3.7 Transportation

This chapter presents a multimodal transportation analysis prepared to evaluate the potential impacts of implementing the range of land use alternatives under consideration. The chapter presents existing transportation conditions within the City of Seattle, as well as future transportation conditions under four alternatives—one No Action Alternative representing a continuation of the City's Urban Village Strategy and three action alternatives reflecting variations in how the City may manage the distribution of future growth over the next twenty years. Significant transportation impacts and potential mitigation strategies are identified for each future action alternative based on the policies and recommendations established in local plans.

3.7.1 Affected Environment

This section describes the existing transportation conditions in Seattle. Information is provided on a citywide basis as well as for eight defined areas (or "EIS analysis sectors") described in Chapter 2 and shown in Figure 2–17 and Figure 3.7–1, including Northwest Seattle, Northeast Seattle, Queen Anne/Magnolia, Downtown/Lake Union, Capitol Hill/Central District, West Seattle, Duwamish and Southeast Seattle. These sectors are used throughout the analysis to describe how transportation conditions vary within the city.

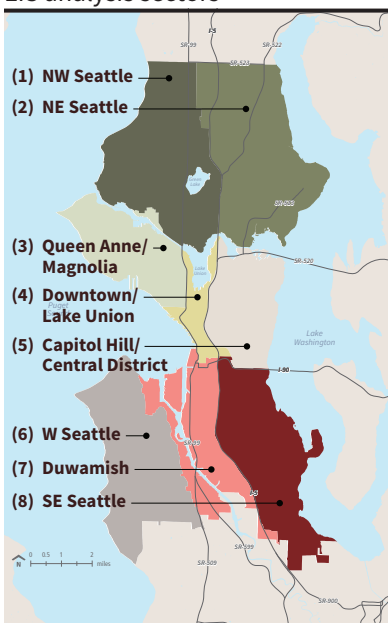
Existing Transportation Network

This section describes the existing transportation network in Seattle for all modes, including pedestrians, bicycles, transit, autos and freight.

PEDESTRIAN NETWORK

The Seattle pedestrian network is composed of sidewalks, crosswalks, staircases, pedestrian bridges, curb ramps and trails. Most urban centers and urban villages have well-connected sidewalk networks. The *2009 Seattle Pedestrian Master Plan* (PMP) states that there are over 6,000 marked crosswalks, 2,256 miles of sidewalks and 26,712 curb ramps in Seattle as of 2008 (SDOT 2009). However, the study did find that approximately 30 percent of all residential zones do not have a sidewalk on one or both sides of the street. These locations are mostly found in the Northwest and Northeast Seattle sectors north of NE 85th Street, near the southwest city boundaries in the West Seattle Sector, in sections of the Duwamish Sector and the edges of the Southeast Seattle Sector.

Figure 3.7–1
EIS analysis sectors



The PMP designated "high priority" areas based on high potential pedestrian demand, equity and corridor function. Generally these areas coincide with designated urban villages, urban centers and are along major transit corridors. With this information, the City prioritized pedestrian improvement locations into two tiers, with the highest priority areas categorized as "Tier 1" locations. These Tier 1 areas are mapped in Figure 3.7–2 and Figure 3.7–3.

Figure 3.7–2 identifies the "along the roadway" areas noted for pedestrian improvements. The "along the roadway" analysis is indicative of the comfort level of pedestrians based on presence of sidewalks, buffers such as landscaping and the traffic volume or speeds on roads. Figure 3.7–3 identifies the "crossing the roadway" pedestrian improvements. The "crossing the roadway" improvement locations are intersections with high vehicle volumes that may need crosswalk improvements such as striping or curb ramps.

The "along the roadway" improvements are generally located in the north half of the Northwest and Northeast Seattle sectors, north of NE 85th Street. Other locations with a number of improvement projects are in Southeast Seattle and the Duwamish Sector. Crossing the roadway improvements are more spread throughout Seattle with projects in all sectors of the city.

From 2008 to 2012, there have been 63 new blocks of sidewalk constructed, 97 blocks of sidewalks repaired and over 150 pedestrian crossings improved, among other improvement projects such as installing school zone signs and pedestrian beacons (SDOT 2010a; SDOT 2010b; SDOT 2012b; SDOT 2013).

BICYCLE NETWORK

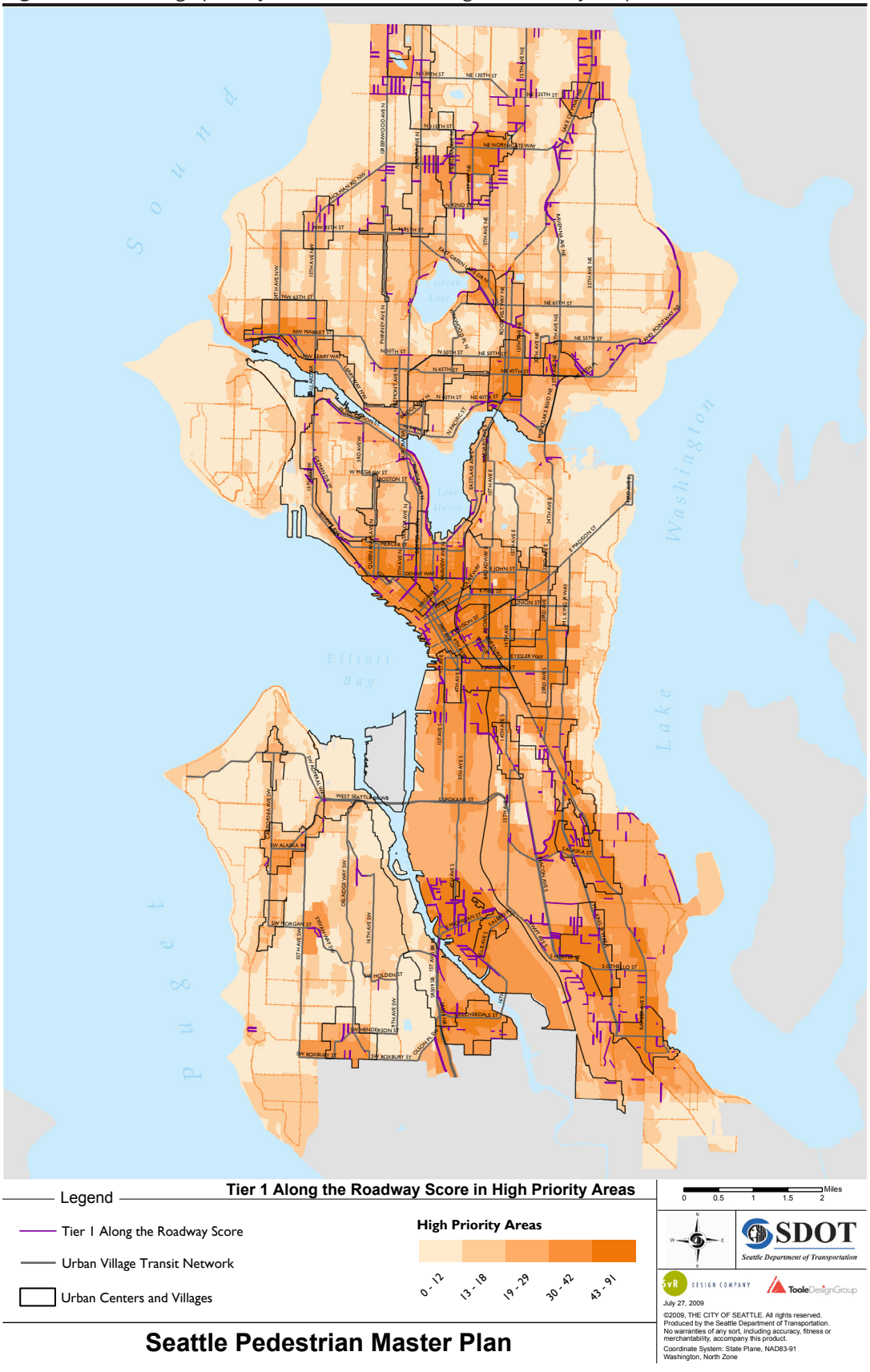
Seattle has over 300 miles of bicycle facilities. There are 47 miles of off-street facilities such as multi-use trails, 3 miles of cycle tracks—protected bicycle lanes physically separated (raised or with an on-street barrier), 6 miles of neighborhood greenway, 78 miles of bicycle and climbing lanes, 92 miles of shared street bicycle facilities, or "sharrows" and 128 miles of signed routes; SDOT 2014f).[1] The *Bicycle Master Plan* (BMP) map of the existing bicycle network is shown in Figure 3.7–4; the recommended future network is shown in Figure 3.7–5.

Bicycle facilities are spread throughout the city and are more prevalent in urban centers such as Downtown, First/Capitol Hill, the University District, South Lake Union and Uptown (also known as Lower Queen Anne). Trails are generally along the water (Lake Washington, Ship Canal, Puget Sound), while neighborhood greenways are in more residential locations of the Northwest, Northeast, Southeast and West Seattle sectors. Locations of gaps in the bicycle network are identified throughout Seattle in the BMP, which recommends over 400 miles of new bicycle facilities and connections by 2030.

The City collects bicycle counts on a quarterly basis at 50 locations in Seattle. The BMP states that the highest bicycle count locations are at ship canal crossings, and in the South

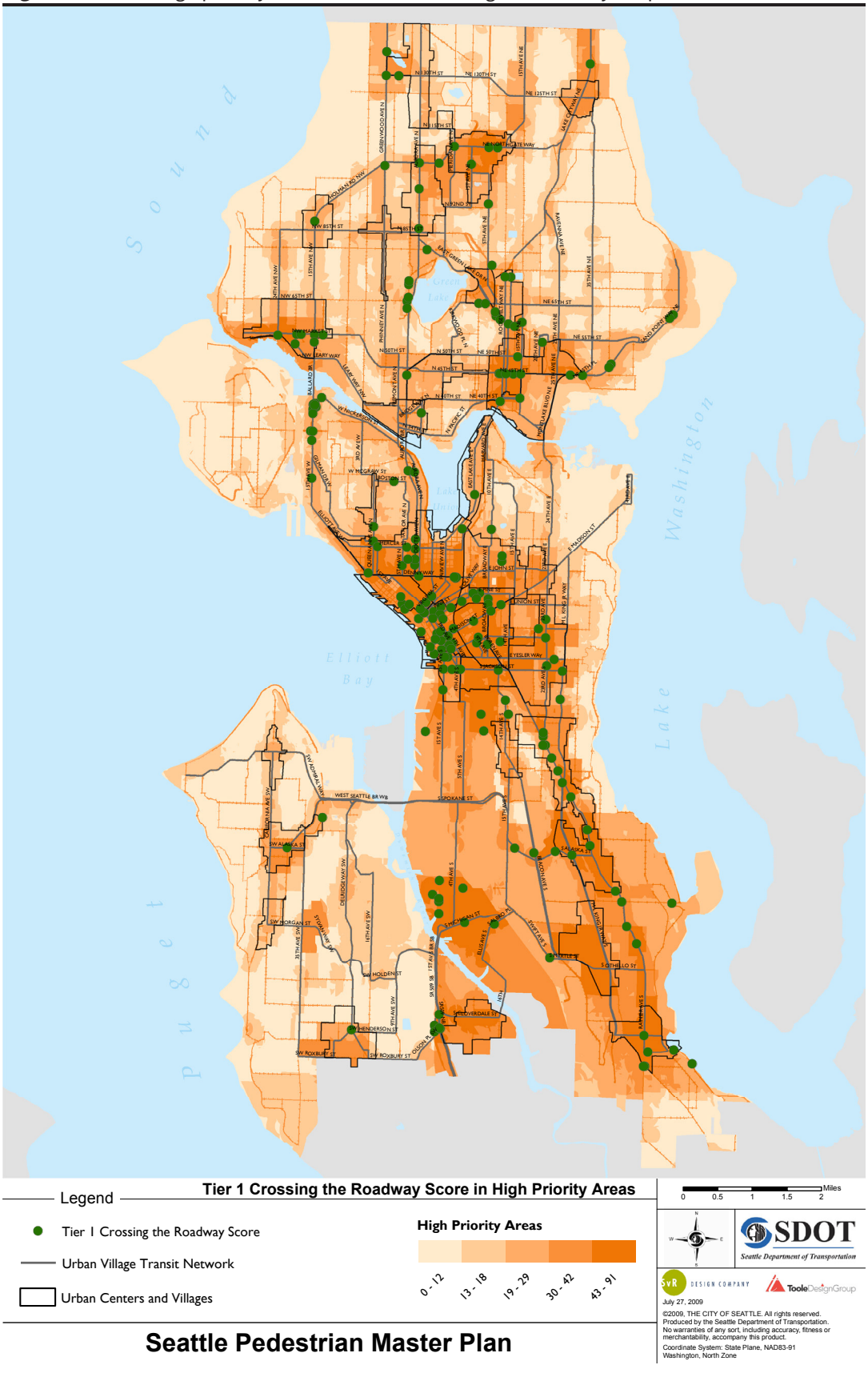
1 Total miles of bicycle facilities do not include 128 miles of signed bicycle routes.

Figure 3.7–2 High priority areas and tier 1 "along the roadway" improvement locations



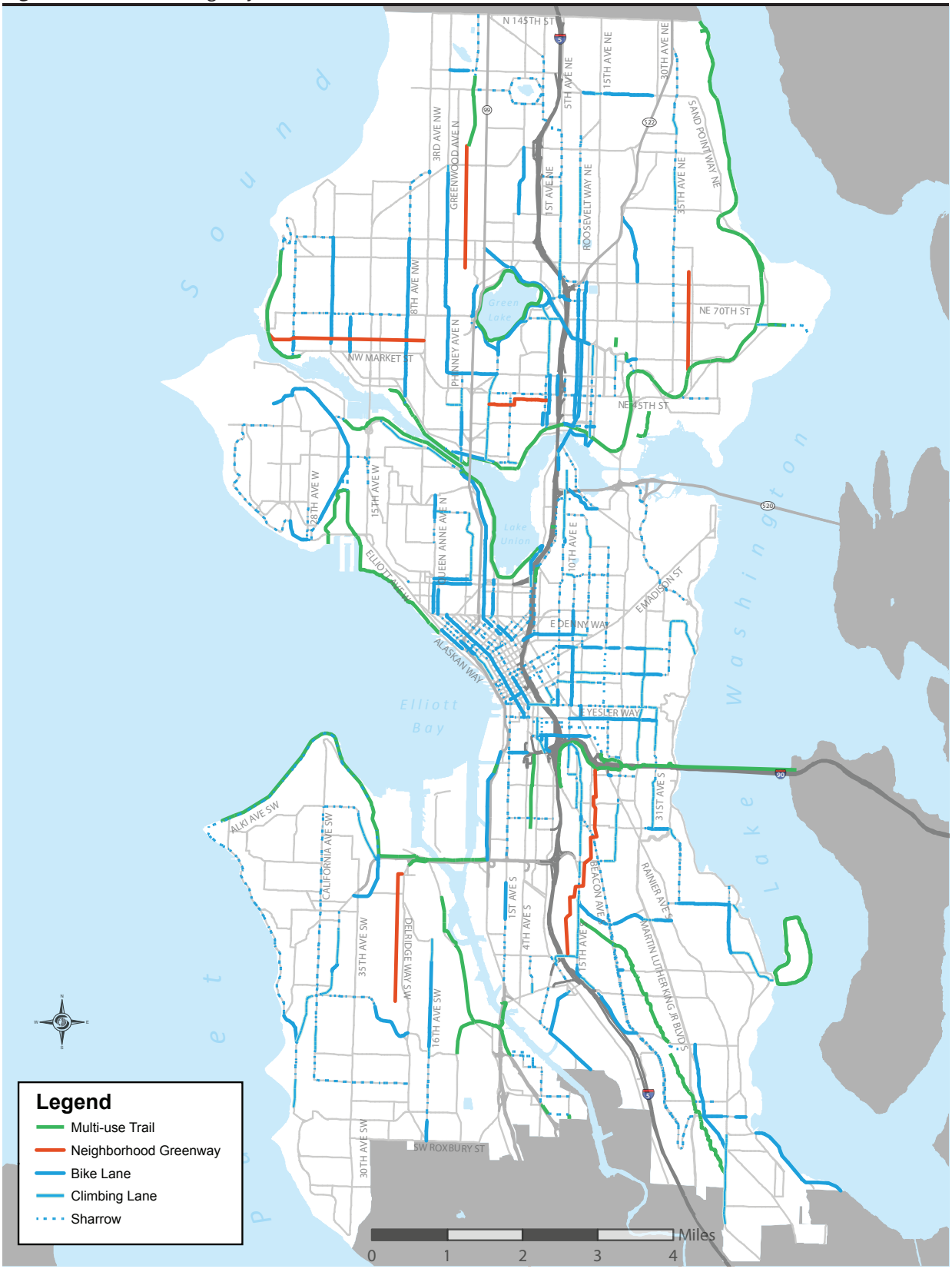
Source: Seattle Pedestrian Master Plan, 2009.

Figure 3.7–3 High priority areas and tier 1 "crossing the roadway" improvement locations



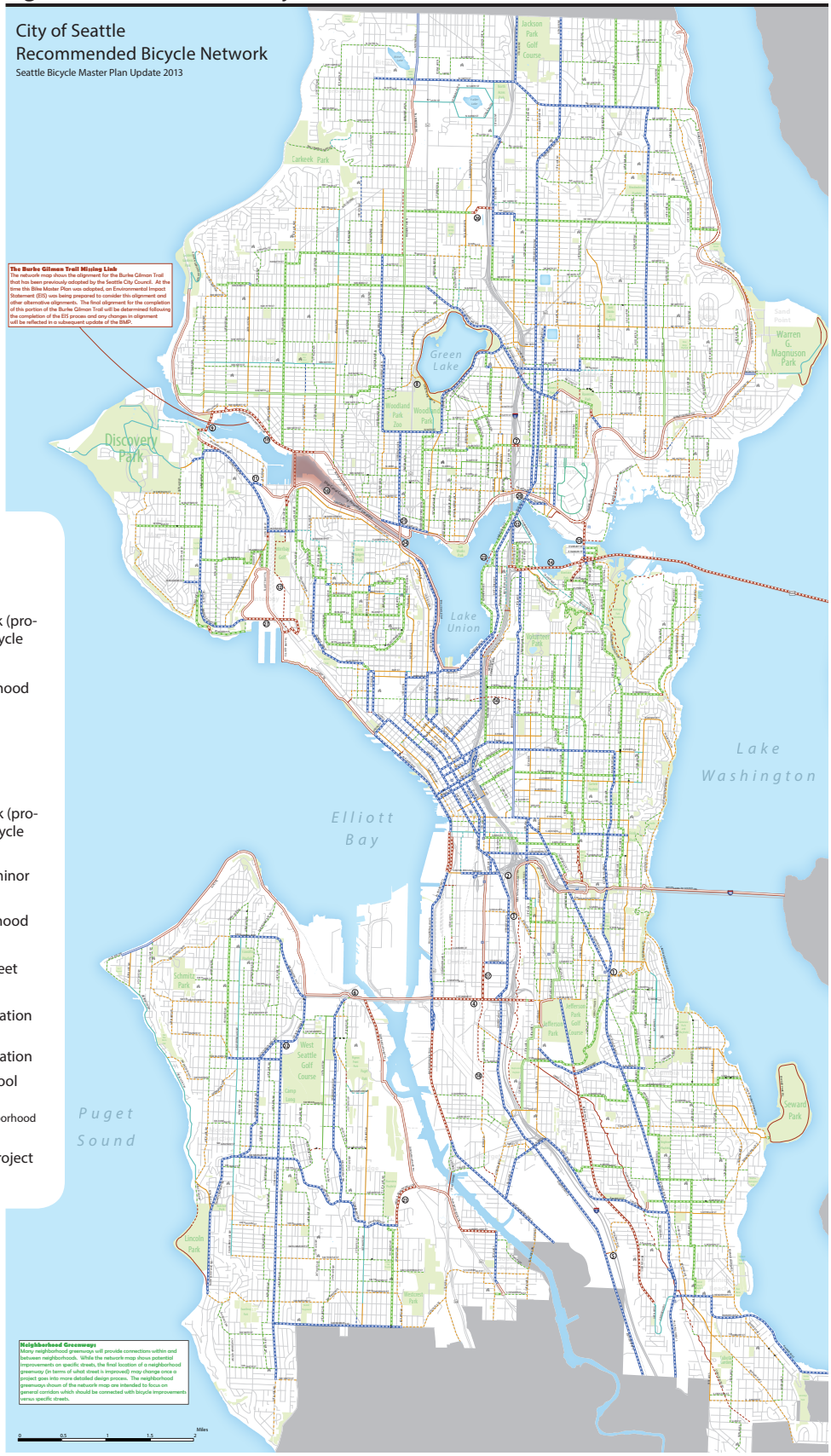
Source: Seattle Pedestrian Master Plan, 2009.

Figure 3.7–4 Existing bicycle facilities as of 2013



Source: Seattle Bicycle Master Plan, 2014.

Figure 3.7–5 Planned bicycle network



Lake Union, Capitol Hill and the Downtown neighborhoods. Appendix A.4 includes a map showing high bicycle count locations. In 2012, there was a citywide 4.7 percent increase in bicycle counts compared to 2011 (SDOT 2014b).

The Puget Sound Bike Share is a non-profit organization that launched the Pronto! Cycle Sharing program in Seattle in the fall of 2014. The program has a dense network of bicycle stations that allow members to check out a bicycle from one station, ride to a destination and park the bicycle at another designated station. This program is intended for short trips that are typically less than two miles. Phase I of the program has 500 bicycles docked at 50 bike share stations in Downtown Seattle, First/Capitol Hill, Eastlake and the University District. The bike share program is expected to grow its network into other dense areas of the city.

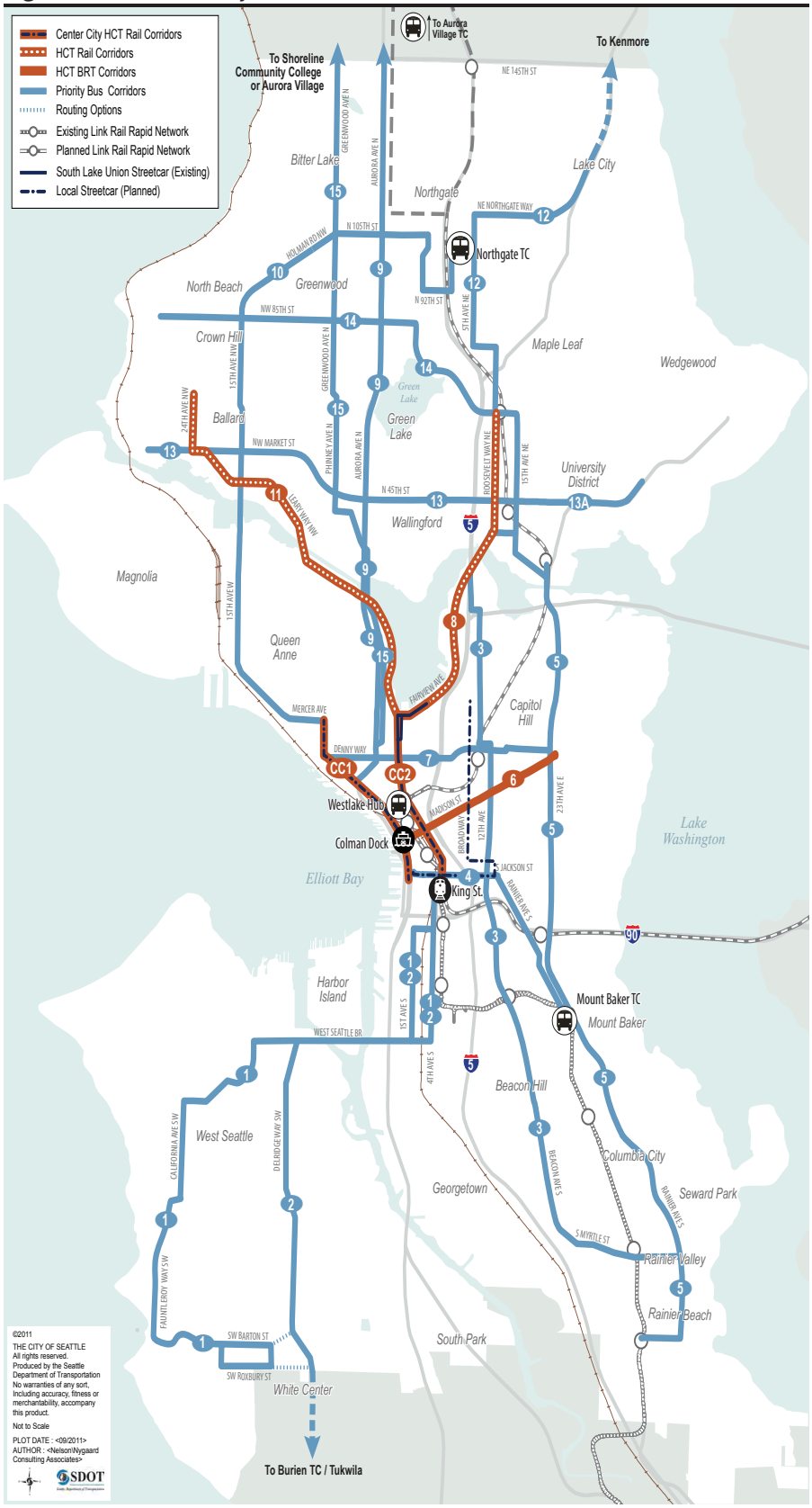
TRANSIT SERVICES

Seattle's public transit services are provided by King County Metro, Sound Transit, Community Transit and the City of Seattle. In 2012, the mode share of workers who arrived to Seattle's center city core between 6 AM and 9 AM by public transit was 43 percent (Commute Seattle 2013), much greater than the 19 percent citywide transit share for workers (U.S. Census Bureau 2013). The share of workers who drove alone to center city was 34 percent.

- King County Metro operates a fixed route bus system that also includes "RapidRide," a separately-branded set of frequent transit routes in West Seattle, Ballard, North Seattle and Downtown.
- Sound Transit Express and Community Transit operate buses that provide service from outside the City of Seattle.
- Rail transit services include Sound Transit Link Light Rail, City-operated streetcars in South Lake Union and First Hill, the City-operated monorail between Downtown and Seattle Center and the Sounder Commuter Train that provides service between Lakewood, Seattle and Everett during peak hours.

In 2012, the City proposed the Transit Master Plan (TMP) which outlines the transit facilities, services and programs needed over the next 20 years to accommodate anticipated growth in Seattle. The City has designated 15 priority transit corridors categorized as High Capacity Transit (HCT) Corridors and Priority Bus Corridors, along with designated Center City Corridors (see Figure 3.7–6). These corridors are prioritized for capital investments to ensure mobility within Seattle, one of the key objectives outlined in the TMP. Another goal is to provide frequent transit service on these corridors to create and expand the Frequent Transit Network (a map of which may be found in Appendix A.4). The Frequent Transit Network is composed of transit corridors that have, or are recommended for, frequent transit service. This level of service is defined to encompass routes with average service frequency of 15 minutes or better for at least 12 hours six days per week, and an average service frequency of at least 30 minutes for 18 hours per day on each day of the week.

Figure 3.7–6 Priority transit network



ROADWAY NETWORK

The City of Seattle includes roughly 1,540 lane-miles of arterial streets, 2,410 lane-miles of non-arterial streets, 122 bridges and 1,070 signalized intersections (City of Seattle 2014b). Much of Seattle's transportation network is constrained by the waterways within and around the city. The Ship Canal divides north Seattle from the rest of the city, with only six crossing points: the Ballard Bridge, the Fremont Bridge, State Route (SR) 99, Interstate 5 (I-5), the University Bridge and the Montlake Bridge. Likewise, West Seattle is separated from the rest of the city by the Duwamish Waterway, and is accessed via the West Seattle Bridge, Spokane Street Bridge, the First Avenue S Bridge and the South Park Bridge.

I-5 runs north-south throughout the city, serving both local and regional travelers. SR 99 also runs north-south through the city and tends to serve more locally focused trips. To the east, there are two bridges across Lake Washington: SR 520 and Interstate 90 (I-90). Other key state routes within the city include SR 522 connecting to the northeast and SR 509 connecting south to Sea-Tac Airport. City arterials generally follow a grid pattern. The City has designated a major truck street network throughout the city that carries a substantial amount of freight traffic. The state routes, interstates and major arterials linking major freight destinations are part of this network.

PARKING

The City of Seattle regulates parking within its right-of-way by issuing on-street permits, charging by the hour, setting time limits and defining load zones. The city regularly assesses the performance of its parking management programs to manage changing demand patterns.

Restricted Parking Zone (RPZ) Program

Seattle designates certain areas as Restricted Parking Zones (RPZ), as shown in Figure 3.7–7. These zones have time-limited parking available to the public. Residents with eligible addresses can apply for a permit to use the curb parking in their neighborhood without time limits. The aim is to balance the parking needs of the public and the residents and ease parking congestion in certain locations. There are 31 zones in Seattle, with an additional 2 zones during University of Washington Husky game days.

On-Street Paid Parking

On-street paid parking is located in most Seattle urban centers (except for the Northgate area) and in select smaller locations near commercial business areas such as Fremont, Green Lake and Roosevelt neighborhoods. The map of all paid on-street parking locations is shown in Figure 3.7–8.

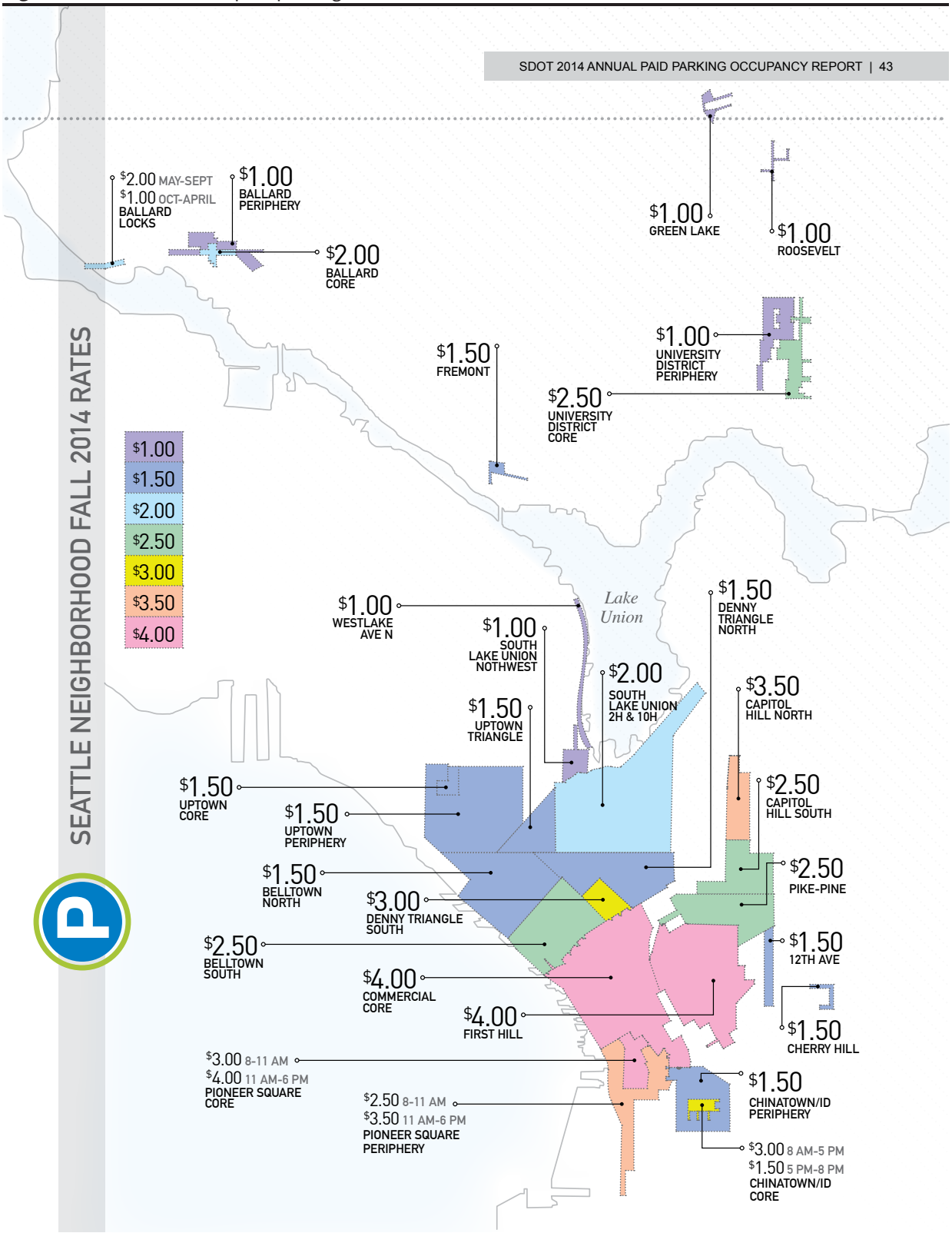
Through Seattle's Performance-Based Parking Pricing Program, on-street parking rates are adjusted in neighborhoods to reach a target parking occupancy. The Seattle Department of Transportation regularly collects citywide parking utilization data to implement the Per-

Figure 3.7–7 Restricted parking zones in Seattle

1: Montlake
2: Squire Park/Cherry Hill
3: Fauntleroy
4: Capitol Hill
5: Wallingford
6: University Park
7: First Hill
8: Eastlake
9: Magnolia
10: University District West
11: North Queen Anne
12: North Capitol Hill
13: Lower Queen Anne
14: Central District
15: Belmont/Harvard
16: Mount Baker
17: North Beacon Hill
18: Licton Springs
19: Roosevelt
20: Ravenna/Bryant
21: Pike/Pine
22: Wallingford/Lincoln HS
23: Madison Valley
24: Cascade
25: Westlake East
26: Upper Queen Anne
27: Fremont
28: Beacon Hill
29: Columbia City
30: Othello
31: Rainier Beach
A: Montlake /Husky Game Days
B: Ravenna/Laurelhurst Husky Game Days

Source: City of Seattle, 2014.

Figure 3.7–8 On-street paid parking facilities



formance-Based Parking Pricing Program, established by Seattle Municipal Code 11.16.121 that states, in part:

> *"The Director shall establish on-street parking rates and shall adjust parking rates higher (up to the Maximum Hourly Rate), or lower (as low as the Minimum Hourly Rate) in neighborhood parking areas based on measured occupancy so that approximately one or two open spaces are available on each blockface."*

The goals of the Performance-Based Parking Pricing Program are to:

- Support neighborhood business districts by having available on-street parking;
- Maintain adequate turnover and reduce meter feeding in commercial districts;
- Encourage adequate on-street parking availability, efficient use of off-street parking facilities and enhanced use of transit and other transportation alternatives; and
- Reduce congestion in travel lanes caused by drivers looking for on-street parking.

Seattle's target on-street parking occupancy is 70–85 percent utilization citywide. Table 3.7–1 shows the 2013 to 2014 daytime and evening occupancy rates by neighborhood. Daytime peak occupancy is on an upward trend in most locations. In 2013, of the 35 surveyed locations, 14 fell within the target 70–85 percent utilization range, 7 were below the target range and 13 were above the target range. The 13 locations with more than 85 percent occupancy were:

- Capitol Hill—North (92%)
- Cherry Hill (88%)
- Chinatown—International District (89%)
- Commercial Core—Financial (95%)
- Denny Triangle—South (93%)
- First Hill (93%)
- Pike-Pine (96%)
- Pioneer Square—Core (96%)
- Pioneer Square—Periphery (94%)
- South Lake Union—10 Hour (100%)
- South Lake Union—2 Hour (92%)
- University District—Core (88%)
- Uptown Triangle (92%)

Evening occupancy data tends to show higher utilization than the daytime with some areas exceeding the available supply. Of the 35 surveyed locations, 14 have evening utilization above 85 percent. The following six locations have utilization over 100 percent:

- 12th Avenue (106%)
- Ballard—Core (109%)
- Capitol Hill—North (100%)
- Capitol Hill—South (101%)
- Green Lake (102%)
- Pike-Pine (106%)

Table 3.7–1 2014 on-street paid parking occupancy (percent)

		Daytime Peak Occupancy		7 PM Occupancy	
Neighborhood	**Subarea**	**2013**	**2014**	**2013**	**2014**
12th Avenue		83	77	108	106
Ballard	Core	75	83	103	109
	Periphery	58	58	99	84
Ballard Locks	High seasonal differences*				
Belltown	North	52	68	53	74
	South	87	78	93	77
Capitol Hill	North	89	92	98	100
	South	85	77	101	101
Cherry Hill		71	88	68	95
Chinatown-ID	Core	89	89	72	77
	Periphery	65	69	52	70
Commercial Core	Financial	90	95	69	61
	Retail	80	84	73	84
	Waterfront	83	79	80	81
Denny Triangle	North	69	68	66	81
	South	89	93	78	88
First Hill		87	93	91	91
Fremont		80	78	98	95
Green Lake		76	83	110	102
Pike-Pine		93	96	104	106
Pioneer Square	Core**	Morning: 64	Morning: 53	78	87
		Afternoon: 95	Afternoon: 96		
		Evening: 77	Evening: 78		
	Periphery**	Morning: 64	Morning: 63	80	86
		Afternoon: 89	Afternoon: 94		
		Evening: 79	Evening: 81		
Roosevelt		63	65	88	64
South Lake Union	2-Hour	81	92	72	74
	10-Hour	95	100	55	58
	Northwest	no data	69	no data	31
University District	Core	89	88	107	96
	Periphery	57	56	52	43
Uptown	Core	75	81	93	93
	Periphery	72	77	88	85
Uptown Triangle		59	92	62	67
Westlake Avenue N		76	85	48	49

* Seasonal occupancy is used to set paid parking rates, hours and time limits. Ballard Locks rates will be set for May-September and October-April consistent with the hours of the Visitors Center.

** Time of day paid parking rates will be implemented in Pioneer Square based on the morning. (9–10 AM), afternoon (11 AM–5 PM) and evening (6–7 PM).

Source: City of Seattle, Annual Paid Parking Occupancy Report, 2014.

SAFETY

The City periodically releases reports summarizing citywide collision data. The most recently available data is for 2012, which had nearly 11,600 police reported collisions. This number was slightly higher than the previous two years, but well below the highs of roughly 14,000 in years 2003 through 2007 (SDOT 2012a). The City has a goal of zero traffic fatalities and serious injuries by 2030. In 2012, there were 20 fatalities in the City. Fatalities on city streets are on a downward trend, decreasing by roughly one-third since 1992 (SDOT 2012a).

Relevant Plans and Policies

Relevant policies related to transportation in Seattle are summarized below. The City of Seattle has a 10-year strategic plan outlined in *Move Seattle* (2015). Seattle also has master plans for transit, pedestrians and bicyclists, and is in the process of developing a Freight Master Plan. More detailed information is available in the specified documents.

MOVE SEATTLE (2015)

Move Seattle is a strategic document published in Spring 2015 that guides SDOT's work over the next ten years. The plan identifies the following three key elements:

- Organizing daily work around core values: a safe, interconnected, vibrant, affordable, and innovative city.
- Integrating modal plans to deliver transformational projects: this includes creating a near-term strategy to integrate recommendations from the freight, transit, walking, and bicycling 20-year modal plans.
- Prioritizing projects and work to identify funding: as the Bridging the Gap levy expires in 2015, SDOT is exploring ways to replace it as a funding source to ensure transportation maintenance and improvements can continue.

TRANSPORTATION STRATEGIC PLAN (2005)

The *Transportation Strategic Plan* (TSP) is the Seattle Department of Transportation's (SDOT's) 20-year work plan developed in 2005. This strategic plan was updated in 2015 as part of the Move Seattle initiative. It includes the strategies and actions required to achieve the goals and policies outlined in the Seattle Comprehensive Plan and to comply with PSRC regional planning documents. The TSP guides prioritization of resources to projects, programs and services. The TSP includes supporting data such as street classifications and traffic volumes, planning areas, transit routes and sidewalk inventory, among others. In addition annual reports show the progress made toward reaching the set goals.

TRANSIT MASTER PLAN (2012)

The *Transit Master Plan* (TMP) is a 20-year plan that outlines the needs to meet Seattle's transit demand through 2030. It prioritizes capital investment to create frequent transit services that meet the needs of residents and workers. It outlines the high priority transit corridors and the preferred modes (see Figure 3.7–6). This document refers to the Transportation Strategic Plan and specifies capital projects to improve speed and reliability. Goals include:

- Meet sustainability, growth management and economic development goals
- Make it easier and more desirable to take transit
- Respond to needs of transit-reliant populations
- Create great places where modes connect
- Advance implementation within constraints. The elements of the document include policies and programs, transit corridors and service, access and connections to transit and funding and performance monitoring.

PEDESTRIAN MASTER PLAN (2009)

The *Pedestrian Master Plan* (PMP) sets the following goals:

- Reduce the number and severity of crashes involving pedestrians.
- Make Seattle a more walkable city for all through equity in public engagement, service delivery, accessibility and capital investments.
- Develop a pedestrian environment that sustains healthy communities and support vibrant communities.
- Raises awareness of the important role of walking in promoting health and preventing disease.

The plan documents existing pedestrian facilities and outlines prioritized Tier 1 and Tier 2 improvement projects (see Figure 3.7–2 and Figure 3.7–3).

SEATTLE BICYCLE MASTER PLAN (2014)

The *Seattle Bicycle Master Plan* (BMP) provides guidance on future investments in bicycle facilities in Seattle, with a vision for bicycling as a safe and convenient mode for people of all ages and abilities on a daily basis. Goals include increasing bicycle ridership, safety, connectivity, equity and livability. The document outlines the existing network and over 400 miles of planned future network for the city (see Figure 3.7–4 and Figure 3.7–5). Strategies for end-of-trip facilities, programs, maintenance, project prioritization and funding are included.

FREIGHT MOBILITY STRATEGIC ACTION PLAN (2005)

The *Freight Mobility Strategic Action Plan* was developed by SDOT in 2005 to protect and grow the industrial job base. This document is especially important for assisting the two designated manufacturing and industrial centers: Ballard-Interbay-Northend and Greater

Duwamish. The plan identifies 22 actions to enhance freight movement, including coordinating with Seattle's freight community, actively participating in regional and state forums seeking freight funding and maintaining and updating an inventory of known trucking obstacles. A revised *Freight Master Plan* is currently being developed by SDOT and is expected to be completed in 2015. The *Freight Master Plan* would supersede the *Freight Mobility Strategic Action Plan*.

CITY OF SEATTLE 2013-2018 TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM

For the 2013 to 2018 period the *Capital Improvement Program* (CIP) plans to spend $1.54 billion on developing, maintaining and operating Seattle's transportation system. The CIP aims to promote safe and efficient movement of people and goods and to enhance the quality of life, environments and economy within the City and surrounding areas. Funding has been designated for projects in the *Seattle Pedestrian Master Plan*, *Transit Master Plan*, *Bicycle Master Plan* and freight improvement projects. Highlighted improvement projects include:

- Safe Routes to School projects
- Sidewalk safety repair
- Sound Transit North Link Station bike and pedestrian improvements
- 3rd Avenue Corridor Improvements
- Eastlake High Capacity Transit planning
- Madison Corridor Improvements
- Transit Corridor Improvements
- Seattle Center City Connector Transit Analysis
- Fauntleroy Green Boulevard
- Enhanced Paving Plan
- Alaskan Way Viaduct and Seawall Replacement
- Elliott Bay Seawall Project
- Waterfront Improvement Program
- Mercer Corridor Project- West Phase
- First Hill Streetcar
- South Lake Union Streetcar

COMPLETE STREETS

This 2006 policy directs SDOT to consider roadway designs that balance the needs of all roadway users, including pedestrians, bicyclists, transit riders and people of all abilities, as well as automobiles and freight. Design decisions are based on data, such as the adjacent land uses and anticipated future transportation needs. There is no set design template for complete streets as every situation requires a unique balance of design features within the available right-of-way. However, examples include providing wider sidewalks, landscaping, bicycle lanes, transit stop amenities and adequate lane widths for freight operations.

Analysis Methodology

The proposed actions being evaluated in this document are area-wide and programmatic in nature, rather than location specific. Therefore, the methodology used to evaluate potential changes and impacts to the transportation network is broad-based as is typical for the analysis of large-scale plan updates.[2]

This section describes the methodology used to analyze base year transportation conditions in Seattle. The base year for this analysis is 2015. For some metrics, the most recently available data is provided while others use estimates from the 2015 project travel demand model. The project travel demand model is discussed in more detail in 3.7.2.

The analyses conducted for this EIS fall into two categories: those used to determine significant adverse transportation impacts and those provided for informational purposes only. These metrics are described in the following sections.

COMPREHENSIVE PLAN LEVEL OF SERVICE STANDARDS

The standards included in the current Comprehensive Plan are used to determine significant transportation impacts in this EIS. The Comprehensive Plan sets the PM peak period level of service (LOS) standards for locally-owned arterials and transit routes. The City uses "screenlines" to evaluate autos (including freight) and transit since buses generally travel in the same traffic stream as autos. A screenline is an imaginary line across which the number of passing vehicles is counted. Each of those screenlines has an LOS standard in the form of a volume-to-capacity (v/c) ratio: the number of vehicles crossing the screenline compared to the designated capacity of the roadways crossing the screenline. The City's Comprehensive Plan evaluates 28 screenlines during the PM peak hour. Table 3.7–2 and Figure 3.7–9 summarize the location of each screenline, as well as its LOS standard as designated in the Comprehensive Plan.

OTHER METRICS

This EIS includes additional metrics to help illustrate the differences between existing conditions and each of the future year alternatives. However, the City has not adopted any formal standards for these metrics and they are not used to identify deficiencies or impacts within this environmental document.

STATE FACILITIES

The designated screenlines include some facilities owned by the Washington Department of Transportation (WSDOT), such as SR 99 and SR 522. To provide a complete assessment, this analysis was supplemented to include those state facilities not included in the screenlines.

2 This large-scale analysis approach differs from the intersection-level analysis that may be more appropriate for assessing the effects of development on individual parcels or blocks.

Table 3.7–2
Seattle Comprehensive Plan screenline level of service thresholds

Screenline #	Screenline Location	LOS Standard
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20
2	Magnolia	1.00
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00
4.13	South City Limit—SR 99 to Airport Way S	1.00
5.11	Ship Canal—Ballard Bridge	1.20
5.12	Ship Canal—Fremont Bridge	1.20
5.13	Ship Canal—Aurora Bridge	1.20
5.16	Ship Canal—University & Montlake Bridges	1.20
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00
8	South of Lake Union	1.20
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00
12.12	East of CBD	1.20
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00
13.12	East of I-5—NE 65th St to NE 80th St	1.00
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00

Source: Seattle's Comprehensive Plan, Toward a Sustainable Seattle, 2008.

These include I-5, I-90, SR 509, SR 519 and SR 520, which are designated as Highways of Statewide Significance by WSDOT. Table 3.7–3 summarizes the segments analyzed. WSDOT sets the standard for these facilities at LOS D.[3] The purpose of the evaluation of state facilities is to monitor performance and facilitate coordination between the city and state per the Growth Management Act.

3 LOS D is defined using the methodologies outlined in the *Highway Capacity Manual*, Transportation Research Board, 2010 and other methods based on this document.

Figure 3.7–9 City of Seattle screenlines

Table 3.7–3 State facility analysis locations

State Facility	Location	LOS Standard
I-5	North of NE Northgate Way	D
I-5	Ship Canal Bridge	D
I-5	North of West Seattle Bridge	D
I-5	North of Boeing Access Rd	D
I-90	East of Rainier Ave S	D
SR 509	West of 4th Ave	D
SR 519	Between S 112th St and Cloverdale St	D
SR 520	Lake Washington Bridge	D

Source: WSDOT Community Planning Portal, 2014.

The freeway segments are analyzed using the same v/c concept that the City uses for its screenlines. Average daily volumes were collected from WSDOT's online Community Planning Portal. Capacities were determined using a set of tables developed by the Florida Department of Transportation (FDOT) based on the *2010 Highway Capacity Manual*. The capacities are based on the characteristics of the roadway including number of lanes, presence of auxiliary lanes and presence of ramp metering.

The remaining metrics evaluate the transportation system on a sector basis to present a holistic view of the network. The following sections describe the metrics evaluated for each of the sectors shown in Figure 2–17. Some metrics are area-wide, while others are based on travel from a specific location. Figure 3.7–10 summarizes the specific analysis locations chosen within each sector.

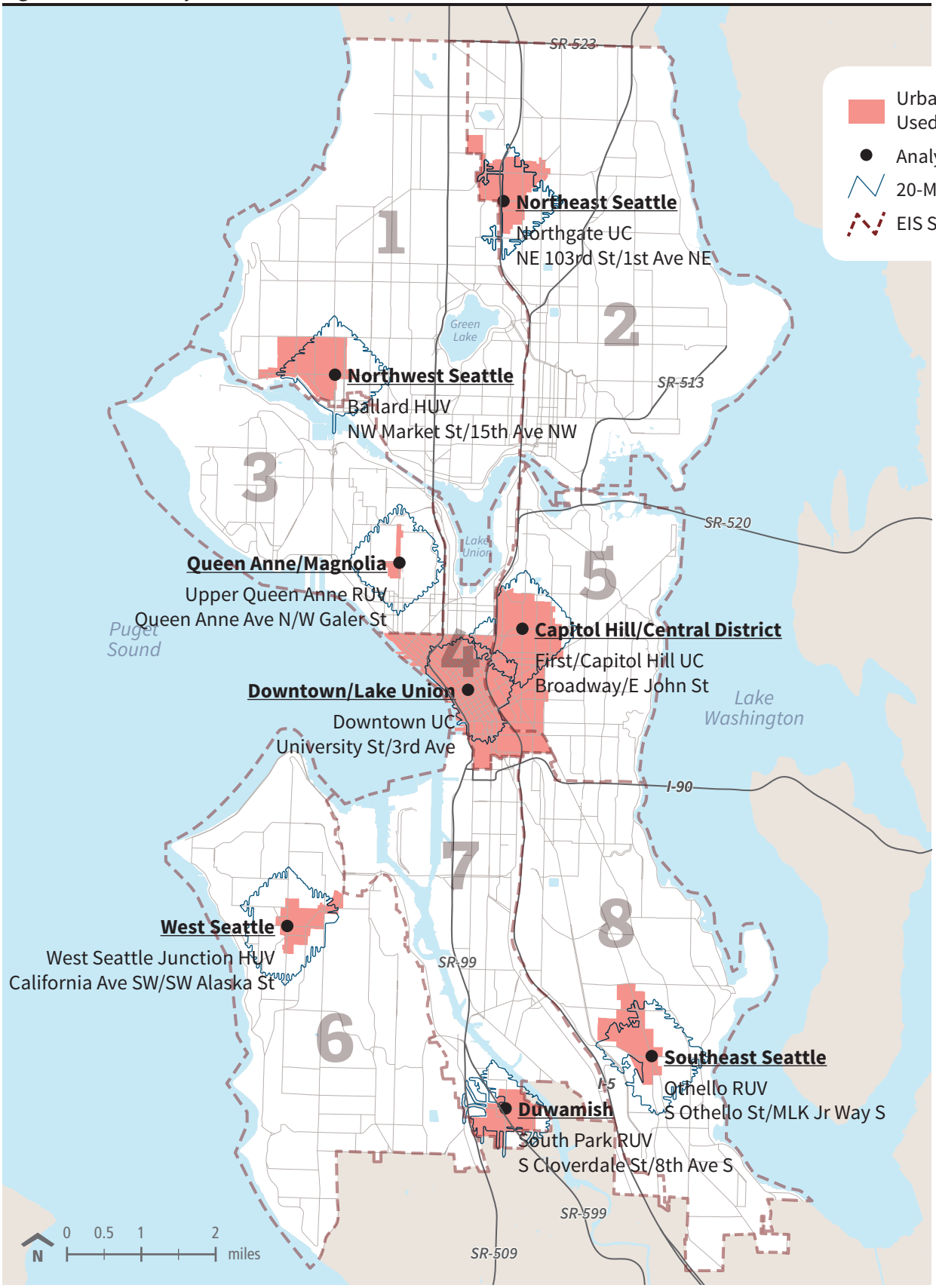
Travel Time

Travel time was selected as a performance measure for autos, freight and transit because it addresses the fundamental concern of most travelers—how long does it take to move within the city? Travel times are provided from three of the city's urban centers (Downtown, the University District and Northgate) to each of the eight sectors. Within each of the eight sectors, a representative location was selected as the destination—an urban center, hub urban village or residential urban village.

For transit, travel times were collected using Sound Transit's online trip planner to determine the PM peak hour travel time between each pair of locations based on current bus[4] and light rail schedules. For autos, travel times were collected during the PM peak hour from Google's real-time travel time estimates.[5] Travel times are not expected to change substantially in the next year (i.e. by the base year of 2015). Therefore, the travel times collected in 2014 are assumed to adequately represent the 2015 base year.

4 Sound Transit's online trip planner includes information on King County Metro routes.
5 Google's travel time estimates are based on a variety of sources, including INRIX speed data.

Figure 3.7–10 Analysis locations and 20-minute walkshed boundaries



Walksheds

A "walkshed" map shows the area accessible by foot within a certain amount of time from a given point. Portland and Tacoma, along with a growing list of other cities, have used the concept of a "20-minute neighborhood" to represent places with a mix of commercial and residential uses within close proximity. In essence, a 20-minute neighborhood is a place where residents can reach all of their daily needs within a comfortable walking distance (20 minutes or about a mile). Based on that concept, this evaluation maps the area within a 20-minute walk from the representative intersection (as shown in Figure 3.7–10) was mapped using Geographic Information Systems (GIS) software. The distance that can be traveled within 20 minutes varies depending on the street network connectivity and local topography. Walksheds indicate how accessible an area is by foot, and highlight physical barriers to walking. In addition to the walkshed map itself, the number of households and the retail employment within the walkshed was calculated. This provides an indication of the density of land uses currently present within each of the evaluated urban villages or urban centers.

Mode Share

Mode share was evaluated for trips originating from or destined to each of the eight sectors during the PM peak period. The estimated single occupant vehicle (SOV), high occupancy vehicle (HOV), transit, pedestrian and bicycle shares are provided for each area. All types of trips are included in the analysis. The base year project travel demand model was used to estimate the mode shares (see 3.7.2 for details).

Average Trip Length

Average trip length is measured as the average travel time in minutes for trips originating from or destined to each sector during the PM peak period. All modes and all types of trips

Mode Share Estimates

The mode share estimates used in this analysis come from the project travel demand forecasting model. While the model has updated land use and transportation network inputs, the mode share estimates are fundamentally rooted in the PSRC 2006 household travel survey, the most recent household survey available at the time of analysis. The 2006 survey used a traditional "travel diary" survey where participants are asked to keep track of their daily trips in a hand-written log. This year, the PSRC will finalize survey results from a new household travel survey that was conducted in 2014. The 2014 household travel survey used a web-based travel diary with automated prompts for survey respondents to ensure the survey was fully completed. The results of the 2014 household travel survey show substantially more non-SOV (particularly walk) trips than did the 2006 household survey. The PSRC is currently reviewing the data to determine how much of the mode share shift is due to changes in travel behavior as opposed to the change in data collection methodology. This difference in methodology is the main difference between the EIS mode share results (which are based on the 2006 survey) and those being prepared for the 2035 Move Seattle work (based on the 2014 survey). The more recent results will likely be used to inform future mode share target-setting.

are included in the analysis using the base year project travel demand model (see 3.7.2 for details). This measure differs from the Travel Time measure described above since it includes all trips to all origins/destinations to/from the sector.

VMT per Capita

Vehicle miles traveled (VMT) per capita is the average VMT for trips originating from or destined to each sector during the PM peak period divided by the number of residents and employees[6] of the sector. This analysis was completed using the base year project travel demand model (see 3.7.2 for details).

Analysis Results

This section summarizes the results of the analysis used to evaluate existing transportation conditions in Seattle.

COMPREHENSIVE PLAN LEVEL OF SERVICE STANDARDS

Screenlines

The most recently available PM peak hour traffic counts collected by the City of Seattle were compiled for the screenline analysis. Count volumes older than 2012 were factored using growth trends along similar roadways. Recent traffic growth trends were also reviewed to determine if volumes should be factored up to approximate 2015 conditions. That evaluation found relatively steady (unchanged) traffic volumes over the past five years; therefore, the recent counts are expected to adequately represent 2015 conditions.

As shown in Table 3.7–4, none of the City's screenlines are expected to exceed their PM peak hour LOS standard in 2015. The screenline nearest to the capacity threshold is the Ballard Bridge at 0.99 in the northbound direction. However, the threshold is currently set at 1.2 so it is below the LOS threshold.

OTHER METRICS

State Facilities

Table 3.7–5 summarizes the existing conditions on the state facility locations not included in the screenline analysis. Shaded cells indicate that the volume-to-LOS D capacity ratio is over 1.0 meaning the facility is not meeting WSDOT's LOS standard.

These include three segments on I-5 (north of NE Northgate Way, the Ship Canal Bridge and north of the West Seattle Bridge) and I-90 east of Rainier Avenue S. The fourth I-5 segment is currently operating at a 1.0 v/c ratio; therefore, any additional traffic will push it beyond the

6 The sum of employees and residents in an area is sometimes called the "service population" and helps to compare the results for areas that are housing rich or jobs rich.

Table 3.7–4 2015 PM peak hour screenline volume-to-capacity

			Existing	
Screenline #	**Screenline Location**	**LOS Standard**	**NB/EB**	**SB/WB**
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20	0.70	0.52
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20	0.41	0.32
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20	0.73	0.63
2	Magnolia	1.00	0.53	0.55
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20	0.61	0.87
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20	0.35	0.52
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00	0.47	0.63
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00	0.37	0.42
4.13	South City Limit—SR 99 to Airport Way S	1.00	0.41	0.45
5.11	Ship Canal—Ballard Bridge	1.20	0.99	0.52
5.12	Ship Canal—Fremont Bridge	1.20	0.71	0.54
5.13	Ship Canal—Aurora Bridge	1.20	0.81	0.62
5.16	Ship Canal—University & Montlake Bridges	1.20	0.80	0.87
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00	0.45	0.43
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00	0.66	0.49
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00	0.44	0.27
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00	0.65	0.53
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00	0.49	0.47
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00	0.48	0.58
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00	0.50	0.57
8	South of Lake Union	1.20	0.78	0.78
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00	0.51	0.58
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00	0.47	0.52
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00	0.45	0.58
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00	0.56	0.65
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00	0.48	0.58
12.12	East of CBD	1.20	0.35	0.45
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00	0.71	0.59
13.12	East of I-5—NE 65th St to NE 80th St	1.00	0.44	0.41
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00	0.55	0.54

Source: Seattle's Comprehensive Plan, Toward a Sustainable Seattle, 2008; SDOT count data, 2014; Fehr & Peers, 2014.

LOS D standard. SR 520, which has tolling that limits demand, is currently meeting the LOS D standard, as are SR 509 and SR 519.

This analysis indicates I-5 and I-90 are currently exceeding WSDOT's LOS D standard. This is consistent with WSDOT's assessment in the Draft Congested Interstate Corridor Report for the WA State Highway System Plan (WSDOT 2006).

Table 3.7–5 Existing conditions of state facility analysis locations

State Facility	Location	LOS Standard	Daily Traffic Volume	Maximum Daily Capacity for LOS D	Volume-to-LOS D Capacity Ratio
I-5	North of NE Northgate Way	D	207,000	204,225	1.01
I-5	Ship Canal Bridge	D	203,000	162,015	1.25
I-5	North of West Seattle Bridge	D	228,000	194,500	1.17
I-5	North of Boeing Access Rd	D	194,000	194,500	1.00
I-90	East of Rainier Ave S	D	132,000	116,600	1.13
SR 509	West of 4th Ave	D	53,000	93,100	0.57
SR 519	Between S 112th St & Cloverdale St	D	27,000	32,400	0.83
SR 520	Lake Washington Bridge	D	62,000	77,900	0.80

Note: Existing average daily traffic volumes do not include the express lane volumes on I-5 and I-90.

Source: WSDOT Community Planning Portal, 2014.

Travel Times

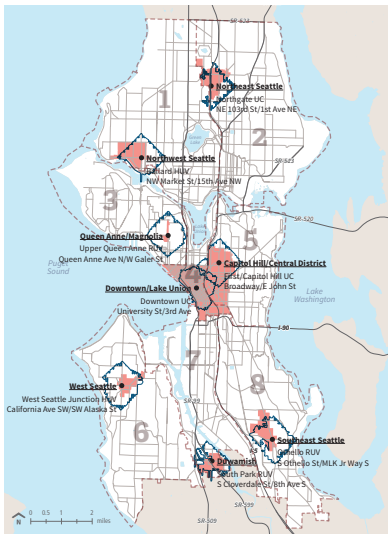
Figure 3.7–11 summarizes 2015 auto travel times from Downtown, the University District and Northgate to each of the eight sectors. All of the studied urban villages and urban centers are within a 20 minute drive of Downtown (note this includes travel on the I-5 express lanes rather than the general purpose lanes). Travel times to the University District and Northgate urban centers from West Seattle, Duwamish and Southeast Seattle are the longest travel times within the City—ranging from roughly a half hour to 45 minutes. Traffic congestion is more difficult for freight to navigate and trucks typically travel at slower speeds than general auto traffic.

Figure 3.7–11 also summarizes 2015 transit travel times from Downtown, the University District and Northgate to each of the eight sectors. Service from Downtown tends to have the shortest travel times given the concentration of direct routes and its central location. Travel to the University District and Northgate often requires a transfer downtown which results in lengthy travel times. Appendix A.4 contains a detailed table of 2015 auto and transit travel times from Downtown, the University District and Northgate to each of the eight sectors.

Walksheds

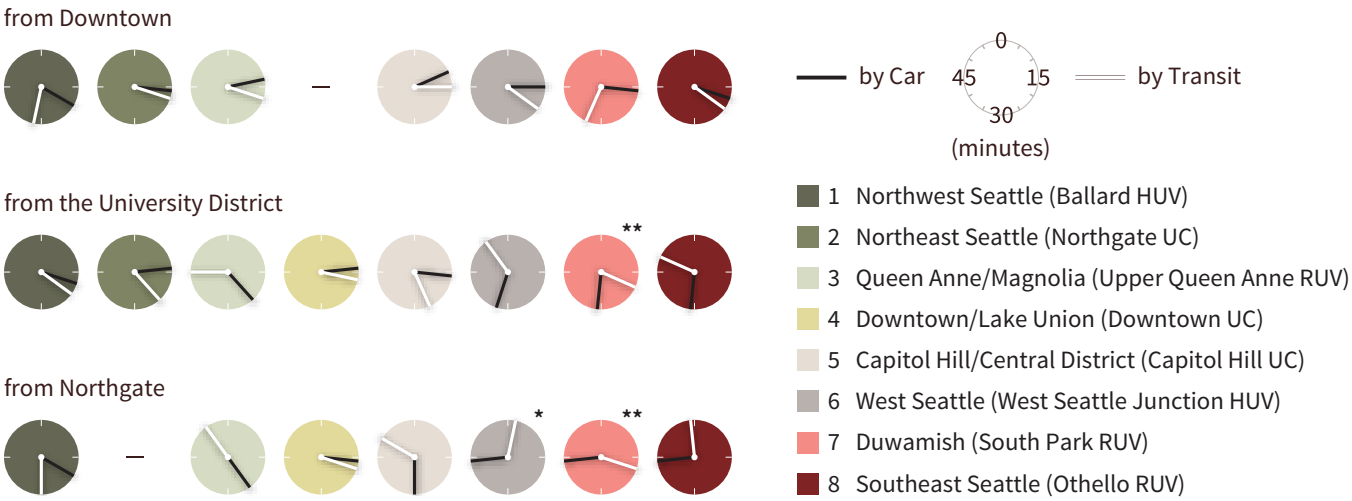
Figure 3.7–10 shows the 20-minute walkshed for each sector. While some walksheds show few barriers, others are limited by freeways or topography. For instance, the western side of the Northgate walkshed is limited by I-5, the South Park walkshed is limited by SR 99 and the incomplete street grid and the Othello walkshed is limited by the nearby greenbelt and incomplete street grid.

Figure 3.7–12 summarizes the number of households and retail jobs within each 20-minute walkshed in 2015. The downtown walkshed contains the densest land use with 17,900 households and 7,600 retail jobs. Capitol Hill/Central



Thumbnail of Figure 3.7–10

Figure 3.7–11 2015 PM peak period auto and transit travel times



Note: For auto travel times, I-5 travel times include travel on the express lanes whenever possible.

* Existing transit travel time from Northgate to West Seattle (West Seattle Junction) is 62 minutes.

** Existing transit travel time from the University District to Duwamish (South Park) is 79 minutes and from Northgate to Duwamish (South Park) is 78 minutes.

Source: Google Maps, 2014; Sound Transit trip planner, 2014.

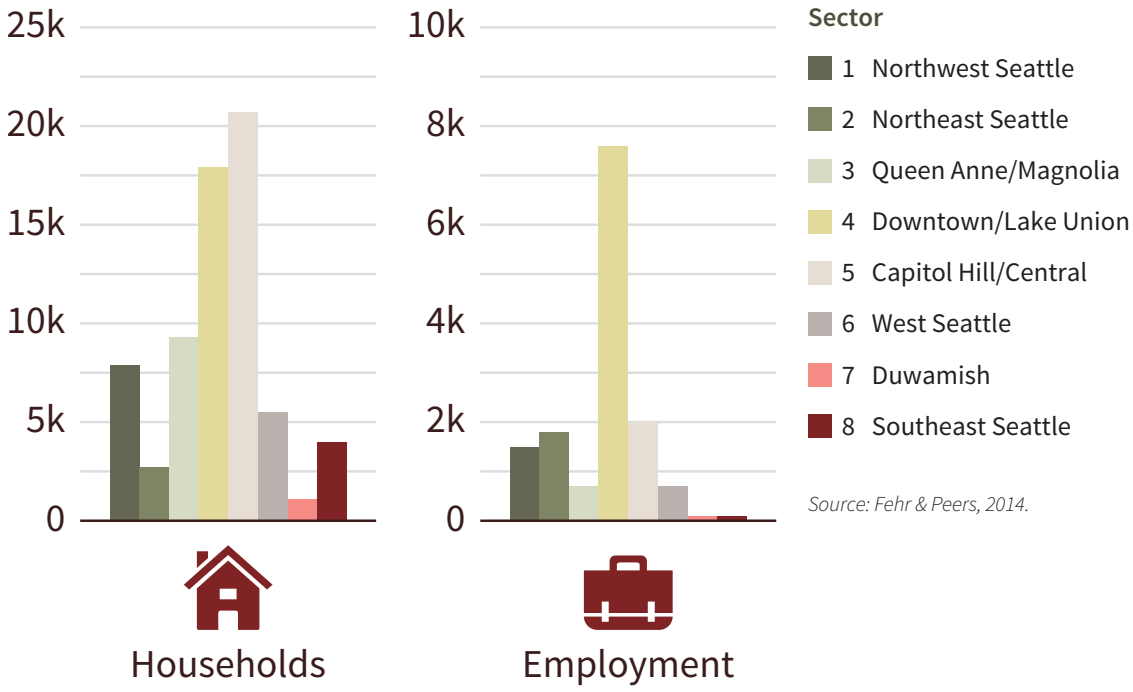
District is similar with 20,700 households and 2,000 retail jobs. The South Park residential urban village (representing the Duwamish Sector) has very few households and retail jobs within the 20-minute walkshed. Appendix A.4 contains a detailed table of the number of households and retail jobs within each 20-minute walkshed in 2015.

Mode Share

The PM peak period mode share for all trips for each of the sectors is shown in Figure 3.7–13. Auto trips are broken into SOV and HOV trips below. Downtown has the lowest SOV share at 31 percent and Duwamish has the highest SOV share at 53 percent. SOV trips generally account for one-half to two-thirds of the total auto trips. The proportion of trips made by transit varies considerably by sector. The highest proportion by far occurs in Downtown/Lake Union (22 percent). The lowest transit mode share (7 percent) occurs in Northwest Seattle and West Seattle. Appendix A.4 contains a detailed table of the PM peak period mode share for all trips for each of the sectors.

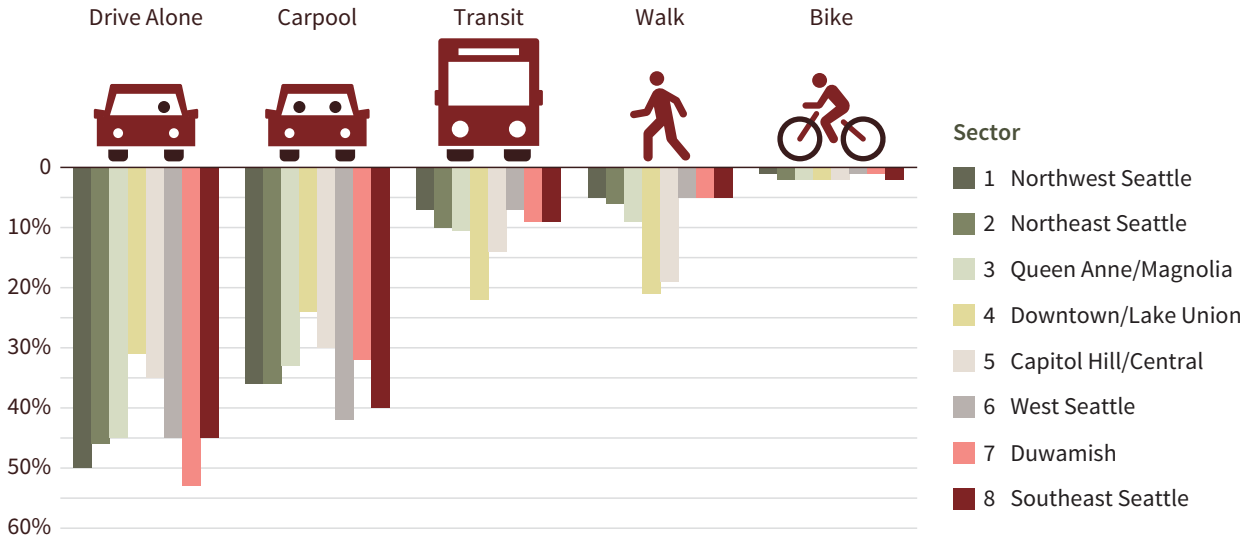
The walk mode share also varies considerably within the city. Downtown/Lake Union and Capitol Hill/Central District have the highest walk share at 21 and 19 percent, respectively. The sectors dominated by residential uses (Northwest, Northeast, West and Southeast Seattle) have walk shares of 5 to 6 percent. The Duwamish area which is dominated by manufacturing and industrial uses also has a 5 percent walk share. Bike mode share is less variable with 1 to 2 percent throughout the city. Although some urban centers may have higher walk or bike mode shares (for example the University District, which is within the Northeast Sector), the differences are minor when viewed at the sector level.

Figure 3.7–12 2015 households and retail employment within 20-minute walkshed



Source: Fehr & Peers, 2014.

Figure 3.7–13 2015 PM peak period mode share by sector



Note: Shares may not add to 100% due to rounding

Source: Project travel demand model, 2014.

Average Trip Length

The average trip length in minutes for trips originating from or destined to each sector during the PM peak period is summarized in Figure 3.7–14. Average travel times among the eight sectors range from 20 to 27 minutes. The citywide average trip length is 23 minutes. Appendix A.4 contains a detailed table of the peak period average trip length in minutes for each of the sectors.

The areas with the shortest trip lengths are Northwest Seattle and West Seattle. These areas are predominantly residential in nature, limiting the number of regional trips. In contrast, the more central areas of Seattle have slightly higher trip lengths as they contain more regional attractions, namely Downtown as the regional employment center drawing workers from throughout the Puget Sound region. The Duwamish area has the highest average travel time at 27 minutes. The Duwamish is dominated by a manufacturing and industrial center which draws trips from throughout the region, includes a relatively high proportion of long-distance truck trips and also has the lowest non-motorized mode share which tends to push the average trip length higher.

VMT per Capita

The VMT per capita for each sector during the PM peak period is summarized in Figure 3.7–15. The citywide average is 3.3 miles per resident and employee. The Downtown/Lake Union and Capitol Hill/Central District sectors fall below the average; this is due to the relatively low vehicle mode share and relatively high population and employment density. Heavily residential areas tend to have higher vehicle mode share and lower population and

Figure 3.7–14
2015 PM peak period average trip length in minutes

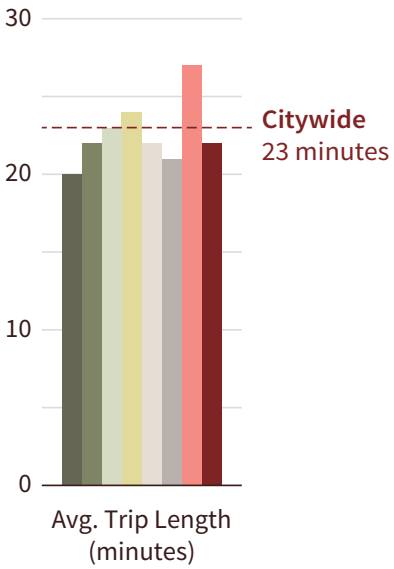
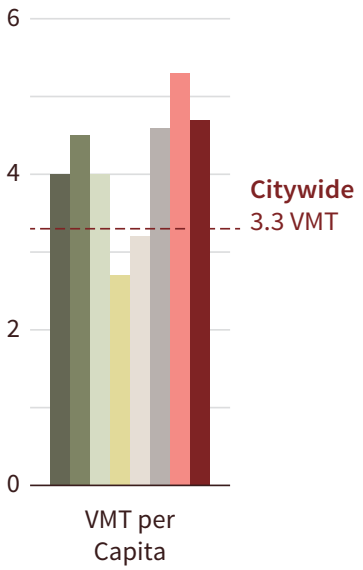
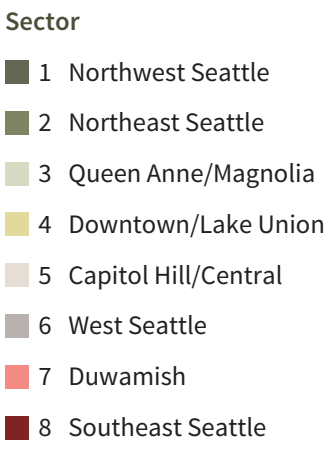


Figure 3.7–15
2015 PM peak period vehicle miles traveled per capita





Source: Project travel demand model, 2014.

employment, bringing their VMT per capita above the citywide average. The sector with the highest VMT per capita is the Duwamish area which includes a robust manufacturing and industrial center that generates substantial auto and truck traffic. Appendix A.4 contains a detailed table of the VMT per capita for each of the sectors.

3.7.2 Impacts

This section describes the planning scenarios evaluated, the methodology used for the future year analysis and the results of the future year analysis. The future analysis year is 2035.

Planning Scenarios Evaluated

Four alternatives are evaluated under future year 2035 conditions. All four alternatives assume the same growth in new households and employment (70,000 households and 115,000 jobs) but vary in how the growth would be distributed (see Chapter 2, Figure 2–1). The same transportation network is assumed under each alternative.

Analysis Methodology

This section summarizes the analysis methodology used to evaluate future year (2035) conditions.

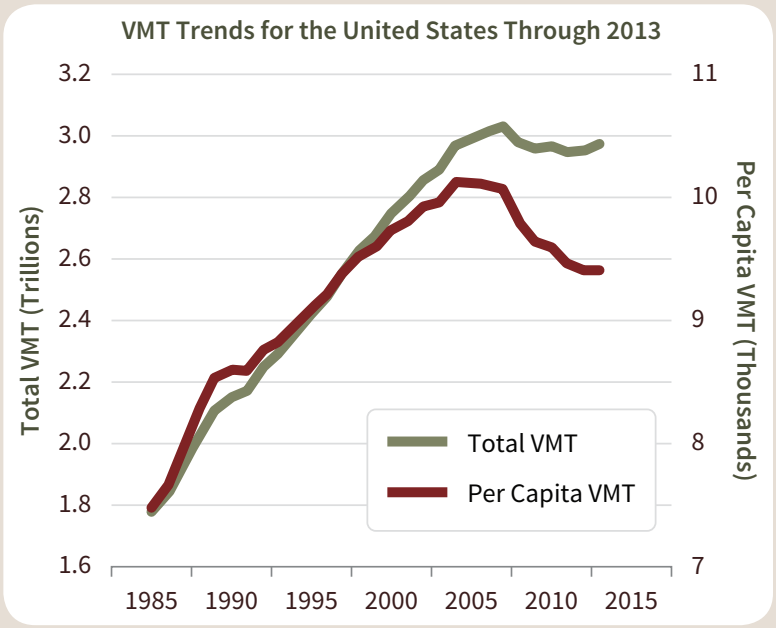
TRANSPORTATION NETWORK AND LAND USE ASSUMPTIONS

The analysis used a citywide travel demand forecasting model to distribute and assign vehicle traffic to area roadways. The travel demand forecasting model was refined to create more accurate 2015 and 2035 networks. The following is a description of some of the travel demand model's key features:

- **Analysis Years.** This version of the model has a base year of 2015 and a horizon year of 2035. Travel forecasts were developed by updating the land use inputs throughout the city.
- **Land Use.** The City of Seattle developed land use forecasts for 2015 using a combination of sources including data from the Puget Sound Regional Council, Employment Securities Department and Department of Planning and Development. Land use forecasts were then developed for each of the four 2035 alternatives by distributing the expected growth according to each alternative's assumed development pattern.
- **Highways and Streets.** The existing highway and major street systems within the City of Seattle are fully represented in the 2015 model; those planned to be present by 2035 are included in the 2035 model.
- **Transit.** The travel model has a full representation of the transit system under base year (2015) conditions (which did not include the expanded transit service under

Potential Changes to VMT per Capita

After 50 years of steady growth, nationwide vehicle miles traveled per capita leveled off in 2004 and declined by eight percent between 2004 and 2012. Whether travel will return to growth rates of past decades, remain static or continue to decline is of critical importance to decision-makers in government at all levels. VMT growth affects many areas of transportation ranging from fuel tax revenues, to modal investment decisions, to environmental impacts, which is the focus of this document.



Source: FHWA; U.S. Census Bureau; McCahill, 2014.

For this study, VMT is estimated using a travel demand model based on the PSRC's regional model. The model's estimate of VMT generation is based on a range of factors including trip generation rates, auto operating costs, household size and income and traffic congestion levels. With the exception of traffic congestion levels, PSRC does not project major changes in the factors listed above, which translates into a relatively static level of VMT per capita from the travel model. Demographic shifts not captured in the travel demand model could potentially result in lower VMT per capita. A sensitivity analysis to estimate the magnitude of that change resulted in VMT per capita 7 percent lower than what would be predicted without considering those demographic factors. A more detailed discussion is included in Appendix A.4.

Proposition 1). The horizon year transit system is based on assumptions of service from Sound Transit's 2035 travel demand model (released in September 2013) and the Seattle Transit Master Plan (adopted in April 2012).

- **Travel Costs.** The model accounts for the effects of auto operating costs, parking, transit fares and tolls (on SR 520 and SR 99) on travel demand.
- **Travel Demand.** The model predicts travel demand for seven modes of travel: drive alone, carpool (2 person), carpool (3 or more people), transit, trucks, walking and bicycling. Travel demand is estimated for five time periods. This analysis will focus on the PM peak period.

The 2035 network was modified to reflect completion of the City's transportation modal plans, thus providing a test of the City's planned infrastructure. This includes rechannelization that could occur with implementation of the City's Bicycle Master Plan. Key Transit Master Plan projects such as frequent service on priority transit corridors and dedicated bus lanes were included in the model. Detailed assumptions may be found in Appendix A.4. The assumptions were determined in conjunction with City staff using the best knowledge available at the time.

FORECAST DEVELOPMENT

Forecasts including traffic volumes, travel times and mode shares, were prepared for each of the four alternatives during the PM peak period using the travel model. To reduce model error, a technique known as the "difference method" was applied for traffic volumes, travel times and mode share. Rather than take the direct output from the 2035 model, the difference method calculates the growth between the base year and 2035 models and adds that growth to existing data when available. For example, assume a road has an existing hourly volume of 500 vehicles. If the base year model showed a volume of 400 vehicles and the future year model showed a volume of 650 vehicles, 250 vehicles would be added to the existing count for a future expected volume of 750 vehicles.

Thresholds of Significance

The City sets its transportation level of service standards using the screenline concept in the Transportation Element of the proposed update to the Comprehensive Plan.

In an EIS, the action alternatives (alternatives 2, 3 and 4) are assessed against the No Action Alternative (Alternative 1) to identify impacts. A deficiency is identified for the No Action Alternative if it would cause a screenline to exceed its stated LOS threshold.

The above criterion also applies to action alternatives provided no deficiency has been identified for the No Action Alternative. However, if the No Action Alternative already meets the deficiency criteria, then an impact will only be identified if the action alternative would fail to meet the aforementioned threshold and do so at a level worse than the No Action Alternative. Specifically, an impact is identified if the action alternative would cause a screenline to exceed its stated LOS threshold by at least 0.01 more than the No Action Alternative.

Other metrics have been prepared in this analysis, including state facility v/c ratios, travel times, walksheds, trip length and VMT per capita. Since the City has not adopted standards for those metrics, they are not currently used to determine significant impacts. They are provided for informational purposes only.

The rationale behind this approach to identifying impacts is to compare changes to the transportation system from the actions that would require action by the City Council to change, compared to what is expected to happen under "business-as-usual" conditions. Therefore potential impacts are compared to a future condition assuming current trends continue, as opposed to existing conditions.

Analysis Results

COMPREHENSIVE PLAN LEVEL OF SERVICE STANDARDS

Screenlines

Figure 3.7–16 and Table 3.7–6 summarize the projected PM peak hour volumes across each screenline in 2035. All of the screenlines are projected to meet the LOS standard under all

Figure 3.7–16 2035 screenline v/c ratios

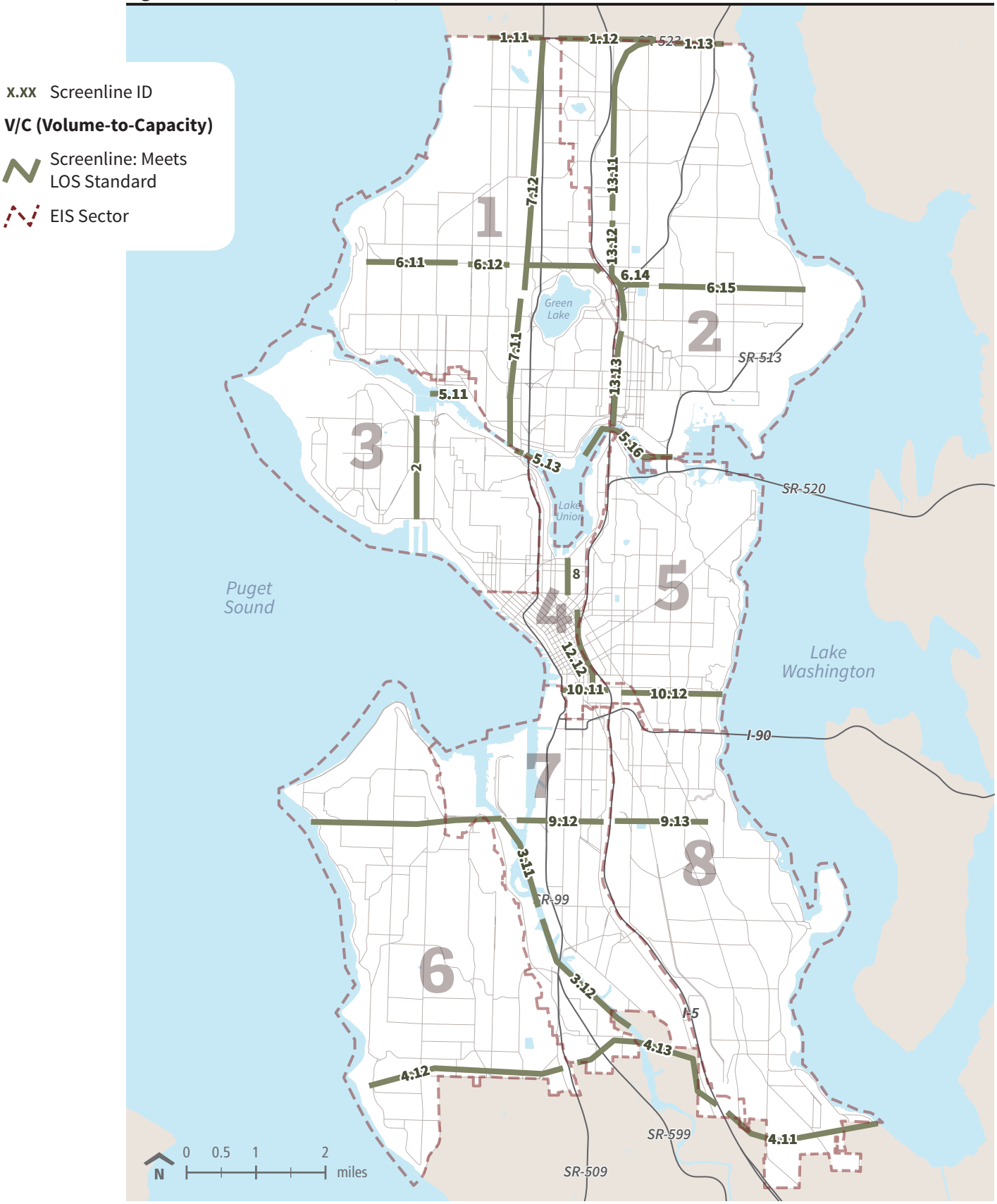


Table 3.7–6 2035 PM peak hour screenline volume-to-capacity

			Alternative 1		Alternative 2		Alternative 3		Alternative 4	
Screenline #	**Screenline Location**	**LOS Standard**	**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20	1.03	0.80	1.04	0.79	1.02	0.78	1.04	0.79
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20	0.76	0.61	0.76	0.61	0.76	0.62	0.77	0.62
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20	0.96	0.83	0.98	0.83	0.96	0.83	0.97	0.83
2	Magnolia	1.00	0.56	0.56	0.55	0.56	0.56	0.56	0.56	0.55
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20	0.69	1.15	0.68	1.15	0.70	1.14	0.70	1.15
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20	0.38	0.55	0.38	0.55	0.39	0.55	0.38	0.55
4.11	South City Limit—Martin Luther King Jr Way to Rainier Ave. S	1.00	0.57	0.98	0.56	0.93	0.58	0.94	0.57	0.93
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00	0.56	0.72	0.55	0.72	0.56	0.72	0.56	0.73
4.13	South City Limit—SR 99 to Airport Way S	1.00	0.58	0.73	0.57	0.76	0.59	0.76	0.58	0.75
5.11	Ship Canal—Ballard Bridge	1.20	1.19	0.72	1.15	0.70	1.16	0.70	1.17	0.73
5.12	Ship Canal—Fremont Bridge	1.20	0.79	0.71	0.78	0.70	0.78	0.70	0.77	0.71
5.13	Ship Canal—Aurora Bridge	1.20	0.94	0.82	0.92	0.82	0.91	0.82	0.91	0.83
5.16	Ship Canal—University & Montlake Bridges	1.20	0.96	1.06	0.96	1.06	0.95	1.05	0.94	1.05
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00	0.52	0.49	0.51	0.47	0.51	0.48	0.53	0.50
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00	0.87	0.77	0.85	0.75	0.86	0.76	0.87	0.78
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00	0.55	0.41	0.54	0.41	0.53	0.41	0.54	0.42
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00	0.76	0.67	0.74	0.65	0.74	0.68	0.73	0.67
6.15	South of NE 80th St.—20th Ave NE to Sand Point Way NE	1.00	0.64	0.58	0.63	0.57	0.62	0.58	0.62	0.58
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00	0.55	0.66	0.53	0.64	0.55	0.64	0.57	0.65
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00	0.56	0.66	0.55	0.65	0.56	0.65	0.56	0.66
8	South of Lake Union	1.20	0.92	0.83	0.91	0.78	0.92	0.79	0.89	0.78
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00	0.59	0.71	0.57	0.71	0.59	0.71	0.60	0.72
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00	0.60	0.71	0.60	0.71	0.61	0.71	0.60	0.71
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00	0.67	0.89	0.65	0.89	0.67	0.91	0.67	0.91
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00	0.64	0.84	0.64	0.85	0.64	0.83	0.64	0.84
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00	0.74	0.91	0.74	0.92	0.76	0.91	0.76	0.91
12.12	East of CBD	1.20	0.39	0.52	0.39	0.52	0.38	0.52	0.39	0.52
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00	0.84	0.78	0.88	0.80	0.85	0.79	0.84	0.78
13.12	East of I-5—NE 65th St to NE 80th St	1.00	0.50	0.53	0.50	0.51	0.50	0.54	0.49	0.54
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00	0.62	0.67	0.62	0.67	0.63	0.65	0.63	0.65

Note: Shaded cells denote screenlines that exceed the LOS threshold set in the Comprehensive Plan.

Source: Seattle's Comprehensive Plan, Toward a Sustainable Seattle, 2008; Fehr & Peers, 2014.

alternatives. Screenline 1.11 (North City Limit—3rd Avenue NW to Aurora Avenue N), Screenline 3.11 (Duwamish River—West Seattle Bridge and Spokane Street), Screenline 5.11 (Ballard Bridge) and Screenline 5.16 (University & Montlake Bridges) are projected to near the threshold with v/c ratios over 1.0. However, the LOS threshold on all of those screenlines is 1.2.

Therefore, no significant adverse automobile traffic, freight[7] or transit impacts are expected under any of the alternatives.

OTHER METRICS

State Facilities

Table 3.7–7 summarizes 2035 conditions on the state facilities not included in the screenline analysis. Shaded cells indicate that the v/c ratio is over 1.0 meaning the facility would not meet WSDOT's LOS standard.

Table 3.7–7 State facility analysis—volume-to-LOS D capacity ratio

		2015	2035			
State Facility	**Location**	**Existing**	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**
I-5	North of NE Northgate Way	1.01	1.18	1.19	1.18	1.19
I-5	Ship Canal Bridge	1.25	1.37	1.37	1.37	1.37
I-5	North of West Seattle Bridge	1.17	1.26	1.27	1.26	1.26
I-5	North of Boeing Access Rd	1.00	1.18	1.18	1.18	1.18
I-90	East of Rainier Ave S	1.13	1.33	1.34	1.34	1.34
SR 509	Between S 112th St & Cloverdale St	0.57	0.77	0.78	0.77	0.77
SR 519	West of 4th Ave	0.83	0.90	0.93	0.90	0.90
SR 520	Lake Washington Bridge	0.80	1.04	1.04	1.04	1.04

Note: Forecasted average daily traffic volumes do not include express lane volumes on I-5 and I-90.

Source: WSDOT Community Planning Portal, 2014.

As indicated by the rising v/c ratios, traffic is expected to increase along the major freeway corridors between 2015 and 2035. This growth in traffic is due in part to increased development in Seattle, but regional and statewide growth also contributes to increased traffic on the freeways. With this increase in traffic, six study segments are expected to exceed WSDOT's LOS D standard under all four alternatives. SR 509 and SR 519 are expected to meet WSDOT's LOS D standard under all four alternatives.

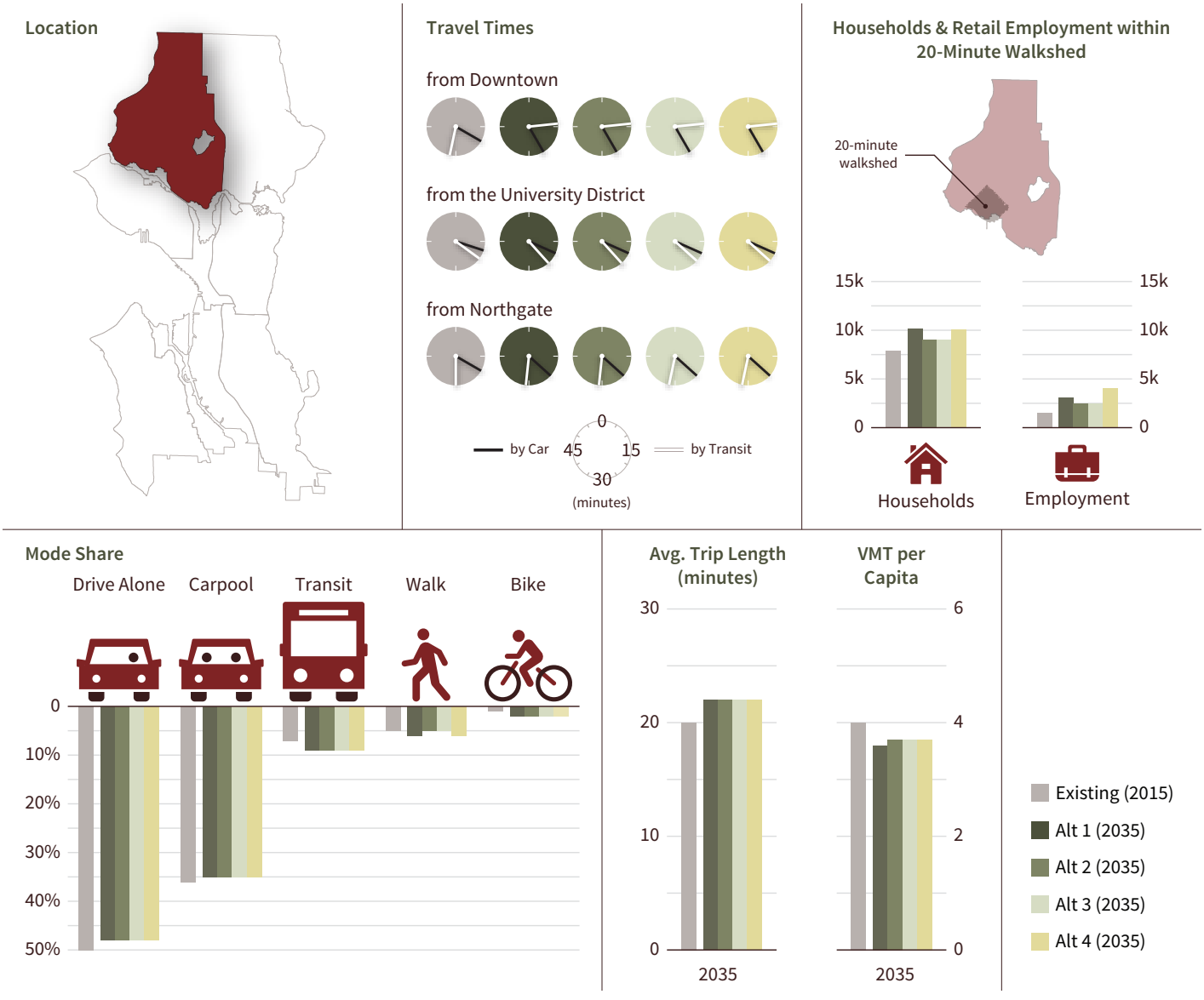
Note that the difference in the v/c ratios between the action and No Action alternatives is very small, generally no more than 0.01 v/c. Daily traffic fluctuations tend to be of this magnitude or larger and this difference may not be noticed by drivers.

7 This section refers to impacts related to freight operations on city arterials.

The other metrics evaluated for each of the eight sectors are shown in Figure 3.7–17 through Figure 3.7–24. For each sector, the applicable figure compares travel times, walksheds, mode shares, trip length and VMT per capita for 2015 and each of the 2035 alternatives.

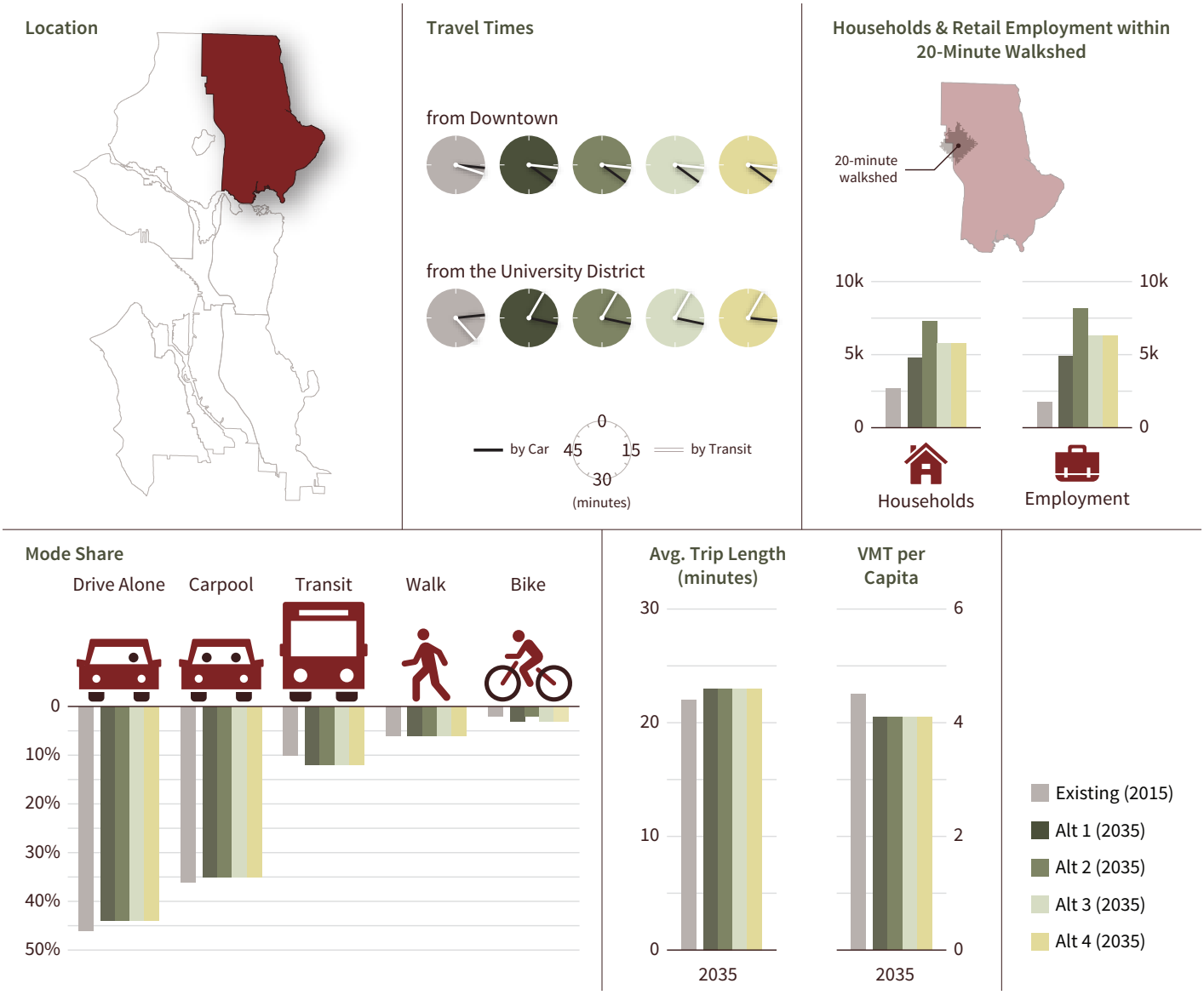
Each metric is discussed in the following sections. Detailed tables for each are included in Appendix A.4.

Figure 3.7–17 Northwest Seattle (Sector 1): other metrics evaluated



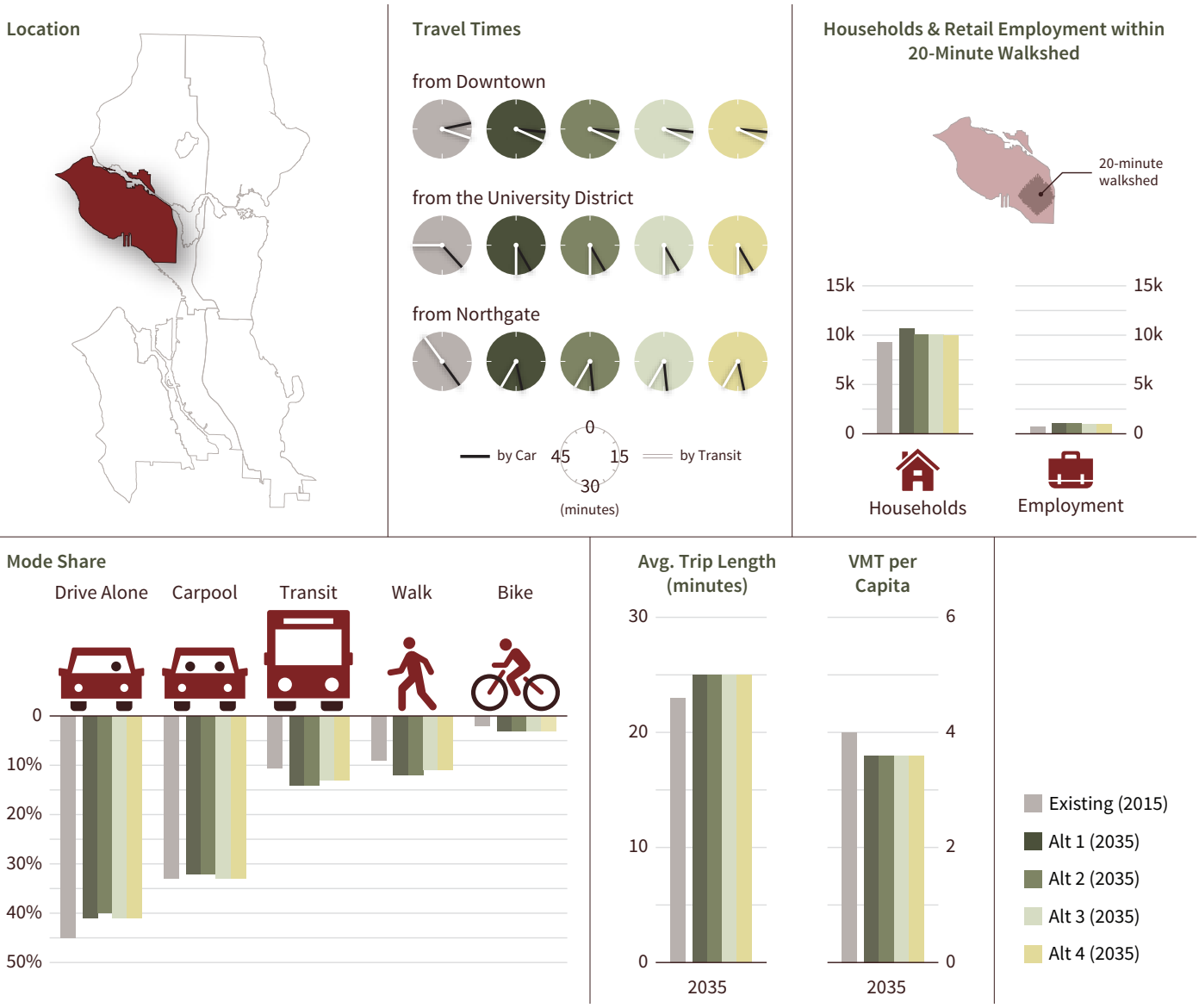
Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–18 Northeast Seattle (Sector 2): other metrics evaluated



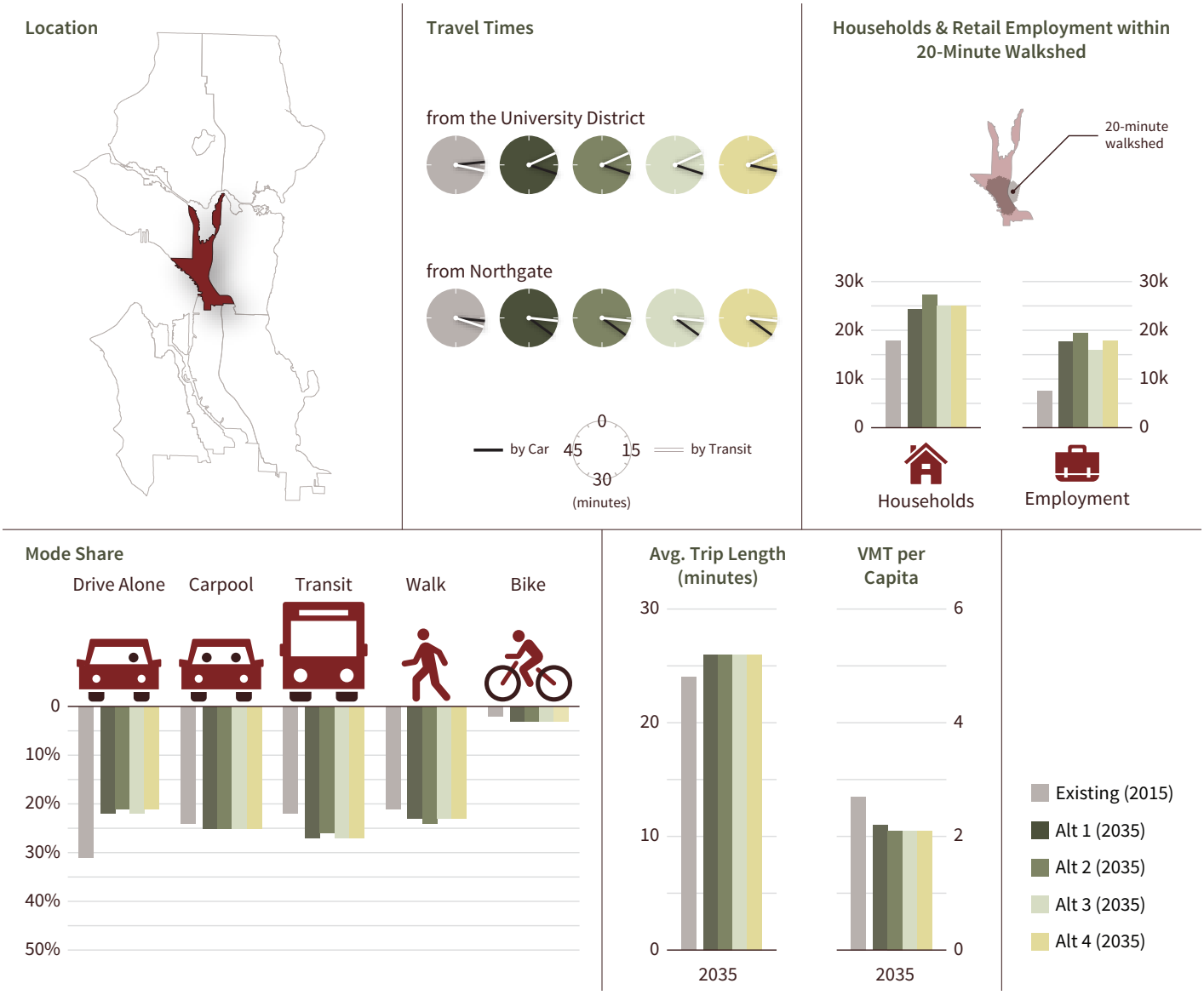
Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–19 Queen Anne/Magnolia (Sector 3): other metrics evaluated



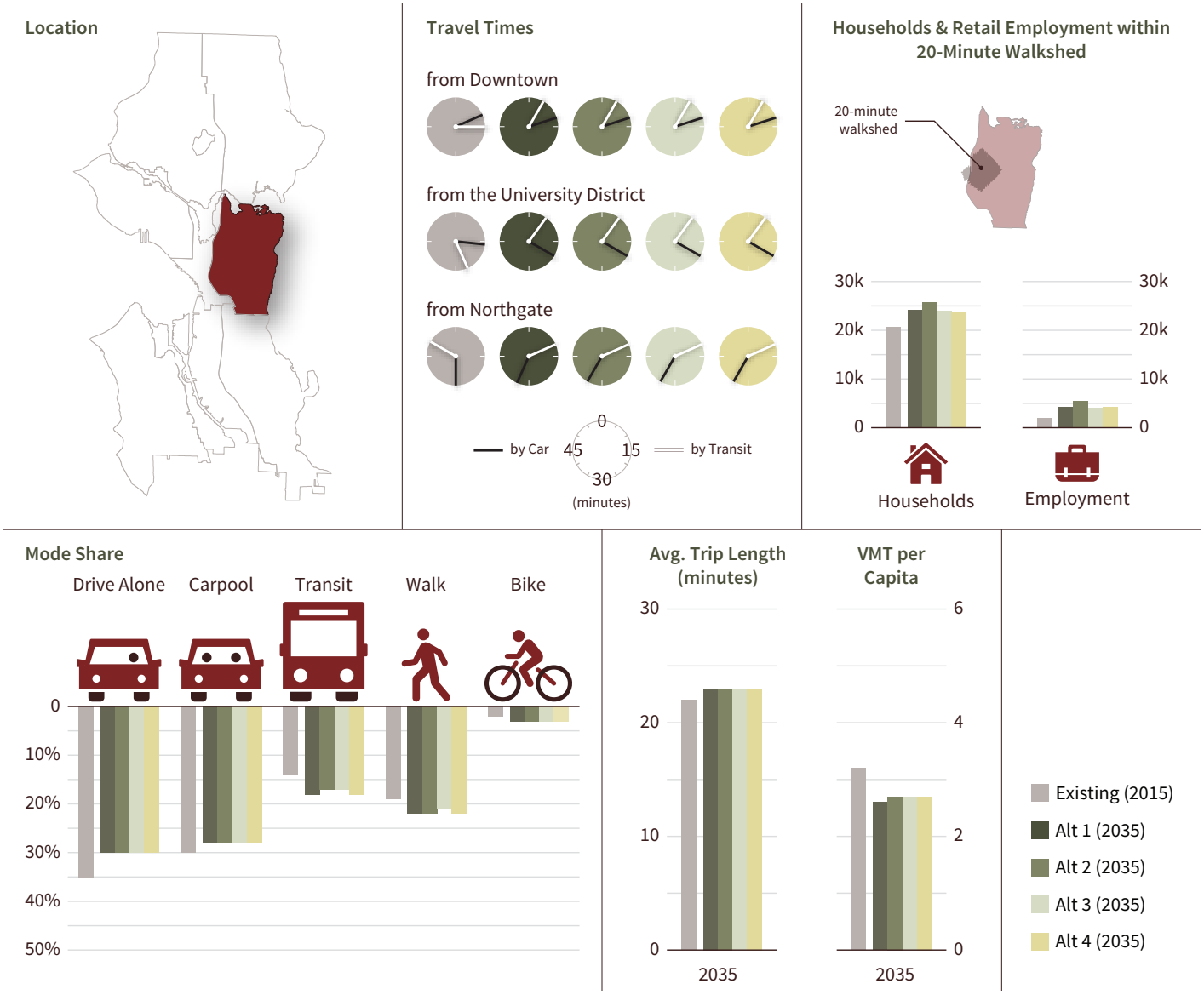
Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–20 Downtown/Lake Union (Sector 4): other metrics evaluated



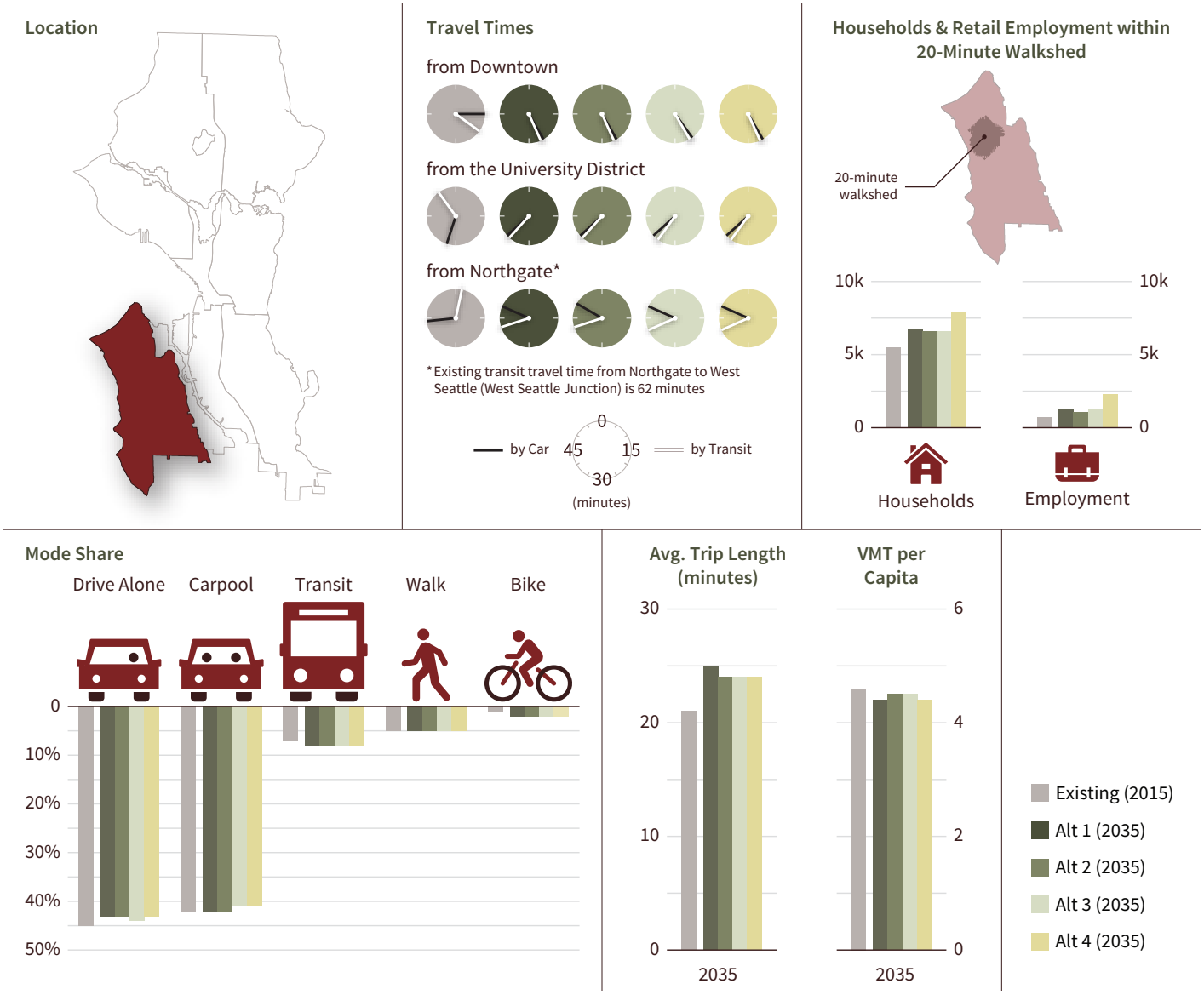
Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–21 Capitol Hill/Central District (Sector 5): other metrics evaluated



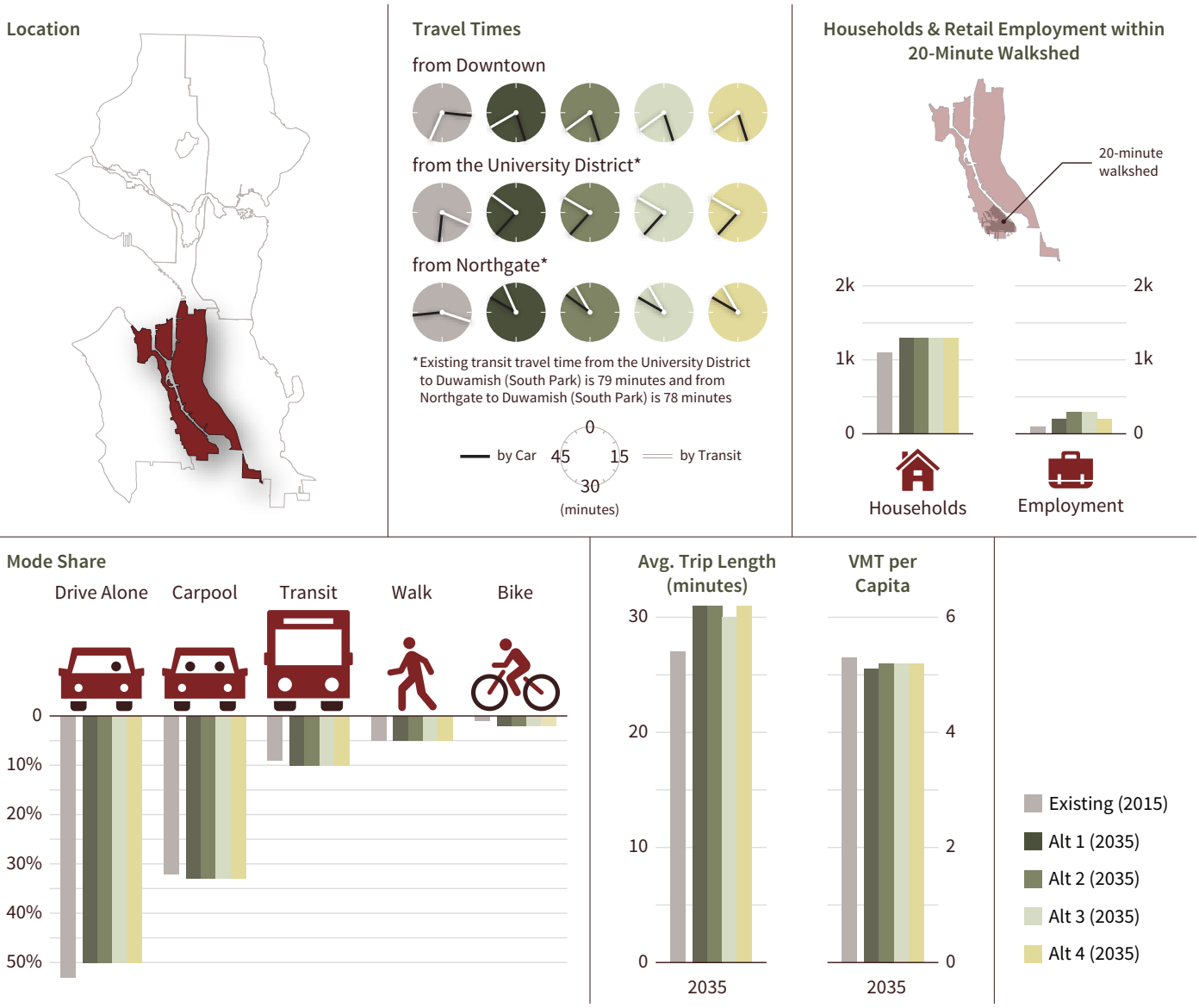
Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–22 West Seattle (Sector 6): other metrics evaluated



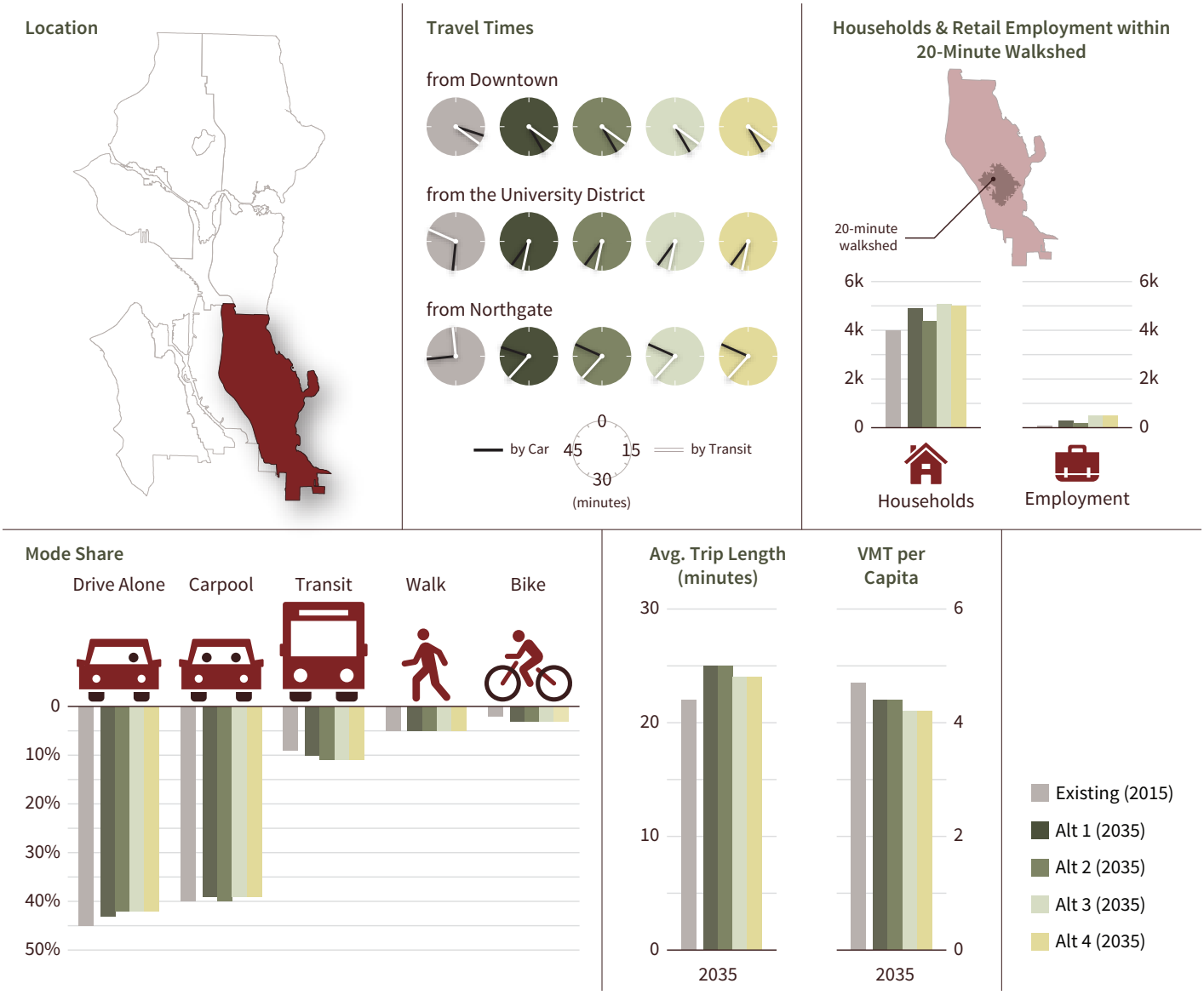
Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–23 Duwamish (Sector 7): other metrics evaluated



Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Figure 3.7–24 Southeast Seattle (Sector 8): other metrics evaluated



Sources: Fehr & Peers, 2014 (auto and transit travel time; households and retail employment within 20-minute walkshed); project travel demand model, 2014 (mode share; average trip length; vehicle miles traveled).

Travel Time

Figure 3.7–17 through Figure 3.7–24 summarize 2035 auto travel times from Downtown, the University District and Northgate to each of the eight sectors. Note that these results are also indicative of freight operations. However, traffic congestion is more difficult for freight to navigate, and trucks typically travel at slower speeds than general auto traffic.

Auto travel times are expected to increase by one to eleven minutes between 2015 and 2035, with most increases falling between three and six minutes. The largest increases are projected from Downtown to West Seattle (10 minutes), Duwamish (11 minutes) and Southeast Seattle (7 minutes). This equates to roughly a 40-70 percent increase in travel times. Among the alternatives, there is little variation in projected travel times with no more than a minute increase or decrease for travel times between any of the areas evaluated.

Auto travel times are expected to increase by **1 to 11 minutes** *between 2015 and 2035.*

More substantial differences are expected for transit travel times due to the extension of Link light rail. 2035 transit travel times from the Northgate and University District urban centers will be shorter than 2015 transit travel times due to light rail. For example, a trip between the University District and Northgate will take only 5 minutes rather than the current 23 minutes. Trips that would still be completed using a bus in the general purpose travel lanes would feel the effects of the increase in auto congestion. For example, a trip from Downtown to West Seattle Junction would increase from 21 to 25-26 minutes. Variation in travel times among the alternatives is minimal since the same transit network is assumed under all alternatives.

Walksheds

The only walkshed that is expected to substantially change in area by 2035 is in Northgate. SDOT is currently studying a pedestrian bridge that would connect the Northgate Transit Center to the west side of I-5. That connection would increase the walkable area within 20 minutes of the analysis point.

The only walkshed that is expected to substantially change in area by 2035 is **Northgate**, *due to a planned pedestrian bridge across I-5.*

Figure 3.7–17 through Figure 3.7–24 summarize the number of households and retail jobs within each 20-minute walkshed in 2035. Alternative 1 (No Action) continues the current focus on concentrating development in urban villages. Alternative 2 would concentrate development in urban centers; therefore, Northeast Seattle, Downtown/Lake Union and Capitol Hill/Central District are projected to have the highest growth under Alternative 2. Alternative 3 focuses growth on the light rail corridor, as demonstrated by the projected large increases in residential and employment land uses at Northgate and Othello. In addition to land use increases in those light rail station areas, Alternative 4 would also place more development in West Seattle and Ballard.

Under any alternative, Downtown/Lake Union and Capitol Hill/Central District would remain the sectors with the most households within a 20-minute walkshed, while Duwamish would remain the area with the least households within a 20-minute walkshed.

The Downtown/Lake Union walkshed would have the highest employment growth among any of the alternatives, while the evaluated walkshed centers in Queen Anne/Magnolia, Duwamish (South Park) and Southeast Seattle (Othello) would have the lowest employment growth of the studied places.

Mode Share

As noted in the Methodology section, the mode share estimates presented here are based on the project travel demand forecasting model which is rooted in the PSRC 2006 household travel survey results. More recent data sources are expected to be released by PSRC this year that may inform future mode share target-setting. By 2035, the SOV mode share is expected to decrease (a positive trend), although the amount of the decrease varies depending on the sector, as shown in Figure 3.7–17 through Figure 3.7–24. Citywide, the non-SOV mode share for all trip types is expected to shift by 3 to 4 percentage points, from 57 percent in 2015 to 60–61 percent in 2035. Downtown/Lake Union is expected to see the highest decrease of 8-9 percentage points, while West Seattle is projected to have a 1 percentage point decrease at most. The other large shift occurs in transit usage, which is expected to increase by 2035. Again, Downtown/Lake Union would experience the largest shift. More residential areas and the Duwamish would have smaller changes. The percentage of walk trips is expected to grow up to 3 percentage points in the central areas of the city, with smaller increases if any, in more residential sectors. HOV trips are projected to stay relatively steady between 2015 and 2035 with a downward trend in some locations. Bike trips are expected to increase about one percentage point due to a more complete bike lane and cycle track network.

By 2035, ***the SOV mode share is expected to decrease****, with Downtown/Lake Union experiencing the highest decrease.*

Trip Length

Average trip length in minutes for each of the sectors is shown in Figure 3.7–17 through Figure 3.7–24. Generally, the 2035 alternatives result in consistent trip lengths, varying by no more than a minute. Compared to 2015, the average trip length would increase by two minutes citywide. Among the eight sectors, West Seattle and Duwamish would experience the highest increase in trip length at up to four minutes. Most sectors would have increases of one to three minutes. The higher increase for West Seattle and Duwamish is likely due to geographic constraints that limit the number of roadways connecting to those areas. Since there are fewer paths for cars to take, those routes become more congested, leading to longer average trip lengths.

Compared to 2015, the average trip length would ***increase by 2 minutes*** *citywide.*

Among the alternatives, Alternative 1 (No Action) has the highest average trip length and Alternative 3 has the lowest average trip length. However, these differences are minor.

VMT per Capita

All vehicle miles traveled figures discussed in this section refer to the PM peak period, and VMT per capita includes both residents and workers. The 2035 VMT per capita for each sector during the PM peak period is summarized in Figure 3.7–17 through Figure 3.7–24.

Citywide, the PM peak period VMT per capita is expected to decrease from 3.3 miles in 2015 to 2.9 miles by 2035 under all four alternatives. This is a notable finding since it represents a substantial shift in historical trends. It is also consistent with national projections that VMT peaked in the mid-2000s and will likely remain flat or slightly decrease in the future. This trend is discussed in more detail in the Analysis Methodology section.

Citywide, the PM peak period VMT per capita is expected to decrease from 3.3 miles in 2015 to **2.9 miles by 2035** *under all four alternatives.*

All sectors are projected to have lower VMT per capita in 2035 than in 2015, regardless of the alternative. The Downtown/Lake Union and Capitol Hill/Central District sectors are expected to experience the largest decreases while the West Seattle and Duwamish sectors are expected to have the smallest decreases.

As is currently the case, the densest and most central areas of the city, Downtown/Lake Union and Capitol Hill/Central District, would continue to have the lowest VMT per capita while other residential areas would have higher VMT per capita. The Duwamish area is projected to continue to be the sector with the highest VMT per capita due to its manufacturing and industrial nature.

Alternatives 3 and 4, concentrating growth around light rail and transit corridors, would result in larger VMT decreases in Southeast Seattle than alternatives 1 and 2.

IMPACTS COMMON TO ALL ALTERNATIVES

Pedestrian and Bicycle Network

The City has identified robust plans to improve the pedestrian and bicycle network through its *Pedestrian Master Plan*, *Bicycle Master Plan* and various other subarea planning efforts. These plans are actively being implemented and are expected to continue to be implemented regardless of which land use alternative is selected. The prioritization and/or phasing of projects may vary depending on the expected pattern of development. However, given that the pedestrian and bicycle environment is expected to become more robust regardless of alternative, no significant impacts are expected to the pedestrian and bicycle system.

Safety

The City has a goal of zero traffic fatalities and serious injuries by 2030. This goal, and the policies and strategies supporting it, will be pursued regardless of the land use alternative selected. The City will continue to monitor traffic safety and take steps, as necessary, to address areas with high collision rates. The overall variation in vehicle trips remains very small among alternatives: less than two percent. Therefore, at this programmatic level of analysis, there is not expected to be a substantive difference in safety among the alternatives. Therefore, no significant impacts are expected.

Parking

As stated in the Affected Environment section, there are currently some areas of the city where on-street parking demand exceeds parking supply. Given the projected growth in the

city and the fact that the supply of on-street parking is unlikely to increase by 2035, a parking deficiency is expected under the No Action Alternative and parking impacts are expected under the three action alternatives. The location and severity of probable impacts would vary by alternative depending on the concentrations of land use. Because some urban centers and urban villages in particular are projected to experience more growth in the next twenty years under the action alternatives than under the No Action Alternative, they would similarly be expected to become denser in their land use patterns as they grow under the action alternatives. Therefore, it is reasonably expected that such areas would experience a larger increase in parking demand under the action alternatives than under the No Action Alternative, constituting a possible parking impact.

The degree of the deficiency and impacts experienced in any given neighborhood would depend on factors including how much off-street parking is provided by future development projects, as well as varying conditions related to on-street parking patterns within each unique neighborhood. For instance, parking impacts can be quite localized within smaller urban villages, or they can be more widespread in nature throughout larger areas such as urban centers (like First/Capitol Hill).

Summary of Impacts

Table 3.7–8 summarizes the impacts for each action alternative.

Table 3.7–8 Summary of impacts

Type of Impact	2035 Alternative 2	2035 Alternative 3	2035 Alternative 4
Screenline (auto, freight and transit)	—	—	—
Pedestrian and bicycle	—	—	—
Safety	—	—	—
Parking	✓	✓	✓

✓ Impact
— No Impact

3.7.3 Mitigation Strategies

Seattle is committed to investing in the City's transportation system to improve access and mobility for residents and workers and to reduce the potential severity of transportation impacts identified above. Reducing the share of SOV travel is key to Seattle's transportation strategy. Lower SOV mode share not only reduces parking demand impacts; it is consistent

with numerous other goals and policies in the Comprehensive Plan. From a policy perspective, the City has prioritized reducing vehicular demand rather than increasing operating capacity.

The City has **prioritized reducing vehicular demand** *rather than increasing operating capacity.*

This section identifies a range of potential mitigation strategies that could be implemented to help reduce the severity of the potential adverse impacts identified in the previous section. These include impacts that would affect parking.

Proven strategies to decrease vehicle demand include transportation demand management strategies (such as employer-subsidized transit passes, unbundled parking costs for residents and increased car-sharing opportunities). These incentives, combined with constrained parking supplies and increased traffic congestion levels would tend to shift demand for travel from autos to other modes. Therefore, the recommended mitigation strategy for this programmatic action primarily focuses on improving facilities and operations capabilities for modes other than automobiles.

Given the citywide nature of the zoning alternatives, the recommended mitigation strategy focuses on five main themes:

- **Improving the Pedestrian and Bicycle Network—**The City has developed a citywide Pedestrian Master Plan (PMP) and citywide Bicycle Master Plan (BMP) along with other subarea plans focused on particular neighborhoods. These plans and documents include myriad projects that, if implemented, would improve the pedestrian and bicycle environment. SDOT also has ongoing safety programs that are aimed at reducing the number of collisions, benefiting both safety and reliability of the transportation system.
- **Implementing Transit Speed and Reliability Improvements—**The Seattle Transit Master Plan (TMP) has identified numerous projects, including Intelligent Transportation Systems (ITS), to improve transit speed and reliability throughout the city.
- **Implementing Actions Identified in the Freight Master Plan**—As mentioned earlier, the City is currently preparing a revised Freight Master Plan, which may include measures to increase the freight accessibility and travel time reliability. These projects could be implemented on key freight corridors to improve conditions for goods movement.
- **Expanding Travel Demand Management and Parking Strategies**—Managing demand for auto travel is an important element of reducing overall congestion impacts that affect auto, freight, transit and parking demand. The City has well-established Commute Trip Reduction (CTR) and Transportation Management Programs (TMPs) which could be expanded to include new parking-related strategies. CTR and TMP programs could evolve substantially toward smaller employer, residential buildings and other strategies (CTR and TMPs are now largely focused on large employers).

- **Working With Partner Agencies**—WSDOT, King County Metro, Sound Transit and PSRC all provide important transportation investments and facilities for the City of Seattle. The City has a long history of working with these partner agencies to expand multimodal access to and within the City. The City should continue to work with these agencies. Key issue areas include regional roadway pricing and increased funding for transit operations.

The possible mitigation strategies are discussed in more detail below. It should be noted that some mitigation projects could have secondary impacts. For example, converting a general purpose travel lane to a transit lane or a cycle track would reduce capacity for autos. As required, the City would prepare additional analysis before implementing specific mitigation projects. Given the programmatic nature of this study, this EIS simply lists the types of projects that could be considered to mitigate potential impacts.

Pedestrian and Bicycle System Improvements

Improvements to the pedestrian and bicycle system would provide a better connected and safer walking and riding environment, thereby encouraging travelers to choose walking or biking rather than driving. There is a well-documented link between improved, safer bicycle and pedestrian accessibility and reduced demand for vehicle travel (CAPCOA 2010).

- Specific projects and/or high priority areas for improvement may be found in the City's adopted Pedestrian and Bicycle Master Plans.
- Development codes could also be modified to include requirements for wider sidewalks, particularly along greenways and green streets, to promote walking and bicycling.
- In conjunction with other funding sources, new private and public development could pay for a share of PMP and BMP improvements.

Speed and Reliability Improvements

Transit and freight travel times could be reduced by providing targeted speed and reliability improvements on key routes frequented by transit and freight. The 2012 Transit Master Plan identifies such improvements throughout the city. An update to the City's Freight Master Plan is currently underway; the plan will identify near- and long-term improvements that would benefit freight mobility. In conjunction with other funding sources, new development could pay for a share of improvements on key routes. Some of the transit improvements could be funded through the recent passage of Proposition 1.

Travel Demand Management and Parking Strategies

The City of Seattle currently has travel demand management programs in place including strategies outlined in the transportation modal plans: the *Pedestrian Master Plan*, the *Bicy-*

cle Master Plan and the *Transit Master Plan*. In addition, the City could consider enhancing the travel demand management programs already in place. Research by the California Air Pollution Control Officers Association (CAPCOA), which is composed of air quality management districts in that state, has shown that implementation of travel demand management programs can substantially reduce vehicle trip generation, which in turn reduces congestion for transit, freight and autos. The specific measures described below are all potential projects that the City could consider to modify or expand current strategies:

- Parking maximums that would limit the number of parking spaces which can be built with new development;
- Review the parking minimums currently in place for possible revisions;
- Unbundling of parking to separate parking costs from total property cost, allowing buyers or tenants to forgo buying or leasing parking spaces;
- Review and revise transit pass provision programs for employees; and
- Consider transit pass provision programs for residents—King County Metro has a new Passport program for multifamily housing that is similar to its employer-based Passport program. The new program discounts transit passes purchased in bulk for residences of multifamily properties.

These types of possible mitigation strategies would tend to reduce the number of work-based commute trips and all types of home-based trips. Shopping-based trips would also decrease, but likely at a lower level since these types of trips are less sensitive to parking costs and limited supply for short-term use. Zoning changes could be considered to require development to fund specific transportation demand management strategies.

Beyond those already incorporated in existing zoning, additional provisions could be explored to further encourage developers to include parking spaces for car share and bike share programs. This could include provisions to accommodate bike share stations on private sites in high demand areas, such as:

- Adding bike share stations as a “residential amenity” in the open space provisions;
- Floor area ratio (FAR) bonuses allowing bike share setback;
- Listing bike share stations in the street improvement manual (as a “green street” improvement or separately); and
- Allowing modifications from landscaping setbacks to allow bike share stations, where appropriate.

The City could also consider encouraging or requiring parking operators to upgrade their parking revenue control systems (PARC) to the latest hardware and software technology so it could be incorporated into an electronic guidance system, compatible with the e-Park program that is currently operating Downtown. This technology would help direct drivers to off-street parking facilities with available capacity. The City could also continue to manage on-street paid parking through existing programs and refine them to redefine subareas and manage them with time-of-day pricing and paid parking to new areas.

In the absence of a new ITS parking program, the City would continue to manage on-street paid parking through SDOT's Performance-based Parking Pricing Program which evaluates data to determine if parking rates, hours of operation and/or time limits could be adjusted to achieve the City's goal of one to two available spaces per block face throughout the day.

The City could also consider establishing new subarea transportation management partnership organizations to provide programs, services and strategies to improve access to employment and residences while decreasing the SOV rate, particularly during peak periods. This could include partnerships with transit providers. Local Transportation Management Associations (TMAs) could provide some of these services. Programs like the state's Growth and Transportation Efficiency Center (GTEC)[8] or the City's Business Improvement Area (BIA) are possible models or future funding sources. The programs could include features of relevant programs such as Seattle Center City's Commute Seattle, Whatcom County's SmartTrip or Tacoma's Downtown on the Go programs. Portland, OR has an innovative program, also called SmartTrip, which delivers a customized set of information to all new residents in the City via email or bicycle courier. The city uses utility data to identify new residents and asks them if they would like additional information about transportation options in their neighborhood and to their workplace. This program has been demonstrated to reduce the SOV rate of new residents by about nine percent.

The City could consider updating municipal code and/or Director's Rules related to Transportation Management Plans required for large buildings to include transportation demand management measures that are most effective in reaching the City's mode share goals. This may include membership in a TMA and discounted or free transit passes and/or car share and bike share memberships. For residential buildings, the City could also consider extending Transportation Management Plans or requiring travel options programs (such as Green Trips in Oakland, CA and Residential Services in Arlington, VA).

The City could seek to improve monitoring of the parking occupancy and RPZs to determine if changes are necessary. These changes could include splitting existing RPZs into multiple zones, adding new RPZs or adjusting RPZ boundaries. The City could also review the RPZ program and its policies in areas that are oversubscribed (where there are more permits issued than parking spaces).

Potential Mitigation Measure Implementation

Funding for mitigation projects could come from a variety of sources. One way to generate additional funding would be a citywide development impact fee program that could include monitoring, project prioritization and use of collected fees to construct street system projects. The program could emulate practices used in the existing South Lake Union and

8 GTEC is an extension of the existing CTR program which engages residents and employers of all sizes through an area-wide approach.

Northgate Voluntary Impact Fee Programs. This type of program would require additional analysis to identify needed projects and a fee schedule before it could be implemented.

Travel demand management, parking mitigation strategies and bikeshare and carshare parking incentives could be implemented through updates to the City municipal code and additional investments in city programs.

3.7.4 Significant Unavoidable Adverse Impacts

Potentially significant adverse impacts are identified in this Draft EIS. However, the parking impacts are anticipated to be brought to a less-than-significant level by implementing a range of possible mitigation strategies such as those discussed in Section 3.7.3. While there may be short-term impacts as individual developments are completed (causing parking demand to exceed supply), it is expected that over the long term, the situation would reach a new equilibrium as drivers shift to other modes. Therefore, no significant unavoidable adverse impacts to transportation and parking are expected.

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