

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.

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.

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.

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.

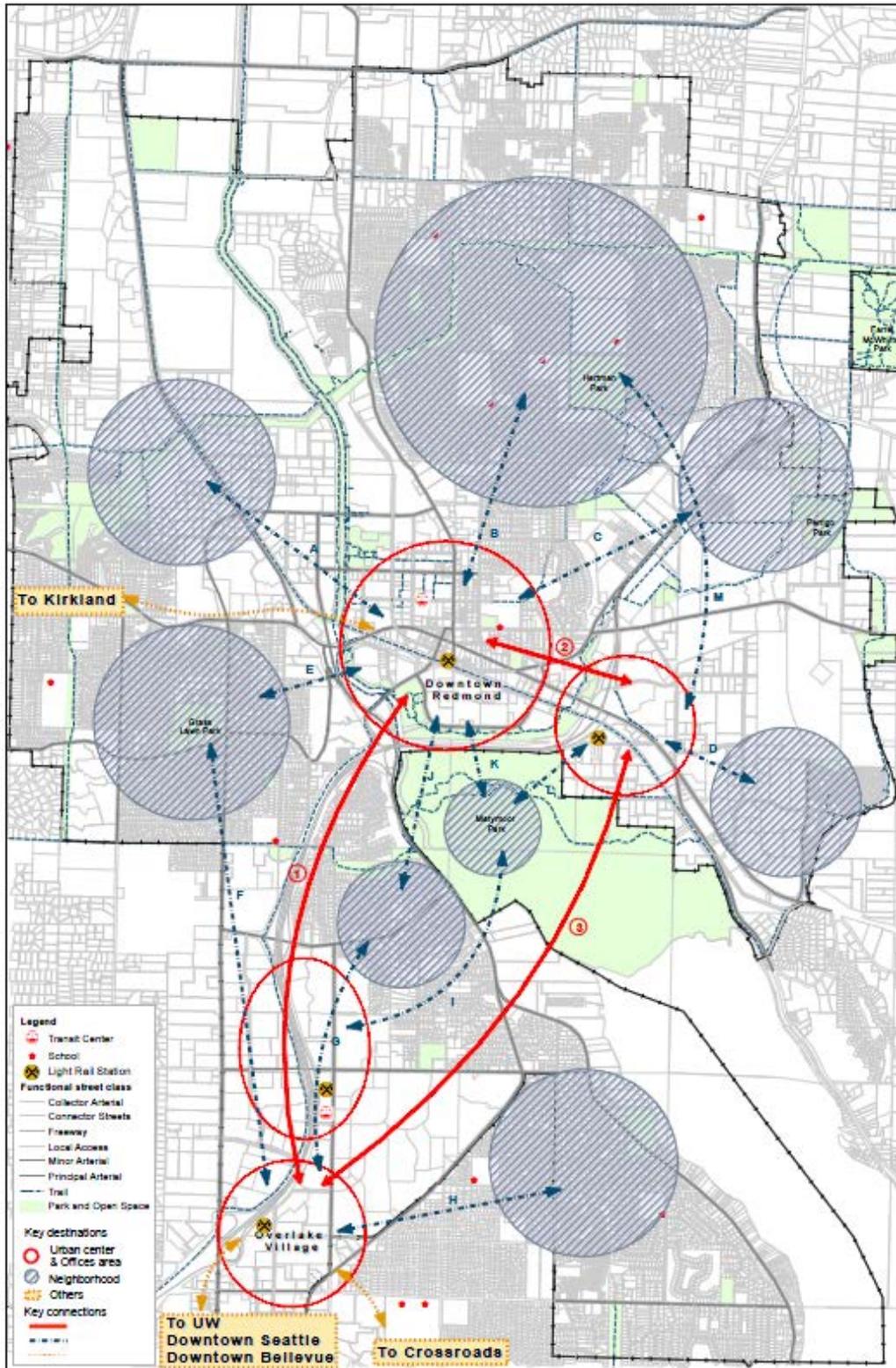


Figure 1. Key connections between major destinations.

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.
- 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 2. 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.

Table 1. Guidance for developing modal corridors with multiple modal priorities.

ID	Combined Modal Description
1	<p>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.</p> <p>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.</p> <p>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.</p>
2	<p>Street – Minor arterial. Provide for freight movements and vehicle travel.</p> <p>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.</p>
3	<p>Street – Principal arterial. Provide for freight movements and vehicle travel. Provide safe and convenient bidirectional access for residents. Improve access management and discourage speeding.</p> <p>Transit – Medium demand corridor. Improve transit access through additional or better aligned crossings.</p> <p>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.</p> <p>Bicycle – Cycle Track. 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.</p>
4	<p>Street – Minor arterial. Provide for vehicle travel.</p> <p>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.</p>
5	<p>Street – Principal arterial. Provide for freight movements and vehicle travel.</p> <p>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.</p>
6	<p>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.</p>

ID	Combined Modal Description
	<p>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.</p> <p>Pedestrian – Provide signalized crossings to support significant pedestrian volumes. Provide trail to support bicycle and pedestrian travel on east side of roadway.</p>
7	<p>Street – Principal arterial. Provide for freight movements and vehicle travel.</p> <p>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.</p>
8	<p>Street – Principal arterial. Provide for freight movements and vehicle travel.</p> <p>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.</p>
9	<p>Street – Limited Access Freeway. Provide for high vehicle and freight speeds and volumes.</p> <p>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.</p>
10	<p>Street – Limited Access Freeway. Provide for high vehicle and freight speeds and volumes.</p> <p>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.</p> <p>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.</p>
11	<p>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.</p> <p>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.</p> <p>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.</p>
12	<p>Street – Minor arterial. Provide for high vehicle volumes.</p>

ID	Combined Modal Description
	<p>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.</p> <p>Pedestrian – Provide for comfortable walking space for high pedestrian volumes.</p>
13	<p>Street – Minor arterial. Provide for vehicle travel.</p> <p>Pedestrian – Provide for comfortable walking space for high pedestrian volumes.</p> <p>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.</p>
14	<p>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.</p> <p>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.</p>
15	<p>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.</p> <p>Bicycle – Complete Redmond Central Connector Master Plan quality of materials, spaces, and connections, consistent with the Infrastructure Alignment Plan.</p>