2009-2010 Washington State Commute Trip Reduction (CTR) survey data for Redmond employers*

Transit "Service Families"

The Metro Strategic Plan and Service Guidelines define transit levels of service in terms of "Service Families," which describe the desired frequency of service during three time periods:

Peak: 5 a.m. to 9 a.m. and 3 p.m. to 7 p.m. weekdays
Off Peak: 9 a.m. to 3 p.m. weekdays, 5 a.m. to 7 p.m. weekends
Night: After 7 p.m. all days

Service Family Description and Frequency Standard	Market Characteristics
Very Frequent Highest levels of all-day service. **Peak:** Every 15 minutes or better Off Peak: Every 15 minutes or better Night: Every 30 minutes or better	Corridors that have the highest indicators of population and employment density, as well as the highest levels of travel demand. These are corridors connecting Redmond's urban centers and urban centers within the region that provide a strong backbone of interconnected services, and have strong demand throughout the day.
Frequent High levels of all-day service. **Peak:** Every 15 minutes or better Off Peak: Every 30 minutes Night: Every 30 minutes	Corridors that have medium-to-high indicators of population and employment density, as well as high levels of travel demand that is more oriented towards the peak period. These are arterial corridors that connect major neighborhoods with Redmond's urban centers, providing access to services in Redmond and frequent connections to the region.
Local Service Moderate level of all day service. **Peak:** Every 30 minutes Off Peak: Every 30 minutes* Night: Every 30-60 minutes*	Corridors that have moderate indicators of population and employment density, as well as moderate levels of travel demand throughout the day. These operate along secondary arterial or collector streets often serving neighborhood areas with no other transit connections.

** Standard is higher than the equivalent service family in Metro's Strategic Plan and Service Guidelines.*

The priority connections identified in Figure 33 form the backbone for all-day mobility for Redmond residents, visitors, and employees. All connections will warrant all-day service from 6 a.m. to 10 p.m. or later as Redmond and the region continue to grow.

Alternative Transit Services

In areas of lower density, or areas where demand is dispersed and not along a single corridor, it may be more cost-effective to meet travel needs with alternatives to traditional "fixed route" service, such as Dial a Ride Transit (DART), vanpools, carpools, taxi vouchers, or community-access transportation. In 2012 King County adopted the "five-year implementation plan for alternatives to traditional transit service delivery," which will guide the development and provision of a more comprehensive set of resources and service types. To create a more comprehensive transit system, it is important to continue to explore and implement a variety of alternative products to balance cost-effective service delivery, while meeting the diverse travel needs in Redmond and throughout the county. Redmond will continue to work with Metro to identify opportunities to implement new, innovative transit products that cost-effectively meet community travel needs.

Alternative transit services help meet diverse travel needs in Redmond and throughout the county.

Transit Level of Service Standards

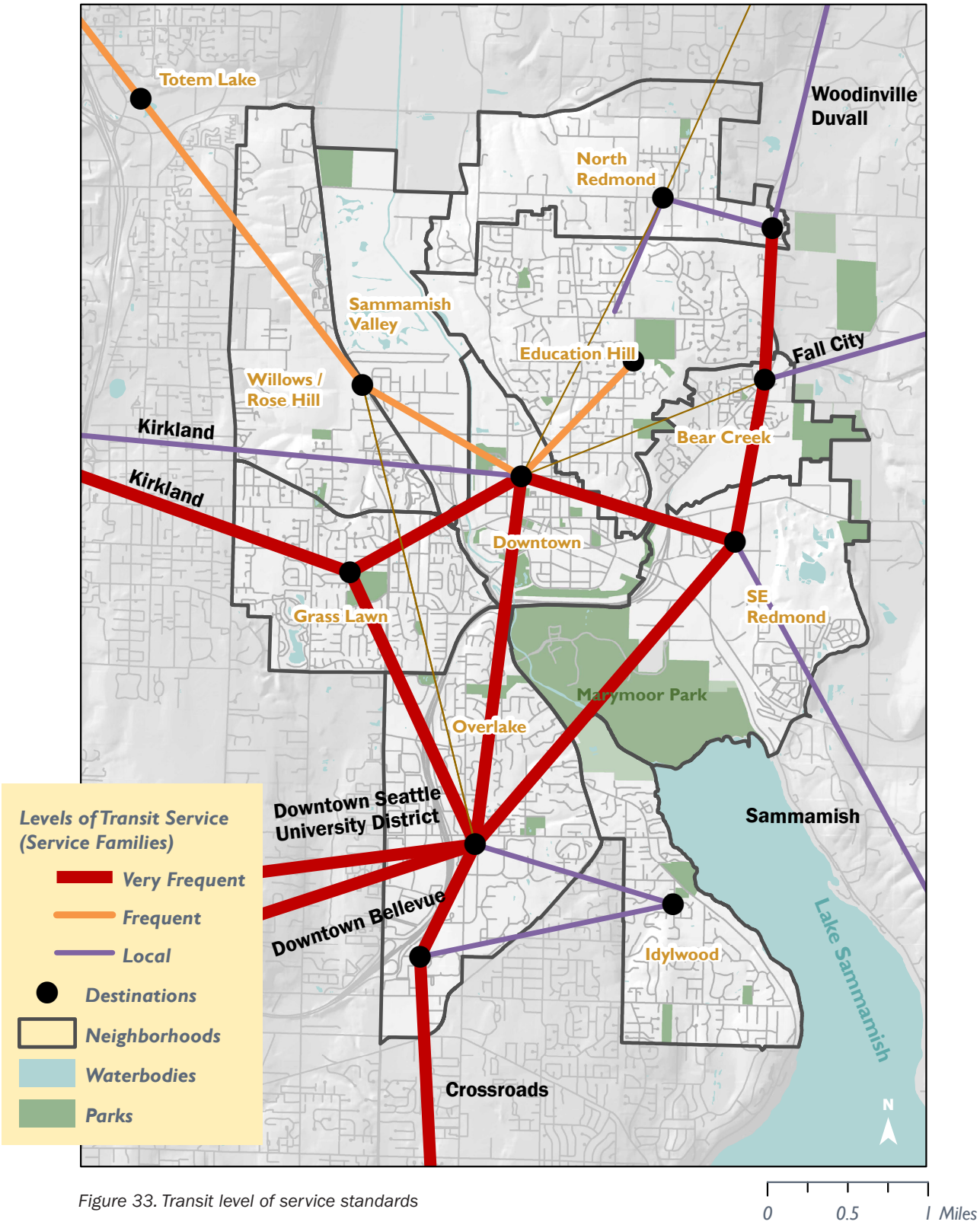


Figure 33. Transit level of service standards

“First Mile”/“Last Mile” Needs

It is important to meet the need for connections for the “first mile” between one’s residence and a transit hub, and for the “last mile” between a transit hub and one’s final destination. Transit operating on local arterials is often effective at meeting first mile and last mile needs. For example, over one-third of riders on the B-LINE between Bellevue and Redmond are connecting from, or connecting to, another bus.[3] In other areas, alternatives to fixed route service may be more appropriate, especially where demand is dispersed over a wider area. Redmond will continue to work with King County Metro and Sound Transit to implement traditional bus service and develop other innovative approaches to help meet the growing need to connect to and from major transit hubs. There may also be opportunities to explore other innovative approaches, such as car and bicycle sharing programs, as part of a comprehensive approach.

State Route 520

Americans with Disabilities Act (ADA) and Paratransit Services

In Redmond, both Metro and Sound Transit provide services to historically disadvantaged populations, including students, youth, seniors, and people with disabilities. Regular bus service is intended to be the primary mode of transit for persons with disabilities, and all coaches are accessible for people with mobility devices. Additional paratransit services, such as Metro’s Access program, are available for eligible individuals with disabilities, and comply with the ADA requirement for curb-to-curb paratransit service as a “safety net” for people whose disabilities prevent use of accessible traditional bus service. The City will continue to work with transit service agencies to support mobility via transit, and provide accessibility in the street and pedestrian networks through the integration of ADA as part of standard street design and maintenance.

Coordination with Private and Other Transit Operators

In addition to Sound Transit and Metro, many other organizations provide transit services in Redmond for their customers, employees, members or residents. Several businesses provide shuttles for employees and customers, and both DigiPen and Lake Washington School District provide bus and shuttle services for students. Retirement facilities, both within and outside of Redmond, provide services to and from destinations in Redmond. These services are complementary to the public transit system, often providing connections to public transportation hubs, helping meet first-mile/last-mile needs. Areas for loading and unloading passengers, vehicle storage, “layover” areas, and passenger connections to public transit are all important for the success of these services. The City will continue to coordinate with organizations that provide these services.

Transit Corridor Design Guidance

The previous Transit Corridor and Level of Service Standards section identified the most important transit connections and appropriate levels of transit service investment that would be provided by Metro and Sound Transit. While the City does not operate transit services, the City has major transit responsibilities. These include building and shaping the transit operating environment, improving the community’s access to transit stops and corridors, improving transit speed and reliability through strategic investments in street infrastructure, and leveraging the ability of transit to serve current and future development. This section identifies the most important transit corridors and specific roadways

[3] *King County Metro - Rapid Ride B Line Customer Satisfaction Survey, December 2011*

Designated Transit Corridors

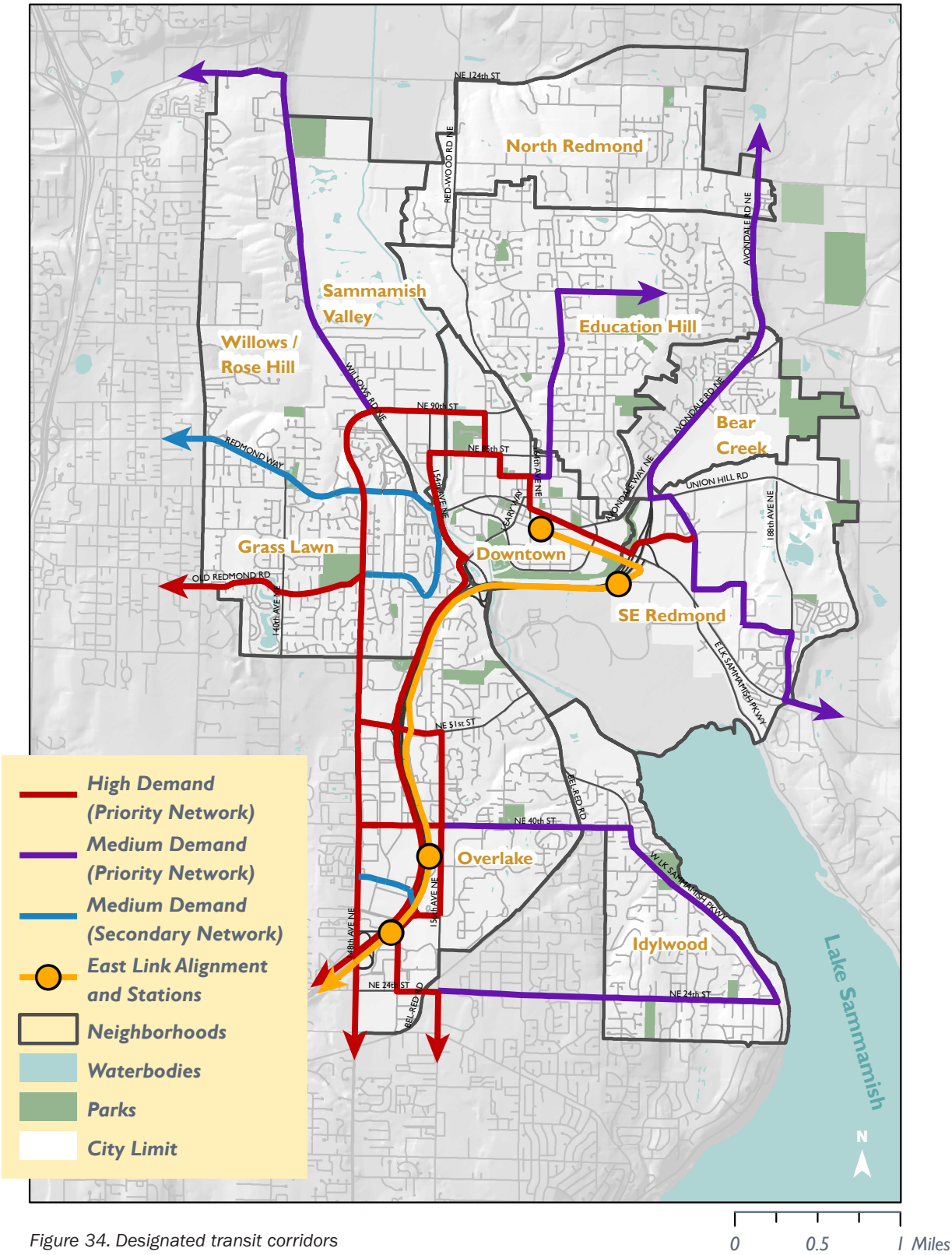


Figure 34. Designated transit corridors

for transit in Redmond, and outlines basic roadway and infrastructure guidelines intended to maximize the value provided by transit investment in our community.

These corridors are the strategic pathways that are priorities for transit service investment. They are where the City of Redmond will plan for and invest in transit speed, reliability, and access infrastructure improvements because they represent the best combination of potential market demand, coverage, and access within neighborhoods and urban centers, and support local and regional connections to and from key destinations. The standards are intended to guide the design of facilities along these corridors to accommodate transit vehicles (e.g., transit signal priority, transit stop design, and location) and indicate where access improvements for transit riders should be considered.

Detailed design guidance is included in Appendix F: Design Guidance, and defines guidance for high demand and medium demand transit corridors.

High Demand Transit Modal Corridors

These corridors include the major arterials and the SR 520 Freeway, connecting Redmond's urban centers and major neighborhood activity centers. These are recommended as a high priority because they possess the highest demand for transit and have the highest levels of service today and into the future. The person-carrying capacity of transit in these corridors is similar to an entire general purpose lane of travel and is critical to the functioning of the transportation system, particularly in the urban centers where transit is critical to the functioning of the entire transportation system and represents the most significant ability to accommodate peak travel growth. These corridors are the highest priorities for service hour and infrastructure investments, creating service that is fast, frequent, reliable, and easy to get to, and are key candidates for higher cost investments, such as dedicated transit lanes. The transit service standard for these corridors is for one or more routes with a combined frequency of 15 minutes or better throughout the day operating in the corridor. Wherever possible, service should be focused in these corridors.

Medium Demand Transit Modal Corridors

These corridors will have lower levels of service investment and ridership than high demand corridors, but are important parts of the overall transit network. These corridors support active transit patronage and provide important coverage and local access functions throughout the city by providing convenient access to Redmond's urban centers and the regional transit spine. Investments should focus on improving access to adjacent housing and important services in order to maximize this function, and on lower cost speed and reliability improvements such as transit signal priority. The transit service standard for these corridors is for at least one current or future route with a service frequency of 30 minutes or better all day.

We have an opportunity to improve connections to Redmond's urban centers and future light rail stations in anticipation of light rail's arrival in 2023.

Supporting Strategies for Transit

Transit Oriented Development

Encouraging, and integrating transit oriented development with transportation infrastructure and services is an important element of the strategies to prepare for light rail, support urban centers, and improve travel choices and mobility. This approach focuses on the support of transit oriented districts, rather than specific transit oriented buildings or single developments. The transit corridors identified in this chapter provide a framework that coordinates transit service investments with planned growth and density, and with strategic connectivity and access improvements, that work together to create and support successful transit oriented districts.

Transportation Demand Management

A key component of making transit useful for the community is ensuring that existing and potential riders have the information they need to understand and successfully use the transit network. This includes information about where bus routes travel to and from, what routes they use, where stops and stations are, the weekday and weekend service schedules, and travel times from point A to B. The City's Transportation Demand Management Program includes information and resources to help make transit a convenient choice for visitors, residents, and employees in Redmond. In addition, using the person-carrying capacity represented by available seats helps improve the overall efficiency of Redmond's transportation network.

Parking

Parking management and pricing play a role in determining transit use, viability, and performance, and help the City meet its mode share goals. For example, Seattle has achieved a 38 percent mode share for non-single occupant vehicle modes, in part due to the combination of high transit availability coupled with parking pricing. Accommodating more travel by alternative modes helps lower parking supply requirements, helping the City achieve a vibrant, walkable community. Parking pricing can encourage transit patronage by simply changing the economics of daily travel choices. It can be especially effective if coupled with a transit pass program. A commuter holding a transit pass is more likely to ride transit to avoid paying for parking than someone who must choose whether to pay a transit fare or pay for parking.

Private vehicles are one means of access to transit, whether by parking at park and rides or by dropping passengers off at stops and stations. Most park and rides in Redmond are located in our urban centers and are currently at or over capacity. In general, significant expansion of park and ride capacity is not desired in Redmond's urban centers, due to the high cost of providing additional parking, opportunity to better support ridership by using land for housing and jobs, and the limited ability to significantly expand parking in our urban centers. As demand for transit increases, parking management techniques and strategies that provide alternatives to additional parking, such as improved local transit, bicycle parking, or designated loading and unloading zones, will be implemented. Early expansion of transit parking in Southeast Redmond will provide a strategic opportunity to intercept regional trips from East King County and help meet the growing demand for transit when Light Rail arrives at Overlake.

Transit Centers and Layover Facilities

In addition to corridor elements that improve transit speed, reliability, and access, layover facilities are an important aspect of transit operations. Layovers are typically scheduled at the end of a route, where the bus or train may park and "layover" before starting the return trip. Layovers are built into route schedules for several reasons. They provide a cushion in the schedule for routes that encounter varying degrees of congestion and delay, thereby increasing service reliability. They allow for timing of key connections between routes, supporting "timed transfers." Finally, they provide drivers a brief period of time for restroom breaks. Meeting layover needs requires a space to park the transit vehicle as well as facilities for the transit driver. To accommodate additional transit service, it may be necessary to identify additional layover facilities. Due to the constraints on parking and space, there is limited ability to accommodate additional dedicated layover facilities in Downtown Redmond; however, additional layover facilities should be explored in Southeast Redmond.

Prioritizing Investments to Increase Transit Use

Future changes to the transit network will be required to adapt to East Link when it reaches Overlake in 2023, and again when East Link arrives in Downtown and Southeast Redmond after 2030. These events will not only prompt a review of the network of transit services to adapt to changes in travel patterns and mode shift, but also to account for redevelopment and densification of station areas in Overlake Village, Southeast Redmond, and Downtown. Below are the key implementation priorities for each major phase between now and 2030.

Now to 2023

The 10 years between adoption of this plan and the initiation of East Link service to Overlake in 2023 offer an important opportunity to develop a solid foundation for the arrival of light rail. The City's actions and strategies will focus on building a strong backbone of regional service along the future light rail corridor and improving local and regional connections to Redmond's urban centers and future light rail stations. Key priorities and actions during this period include the following:

Improve local and last mile transit connections to urban centers and the regional transit spine

Redmond will work with regional transit agencies to maintain and improve local transit connections to Redmond's urban centers and the regional transit spine. Options will include enhancements to traditional fixed route service as well as alternatives to fixed route service where appropriate, in order to improve coverage and access to transit. Focus areas will include Downtown, Overlake, Willows, Southeast Redmond, Bear Creek, Education Hill, and Idylwood.

The 10 years between adoption of this plan and the initiation of East Link service to Overlake in 2023 offer an important opportunity to develop a solid foundation for the arrival of light rail.

Develop and implement innovative "access'" improvement strategies

Redmond will create and implement strategies to improve access to transit corridors, including the designation of "loading and unloading" zones for transit patrons, the management of on and off street parking to maximize customer and transit patron access, the improvement of wayfinding, and bicycle parking facilities.

Implement speed and reliability enhancements along Redmond Way

Redmond will provide speed and reliability improvements along Redmond Way as part of the larger Redmond Way/Cleveland Street couplet conversion.

Develop a transit implementation plan

With consultant assistance, develop a transit implementation plan that identifies short- and medium-term actions and an implementation timeline to support and enhance transit service, speed and reliability, and access. The plan should identify transition strategies that support transit mobility during the construction of light rail, and strategies for potential bus service redeployment after the start of East Link service to Overlake.

2023 to 2030

The arrival of East Link in Overlake in 2023 will represent the addition of a major transportation link and transit backbone within the Eastside and between the Eastside and Seattle. As an interim

Transit Service Coverage and Frequency, 2012

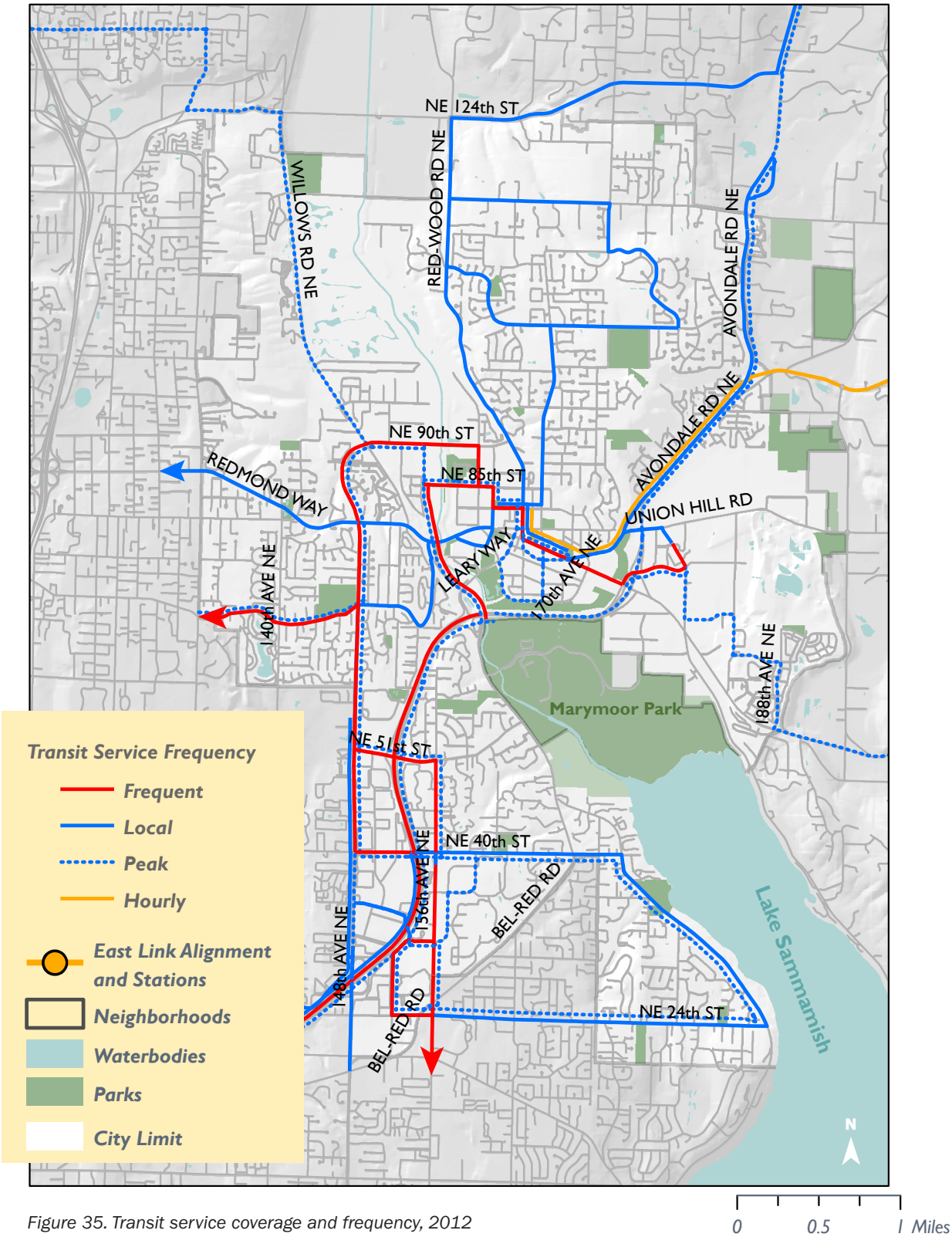


Figure 35. Transit service coverage and frequency, 2012

terminus, the Overlake light rail station will be a major access point for riders wishing to access the light rail corridor, and bus transit interconnections will be critical for travelers from Downtown Redmond, Southeast Redmond, and adjacent neighborhoods.

Support Overlake Transit Center Station as major transfer hub

Redmond will implement and improve multimodal connections to the Overlake Transit Center Station, including pedestrian, bicycle, and transit facilities. To facilitate access to Overlake and the light rail corridor, most transit services in Redmond should be reoriented to connect with the Overlake Transit Center Station to provide direct access to light rail.

Work with transit agencies to maintain and build the transit corridor between Overlake, Southeast Redmond, and Downtown

Direct connections between Downtown Redmond, Southeast Redmond, Overlake, and destinations in Seattle should continue to be supported and maintained. These connections are critical to support the continued growth and economic development in Downtown and in Southeast Redmond, accommodate growing travel demand to the new Overlake light rail stations, and build and maintain the transit market prior to light rail arriving in Downtown Redmond.

Work with Sound Transit to support early construction of transit commuter parking in Southeast Redmond

The early construction of park and ride facilities and associated multimodal street improvements in Southeast Redmond will help support the growth and development of the future light rail corridor, and will be necessary to support the growing travel demand along the SR 520 corridor and access to Overlake. Measures should be taken to ensure efficient and quick bus access to and from this facility.

2030 and Onward

The anticipated arrival of East Link in Southeast Redmond and Downtown Redmond will provide an important opportunity to improve connections and access in order to maximize the local value provided by this investment.

Support the Downtown Redmond and Southeast Redmond stations as major transfer hubs

Redmond will develop and implement strategies designed to facilitate transfers between the Redmond Transit Center and light rail station in Downtown. Elements will include wayfinding, pedestrian facilities and treatments, and transit route modifications to provide convenient connections between bus transit and East Link light rail.

Existing Service

		Frequency (minutes)										
		Weekday					Saturday			Sunday		
Route and Description		AM Pk	Mid day	PM Pk	Eve	Night	Day	Eve	Night	Day	Eve	Night
VERY FREQUENT AND LOCAL ALL-DAY ROUTES												
B	Bellevue-	10	15	10	15	30	15	15	30	15	15	30
221	Redmond-Bellevue	30	30	30	30-60		30	60		60	60	
245	Kirkland-Overlake-Crossroads-Eastgate-Factoria	15	15	15	30	60	30	30	60	30-60	60	60
248	Avondale-Redmond-Kirkland	30	30	30	30	30-60	30	30-60		30	30-60	
249	Overlake-Bel/ Red-Kirkland-Bellevue	30	30	30			45			45		
545	Redmond-Overlake-Seattle	8-10	15	8-10	10-30	60	30	30-60		30	30-60	
566	Overlake-Bellevue-Kent-Auburn	7-30	30	10-30	30-60							
931	Bothell-Woodinville-Redmond	30	60	30			60					
PEAK HOUR ROUTES												
216	Redmond-	30		30								
224	Redmond-Duvall-Carnation-Fall City	60-90		60-90								
232	Duvall-Redmond-Overlake-Bellevue	30		30								
242	Overlake-Seattle	20-30		30								
244	Overlake-Totem Lake-Kenmore	30		30								
250	Overlake-Seattle	30		30								
265	Overlake-Houghton-Seattle	15-20		15-20								
268	Redmond-Seattle	30		30								
269	Overlake-	20-30		20-30								
542	Redmond-Overlake-University District	15		15								
930	Redmond-Totem Lake	30		30								

Figure 36. Metro and Sound Transit routes, 2012 service levels

Transit Destinations and Connections

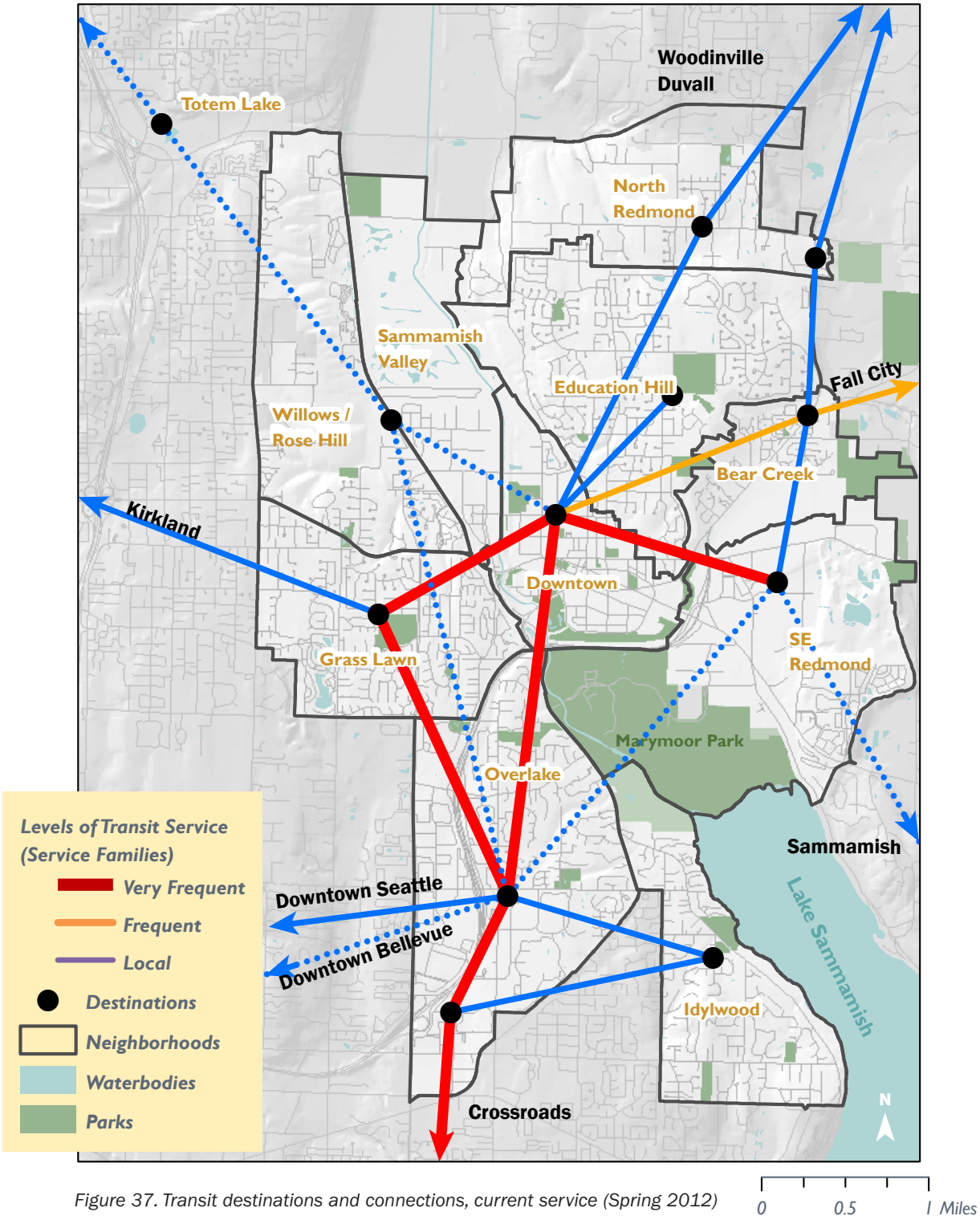


Figure 37. Transit destinations and connections, current service (Spring 2012)

0 0.5 1 Miles

Chapter 4.3:
Pedestrian System Plan

Introduction

Every trip, including transit and automobile trips, begins and ends with walking. Walking serves as a foundation for a successful transportation system by meeting significant urban center travel demand, providing efficient access to transit, connecting between neighborhood destinations, and creating a vibrant street life within the Redmond community. The pedestrian environment is as much about a sense of place (sidewalk cafes, spaces for events, gathering places for conversation, enjoying art and green spaces, and window shopping) as it is the most basic form of travel. An important part of the vision for this plan is creating a safe, walkable Redmond both in the two urban centers and in all Redmond neighborhoods.

Strategic Approach for Walkable Redmond

The overall transportation vision and transportation strategies rely heavily on a successful pedestrian system that is interwoven into an integrated multimodal transportation system to create a walkable Redmond. The pedestrian strategic approach to making Redmond more walkable is threefold: 1) create high-quality pedestrian environments in urban centers and light rail station areas; 2) complete a high-density, well-connected network of pedestrian facilities throughout all Redmond neighborhoods; and 3) improve the safety and comfort of all facilities including pedestrian crossings and increasing the separation of pedestrians from traffic. This approach fits with both the overarching transportation strategies and the citywide guiding principles.

Transportation Strategies

Every trip begins and ends with walking.

Downtown is rapidly becoming an urban center with a dense mix of land uses. Overlake is not far behind, as the planning is already in place to transform Overlake into the second Redmond urban center. Within these two urban centers, work, play, and home will be just a short walk away, as walking will become the most significant mode of travel for accommodating these growing centers. The travel forecast model reveals that from 2010 to 2030, walking (as a percentage of daily travel) will increase more than any other mode within the Downtown and Overlake urban centers.

The pedestrian realm (sidewalks, urban trails, etc.) will be at the core of these two important urban places within the Redmond community. Walking is also critical for automobile trips since finding parking directly in front of any store or business can present a challenge. By parking once and walking to various destinations on well-designed sidewalks and paths, the urban experience becomes less stressful. The quality of the pedestrian experience will largely determine how successful the City is in creating vibrancy and economic vitality in these two urban centers.

A walkable Redmond will act as the catalyst to improve all travel choices and overall mobility. Access to conveniently placed transit stops is simplest and most efficient by walking. For regional trips, walking

to East Link light rail will provide fast and inexpensive access for the many residents and employees in the two urban centers. The forecast of ridership by Sound Transit for the Overlake Village light rail station shows that about 33 percent of all riders will walk or bicycle to the station. Many others will be able to walk to one of the frequent feeder bus routes such as the Metro B-Line to directly access light rail without needing a car.

Walking is essential to creating the sense of community in neighborhoods, as children walk to school, people walk to parks, commuters walk to transit stops, and neighbors connect with neighbors along the trails, paths, and sidewalks. Improved connectivity creating more direct connections to desired destinations will significantly shorten walking times, particularly between cul-de-sacs (see Figure 38), making walking an attractive form of travel compared to the automobile for short trips. Walking also provides basic mobility for those who do not have the choice to drive, such as teens and the elderly.

Figure 38. Connections help shorten travel distances

Citywide Guiding Principles

Walking improves economic vitality. Unlike all other modes of travel, there is not a direct cost for walking. The cost savings from walking are significant considering transportation costs are the second highest household expense in America next to the cost of housing.

Walking is also healthy for the individual and the environment. Walking and bicycling are the only forms of travel that combine exercise and transportation ("active transportation"), improving both personal and public health with no adverse impacts to the environment.

Pedestrian System Development

Walking will be an attractive mode of travel by providing a pedestrian system with a dense network of sidewalks and trails that connect directly to destinations. The walking environment will be useful, safe, comfortable, and interesting, and will also enhance community character by activating the urban centers and tying neighborhoods together to create a walkable Redmond.

Pedestrian Priority Zones

Urban walking environments will provide mobility for high numbers of pedestrians and form vibrant streetscapes that create a high quality of life in the Downtown and Overlake urban centers and near light rail stations as shown in the pedestrian zone map (Figure 39).

Main Streets, Shared Streets, and Linear Park Trails in the Urban Centers

In addition to wide and comfortable sidewalks on both sides of the streets in Redmond's two urban centers, there will be special streets and trails to enhance and promote the overall walking environment.

The pinnacle of the pedestrian system in the two urban centers will be the main streets. Connected into the main streets and urban street grid system will be shared streets (also known as woonerven — these low volume, low speed narrow alleys will serve pedestrians, bikers, and automobiles) and trails. Each urban center plan has specifically identified a pedestrian system of shared streets and trails to support the walking environment in concert with the street network. Pedestrian crossings will be frequent and relatively short throughout the urban centers. Crossings will be well marked with enhanced safety features such as beacons or signals as needed. Sidewalks will be wide and have furnishing zones, bicycle lanes, and/or on-street parking to provide buffers from automobiles and street noise.

Pedestrian Priority Zones

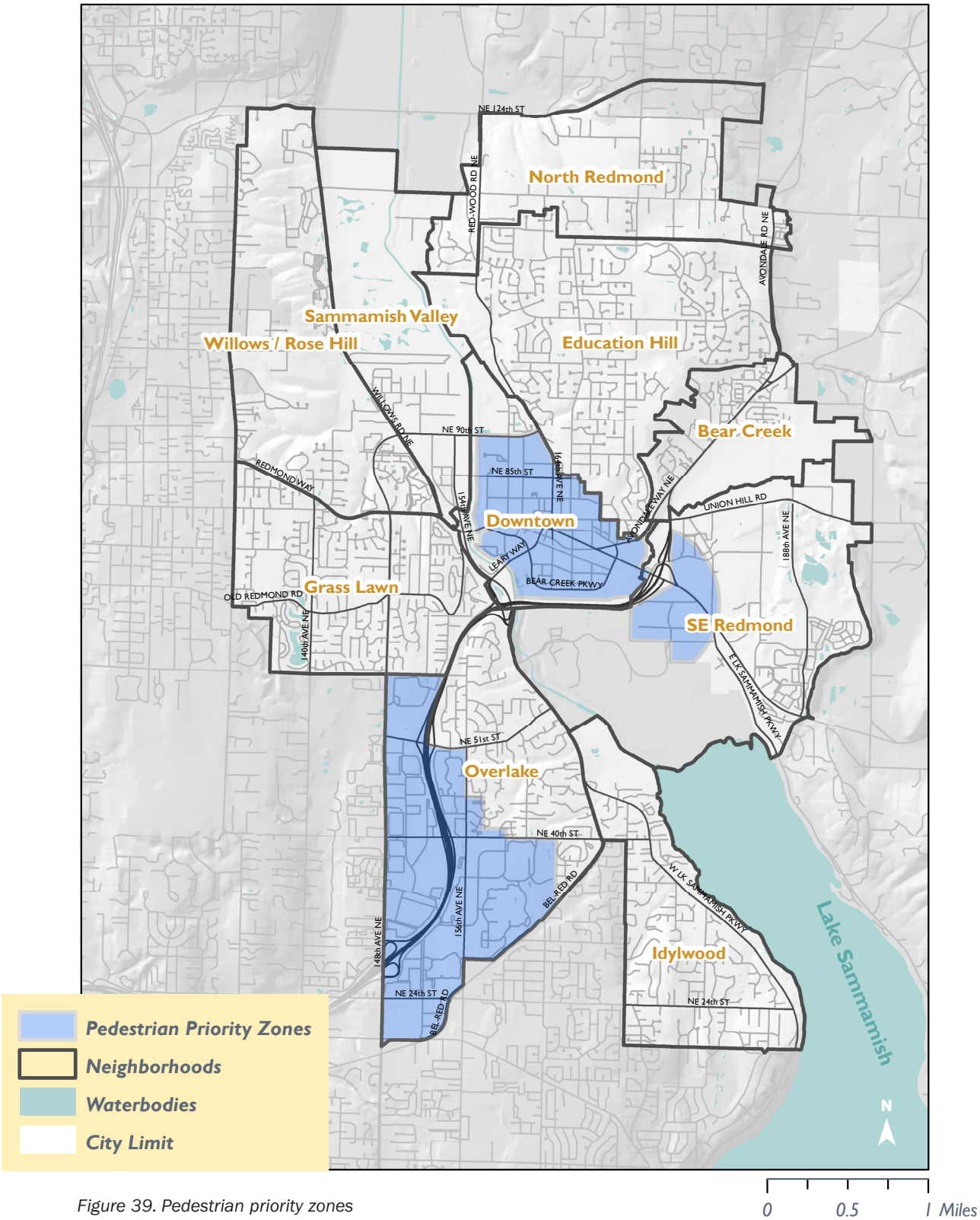
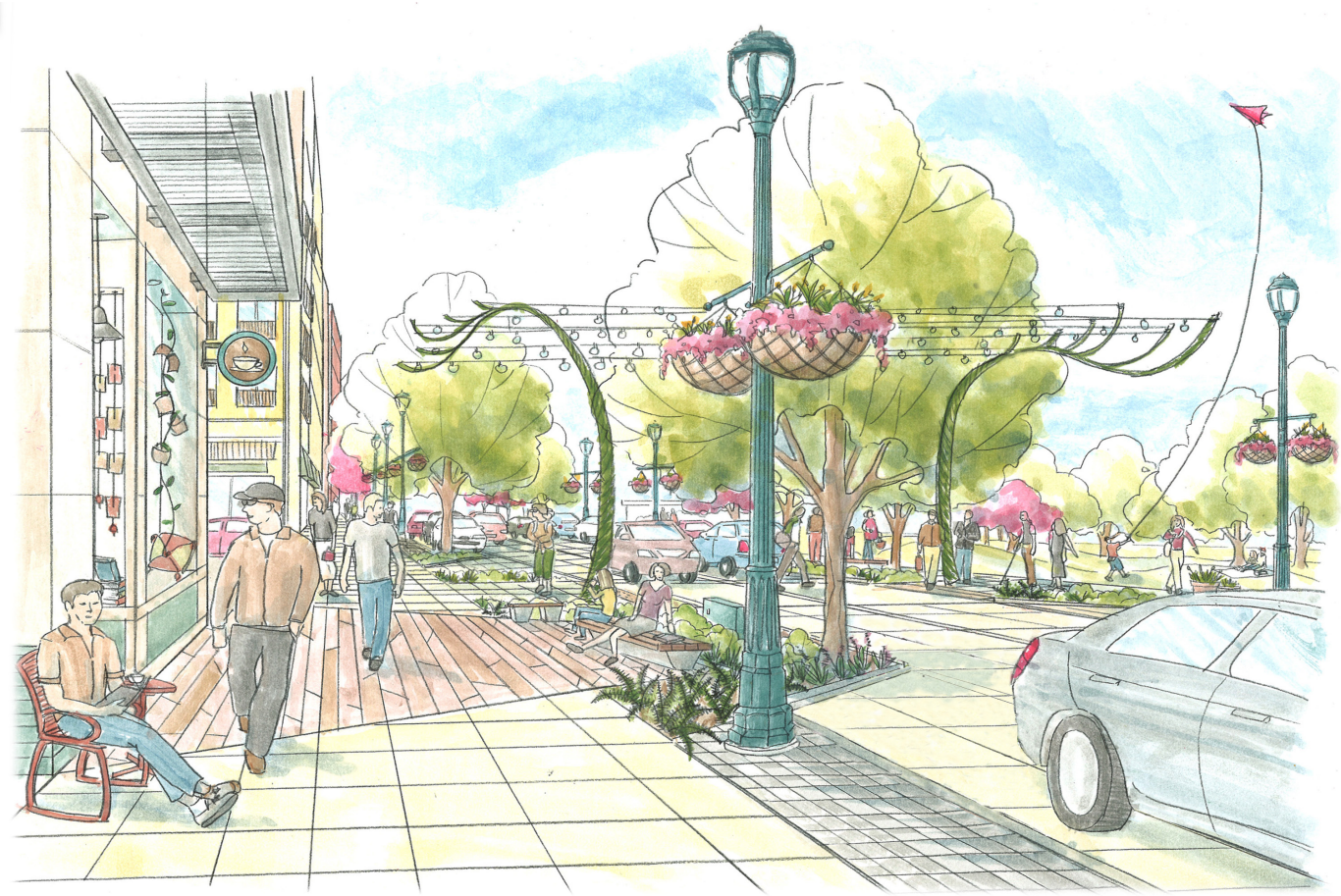


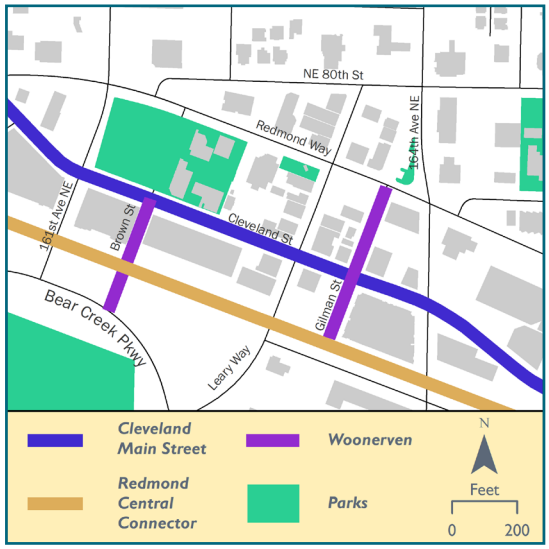
Figure 39. Pedestrian priority zones



Rendering of Cleveland Street in its future configuration as a pedestrian-oriented main street

Main streets, shared streets, and linear park trails offer distinct experiences that build off of one another. Main streets are a buzz of activity with shops, restaurants, sidewalk cafes, and pocket plazas for resting or people-watching. Shared streets offer larger pocket plazas that typically provide for sidewalk cafes or food carts. Automobile volumes and speeds are limited, inviting pedestrians to utilize the entire shared street. Linear park trails offer a relaxing recreational experience while also connecting into the vibrant urban experience, with spillover from the main streets.

The close proximity of these facilities will create a memorable experience that draws in the Redmond community and regional visitors again and again.



Central Downtown main streets, shared streets, and linear park trails

Sidewalks and Pathways

Pedestrian facilities throughout the urban centers, such as sidewalks and interior pathways, will provide a wide, attractive pedestrian environment that provides a comfortable walking experience and creates a dense network of connections strategically linked with frequent, convenient crosswalks.

Pedestrian Crossings Urban Areas

Streets can be pedestrian barriers that add significant travel time for pedestrian trips. Frequent crossings will make streets more porous and

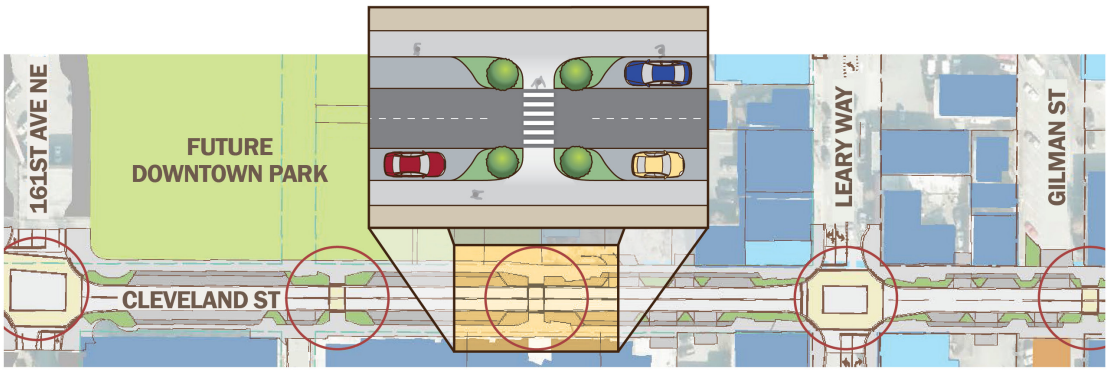


Figure 40. Pedestrian-friendly crossings in Downtown Redmond

easy to cross. The urban centers will include mid-block crossings to provide a finer-grained crossing network. Figure 40 illustrates a high crossing frequency with crossings placed at high demand crossing locations, while minimizing impact on automobile signal operations. Table 10: Pedestrian Crossing Design Standards in Appendix F provides further guidance.

Redmond's urban centers will have short crossings because of curb bulbs (see Figure 41) and tighter curb radii, making walking convenient and comfortable.

Capacity

A clear through walkway area of a sidewalk is needed to make walking comfortable. Figure 41 provides space for competing needs while providing a minimum through walkway width and minimum through walkway taper to ensure continuity of the through walkway. Further design guidance is included in Table 9: Sidewalk Design Guidance in Appendix F.

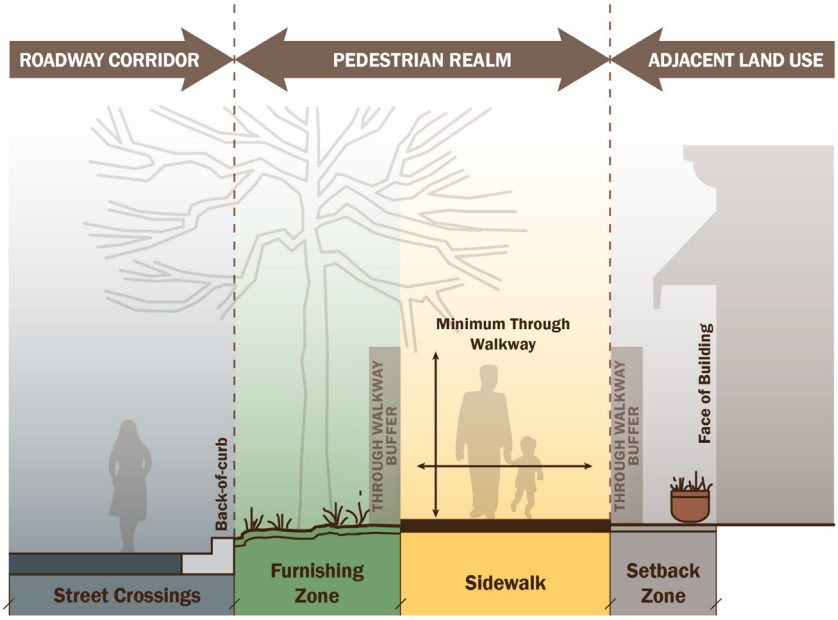


Figure 41. Cross section of the pedestrian realm

Figure 41 details the major elements of the pedestrian realm including:

- Street crossings such as crosswalks at signalized intersections or mid-block crossings.
- Furnishing zones that may include street trees (typical in urban environments) or planter strips (standard in neighborhoods).
- Sidewalks with a minimum through walkway to enable comfortable walking.
- A setback zone that enhances the pedestrian realm by allowing elements like sidewalk cafes and building articulation.

Residential and Mixed-Use Neighborhoods

Pedestrian facilities in neighborhoods will tie the community together by supporting safe and easy access to neighbors and community services like schools and parks, enabling greater pedestrian activity at community services, and enhancing neighborhood character by adding green to neighborhoods through landscaping and innovative stormwater treatments. Pedestrian improvements in neighborhoods will be focused on a more connected network of facilities that includes completing missing links, safe walk routes to schools, and meeting the particular needs of special population groups such as seniors and disabled persons. Providing for a safe pedestrian system to meet the needs of the most vulnerable populations makes for a safer and more comfortable pedestrian environment for all users.

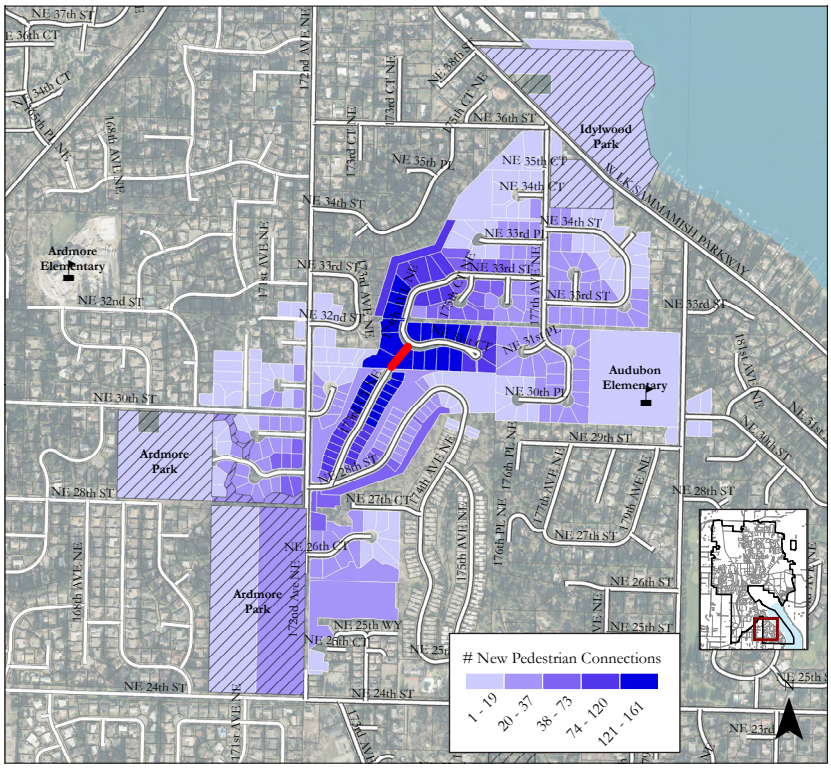


Figure 42. Walkability benefits of the NE 31st Court Trail

Network Connectivity

Short trip lengths are essential to making walking an attractive travel mode. Therefore, a dense network of pedestrian facilities (sidewalks and trails) will tie neighborhoods together. Redmond will foster a partnership between the City, land owners, business owners, developers, and others to implement this highly connected pedestrian system that includes direct linkages to adjacent streets and trails, and connects cul-de-sacs together. Figure 42 is an example of a short new connection between NE 31st Court and 173rd Court NE, which improves connectivity between a relatively big residential area and Audubon Elementary School. This project was prompted by requests from students.

Table 8: Network Connectivity in Appendix F provides guidance on how the pedestrian system should be implemented to improve neighborhood connections.

Redmond's extensive network of trails will be improved for pedestrian connectivity, changing over time from having very few access points to having a high number of access points. This will dramatically increase the transportation value of the trail network by supporting the short trip lengths that pedestrians require to flourish.

Pedestrian Crossings in Neighborhoods

With more modest pedestrian volumes, crossing location in the neighborhoods will focus on providing access to community services (includes access to transit, churches, schools, and parks). Crossing higher volume streets can be a challenge because signalized crosswalks are often widely spaced. To improve access to community services, additional safe mid-block crossings will be installed, and existing mid-block crossings will be improved as needed. This greater frequency of safe pedestrian crossings will encourage the number of people walking within neighborhoods.

Capacity

Sidewalk widths in neighborhoods will provide a basic width for safe and comfortable walking that is appropriate for the anticipated level of pedestrian activity. Five feet provides space for two people to

comfortably walk side by side and is the standard on local streets with lower automobile volumes. Areas with community services like schools, parks, and bus stops are likely to see heightened pedestrian activity levels, and will include greater sidewalk widths.

American Disabilities Act (ADA)

The pedestrian system will be designed to provide mobility for all. Public and private investment supports the transition to a pedestrian system that is usable for the mobility impaired, including design treatments, such as curb ramps.

This approach also supports the City's compliance with the federal Americans with Disabilities Act (ADA). In order to ensure ADA compliance, the City will maintain its ADA transition plan.

Prioritizing Investments for a More Walkable Redmond

Many existing streets in Redmond were originally built without pedestrian improvements. The City is addressing this issue by funding a sidewalk program that builds pedestrian facilities, but funding levels and physical constraints will not allow the City to catch up and ensure sidewalks on both sides of each street by 2030.

A network of pedestrian connections helps bring neighborhoods together.

Redmond will prioritize filling in sidewalk gaps based on safety needs and pedestrian trip generators that include transit stops, light rail stations, schools, parks, and other high generators. The 2030 goal is to complete sidewalks on both sides of every public street in the urban centers, adding sidewalks on at least one side of arterials, and building sidewalks on local streets where there is a notable benefit to neighborhood connectivity. Investments will be mixed between the urban centers and the neighborhoods.

The City will carefully track progress toward increased walking in the urban centers and neighborhoods through innovative measurement tools like connectivity analysis to help assure the best use of public funds in pedestrian system investment.

Implementation

The vision for the pedestrian system will be achieved by:

- Creating high-quality pedestrian environments in the Pedestrian Zones (Downtown and Overlake urban centers and light rail station areas);
- Completing a high-density, well-connected network of pedestrian facilities throughout all Redmond neighborhoods; and
- Improving the safety and comfort of pedestrian crossings and separation of pedestrians from traffic.

Two key action steps towards achieving the vision are:

- Three–Year Action Plan item #4: Reconcile Zoning Code with TMP Update.
  - Update the Downtown pedestrian system map and standards to enhance connectivity and encourage urban style activity and design.
- Three–Year Action Plan – Other Activities item #5: Regional Trail Access Study will help identify new connections that have the ability to significantly improve the usability of the pedestrian system, particularly in neighborhoods.

Physical improvements to the pedestrian system will be completed through a three-pronged approach:

1) Transportation Facilities Plan – Key projects include:
   - Cleveland Streetscape
   - Overlake Village Pedestrian & Bike Bridge
   - SR 520 Trail Grade Separation at NE 51st Street
2) Private development will build complete streets including pedestrian facilities. Key projects include:
   - Completion of the new street and pedestrian grid in Overlake Village
   - Overlake Transit Center Pedestrian & Bike Bridge
   - 152nd Avenue NE Main Street – Phase 1 (East)
   - 152nd Avenue NE Main Street – Phase 2 (Completion between NE 24th Street and NE 31st Street)
3) Annual Pedestrian Program will fund completion of high priority pedestrian facility needs. Investment will be focused on completing missing links, improving safety, and providing for needs of the greatest generators of pedestrian traffic (e.g., pedestrian zones, schools, parks, transit stops, and others).

Architectural rendering of the future Overlake Village pedestrian-bicycle bridge

Chapter 4.4:
Bicycle System Plan

Introduction

A "Bicycle Renaissance" is emerging in both Redmond and North America. This renewed interest in bicycling has sparked innovation in bicycle facility design and improved understanding of what gets people biking. Redmond will implement these new best practices and attract a broader segment of the population to bicycling as the system is completed. This reinvigoration of cycling in Redmond will help the community live up to its historical nickname as the "Bicycle Capital of the Northwest."

Through decades of investment, Redmond has developed many miles of bicycle lanes and paved shared-use paths. The city is at a crossroads with an incomplete, disconnected network which substantially reduces the safety, comfort, and usability of the current bicycle system and is a major barrier to increasing bicycle ridership.

The Redmond Bicycle System Plan will finish connecting and upgrading the bicycle network. Many of these remaining connections and intersection improvements, such as off-street pathways and grade separations, are expensive, but will take advantage of the substantial local and regional network already in place.

The plan prioritizes providing a complete, connected "spine network" of safe, high comfort bicycle facilities that attract a vastly broader segment of residents and employees. As an example, the City of Portland invested into a complete network of high comfort facilities like cycle tracks and paved shared-use paths that resulted in a huge shift in the number of people willing to consider a bike trip. Research in Portland revealed that partially connected and mostly on-street facilities attract only around 10 percent of people to consider a bicycle trip, but roughly 70 percent of people are interested in bicycling on higher comfort facilities.

The four types of transportation cyclists in Portland (by proportion of population).

Strategic Approach to Biking in Redmond

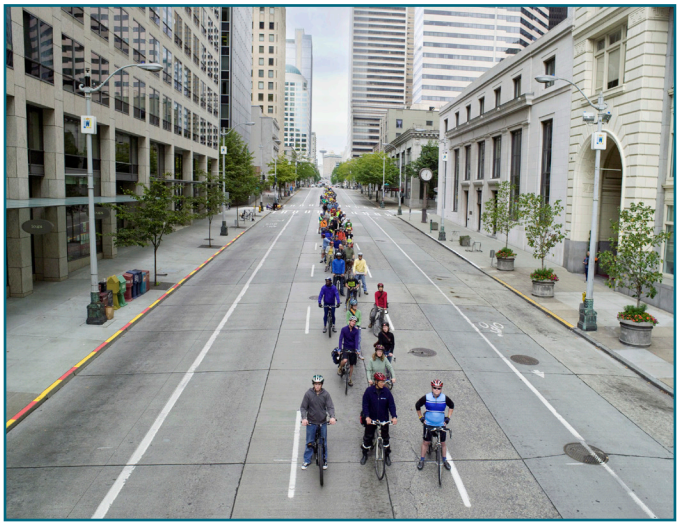
The average trip length for all trips in Redmond based on the 2010 Travel Diary is 2.2 miles. This is a typical trip length on a bicycle and a relatively easy distance to bike if the available facilities between destinations are safe and comfortable for the user. The bicycle strategy to encourage a significant increase in bicycle trips has three main parts: 1) Complete a spine network of high comfort cycling facilities, such as paved shared-use paths, cycle tracks that physically separate the bicyclist from the street and automobile traffic, and bike boulevards on lower volume, lower speed streets; 2) in addition to the spine network, the strategy includes a dense network of on-street facilities that shorten bicycle trip lengths and also act as a feeder system to the spine of high comfort facilities; and 3) finally, abundant access to bicycles through a rental "Bike Share" program, a variety of convenient bike parking options, clearly marked bike routes, and robust education and encouragement programs round out the complete bicycle strategic approach for Redmond.

Most people would consider riding a bicycle if routes were sufficiently safe and comfortable.

Transportation Strategies

The suite of travel choices (walking, bicycling, transit, and automobiles) is necessary to provide an efficient, effective transportation system that accommodates planned growth in the two urban centers. Bicycles are particularly well-suited for short- to medium-length trips and often have equivalent travel times to automobiles in urban centers (especially when finding parking is considered). In addition, both Overlake and Downtown possess a gentle topography, thereby eliminating a major impediment to bicycle travel.

Bicycling is important for supporting light rail ridership. Vehicle parking will be limited due to cost and property impacts, whereas bicycle parking is inexpensive and takes up very little space. Bicycling also significantly increases the number of people that can conveniently access light rail without an automobile. Sound Transit estimates that by 2030, 33 percent of light rail riders will access the Overlake Village station by walking or bicycling (East Link Light Rail FEIS Appendix H1 Table 7-12, East Link Light Rail FEIS Appendix H1 Table 4-11).



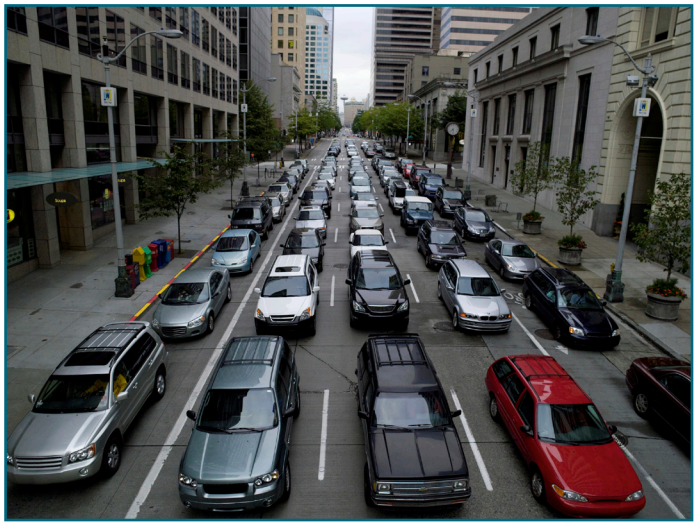


Figure 43. Spatial efficiency (image source: i-Sustain)

The images above (Figure 43) illustrate one of the fundamental challenges we face and why a transportation network with increased reliance on alternative transportation modes is envisioned: moving 200 people in a two-block space means total gridlock by vehicle (even with five lanes), but only takes one lane width when the same 200 people are riding bicycles.

Bicycling is a particularly competitive mode of travel with the automobile when the trip is 2.5 miles or less. Considering that the average trip length in Redmond is 2.2 miles (from 2010 Travel Survey), bicyclists will be able to take advantage of the connected and higher comfort network of facilities that will be developed between now and 2030 for most of their transportation trips. As the bicycle system plan is implemented, numerous new neighborhood connections will help tie neighborhoods together to community services like buses, schools, and parks, and also link to the urban centers.

Table 5. Bicycling is one of the least costly forms of transportation.

Transportation Costs by Mode	
Mode	Cost per Mile
Car	59¢
Transit	24¢
Bicycle	5¢
Walking	0¢

Citywide Guiding Principles

Bicycling can increase economic vitality by decreasing household transportation expenses as shown in Table 5 at right.

Increasing overall bicycle ridership also results in a relatively safer biking environment by decreasing the rate of bicycle collisions (see Figure 44). Therefore, Redmond will provide high

comfort bicycle facilities that attract additional bicycle riders as a community investment in both economic vitality and safety.

Bicycling also improves personal and public health. Bicycles are people-powered transportation ("active transportation") that get people out exercising, providing a plethora of health benefits from heart health to combatting obesity. Bicycling and walking are the only forms of travel that can include exercise while commuting.

Finally, bicycling supports environmental stewardship because it significantly reduces air and water pollution. Reducing emissions from transportation is the best method to reduce overall air pollution — 50 percent of carbon emissions come from transportation in our region.

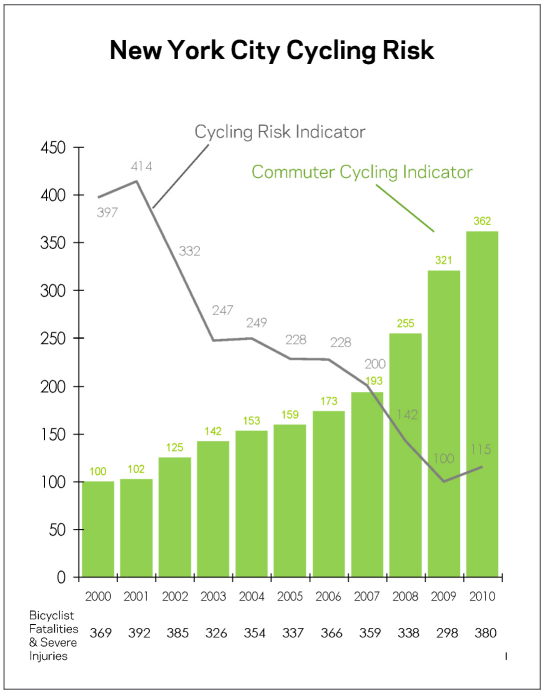


Figure 44. Collision rates have decreased by 71 percent in New York City as commuter bicycling rates tripled

Bicycle System Development

High Comfort Bike Facilities ("The Spine" Network)

Redmond will build a complete bicycle system of safe bicycle facilities that enables a broad array of the population to bicycle safely and comfortably to key destinations. Bicycle ridership will also be supported by access improvements, including bicycle parking, bicycle-sharing programs, and bicycle education and encouragement.

The uppermost tier of bicycle facilities, "High Comfort Facilities," will attract a wide variety of users and encourage increased bicycle ridership because of physical separation from automobiles. Figure 45 (below) depicts a one-way separated cycle track, providing physical separation from automobiles and incorporating green bicycle lanes that highlight potential conflicts and encourage caution for drivers and bicyclists.

This backbone network of high comfort bicycle facilities (as shown in Figure 6, Bicycle "Spine Network" Map) has the greatest priority for high safety and comfort corridors and intersection crossings. Today 37 percent of the "Spine Network" is complete, largely through existing paved, shared-use paths, and is anticipated to reach 51 percent completion by 2030 and include investments like cycle tracks on Avondale Road and enhanced bicycle facilities on Old Redmond Road. High comfort corridor facilities (running the length of a corridor link) include:

- Paved, Shared-Use Paths. These are independent of the street network, providing significant physical separation from vehicles.
- Cycle Tracks. These are integrated into streets, but provide physical separation from automobiles and can be particularly effective when vehicle speeds and/or volumes are high.
- Greenway/Bicycle Boulevard. These low-automobile-volume streets include bicycle-supportive traffic calming, keeping automobile speeds low to ensure a safe, comfortable mixing of bicycles and automobiles.

Figure 45. A cycle track. Image source: NACTO

High comfort facilities will provide positioning guidance for bicycles up to the stop bar at

Bicycle Modal Corridors

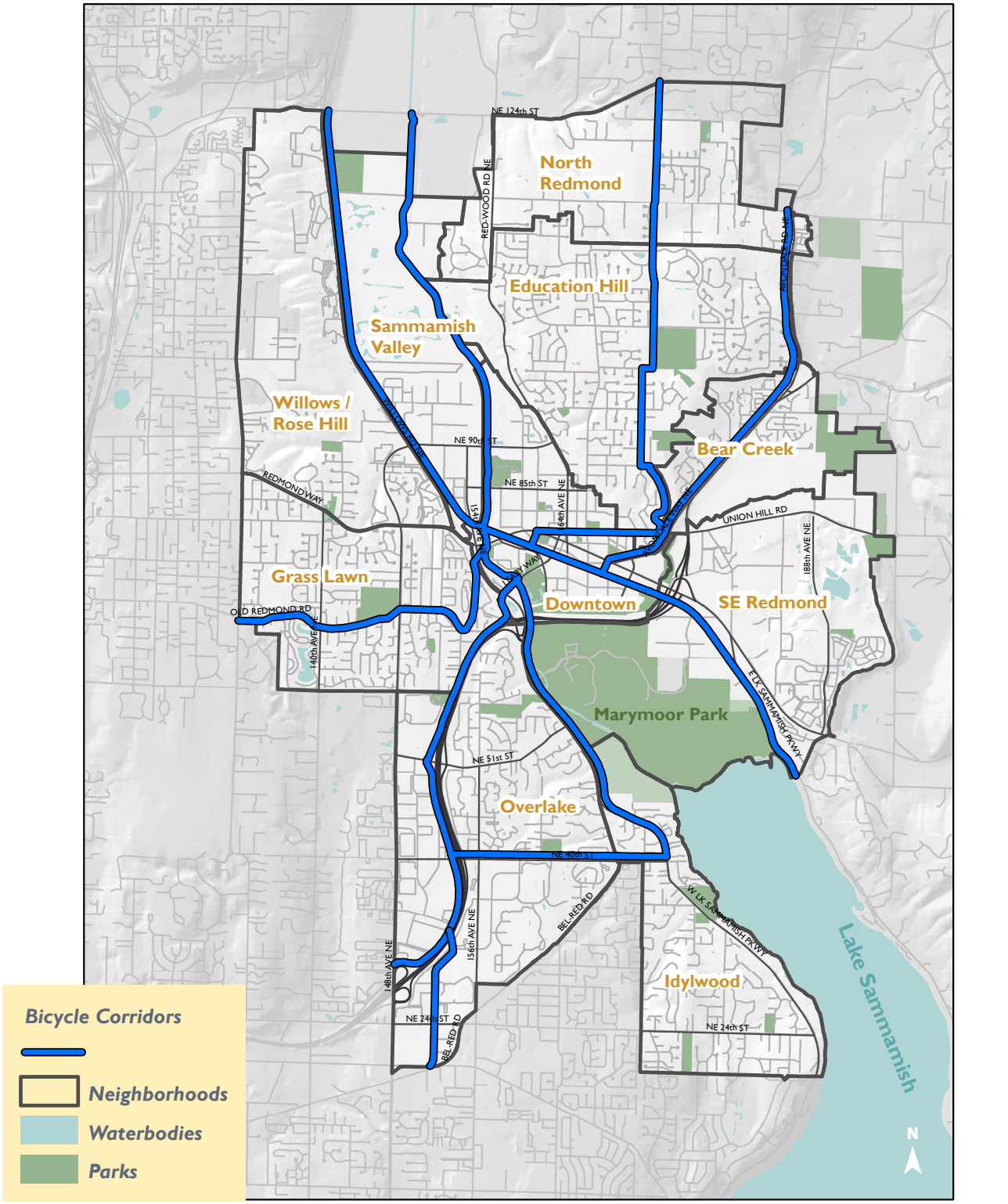


Figure 46. Bicycle modal corridors

0 0.5 1 Miles

intersections, with a priority for a dedicated zone up to the stop bar. Bicycle treatments through an intersection (see Figure 47) are recommended in order to best position bicycles and automobiles through an intersection, reducing conflicts with drivers and providing bicyclists with a safe and comfortable experience. Appendix F includes detailed design guidance for corridor (Table 4: Tier 1 High Comfort Bicycle Facilities) and intersection bicycle facilities (Table 7: Intersection Bicycle Facilities).

The Bicycle System Map details bicycle corridor facilities that will be built with City capital improvements and/or conditioned on adjacent development. These include specific high comfort facilities where currently considered feasible and two other tiers of bicycle facilities: standard and guidance bicycle facilities.

Intersection treatment (image source: NACTO)

Dense Bicycle Facilities Network Connected to Key Destinations

Standard bicycle facilities complete a dense bicycle network that connects to destinations like offices, homes, schools, restaurants, and parks citywide. These facilities ensure route directness and also act as feeder facilities for high comfort bicycle facilities. Standard facilities provide a designated space for bicyclists in the street corridor, but without physical separation from automobiles. The typical standard along a corridor bicycle facility is the bicycle lane. As bicyclists continue along a corridor and approach intersections, standard bicycle facilities should provide continued guidance up to intersection stop bars. Appendix F, Table 5: Tier 2 Standard Bicycle Facilities includes detailed design guidance.

At the lowest tier, guidance facilities are street treatments that help position bicyclists in shared lanes with automobiles and/or provide guidance on how to proceed forward. Shared lane markings, also called “sharrows,” are typical guidance facilities. Appendix F, Table 6: Tier 3 Guidance Bicycle Facilities provides further design guidance.

Bicycle Parking

Bicycle parking and storage is a necessary component of the Bicycle System Plan to make cycling an attractive transportation option. Bicycle parking that meets both short-term and long-term bicycle parking needs is also necessary to support biking in Redmond. Short-term parking allows a bicyclist to find a parking spot quickly for fast stops such as shopping or buying lunch. It needs to be located as close as possible to building entrances in a visible location. Weather protection for short-term parking is appreciated by bicyclists, but is not a necessity.

Long-term bicycle parking provides a place to store a bicycle while at work or at home. Security, such as bicycle cages with access limited by a key, is paramount for successful long-term bicycle parking. Since bicycles will be parked for a long time, weather protection is preferred.

City capital projects and programs will install bicycle parking, but the bulk of new short-term and long-term bicycle parking will be provided by new development. Bicycles will also access light rail in high numbers if enough secure long-term bicycle parking stalls are provided supporting light rail ridership.

Bike Share

“Bike sharing is an innovative approach to urban mobility, combining the convenience and flexibility of a bicycle with the accessibility of public transportation. Bike share systems consist of a fleet of bikes provided at a network of stations located throughout a city. Bikes are available on demand to provide fast and easy access for short trips.” (from pugetsoundbikeshare.org homepage)

Redmond is a charter member of the Puget Sound Bike Share, which is a partnership of cities, agencies, and businesses within King County. The vision is to provide residents, employees, and visitors access to a low-cost, flexible, and convenient transportation alternative with economic, social, and environmental benefits to Redmond and the region. The first installations will be installed in Seattle in 2014. In Redmond, bike sharing will be provided in the two urban centers, beginning as soon as 2015, and at future light rail stations.

Bike share systems exist in over 200 cities worldwide, with over 30 systems in North America including Boston, Denver, and Chicago, These systems have been successful in increasing bicycle mode split by making bicycling more convenient and encouraging an abundance of bicycle trips throughout the day. Shared bicycles also act as an extension of transit trips, providing important last mile connections that make alternative transportation trips more successful. Lastly, bicycle share programs provide a great opportunity for recreational bicyclists to try out utilitarian bicycling.

Education and Encouragement

Many residents and employees have simply never tried bicycling for utilitarian transportation trips, and could benefit from both education and encouragement to try utilitarian bicycling for the first time. Education on how to ride a bicycle on all facility types will also help new bicyclists ride safely and confidently. Campaigns, classes, events, and promotions will help educate and encourage citizens and employees to consider bicycles for transportation as well as recreation trips. This will also create a self-sustaining program, as more cycling advocates are willing to educate their friends, family, and coworkers about how to ride safely day and night throughout the year and to encourage them to get out and try bicycling.

Protected, long-term bicycle parking is important for regular cyclists.

Bicycle Wayfinding

Bicycle wayfinding signage along with internet applications will be implemented to help guide users through the bicycle network in a safe, efficient manner. While many residents and employees have a mental map of the automobile network, they do not have a similar sense of the available bicycle network. This increases fear that traveling by bicycle is challenging and confusing. Wayfinding signage will help bicyclists navigate the bicycle network and ensure that bicyclists riding Redmond's network for the first time are directed to travel on the safest and most direct routes to their destination.

Prioritizing Investments to Increase Biking in Redmond

Redmond will invest in bicycling infrastructure through City capital investments, Redmond's Bicycle Program, grants, partner agencies, and private entities. City capital investments, partner agencies, and private entities will build bicycle improvements in the vicinity of specific projects or new development. The Bicycle Program will prioritize investments and leverage grants based on completion of the spine network, significant gaps and "bottlenecks" that create particularly unsafe situations, and feeder connections with the highest anticipated bicycle ridership. In addition, education and encouragement will be

Nice RIde bike share system in Minneapolis, Minnesota

a relatively small, but important investment to increase bicycle ridership. The performance monitoring chapter outlines how investments into bicycling will be measured in terms of increased bicycle ridership and completion of the Bicycle System Plan.

Implementation

The bicycle system will continue to evolve into the envisioned plan that provides:

1) A complete, connected spine network of safe high comfort cycling facilities;

2) A dense, connected network of on-street facilities; and

3) Abundant access to bicycles through supporting programs and facilities.

This evolution requires a number of steps. The first is Three-Year Action Plan item 13: Bicycle Facilities Design Manual Update which will review and update standards for high comfort facilities like cycle tracks and intersection treatments. The updated standards will then be applied to the design of future facilities to implement the bicycle plan:

TFP Projects

Improve bicycle infrastructure per updated Bicycle Facilities Design Manual when TFP projects are constructed on the bicycle system (see Bicycle System Map below)

Key projects identified on the TFP include:

- Redmond Central Connector Phase II
- SR 520 Trail Grade Separation at NE 40th Street
- Overlake Village Ped & Bike Bridge (partnership with Sound Transit)
- NE 40th Street Pedestrian and Bike Improvements from 520 to Bel-Red Road
- SR 520 Trail Grade Separation at NE 51st Street
- NE 116th Street and 172nd Avenue NE Roundabout
- Union Hill Phase III Widening
- 166th Avenue NE Rechannelization
- NE 116th Street Widening Phase I

Private Investment

New developments will upgrade bicycle infrastructure per updated Bicycle Facilities Design Manual when development projects are constructed on the bicycle system (see bicycle system map below).

Key projects identified on the TFP include:

- 152nd Avenue NE Main Street – Phase 1 (East)
- 152nd Avenue NE Main Street – Phase 2 (PSBS and Between NE 24th Street and NE 31st Street)
- Overlake Transit Center Ped & Bike Bridge (ST)
- NE 27th Street/NE 28th Street New Connection
- NE 73rd Street Extension
- NE 80th Street Trail Connection
- 150th Avenue NE and NE 51st Street Traffic Signal

Bicycle Program

Invest in high priority bicycle facilities and supporting programs, particularly high comfort facilities, that fill in the gaps in the bicycle system (see Bicycle System Map below) that are unlikely to be completed by TFP projects or private investment.

Key projects are likely to include cycle tracks (or other high comfort facility as identified in Action Plan item 12) Avondale Road Bicycle Facilities Study) on Avondale Road, high comfort facilities linking Education Hill to Downtown, extending the Puget Sound Energy Trail west up to NE 93rd Court, and new intersection treatments. Near-term improvements include a bicycle wayfinding system as guided by action plan item 7) Wayfinding Standards for Cyclists and Pedestrians.

Work with Puget Sound Bike Share to implement bike sharing in Redmond.

- Transportation Demand Management Program

Encourage employees and community members to bicycle instead of driving.

Bicycle System Plan

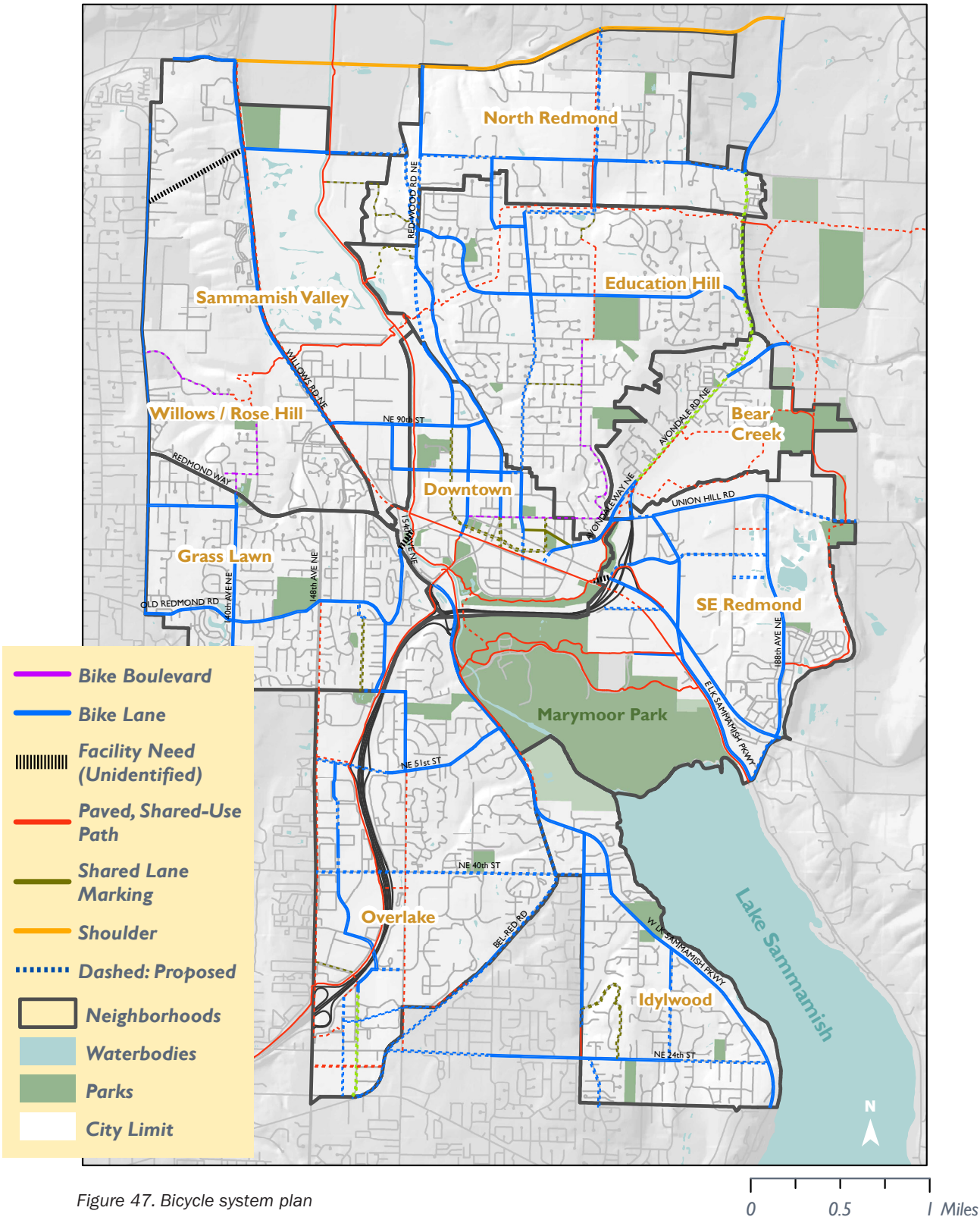


Figure 47. Bicycle system plan

Chapter 4.5:
Freight Access and Distribution

Introduction

Freight mobility (the physical movement of goods and services) is a critical component of Redmond's transportation system. While large delivery and manufacturing firms rely on Redmond's transportation network, especially at key locations in Southeast Redmond, hundreds of small businesses depend on reliable movement of goods and services throughout the city in order to thrive.

In Redmond, efficient, reliable freight mobility depends entirely on trucks moving over local and regional streets. Manufacturers, large retailers, extraction operations, and warehousing and distribution companies require reasonable access to a well-functioning network of freeways and major arterials. Small retailers, restaurants, and other businesses rely on delivery service vehicles that must circulate on regional and local streets and also must be able to park somewhere near businesses. Vehicle sizes range widely from small vans to large tractor-trailer units. In recent years, there has been a trend toward larger food and beverage delivery vehicles, while at the same time there has been a trend toward smaller local parcel delivery vehicles.

Compared to the rest of the city, Southeast Redmond has a high concentration of major businesses with substantial delivery needs. These include companies that manufacture construction equipment and materials, regional retail and grocery stores, and mail and package service centers such as UPS and USPS. Downtown Redmond, Overlake, and smaller commercial areas depend on daily deliveries by a wide variety of operators – a relationship that will be key to the economic viability of these areas in the future.

In Redmond, efficient, reliable freight mobility depends entirely on trucks moving over local and regional streets.

The City completed a Freight Mobility Study in 2009. Based on information from that study, this plan accommodates freight mobility in three ways:

1. Establishes a two-tier freight route system to facilitate reliable connections between Redmond streets and regional routes and facilitate access between major manufacturing sites and Redmond streets. (Though only a portion of Redmond streets, the freight route system forms a complete and connected system.) The intent of establishing the freight route system is that in this system, it is a priority to support truck operations as part of improving, maintaining, and operating streets. Appropriate street design standards (pavement depth, turning radii at intersections, etc.) that are context sensitive to individual streets, will address the needs of truck operations. Outside of this system, truck operations are accommodated. However, supporting truck operations, especially those of large-size trucks, is not a priority for improving, maintaining, and

operating streets outside of the freight route system. Instead, other considerations such as keeping narrower and slower streets in residential neighborhoods have priority.

2. Addresses congestion and truck traffic bottlenecks with strategic capital improvement projects.
3. Provides guidance for ensuring accessibility of local delivery services to small retailers, restaurants, and other businesses, especially in the two urban centers: Downtown and Overlake.

Two-Tier Freight Route System

The two-tier freight route system (Figure 1) includes "primary truck streets" and "truck access streets." Primary truck streets accommodate through truck traffic in Redmond, which are arterials that directly connect with regional roadways; e.g., SR 520, or arterials that currently have high volumes of trucks and expect to remain so in the future. Truck access streets connect the major industrial and commercial area in the Southeast Redmond neighborhood with primary truck streets. The intent of designating truck access streets is to support access and movement of trucks between manufacturing companies and primary truck streets, which are important to the economic vitality of manufacturing companies. However, designating truck access streets is not meant to increase truck volumes on those streets, nor intended to increase the speed of trucks on truck access routes. When making improvements on truck access streets, it is important to integrate the needs of trucks and other users. For example, in some locations in Redmond homes front truck access streets, so it is important to have safe pedestrian crossings across truck access streets.

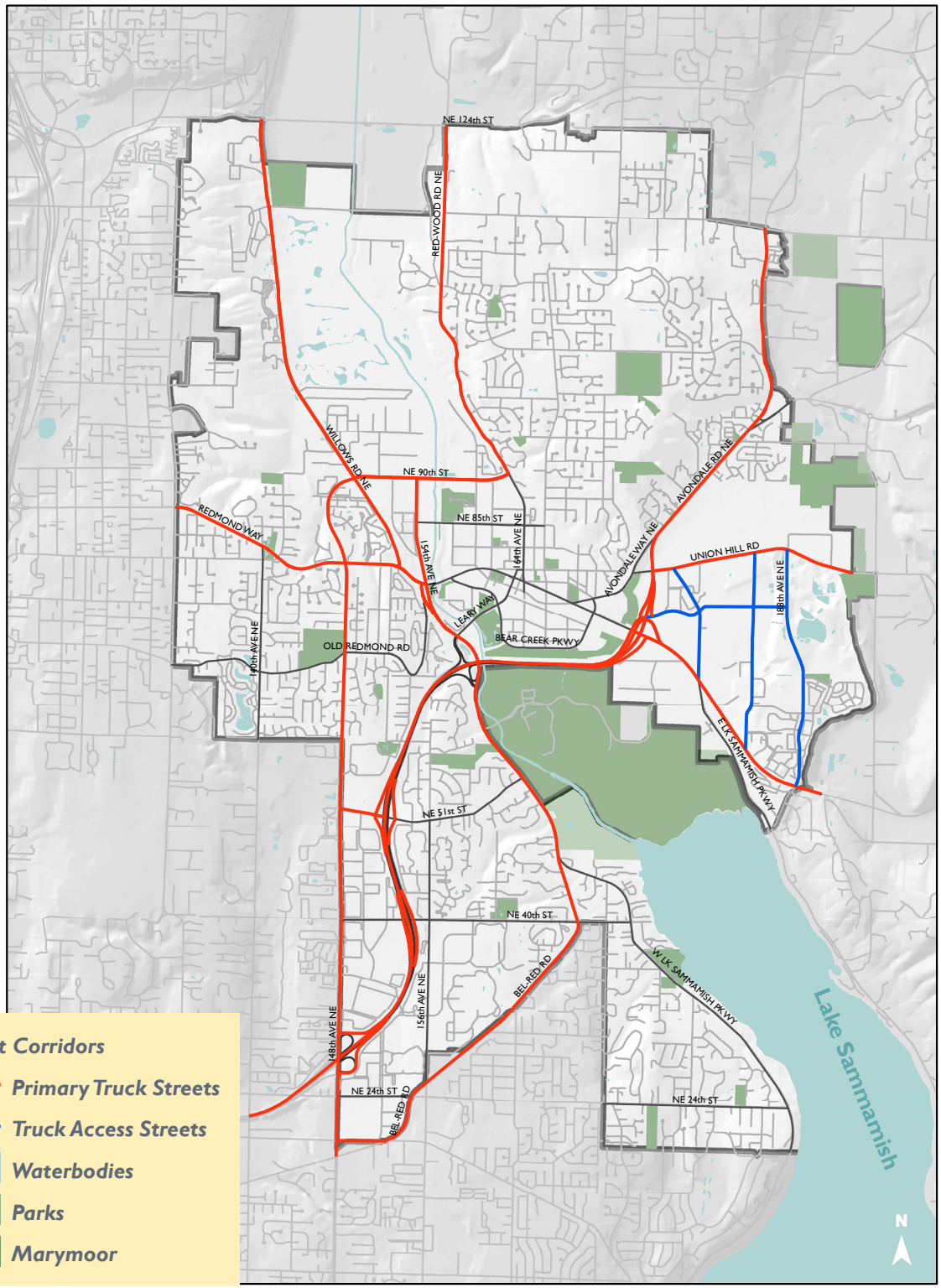
Primary truck routes include:

- SR 520 from 148th Avenue NE to its terminus at Redmond Way (SR 202)
- Redmond Way from 132nd Avenue NE to West Lake Sammamish Way
- Redmond Way (SR 202) from SR 520 to the east city limits
- Avondale Road from Redmond Way (SR 202) to the north city limits
- Bellevue-Redmond Road from West Lake Sammamish Parkway to NE 20th Street
- West Lake Sammamish Parkway from Redmond Way (SR 908) to West Lake Sammamish Parkway, 148th Avenue NE from Redmond Way to the south city limits
- West Lake Sammamish Parkway from south city limits (1900 block) to Redmond Way
- NE 51st Street from 148th Avenue NE to SR 520
- NE 90th Street from Willows Road to 154th Avenue NE
- 154th Avenue NE from NE 90th Street to West Lake Sammamish Parkway
- 148th Avenue NE from Redmond Way to Willows Road
- Willows Road from NE 90th Street to the city limit
- NE Union Hill Road for its entire length in Redmond

The following streets within the Southeast Redmond area are truck access routes:

- NE 76th Street from SR 520 east to 188th Avenue NE
- 178th Place NE/180th Avenue NE from Union Hill Road to Redmond Way
- 185th Avenue NE from Union Hill Road to Redmond Way
- 188th Avenue NE from Union Hill Road to Redmond Way

Freight System Plan



Freight Corridors

- Primary Truck Streets
- Truck Access Streets
- Waterbodies
- Parks
- Marymoor

0 0.5 1 Miles

Figure 48. Freight system plan

Implementation

Capital Improvements Addressing Congestion and Bottlenecks

The Buildout Plan addresses congestion and bottlenecks for freight traffic as well as general traffic through intersection and roadway improvements and adding new connections. One example is the Union Hill Road Phase III project, for which the City recently received a grant.

In addition to capital improvements included in the Buildout Plan, Redmond is actively working with WSDOT on the SR 520 Corridor Planning Study. This study will identify improvements at the end of SR 520 in the vicinity of Union Hill Road, which is a bottleneck for trucks from manufacturing companies and the UPS distribution center along Union Hill Road.

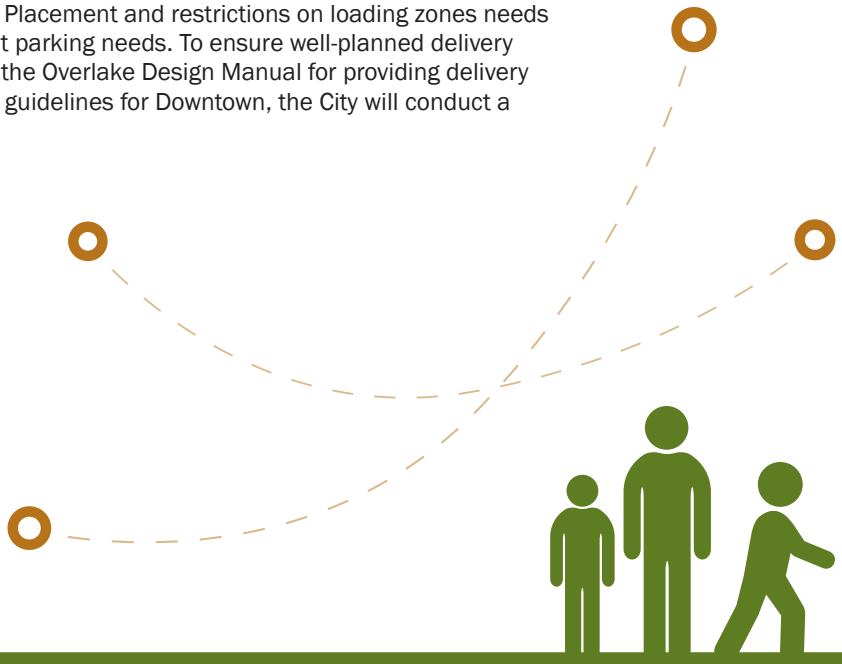
Local Truck Loading and Unloading

Over the past couple of decades, Redmond's retailers, restaurants, office buildings, grocery stores, and a wide range of other businesses have become increasingly dependent on frequent delivery of commodities and parcels. Retailers no longer have significant on-site storage, relying instead on a steady flow of incoming parcels, resulting in significantly lower lease costs for a given amount of active sales floor space. Restaurants increasingly emphasize fresh produce — from fresh fish, to fruits and vegetables, to milk and bread — in their menus, which require multiple deliveries each day. Offices and civic buildings depend on reliable overnight parcel deliveries. Even a small office building may receive deliveries from two or three different services, with each coming one or two times a day.

This steady, high-frequency flow of commodities and parcels throughout the city is essential to the vitality and growth of Redmond's businesses. These delivery services have specific needs, including a highly connected street network to facilitate efficient circulation and the availability of delivery parking near businesses. The need for a highly connected street network was identified and addressed in the City's 2005 Transportation Master Plan, and is also a major focus of this update.

Redmond businesses and customers depend on the steady flow of goods throughout the city.

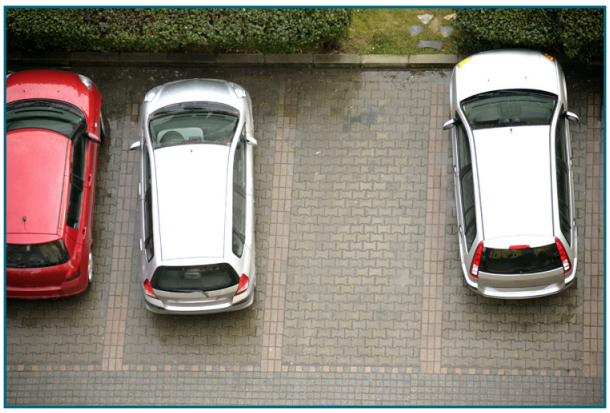
Addressing the need for accessible delivery parking, or truck loading and unloading, is an element of the City's efforts to guide and encourage the development of Redmond's two urban centers — Downtown and Overlake. In addition, as infill development and redevelopment proceeds in these urban centers, the City is working to ensure that alleys, drive aisles, and streets have substantial on-street parking provided as part of the fabric of the centers. Placement and restrictions on loading zones needs to be planned and coordinated with general on-street parking needs. To ensure well-planned delivery access, the City has developed guidelines as part of the Overlake Design Manual for providing delivery parking in the Overlake Village area. To provide such guidelines for Downtown, the City will conduct a parking study as part of the Three-Year Action Plan.



Chapter 4.6:
Parking Plan

Introduction

Redmond is a growing city, with a vision for two vibrant urban centers in Downtown and Overlake. By 2030 the City anticipates growing to a population of 78,000 residents and an employment base of 119,000 jobs, with three-quarters of new residences and two-thirds of new commercial floor area to be developed in Downtown and Overlake. Parking is a key piece of our transportation infrastructure and will play an important role in supporting this growth, providing access for residents, customers, visitors, and employees. The amount, location, and management of parking have significant impacts on economic viability, resulting community character, and the ease of access for residents, visitors, customers, and employees. This chapter provides strategies and actions to proactively address parking's role in supporting and shaping our city, and capitalizes on opportunities to attain our long-term growth, mobility, economic, and land use objectives.



Advancing the Strategies

Support Urban Centers

A coordinated approach to parking that addresses parking supply through "right sized" parking standards and the development of strategic public parking facilities, coupled with proactive parking management that optimizes the value provided by limited parking inventory, is a critical element that supports the growth and development of Redmond's urban centers. A common problem in developing urban areas is not a deficiency in the total amount of parking that is available, rather it is that high demand parking facilities are full, while other nearby parking facilities are empty. For example, the Downtown Parking Study found that overall there is adequate supply of parking within Downtown. However, this supply had not been actively managed, resulting in high value parking sites being inefficiently utilized, with high occupancy and low turnover rates, while less convenient parking stalls remained underutilized and available.

Parking plays an important role in supporting growth and providing access for residents, customers, visitors, and employees.

Managing parking facilities so the most convenient spaces are available to priority uses, such as customers or freight deliveries, and making the parking system easy to understand, supports Redmond as a positive and convenient place to do business, improves the vitality of current business owners, and helps support additional businesses in the future.

There is an opportunity to take strategic steps to reduce the total amount of parking that is required for new development, to increase economic vitality, and achieve the desired growth and development. The cost of parking is significant, up to $35,000 per space for structured parking, and the amount of parking required can often "make or break" a particular development project. This is particularly important as our urban centers transition from a suburban to a more urban environment, and new development must compete with lease rates from nearby developments with surface parking. In addition, an oversupply of parking wastes resources, and

limits the amount of land available for more valuable purposes. The Overlake Parking Management Plan found that over 100 acres would be needed if all required parking

Supporting Sustainability and the Natural Environment

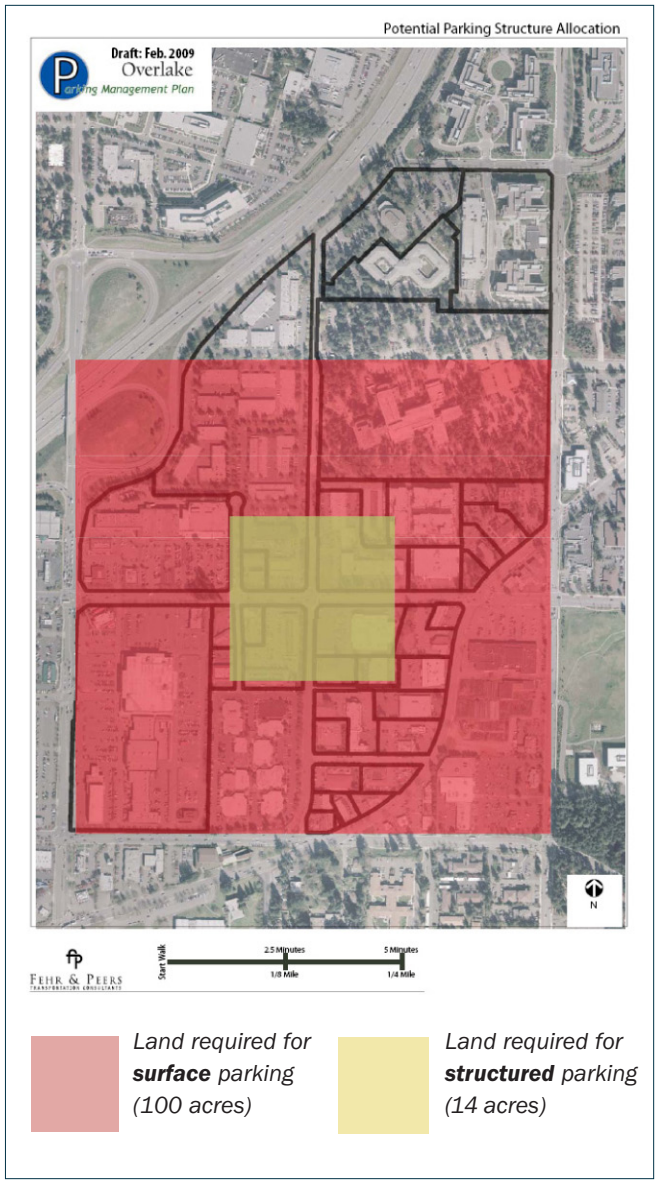
Implementing a coordinated approach that decreases the total amount of new surface parking for new development reduces the overall negative impacts on the local natural environment, and supports the City's environmental sustainability goals. Large surface parking absorbs and retains heat from sunlight contributing to a "heat island effect." In addition, ground covered in asphalt is impermeable, preventing natural infiltration. This increases total peak runoff during rain events, contributing to erosion, as well as transporting pollutants such as oil, gas, grease, and heavy metals to our local watersheds.

Goals for Parking

As illustrated by the challenges and opportunities above, too much parking wastes resources, increases costs for current and existing development, and negatively impacts the resulting community character, natural environment, and economic vitality. At the same time, a lack of parking availability, or inadequate pedestrian access to parking facilities, limits access to key destinations, businesses, and services, hurting both mobility and economic vitality. Therefore, there are four interrelated objectives that should be addressed by the City's approach to parking:

1. Reduce the total amount of parking needed to support development.
2. Seek to establish parking facilities that are designed and located to support our land use vision.
3. Manage parking to support and facilitate access to businesses, services, and residences.
4. Ensure that walking routes to and from parking are safe and comfortable.

The following statement summarizes these four interrelated objectives:



Surface parking requires significant amounts of land

We should seek to have as little land use dedicated to parking as is possible, but should ensure that we have as much parking as we need — designed, located, and managed in a manner that supports our economic, land use, and community character goals.

It is the goal of this parking plan to balance these intertwined challenges and opportunities by implementing the strategies, methods, and actions that:

1. Optimize the use of limited parking inventory.
2. Improve access to businesses by managing short-term and long-term parking, and provide a coordinated strategy for freight access.
3. Support an easy to use and easy to navigate parking system.
4. Balance vehicle parking needs with the City's land use vision.
5. Provide a clear path for development in our urban centers.

6. Support existing businesses and recognize that different uses have different parking needs.
7. Anticipate and establish a framework to manage impacts.
8. Incorporate TDM and parking management techniques.
9. Monitor the use and respond to changes in demand or supply.
10. Maintain intended function of the overall system.
11. Respond to community input and needs.
12. Take an integrated approach.

Coordinated parking strategies save money and valuable land.

System Development

Optimizing Parking in Mixed-Use Centers

As Redmond's urban centers become more dense and walkable mixed-use areas, there is an opportunity to approach parking needs at the area level, as opposed to the individual business or parcel level. In essence, in urban, mixed-use districts, parking should be managed and treated as a utility. The goal of an area-wide strategy to parking is to optimize the utilization of the overall parking resource, facilitate desired new development, support and improve access for customers, residents, employees, and freight in a cost-effective manner, and support a "park once and walk" strategy that reduces traffic and increases pedestrian activity. Many of the parking strategies listed in this section are important tools that help with the successful implementation of an area-wide parking strategy. By considering parking supply and implementation on an aggregate basis, rather than as individual lots for individual parcels or businesses, the City can optimize the use of total parking supply, support more compact development, increase development affordability, reduce overall costs to the community, and take actions that directly and indirectly support the development of our urban centers as walkable places.

Given the unique nature of Redmond's two urban centers, and the distance between them, the City should implement unique and tailored parking plans for Overlake and Downtown.

Parking Management

Parking management seeks to ensure that as many people as possible have the opportunity to reach their intended destinations and participate in their planned activities, that the use of the available parking supply is optimized and efficient, and that the overall parking system is functioning as intended. Parking management is often implemented through pricing, permits, time limits and designated drop-off, freight, and delivery locations. A key to successful implementation is the prioritization of the parking resource to meet local needs. For example, the Downtown Parking Study found that even though there was enough aggregate parking supply, prime on-street parking spaces were occupied by employees and residents. Visitor parking was perceived as being unavailable for customers and visitors. Through coordinated implementation and enforcement of permits and time limits for on-street parking, the Downtown Parking Management Program sought to prioritize customer access at high demand locations, thereby improving overall access and increasing the economic value provided by the existing parking supply.

One important objective of a parking management strategy is optimizing the "occupancy" rate, or the percent of spaces that are occupied during periods of peak demand. The industry standard is a target of up to 85 percent, where up to 85 percent of on-street parking spaces are occupied. This target maximizes the use of the available on-street resource, while at the same time parking is available to the customer or visitor, and reduces the time and traffic dedicated to drivers searching for parking. Parking management through the issuance of permits and time-limited parking provides an important mechanism to achieve an optimal parking occupancy. For example, in Downtown, by providing a limited number of on-street monthly parking permits, the City gains control of how the on-street system is utilized, and will be in a position to ensure that the 85 percent occupancy standard is met, as well as derive a source of revenue to support ongoing parking programs and strategy implementation.

Another important objective is improving "turnover," or the number of times a space is used each day, for high demand locations. As density increases, and mixed use development becomes more prevalent in our urban centers, managing on-street parking to prioritize customer access and increase short-term parking turnover at high demand locations allows more customers to reach more businesses, all within available parking resources. This creates an attractive and convenient place to do business for residents and customers, increases the amount of available space that can be dedicated to active and revenue generating uses instead of parking, helps create a vibrant, active pedestrian-oriented place, and supports the economic vitality of Downtown Redmond. This provides an important opportunity to support economic vitality and improve access to local businesses

The City should continue to manage on-street parking resources as valuable infrastructure with the aim of maximizing turnover and economic productivity in high demand locations and facilitating lower turnover and longer term vehicle storage in lower demand locations. New technologies that streamline monitoring of the parking system, and improve real time information and communication to the public, should be explored as the City's urban centers continue to grow and develop.

Economic Benefits from Parking Management

The Downtown Redmond Parking Study estimated that each customer spends approximately $20 per visit and that the parking space turnover rate on average is 3.23 times a day. That equates to $65 per day times 250 days or $16,250 per space in annual sales to retailers. Using the 300 two-hour parking spaces in the enforced Downtown Parking area for customers, estimated retail sales would be $4,875,000 annually. Retail sales tax to the City would be $41,438 annually.

An employee using the same parking space has a turnover rate of one time per day with an estimate of $5 retail spending. That equates to $5 per day times 250 days or $1,250 per space annually. The outcome accommodates more visitors and customers resulting in positive sales revenue. In addition, managing the city's existing asset of on-street parking decreases the need of incurring capital costs of approximately $20,000 to $50,000 per stall to build new parking.

Management Tools for Freight Access and Deliveries

Local deliveries and freight access are important to the local economy. Measures should be taken to accommodate local deliveries, such as the identification of specific loading zones, or shorter term time limits, such as 15-minute limited parking that can accommodate both passenger drop-offs and freight deliveries. Spaces can be dedicated for deliveries all day, or during specific time periods when appropriate. In many cases, alleyways or side access to buildings are appropriate zones to accommodate freight and delivery access. In addition, working with local businesses to stage deliveries during off-peak periods, where appropriate and feasible, is an effective strategy to accommodate delivery and freight needs. The City should periodically review the demand for delivery and loading zones, and designation of dedicated loading zones should be done in cooperation with neighborhood businesses, property owners, and residents.

Enforcement

Enforcement is critical for effective parking management implementation. Enforcement requires resources to implement, both in labor and equipment, and the main goal of enforcement is to ensure that the parking system is operating as planned and as needed. Enforced rules should be clear and understandable, and should be designed to support the objectives of the parking system, such as turnover, access for priority users, or reduced "spillover" impacts from other uses.

Local deliveries and freight access are important to the local economy.

Shared Parking

Shared parking allows a single parking resource to be shared among different adjacent land uses to take advantage of different periods of peak demand, thereby reducing the total amount of resources that need to be dedicated to parking. This can be a single private lot shared between two nearby uses, or a central "public" parking lot for a neighborhood or district. Shared parking is currently allowed in the Redmond Zoning Code, and can be used by a developer to reduce the overall amount of parking provided by a development. To be successful, parking should be shared between land uses that have

nonconcurrent peak parking demand. For example, shared parking between office and retail uses is often successful because the demands for the two uses occur at different times.

Centralized Parking Facilities

In Redmond's urban centers, there is a growing opportunity to develop and foster centralized parking facilities. Centralized parking facilities treat parking resources like a common utility, and allow parking to be shared among several land uses, such as residential, office, and retail. This reduces the amount of parking necessary for each nearby development. In addition, a centralized parking facility further encourages a "park once" strategy, where a traveler may park once and walk to multiple destinations within the neighborhood or district. Safe, comfortable walking routes are critical for the success of off-site parking, including centralized parking facilities, and have a large impact on the ability of a centralized parking facility to serve nearby uses.

Joint public-private parking partnerships

Innovative parking strategies help improve access to transit.

Joint public-private parking partnerships are often found within mixed-use neighborhoods and seek to reduce the costs of jointly developed private office, retail, or residential uses, or the private development can serve to defray some of the public cost in developing a shared parking facility. These public-private partnerships can occur through a variety of arrangements including:

1. Public acquisition of land and sale or lease of land/air rights not needed for parking to accommodate supporting private use.
2. Private development of integrated mixed-use development with sale or lease-back of the public parking portion upon completion.
3. Through a public development authority or other special purpose entity such as a public facility district created for the project or urban area.

Transit Rider Access and Park and Rides

There is strong demand for parking at transit centers and park and rides that have good regional express transit service. The Overlake Transit Center, Redmond Transit Center, and Bear Creek Park and Ride spaces are at, or over, 100 percent capacity on most weekdays. While the opportunity to expand park and ride stalls within Redmond's urban centers is limited, actions should be taken to expand parking facilities for transit patrons in strategic areas, such as Southeast Redmond, or through partnerships that use existing parking spaces that are underutilized during the day. In addition, actions that maximize access within available resources, such as designating drop-off zones, and enforcement to ensure that park and ride stalls are utilized by transit patrons, should be implemented.

Customer Information/Legibility

In order to be successful, the overall parking system should be easy to use and understand for the end user. The Parking Stakeholders' Advisory Committee cited easy-to-access, easy-to-understand parking resources as a key guiding principle. The City should capitalize on the opportunity to support an easy to use parking system through the implementation of "wayfinding" signage within the public right-of-way, as well as through improved online and print materials, and the use of new technologies as they become available.

"Right Sizing" Parking Requirements

"Right sizing" parking requirements seek to set parking minimums, and maximums that balance parking demand and supply, and take into consideration the cost of development and overall space available within a neighborhood.

In particular, minimum parking requirements have a significant impact on the overall cost of development, and the resulting development footprint. The City's vision, especially for Redmond urban centers, targets a much higher proportion of employees over time using transportation modes other than driving alone, leading to a situation where the current parking requirements may need to be adjusted downward more commensurate with desired and expected levels of parking demand. For example, the Overlake Parking Management plan found that the parking development standards for Overlake generally support the Overlake vision. However, the study found that the requirements need further evaluation to determine how specific standards can be used to achieve the desired mixed-use development pattern and multimodal travel objectives.

In-Lieu Fees

The City has adopted an In-Lieu Fee program, where a developer can reduce the minimum number of required parking stalls through a fee "in-lieu" of parking. Funds are dedicated toward funding shared public parking facilities within a neighborhood. Often, the in-lieu fee is less than the cost of providing the parking directly, and supports the development of a shared parking resource, where each public space can serve multiple users and multiple land uses throughout the day. As a result of higher turnover and use throughout the day, 100 public parking spaces provided through a fee-in-lieu program can be equivalent to 150 to 250 private parking spaces.[4]

Demand Management

The Transportation Demand Management Plan in this TMP highlights the strategies and actions the City takes to maximize the efficiency of the City's infrastructure to support mobility and economic development. These are implemented in coordination with the overall parking plan, in part to accommodate growth and development while minimizing the amount of parking demand, and associated parking facilities needed. Programs that focus on employee parking demand and programs that focus on urban areas with higher levels of transit access often have more opportunities for successful parking demand management implementation. Parking pricing is an effective transportation management strategy, as well as a parking management tool.

System Implementation Steps

Complete a Public, Shared Parking Facility in the Downtown Urban Center

Provide a "parking product" in the Downtown to create a safe and positive customer experience with parking and the Downtown.

Establish a Shared Parking Resource in the Overlake Urban Center through a Public-Private Partnership

In order to provide a shared parking resource and facilitate the "right sizing" of private segregated parking in the Overlake urban center, work with local property developers to establish a shared parking resource in the vicinity of the North Village Park in the Overlake Village, to serve nearby land uses and the 152 Avenue NE retail corridor.

[4] *Victoria Transport Policy Institute http://www.vtpi.org/tdm/tdm89.htm*

Continue to Implement Parking Management in Downtown

As part of the citywide parking program implementation, continue the successful implementation of Downtown Parking Management, including enforcement, communication, and community outreach. As development occurs and parking demand increases or changes, the performance of the overall program should be monitored; and the Downtown Parking Management Program should be adapted to meet changing needs.

Develop and Implement a Parking Management Strategy in the Overlake Neighborhood

With consultant assistance, monitor and evaluate parking demand in the Overlake Village. Create a parking management program for Overlake that focuses on reducing or, in the long term, eliminating minimum parking standards, and creating a residential parking permit program as needed. Refine parking credits for mixed-use developments.

Coordinate Parking Management with Freight Delivery Needs

Future development of parking management in Downtown and Overlake Village should evaluate and provide for freight delivery needs and transition strategies as these centers develop. Potential solutions include designating loading/unloading zones that are protected during specific times of day.

Establish Additional Shared Use Parking through Public-Private Partnerships

Establish and support additional shared use parking facilities in Redmond's urban centers and employment areas where appropriate through:

1. The negotiation of shared use and/or lease agreements with owners of strategically placed existing private lots to provide for an interim supply of parking where needed.
2. The lease or acquisition of strategically located land parcels for use as future public off-street parking locations.
3. Partnerships to implement coordinated public parking, with a focus on pay per use pricing, utilizing existing facilities. Elements should include standardized signage and wayfinding to help make the overall parking system easy to use.

Conduct a Parking Study for Downtown, Overlake, and Southeast Redmond

As part of the Three-Year Action Plan (Chapter 8), identify actions, implementation timeline and transition strategies for parking to support development of Overlake, Downtown, and Southeast Redmond. The Downtown element should include an evaluation of the amount and type of parking needed to support access and to create a more pedestrian-friendly environment.

Incorporate Parking in City Planning Processes

As part of the ongoing planning process, the City should include an assessment of the interplay between parking's role in providing access and sheltering pedestrian zones from traffic, and other needs such as travel throughput for bikes, transit, and vehicles. In particular, attention should be paid to on-street parking requirements, as well as parking minimums, maximums, and design standards
for development.

Continue to Develop and Improve Parking Information Materials

Parking information materials should continue to be developed and improved in order to enhance the understanding and access of the City's overall parking system. Actions should include coordinated wayfinding signage in rights-of-way to direct visitors to off-street locations, and online and print materials. New technologies should be explored to improve the usability and function of the overall parking system.

Develop a Source of Ongoing Funding for Parking Management

Establish a parking fund as a mechanism to direct revenues derived from parking to a dedicated fund for each neighborhood or parking zone. Dedicate all net parking revenues for parking and maintenance operations within the neighborhood or zone and ensure ongoing parking solutions that are financially sustainable.

"Right Size" Parking Requirements

Evaluate adjustments to minimum and maximum parking ratios for new development, to determine specific standards that can be used to achieve the desired mixed-use development pattern and multimodal travel objectives. Assure that access impacts of new development are meaningfully addressed and are correlated to actual parking demand and new or planned shared parking facilities.

Regional Policy Participation

Continue to participate in county and regional forums that address the nexus between parking regulations, mixed use, and transit oriented development.

Work with Local Transit Agencies to Provide Commuter Parking Resources

Continue to work and collaborate with local transit agencies to provide commuter parking resources, such as leasing existing parking for park and ride use, or improved parking management techniques for existing park and ride lots. The City supports the early development of increased commuter supply parking in Southeast Redmond to help "prebuild" the transit market for light rail in Southeast Redmond, and to mitigate increased travel demand along the SR 520 corridor, especially when light rail arrives at Overlake.

Chapter 4.7:
Transportation Demand Management

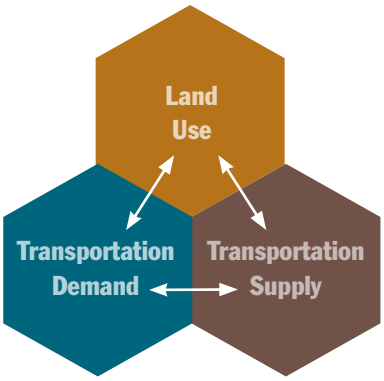
Introduction

Realizing the City's vision will require an integrated, strategic approach to transportation that manages current and future transportation assets to maximize mobility, increase access, and support growth and development. The City, Redmond businesses, and the community have a strong track record of collaboratively using Transportation Demand Management (TDM) tools to expand mobility and access, improve travel choices, and support continued growth and development. The strategies and actions identified in this plan focus on partnerships, coordinated policies, and innovative tools that leverage this past success, and chart a new direction, to support travel choices, mobility, economic vitality and the growth and development of Redmond's urban centers.

Strategic Approach to TDM

There are three major elements that are part of an integrated approach to transportation planning and implementation:

Transportation Demand Management (TDM) seeks to implement policies, programs, and strategies that proactively manage transportation demand to achieve a balance between Land Use, Demand, and Supply in support of the City's vision. Rather than a replacement for actions that address transportation supply and land use, TDM works in coordination with these actions to achieve the City's vision.



Transportation Demand
The travel needs of people, goods, and services

Land Use
The places people and goods travel to and from

Transportation Supply
The infrastructure used for travel

What is TDM?

Transportation Demand Management (TDM) includes strategies that change travel behavior (how, when, and where people travel) in order to increase transportation system efficiency and achieve specific objectives, such as improved mobility, road and parking cost savings, increased safety, energy conservation, and pollution emission reductions (Victoria Transport Policy Institute).

Redmond's approach focuses on tools, resources, programs, and partnerships that improve access and mobility to support economic growth and community character, and make alternative travel choices easier to use and access.

Traditionally, TDM has been seen as a tool to manage and mitigate peak period congestion. A broader, more integrated approach to travel needs is necessary to support the City's vision. The City's approach to transportation takes a "systems-based" approach that focuses on a broad range of strategies, actions, and outcomes. This approach supports a well-functioning, holistic "transportation system" that supports the City's vision. Using programmatic elements will support a well-functioning system that, in the end, is much more than the sum of its parts. There are three main advantages to TDM that should be leveraged to support a successful transportation system:

Flexible: TDM measures can be adapted to meet a specific need, or for a unique audience or user group. The City regularly partners with local businesses and schools to develop TDM solutions that are tailored to achieve outcomes.

Quick: When compared with capital projects, TDM measures can be implemented quickly, with less lead time. Combined with flexibility, this allows TDM measures to be both timely and responsive to a community travel need.

Cost–effective: The costs of TDM measures can be scaled to be appropriate to meet the need in a cost–effective manner, and are typically less costly than physical infrastructure projects.

Implementing Innovative Tools to Support Growth and Vitality

The City has an integrated and successful TDM program that focuses on partnerships and collaboration with larger employers and providing outreach and resources to meet travel needs and address travel demand. This has greatly enhanced the person-carrying capacity of the City's transportation infrastructure. For example, the tools, resources, and mobility support provided by the City's flagship Redmond Trip Resource and Incentive Program (R-TRIP) has resulted in increased efficiencies and effective person-carrying capacity equivalent to four freeway lanes of capacity. The City will continue to develop and implement innovative tools, in collaboration with the community, to help increase access and maximize the person–carrying capacity of our infrastructure.

Meeting a More Diverse Set of Travel Needs

As Redmond's urban centers and employment areas develop, it is important to address a broader range of travel needs throughout the day in addition to meeting commute needs during the peak travel period. Redmond will expand its approach to TDM to provide support to smaller employers and residents, as well as visitors and customers, in coordination with the City's "Think Redmond" buy local/go local program.

Making Redmond an Attractive Place to Locate and Grow

Cities compete to attract investment that creates and retains jobs. Successful TDM programs reduce transportation costs for new businesses and make workplaces more attractive, key to attracting skilled talent in today's economy. In support of Redmond's broader economic development

Case Study: Supporting Economic Growth in Overlake

Through a comprehensive package of resources, incentives, and partnerships, the majority of growth in the Overlake Neighborhood has been supported by increased bicycle, transit, pedestrian, carpool, and vanpool travel. Overlake grew significantly over the past 10 years, with new commercial and office development.

During the same period use of alternative transportation, particularly transit, increased substantially, and the share of trips taken in a single occupant vehicle dropped from 70 percent to approximately 60 percent. As a result, while there has been strong growth in total person trips, the growth in vehicle demand, and the associated demand on the City's roadway infrastructure, has stayed fairly constant.

Growth in Overlake has been supported by increased transit, bicycle, pedestrian, carpool, and vanpool travel

strategy, the City will continue to develop positive partnerships and programs with employers and property owners to support transit, carpool, vanpool, bicycle, and pedestrian travel options. This enables businesses to locate and grow in Redmond with fewer costs, allows more space to be dedicated to revenue-generating activities rather than parking, and improves employee and customer access.

Developing an Integrated Approach

It is important to take a deliberate and focused approach to support the growth and development of Redmond's urban centers. The ability of TDM programs to be flexible and tailored to meet a specific set of needs should be leveraged, and should complement and support related initiatives and goals. Redmond's Growth and Transportation Efficiency Center (GTEC) program identifies specific strategies and implementation actions that are designed to support the growth and development of Overlake and Downtown. The City should continue to take an integrated approach that coordinates with land use, parking, mobility, and environmental goals.

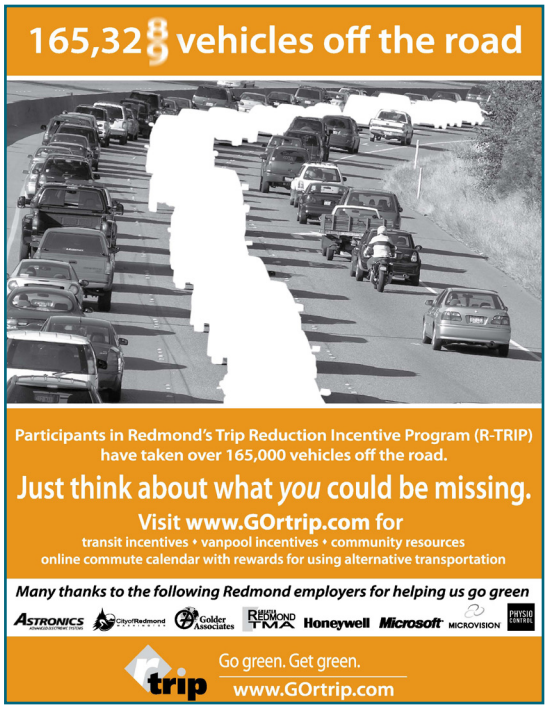
Connecting Travelers with Travel Choices

A key theme throughout this Transportation Master Plan is a desire from the community to be able to travel without a car — be it by bike, transit, walking, or even carpooling or vanpooling. Knowledge on how to use these travel choices, and "start-up costs" can be significant barriers to trying these travel choices for the first time. Using transit requires not only knowing which transit routes to take, but also knowing when they come and go. Vanpooling and carpooling require finding a travel partner. For a new bicycle rider, finding safe and comfortable routes, and knowing how to deal with Pacific Northwest weather, can be challenging.

A major element of the City's TDM approach is providing information, tools, and resources to individual travelers, and to employers, schools, and other community groups, that help make a variety of travel choices more accessible, easier to understand, and, as a result, easier to use. This includes customized transit and bicycling route information, "ride-matching" tools that help travelers find a carpool or vanpool partner, as well as incentives and fare subsidies for new transit or vanpool riders that help defray the initial costs associated with trying a new mode of travel.

Leveraging New Technology

Every day, advances in technology create new opportunities to provide travelers with more accurate, relevant, and real-time information that make using alternative travel choices even easier. The City has been on the forefront of leveraging these technologies, and will continue to use technology to provide Redmond travelers with the information needed to make the travel choices they want.



Implementing partnerships with local businesses and employers is a successful approach to support growth and travel demand

Implementation Actions and Priorities

The following section outlines program elements, implementation actions, and new direction for TDM as part of the City's overall approach to transportation.

Develop Tools and Resources for Individual Travel Choices

The City provides creative resources, tools, and incentives for Redmond residents, employees, and businesses through the award-winning and nationally acclaimed Redmond Trip Resource and Incentive Program (R-TRIP), a public-private partnership between the City, local employers, King County Metro, and the Greater Redmond Transportation Management Association. This unique program is actively used by local businesses to manage their own transportation programs, and offers nearly 24,000 employees and residents a one-stop place for resources, travel information, "starter" incentives for transit, vanpool, carpool, bicycling, and walking, and enables users to track and view the impact and benefits of their travel activities. These elements are instrumental in providing improved information, resources, and incentives that make travel choices, such as walking, biking, transit, carpooling, and vanpooling, more accessible and easier to use.

The City supports an entrepreneurial approach to TDM, with a focus on providing support and resources for local businesses and community organizations to develop innovative transportation solutions.

Continue to Implement and Adapt the Redmond Trip Resource and Incentive Program (R-TRIP)

Continuing to leverage the R-TRIP tools to provide information, resources, incentives, and starter fare subsidies will assist the individual commuter starting or joining a vanpool, carpool, or using transit. Key areas for growth for this program are further integration with social media to help expand outreach, and leveraging interactive travel information tools that make alternative transportation choices easier to use, such as OneBusAway, which provides real-time transit arrival and departure information.

Develop Innovative Outreach Materials and Events

The City collaborates with community groups to develop innovative travel information materials, such as Redmond's Bicycling Guide and Transit Map, as well as custom materials for employers, schools, and community groups, to help meet and support travel needs. Through the R-TRIP program, the City also actively engages with employers, employees, and the community at transportation events hosted throughout Redmond. The City should seek additional opportunities to streamline electronic distribution of commute and travel information through online and social media channels.

Provide Transportation Assistance and Resources for Redmond Businesses and Organizations

A key element of Redmond's TDM program is providing tools, resources, and support to businesses and community organizations to develop innovative transportation programs and solutions. The R-TRIP program, described above, provides innovative online management tools that are used by employers and community groups to manage their own transportation programs. This makes the City's investments more effective by leveraging and combining resources, promotes more efficient and entrepreneurial use of transportation resources, and reinforces Redmond as a positive place to do business.

Enhance R-TRIP Online Tools and Management Features to Support Business and Community Travel Programs

The City should continue to develop and improve the online management tools provided through the R-TRIP system. Areas for growth include adapting existing tools to better accommodate residential- and

school-based travel programs, and supporting the implementation for groups of smaller employers, for example, at business parks.

Implement the R-TRIP Grant Program to Meet Community Travel Needs
The R-TRIP Grant Program provides seed funding for new or enhanced commute programs through a grant application process. The City should continue to implement this grant program to meet employer and community travel needs, and should leverage opportunities to coordinate with other City programs and goals, such as grant opportunities for public parking in downtown.

Streamline Regulation in Support of the City's Vision

All new major commercial developments in Redmond are required to implement Transportation Management Programs as a condition of development. In addition, large employers are required to implement the Washington State's Commute Trip Reduction (CTR) program. Both programs support the development of tools and resources for alternative travel choices at individual employment and development sites in Redmond. These programs help support the City's mode split goals, as well as Washington State's Environmental Protection and Growth Management Acts.

Support and Enable Innovative "Private Sector"-Based Solutions

As part of the "Budgeting by Priorities" process, the business community priority highlights the need for Redmond to take an active role in providing efficient processes and proactive support when it comes to regulation. The role of the City acting as a "guide" versus a "regulator" is key to collaborative problem solving. In support of this approach, the CTR and Transportation Demand Management programs should continue to be implemented in collaboration with employers and property owners to develop innovative solutions that are effective at supporting transportation needs, as well as effective at meeting program goals. Flexibility and innovation in achieving desired outcomes should be encouraged, and data and ongoing performance measurement should be used to monitor progress and guide future actions.

Develop Tools to Support Successful Outcomes

Many of the tools provided by the City, such as the R-TRIP program, are actively used by employers and property owners to support successful on-site TDM programs. The City should continue to develop and enhance these tools to provide collaborative, business-supportive resources that successfully streamline implementation of both the State Commute Trip Reduction Program and the City's Transportation Demand Management Program.

Update the Transportation Demand Management Program for Overlake

Redmond's Comprehensive Plan has established a goal of 40 percent or more of peak period trips to occur via alternative travel choices by 2030 for peak period trips in the Overlake Neighborhood (TR-37). The mode-share targets for new transportation management programs in Overlake should be updated to be consistent with this policy.

Commute Trip Reduction (CTR) Law

The Washington State Legislature adopted the Commute Trip Reduction law in 1991, incorporating it into the Washington Clean Air Act. This law affects larger employers (>100 employees arriving during the a.m. peak period) in the state's most populated counties. The goals of the program are to reduce traffic congestion, reduce air pollution, and petroleum consumption through employer-based programs that decrease the number of commute trips made by commuters driving alone.

Transportation Management Programs

Since the mid-1980s, all new major commercial developments in Redmond have been required as a condition of development to implement transportation management programs. The goal of these programs is to achieve a 70 percent or lower rate of commuting by single occupant vehicles. Elements of these programs include on-site information and resources for alternative travel choices, designated carpool and vanpool parking spaces, and ongoing monitoring and measurement of program success.

Coordinate Planning and Implementation to Support Neighborhood Based Outcomes

A holistic, coordinated approach will be critical to achieve Redmond's vision for its two urban centers. The City is taking a deliberate approach that coordinates economic development, transportation, and growth, through Growth and Transportation Efficiency Center (GTEC) planning, and leverages regional, state, and federal grant matching opportunities that support more efficient focused development within centers.

Develop an Urban Centers TDM Implementation Strategy for GTEC

A framework and implementation plan should be developed for the City's GTEC program in order to integrate TDM actions with infrastructure improvements, facilitate growth, and maximize the efficiency of transportation infrastructure as Redmond's urban centers transition from a suburban to a more urban environment. Elements include a performance-oriented commute options program and a consultant-assisted survey of travel options use and opportunities for urban centers.

Coordinate and Support the City's Parking Strategies

As the City continues to grow and mature, managing the use of both on-street and off-street parking, supply will become increasingly important to maintain and increase access to businesses and services. The City should facilitate and support property owner and employer efforts to manage their available parking to balance competing needs (e.g., between employees and customers). New tools and solutions should be developed to address emerging issues, including parking management and parking spillover mitigation, and the transition to lower parking requirements. Redmond's Zoning Code identifies TDM programs as a tool that can provide flexibility for minimum parking requirements for new development, and model programs and guidelines should be developed to help with the successful and easier implementation of this tool.

Implement TDM Tools in Coordination with Major Construction Projects

When significant transportation construction affects travel to, from, or within Redmond, such as major road closures, or construction on major highways or freeways, information about and incentives for alternative travel choices should be made available.

Leverage the City's Economic Development Potential

Redmond is a major employment destination, and its weekday population exceeds its residential total. As part of a broader economic development strategy, there is an important opportunity to coordinate TDM actions and outreach efforts to leverage the economic activity of Redmond's work force, and make Redmond a great place to live, work, and play.

Support the Think Redmond "Buy Local" Economic Development Program

Encourage reinvestment back into the local economy by using the Think Redmond partnership, a "go local, be local" program that promotes Redmond as a destination for customers, and supports customer access by walking, bicycling, carpooling, or taking the bus. Elements include incorporating "Think Redmond"-branded incentives as part of the R-TRIP commuter rewards outreach, and coordinating with cultural events and arts programs that enhance Redmond's identity as a destination. This program enhances Redmond's image and identity, inspires customer loyalty, and helps make biking, walking, and transit use viable choices for non-commute trips by actively supporting travel choices.