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.

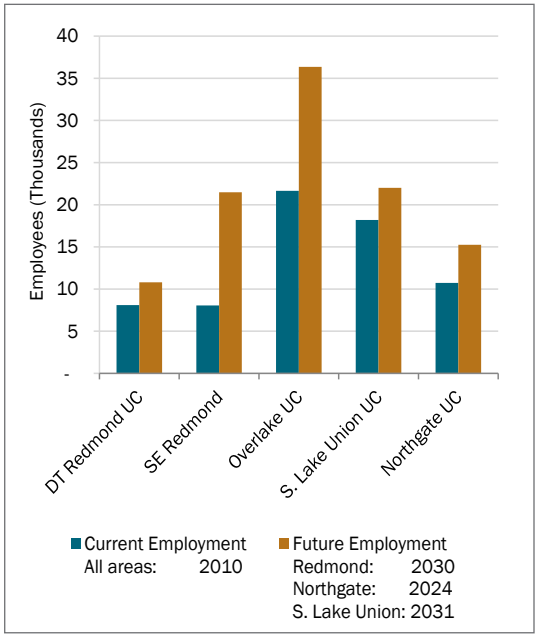

Figure 32. Employment growth

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

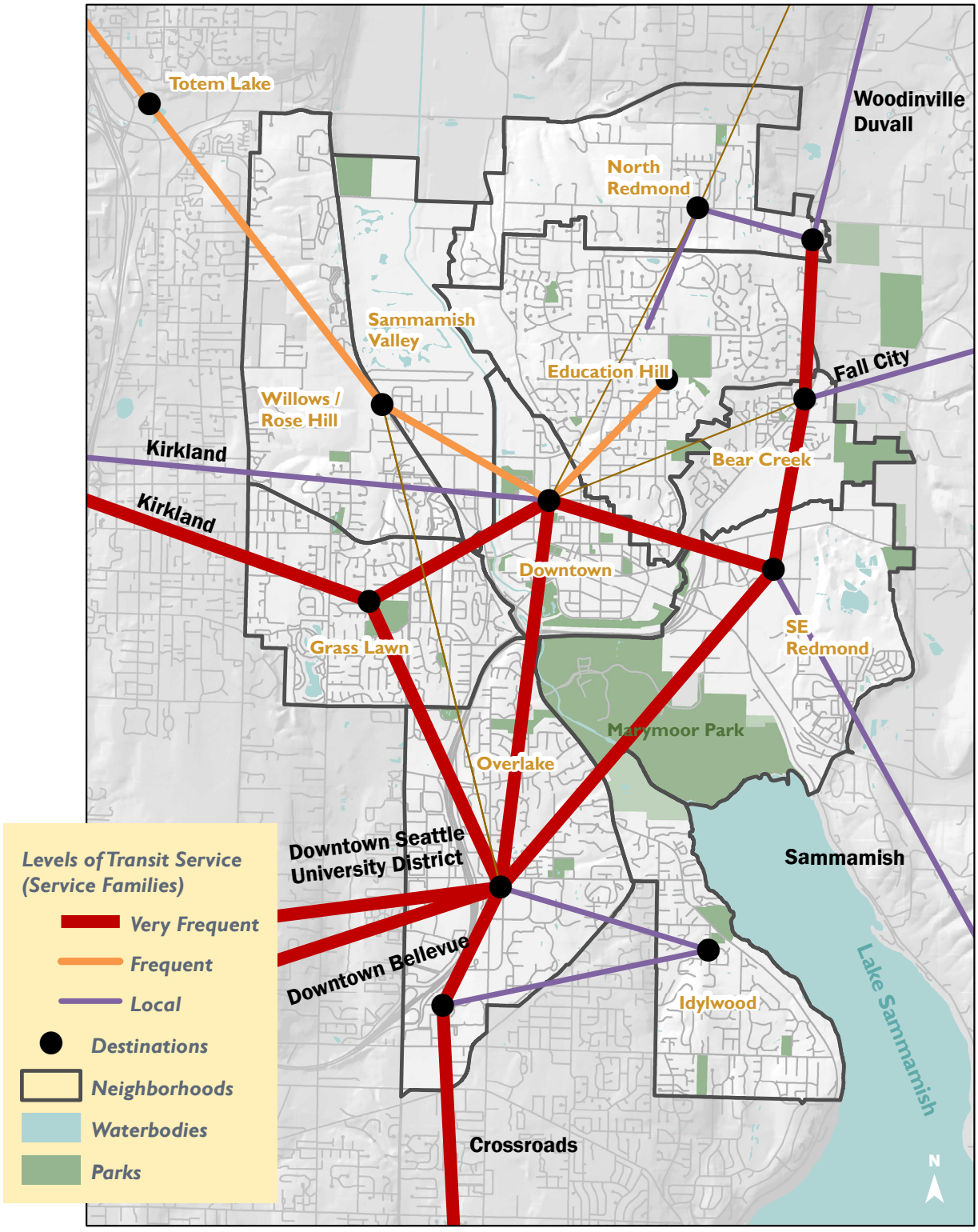

Figure 33. Transit level of service standards

"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

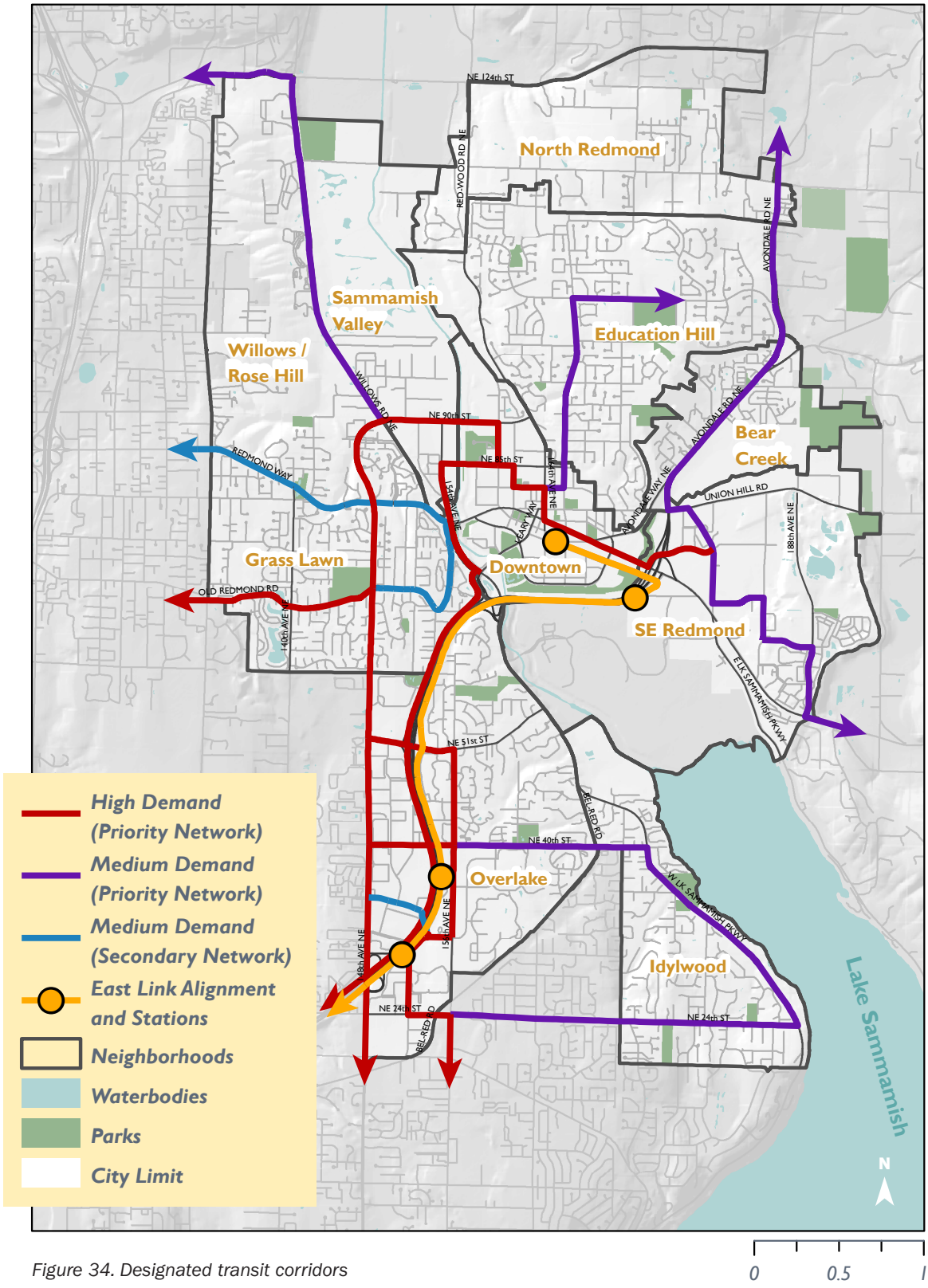

Figure 34. Designated transit corridors

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

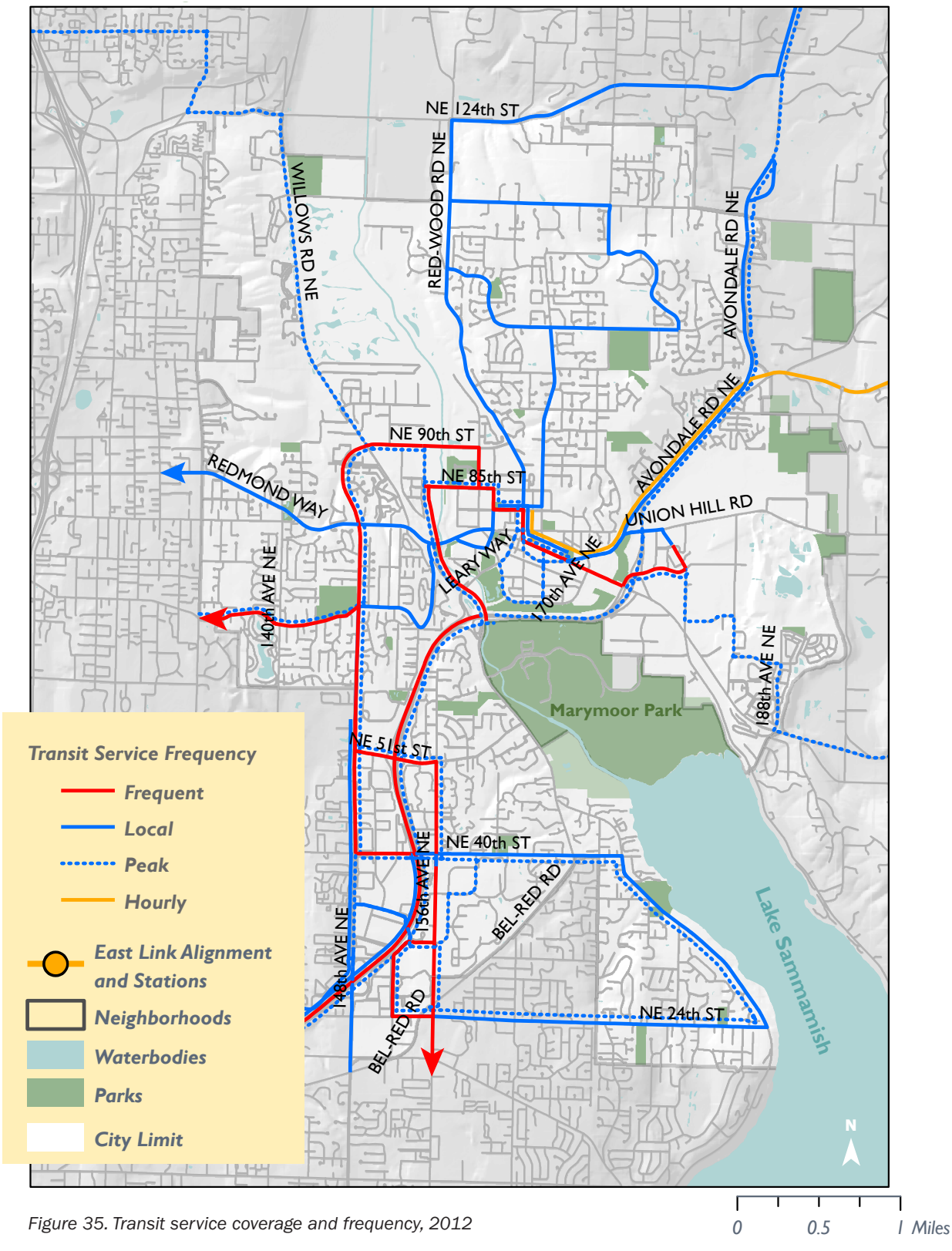

Figure 35. Transit service coverage and frequency, 2012

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

Route and Description		Frequency (minutes)										
		Weekday					Saturday			Sunday		
		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

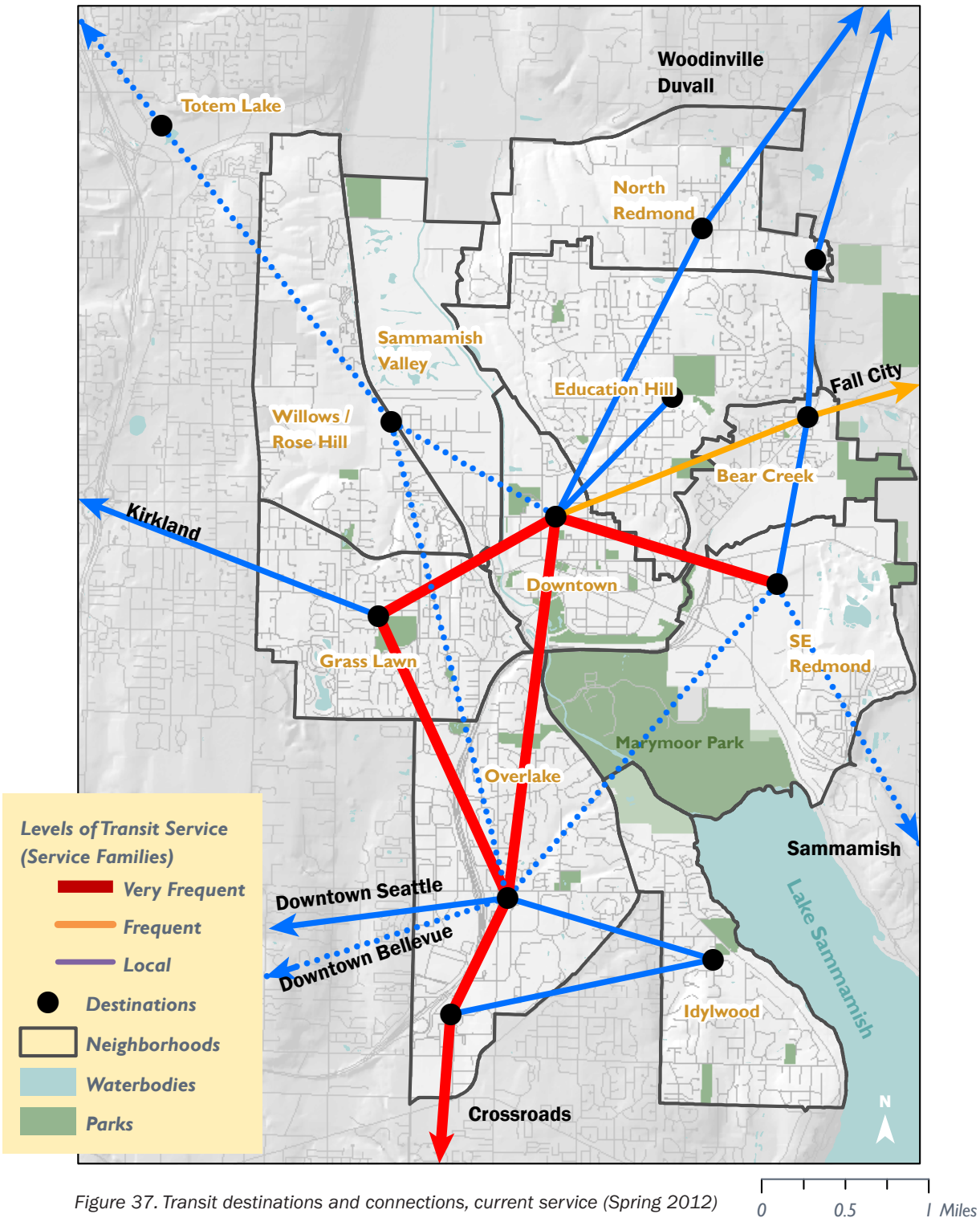

Figure 37. Transit destinations and connections, current service (Spring 2012)