Attachment 11 Transportation Appendix

Transportation Appendix

Many of the terms used in the Transportation Element and Appendix may be unfamiliar to the casual reader. There are useful glossaries in the State of Washington Department of Commerce's Transportation Guidebook (http://www.commerce.wa.gov/Documents/GMS-Transportation-2012.pdf) and the state Department of Transportation's website titled Growth Management Act (GMA) Comprehensive Plan Resources (http://www.wsdot.wa.gov/planning/community/GMA.htm) and also on WSDOT's website, (http://www.wsdot.wa.gov/Publications/Manuals/index.htm). Additional glossaries can be found at http://www.fhwa.dot.gov/planning/glossary/index.cfm and http://trblist.org/subjectglossaries

The purpose of providing the information in this Appendix, and related information in the Transportation Element, is to comply with the requirements of RCW Chapter 36.70A (Growth Management Act) by showing land use assumptions used in estimating travel; estimated traffic impacts to state-owned transportation facilities based on those assumptions; facilities and service needs, including level of service standards for local arterials and state highways; forecasts of traffic; and the availability of financing and a financing plan to show how these identified needs will be met.

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A Land Use Assumptions Used in Estimating Travel[1]

To estimate future travel levels, assumptions were made for a variety of factors related to future population, employment, and transportation facilities. These include the number and geographic distribution of both households and employment in Seattle and the region, characteristics of households and jobs (e.g., number of residents per household, household income), and the transportation network (e.g., streets, transit routes). Then, a computer model was used to predict the total number of person-trips between various zones, the number of trips that would use various modes (e.g., car, bus, bike, walk), and the resulting vehicle traffic volumes on various streets throughout the city.

existing conditions

In 2010, the census counted 608,660 people living in Seattle; 2014 City estimates place the current number at about 640,500 people. But many other people visit Seattle for a range of purposes, such as working, shopping, education, tourism, medical appointments, pass-through travel, and other reasons.

Seattle covers about 53,113 acres of land. Most areas of the city are of predominantly one type of land use (e.g., residential, commercial, or industrial). About 40 percent of the city's land area is occupied by residential uses. In 2010, there were approximately 308,500 housing units in the city. Estimates in 2012 placed the total number of housing units in the city at about 312,850 units. The area north of the ship canal has more of its land area occupied by housing than mid-Seattle (south of the ship canal to I-90) or south Seattle (south of I-90).

Street rights-of-way take up the next largest amount of land, almost 27 percent. Commercial and industrial areas, where most of the jobs in the city are located, occupy about 13 percent of the land area. Parks occupy slightly more than nine percent; cemeteries, reservoirs, and other uses occupy six percent; and the remainder of land is vacant.

regional land use assumptions

The Puget Sound Regional Council (PSRC) conducts regional planning for the four-county (Snohomish, King, Pierce, and Kitsap) central Puget Sound region. The PSRC's Vision 2040 Growth Strategy and Transportation Plan presents a vision and array of strategies designed to achieve goals of growth management, transportation demand management, and improved transportation investment decisions. The PSRC provides population and employment forecasts for the region, and encourages growth in ways that focus future population and employment growth into urban centers, which formally include the Urban Centers that are defined in this Comprehensive Plan.

Seattle land use assumptions

Seattle's growth assumptions for the period from 2015 through 2035 are 70,000 new housing units and net growth in employment of 115,000 jobs. This is the City's share of the region's

[1] (RCW 36.70A.070 (6) (a) (i))

projected housing and employment growth between 2015 and 2035, identified through the countywide process conducted by the Growth Management Planning Council.

The growth assumptions for the Urban Centers are as follows:

Urban Center	**Housing Units**	**Jobs**
Downtown	10,000	30,000
First Hill/Capitol Hill	7,000	4,000
South Lake Union	4,700	20,000
Uptown	3,500	3,500
University District	2,700	8,000
Northgate	1,600	5,000
Greater Duwamish Manuf./Industrial Center	NA	3,000
BINMIC	NA	1,500

B Facilities and Services Needs[2]

Seattle's street network consists of approximately 1,534 miles of arterials, including some that are designated state routes, and more than 2,400 miles of non-arterials (see Transportation Figure A-1). In the arterial system there are 620 miles of principal arterials, 566 miles of minor arterials, and 348 miles of collector arterials. High-occupancy vehicle (HOV) lanes exist on some arterials and limited access facilities as shown in Transportation Figure A-2.

[2] (RCW 36.70A.070 (6) (a) (iii))

transit

Public transit in Seattle is provided by three agencies. King County Metro provides bus, trolley and streetcar services that cover most of King County. Community Transit and Sound Transit operate express bus services to Seattle from King, Snohomish and Pierce Counties. As of 2014, King County Metro serves a population of more than 2 million people in a service area greater than 2,000 square miles. It operates more than 1,800 vehicles on about 214 bus, trolley and dial-a-ride routes. Included are 159 electric trolley buses serving 14 routes along almost 70 miles of two-direction overhead wires. Its 2012 ridership was more than 114 million passengers. Transportation Figure A-3 shows bus routes in Seattle.

King County Metro operates a 1.3-mile long tunnel under Third Avenue and Pine Street from the International District to 9th Avenue and Pine Street. The tunnel has four operational stations, and connects to I-90 at the south end and to the I-5 express lanes at the north end. The tunnel supports joint bus and light rail service until such time as light rail train service is too frequent to safely operate joint services in the tunnel.

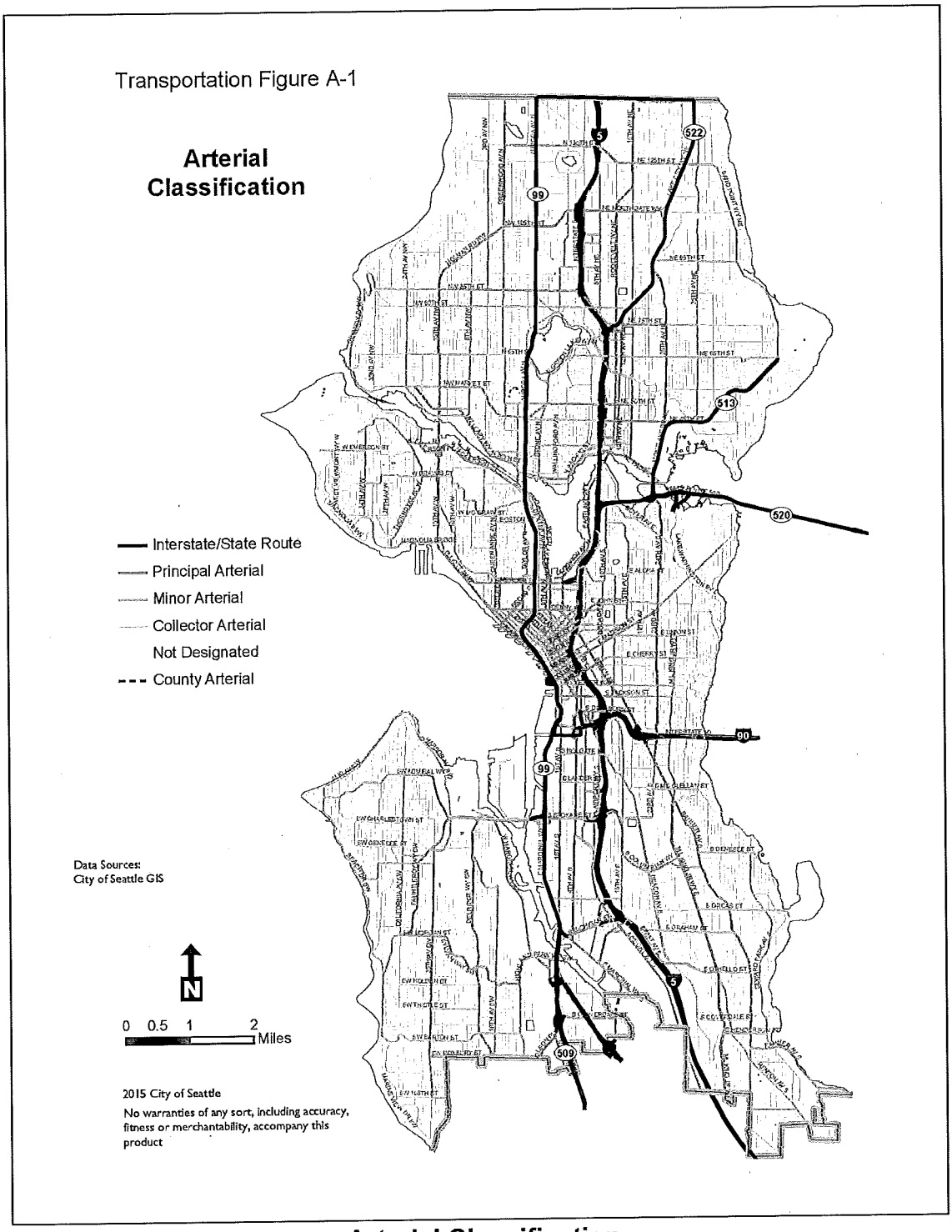
Sound Transit is the regional transit authority for the Puget Sound area (which includes portions of King, Snohomish and Pierce Counties.) Sound Transit operates light rail service connecting Downtown Seattle with SeaTac Airport and has construction underway to extend service northward to Lynnwood. That construction will deliver light rail service to Capitol Hill and Husky Stadium by 2016, and to the University District, Roosevelt and Northgate by 2021. Routing is shown on Transportation Figure A-4.

There are 11 Link light rail stations currently in Seattle: in the Rainier Beach, Othello, Columbia City, North Rainier/Mt. Baker, Beacon Hill, SODO/Lander Street, and SODO/Royal Brougham Way neighborhoods; and four in the Downtown transit tunnel. Weekday average ridership averages more than 37,000 passengers (2014).

Sound Transit also provides Sounder commuter rail services during peak hours along existing rail lines from Downtown Seattle northward to Everett and southward to Tacoma and Lakewood.

Metro, Sound Transit and WSDOT operate approximately 18 park and ride facilities with approximately 2,262 parking spaces in Seattle. (See Transportation Figure A-5.)

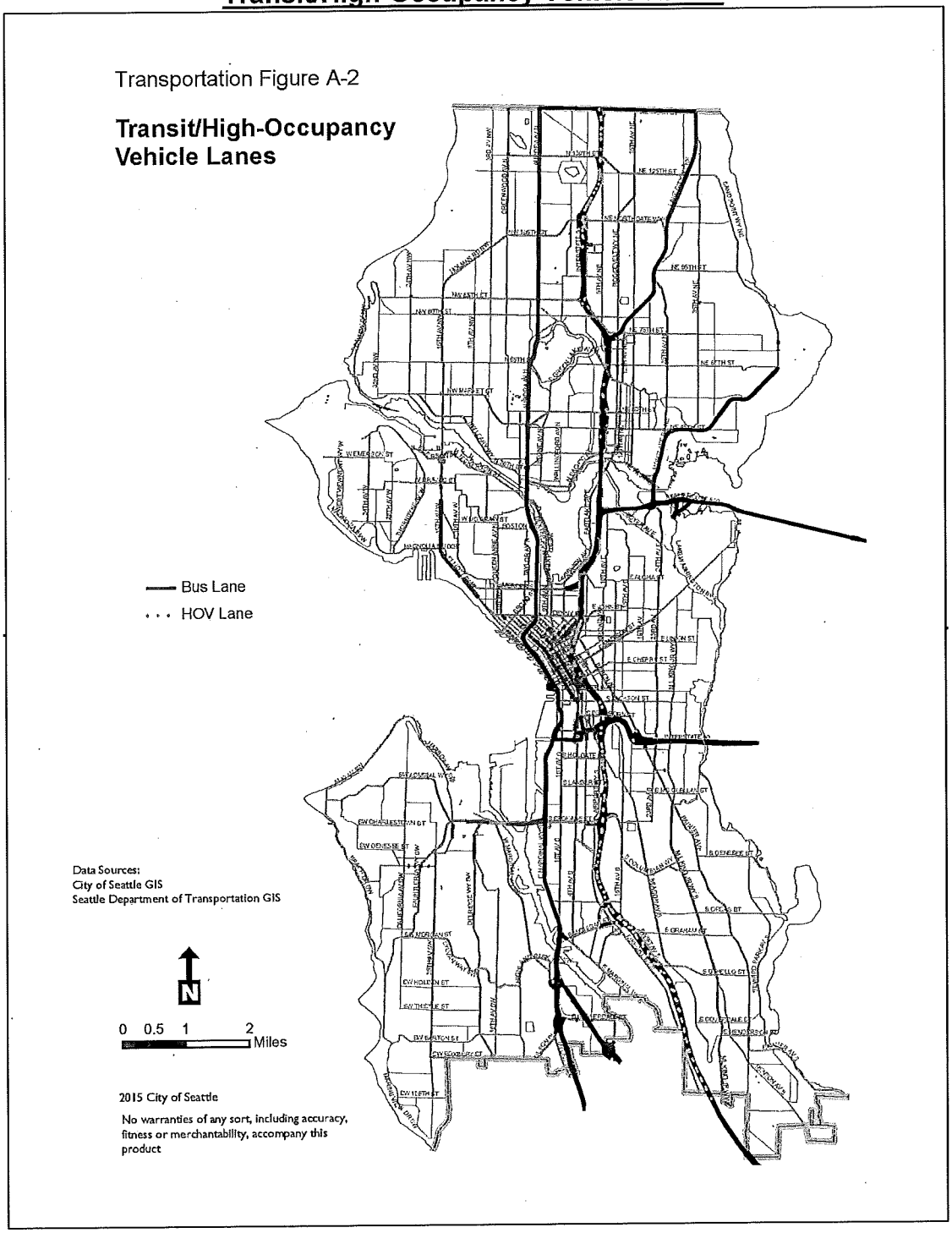
Transportation Figure A-1



Arterial Classification

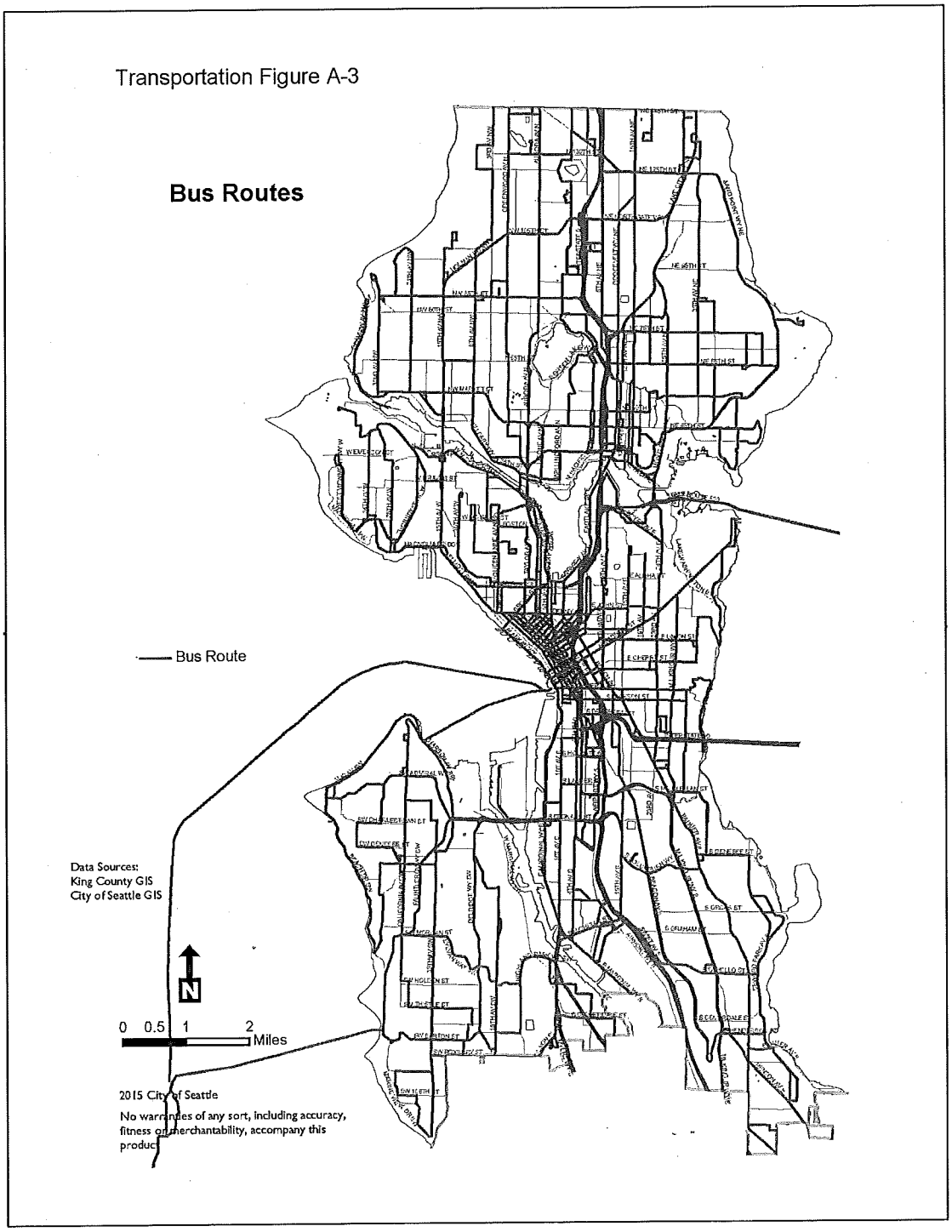
Transportation Figure A-2

Transit/High-Occupancy Vehicle Lanes



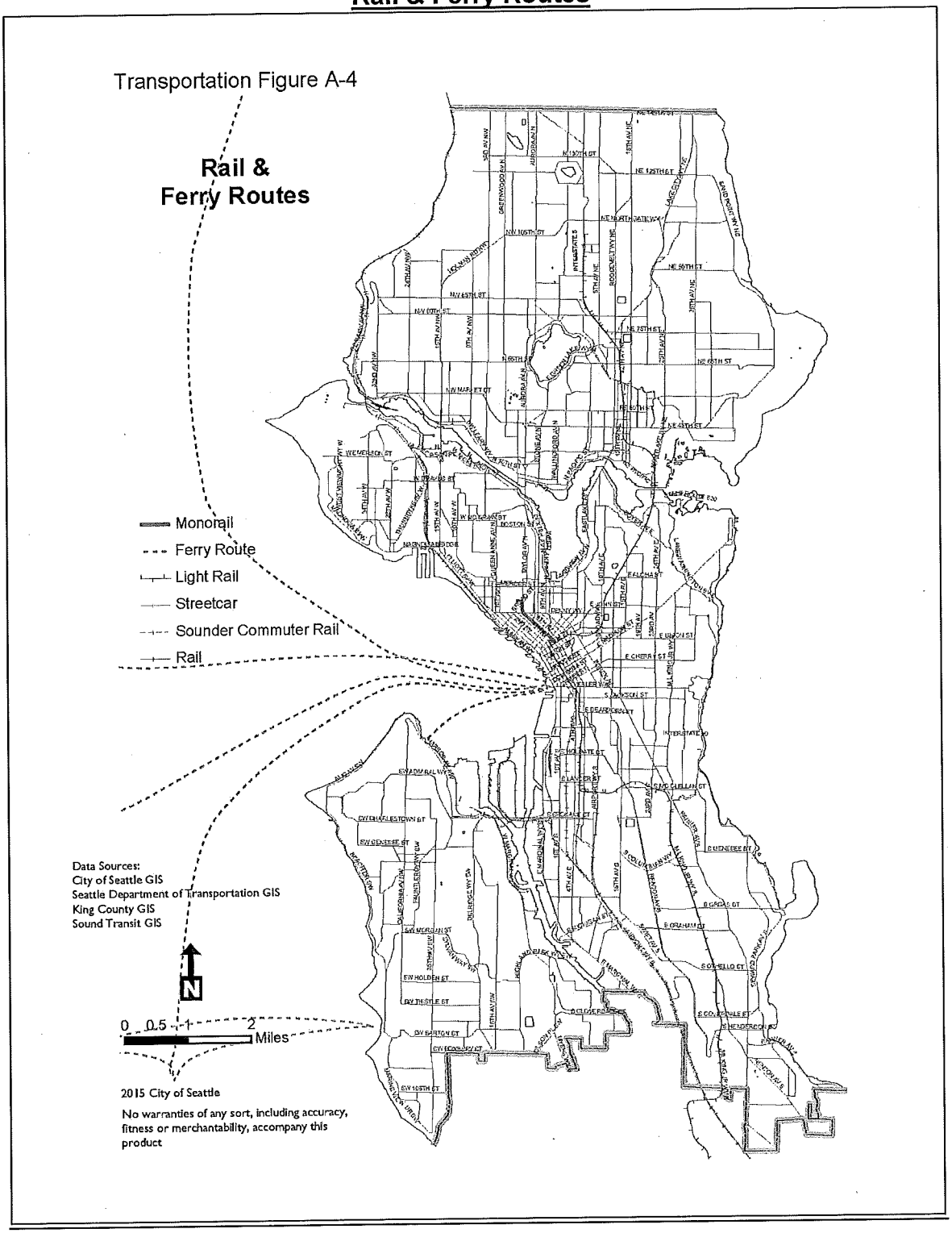
Transportation Figure A-3

Bus Routes



Transportation Figure A-4

Rail & Ferry Routes



Transportation Figure A-5 **Park & Ride Facilities**				
Lot	**Name**	**Address**	**Spaces**	**Amenities/Routes/Notes**
N/A - -	Montlake Station - -	Montlake Blvd E & SR 520 - -	0 - -	54 Bike Lockers Metro: 25, 43, 48
703 - - -	Green Lake Park & Ride - - -	6601 8th Ave NE - - -	411 * - - -	22 Bike Lockers Metro: 48, 64, 66, 67, 76, 242, 316 Sound Transit: 542 *Lot is usually filled 90 percent or above by 9:00 a.m. on weekdays
505 -	Lamb of God Lutheran Church -	12509 27th Ave NE -	21 -	Metro: 41
706 -	North Seattle Interim Park & Ride -	402 NE 103rd St. -	156 -	Metro: 16, 40, 41, 66, 67, 68, 75, 242, 303, 345, 346, 347, 348, 995 Sound Transit: 555, 556
758 - - -	Northgate Mall Park & Ride Garage - - -	NE 103rd St & 1st Ave NE - - -	280 * - - -	Spaces located on floors 1 and 2 Metro: 16, 40, 41, 66, 67, 68, 75, 242, 303, 345, 346, 347, 348, 995 Sound Transit: 555, 556 *Lot is usually filled 90 percent or above by 9:00 a.m. on weekdays
753 - - - - - -	Northgate Transit Center - - - - - -	10200 1st Ave NE - - - - - -	296 * - - - - - -	12 Bike Lockers 12 On-Demand Bike eLockers Ticket Vending Machines Metro: 16, 40, 41, 66, 67, 68, 75, 242, 303, 345, 346, 347, 348, 995 Sound Transit: 555, 556 Boarding Locations Map *Lot is usually filled 90 percent or above by 9:00 a.m. on weekdays
753.1 and 753.2 -	Northgate Transit Center East Park & Ride -	3rd Ave NE & NE 103rd St -	448 * -	Spaces include 50 for carpool Metro: 16, 40, 41, 66, 67, 68, 75, 242, 303, 345, 346, 347, 348, 995

Transportation Figure A-5 **Park & Ride Facilities**				
Lot	**Name**	**Address**	**Spaces**	**Amenities/Routes/Notes**
-	-	-	-	Sound Transit: 555, 556
-	-	-	-	*Lot is usually filled 90 percent or above by 9:00 a.m. on weekdays
710	South Jackson Park Park & Ride	5th Ave NE & NE 133rd St	46	Metro: 242
760	Thornton Place Garage	3rd Ave NE & NE 100th St	350 *	Garage Floors P1 & P2
-	-	-	-	Hours: Monday-Friday 6 a.m. - 8 p.m.
-	-	-	-	Metro: 16, 40, 41, 66, 67, 68, 75, 242, 303, 345, 346, 347, 348, 995
-	-	-	-	Sound Transit: 555, 556
-	-	-	-	*Lot is usually filled 90 percent or above by 9:00 a.m. on weekdays
749	Airport & Spokane Park & Ride	Airport Way S & S Spokane St	25	Metro: 101, 102, 106, 131, 150, 177, 178, 190
-	-	-	-	Sound Transit: 590, 592, 593, 594, 595
550	Beverly Park First Baptist Church	11659 1st Avenue S	12	Metro: 128, 131
N/A	Columbia City Station	4818 Martin Luther King Jr Way S	0	37 Bike Lockers
-	-	-	-	No Metro or Sound Transit Parking Available
-	-	-	-	Paid Parking Nearby
-	-	-	-	Ticket Vending Machines
-	-	-	-	Sound Transit: Central Link Light Rail
-	-	-	-	Closest Bus Route: Metro: 8
591	Community Bible Fellowship	11227 Renton Avenue S	29	Metro: 106
562	Holy Family Church	9641 20th Avenue SW	23	Metro: 22, 113, 125
-	-	-	-	Sound Transit: 560
738	Olson Place & Myers Way Park & Ride	9000 Olson Pl SW	100	Metro: 60, 113
N/A	SODO Station	500 S Lander St	0	16 Bike Lockers

Transportation Figure A-5 **Park & Ride Facilities**				
Lot	**Name**	**Address**	**Spaces**	**Amenities/Routes/Notes**
-	-	-	-	Sound Transit: Central Link Light Rail
553	Sonrise Evangelical Free Church	610 SW Roxbury St	10	Metro: 60, 113
744	Southwest Spokane St Park & Ride	3599 26th Avenue SW	55	Metro: 21, 37 Express

Source: King County Metro. "Park and Ride Information." Last modified 2014. http://metro.kingcounty.gov/tops/parknride/.

bicycles and pedestrians

Bicycles are classified as "vehicles" in the Seattle Traffic Code and have the right to use all streets in the city except where explicitly prohibited. Bicycling is steadily growing in popularity as an everyday commuting method and as recreational activity. Transportation Figure A-6 illustrates the location of seven categories of bike facilities. There are more than 300 miles of bicycle facilities as of 2013, including 78 miles of bicycle and climbing lanes, 92 miles of shared lane pavement markings, 6 miles of neighborhood greenways, 47 miles of multi-use trails, 128 miles of signed routes, and more than 2 miles of other on- and off-street bicycle facilities. A recently updated Bicycle Master Plan and an Implementation Plan spell out the approach to expanding the network further to increase its connectivity, completeness and safety.

Bicycle racks are provided in neighborhood commercial areas and downtown, and some work places provide secure, weather protected bike parking, showers, and lockers. As of 2010, the City had installed over 2,550 bike racks across the city. Seattle's Land Use Code also requires that many new developments include bike parking where parking is built for cars.

As of 2010, Seattle had more than 2,200 miles of sidewalks, nearly 5,000 crosswalks, almost 27,000 curb ramps, 500 stairways, and 39 lane miles of 12-foot wide trails (see pedestrian facilities mapped in Transportation Figure A-7). Over the past decade, the City has made progress in addressing gaps in sidewalk coverage by pursuing construction of sidewalks or asphalt walkways in numerous locations where they were lacking, within the constraints of budgeted funding. However, there remain several areas around the city, such as residential neighborhoods north of N 85th Street, that lack sidewalks because they were originally developed when sidewalks were not required. The pace of new sidewalk construction in 2009 was approximately 25 block-equivalents.

parking

On-street parking occurs in the public right-of-way and is therefore regulated by the City through the creation of no-parking and special-use parking zones, time-of-day restrictions, parking duration limits, pay stations/meters, and residential parking zones. Over the past decade, the City has modernized its pay stations/meters and continues to do so with innovations such as pay-

by-phone. It also has pursued more active management of on-street parking rates in order to accomplish goals for availability of on-street parking for motorists wishing to park. This improves residents', visitors' and shoppers' ability to reliably find parking when and where they need it.

Residential parking zones (RPZ's) are designed to protect Seattle's residential neighborhoods from parking impacts and congestion from major employment and/or retail centers. In an RPZ, on-street parking is generally restricted to one or two hours, except for residents and guests who display special RPZ decals. Existing RPZ's include the following communities: Montlake, Squire Park, West Seattle-Fauntleroy, Capitol Hill, Wallingford, University District, First Hill, Eastlake, Magnolia, North Queen Anne, North Capitol Hill, Uptown (Seattle Center), Central District (Garfield High School), Belmont/Harvard, Mount Baker (Franklin High School), North Beacon Hill, Licton Springs (North Seattle Community College), Cowen Park/Roosevelt, Ravenna Bryant. The RPZ program is slated for review in 2015, with the objective to review program goals and seek refinements that will respond to current needs and priorities with respect to neighborhoods' on-street parking.

Off-street parking facilities are usually privately-owned and operated. The City regulates the location and size of garages and lots through the Land Use Code. Facilities with paid parking pay a licensing fee.

Carpools receive preferential parking treatment through City programs, allocation of on-street parking spaces, and Land Use Code requirements for carpool parking in new developments.

rail

Passenger Rail: Amtrak operates trains over 900 miles of Burlington Northern tracks in the state and provides service to 16 cities. The Empire Builder provides daily service from Seattle to Spokane and on to Chicago; the Amtrak Cascades runs four times a day to/from Portland, and twice daily to/from Vancouver, B.C. The Coast Starlight runs daily connecting Seattle to Portland, Oakland and on to Los Angeles. Sound Transit operates two Sound train routes on the same tracks to between Seattle/Tacoma-Lakewood and Seattle/Everett.

Freight: Burlington Northern Santa Fe (BNSF) owns and operates a mainline dual-track from Portland to Seattle. Union Pacific owns and operates a single mainline track with two-way train operations between Tacoma and Seattle. BNSF owns and operates tracks that extend north from downtown Seattle to Snohomish County and then east to Spokane.

There are four **intermodal terminals** servicing the Duwamish Industrial area: BNSF Railway operates the Seattle International Gateway yard north of S. Hanford Street. Union Pacific Railroad operates the Seattle Argo Yard just south of Spokane St off of Diagonal/Denver Avenues. Port of Seattle terminals include intermodal facilities at Terminals 5 and 18. BNSF's Interbay rail yard is north of downtown Seattle.

Rail-line capacity depends on train length, operating speeds, the number of switch crossover points, and whether the line has one- or two-way traffic. Current train speed limits in the City are 10, 20, or 40 mph depending on the segment.

other intermodal facilities

The Port of Seattle owns, operates or supports marine, rail, and air intermodal facilities. Port of Seattle facilities include nine commercial marine terminals, four ocean container terminals with 31 container cranes, and a deep-draft grain terminal. Steamship operators have direct service to Asia, Europe, Latin American and domestic markets (Alaska and Hawaii.) Services are offered by 17 ocean carriers; about 30 tug and barge operators; and BNSF Railway and Union Pacific railroads, operating intermodal yards. Transportation Figure A-8 shows Port of Seattle facilities located in Seattle.

air transportation

There are five commercial aircraft landing facilities in the greater Seattle metropolitan area: Seattle-Tacoma International Airport (Sea-Tac), operated by the Port of Seattle and located in the City of SeaTac; King County International Airport; the Kenmore Air Harbor and Seattle Seaplanes facilities based in Seattle's Lake Union; and the Lake Washington seaplane base near Kenmore. Transportation Figure A-9 shows air facilities in the City of Seattle.

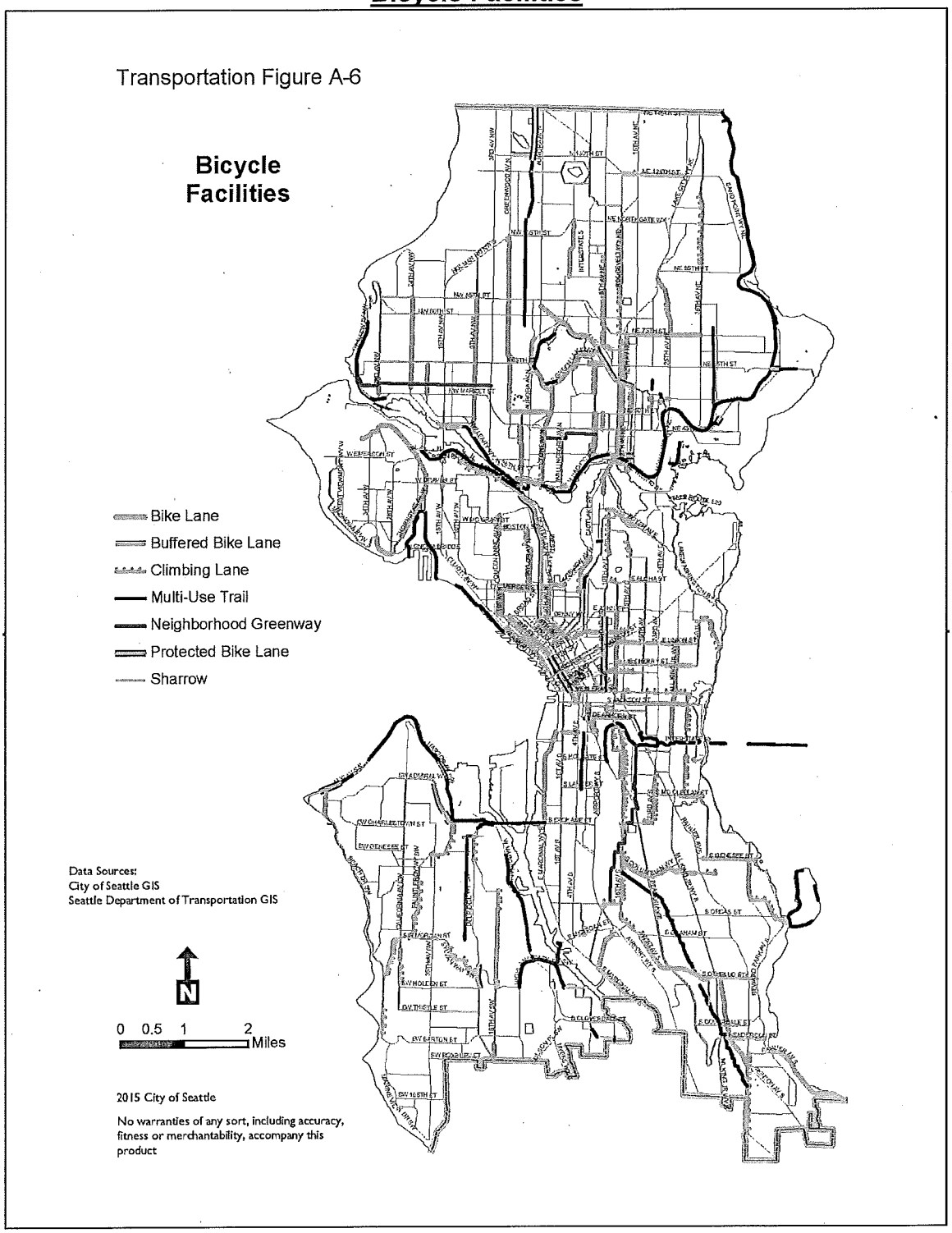
water transportation

The Washington State Ferry (WSF) system operates two terminals in Seattle - Colman Dock in downtown Seattle, and the Fauntleroy terminal in West Seattle. Passenger-and-vehicle service is provided on two ferry routes from Colman Dock - to Bainbridge Island and to Bremerton. Passenger-and-vehicle ferries link Fauntleroy with Vashon Island and Southworth. King County operates a Water Taxi service in Elliott Bay connecting to West Seattle.

In 2015, the cruise ship terminals at Bell Street Cruise Terminal at Pier 66 and Smith Cove Cruise Terminal at Terminal 91 will serve seven major cruise lines including Carnival, Celebrity Cruises, Holland America Line, Norwegian Cruise Line, Princess Cruises, Oceania Cruises and Royal Caribbean. Each ship call brings in $2.4 million to the local economy. Overall, the Seattle cruise industry generates 3,404 jobs and $407.8 million in annual business revenue.

Transportation Figure A-6

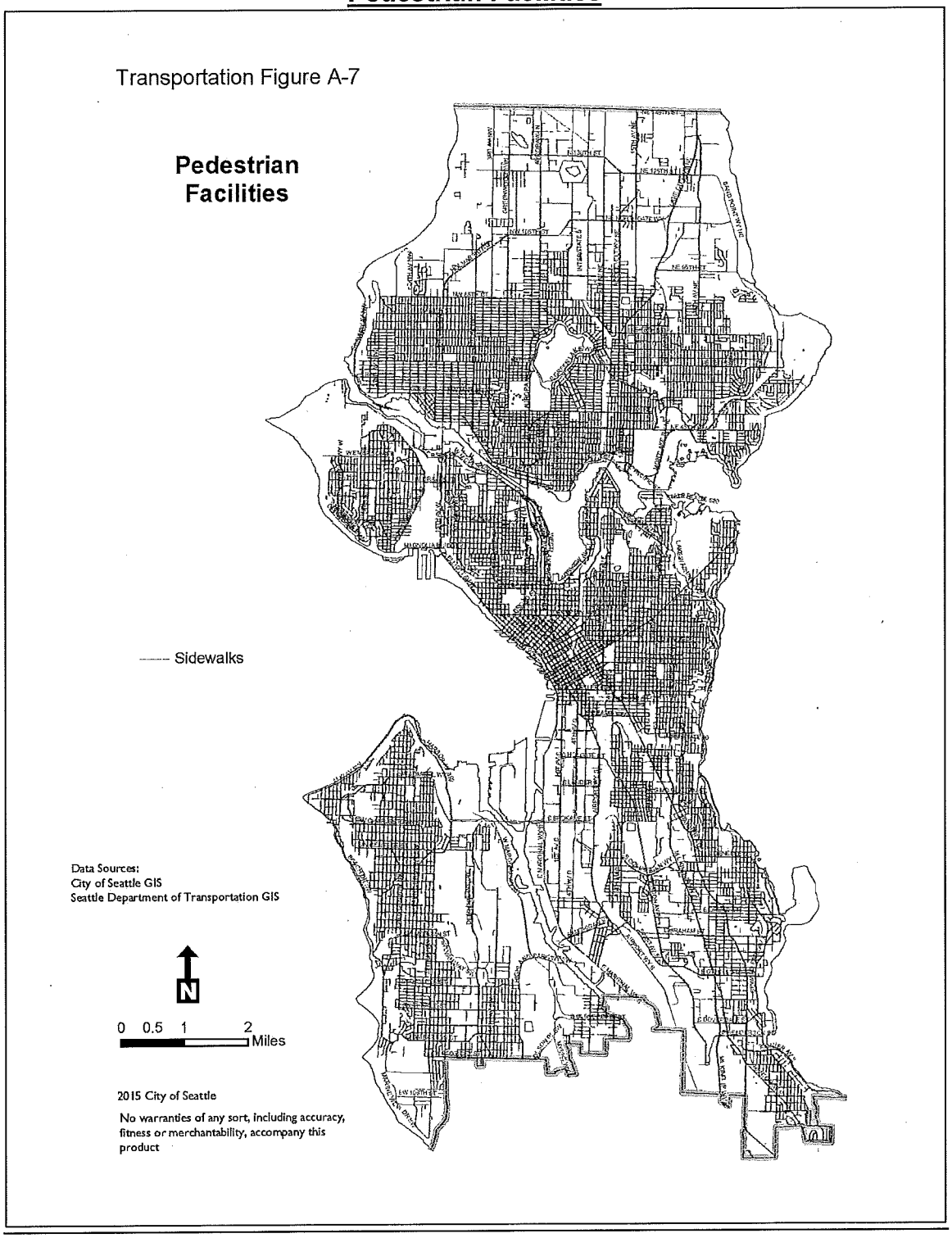
Bicycle Facilities



Transportation Figure A-7

Pedestrian Facilities

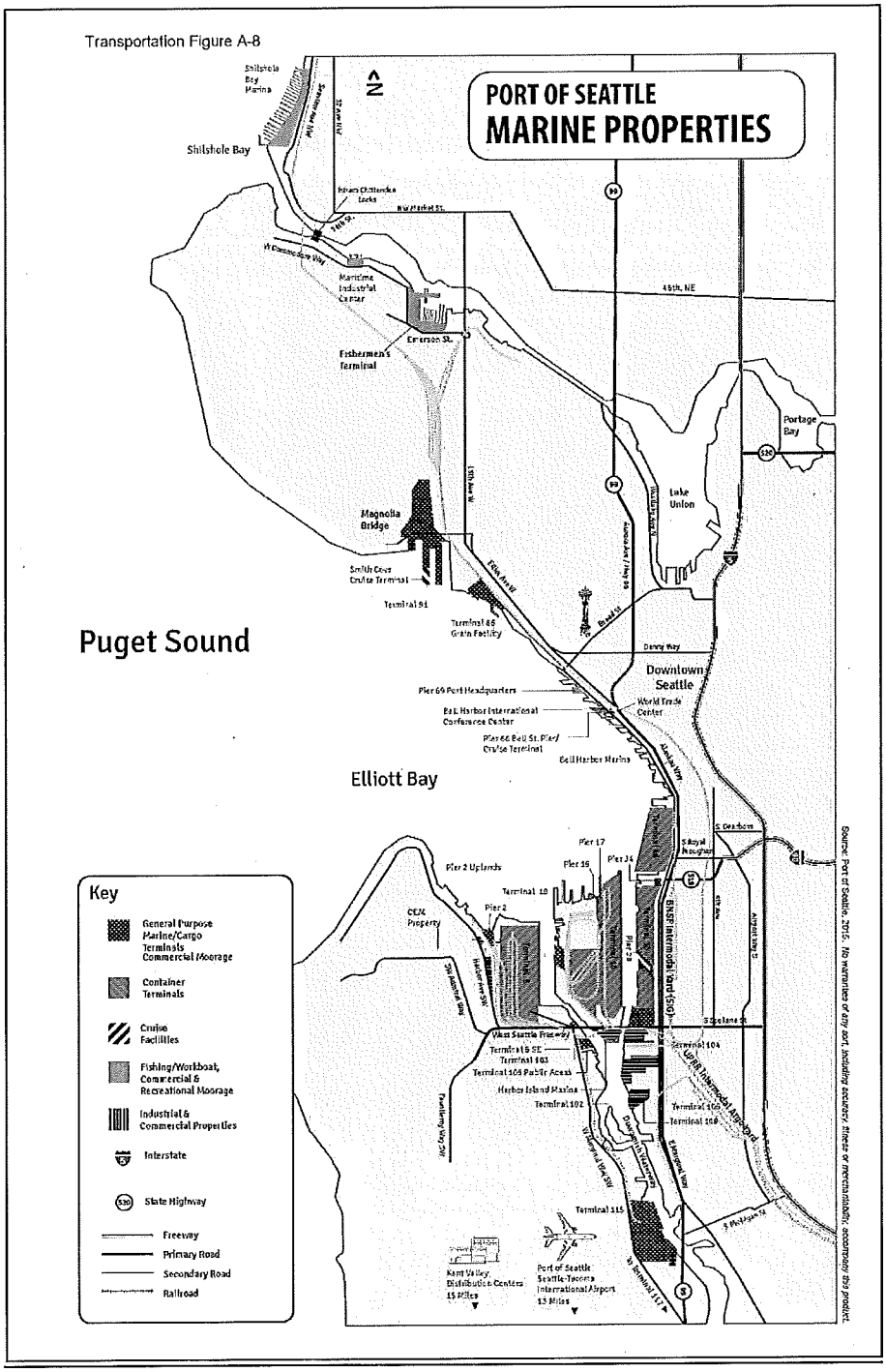
Transportation Figure A-7



Transportation Figure A-8

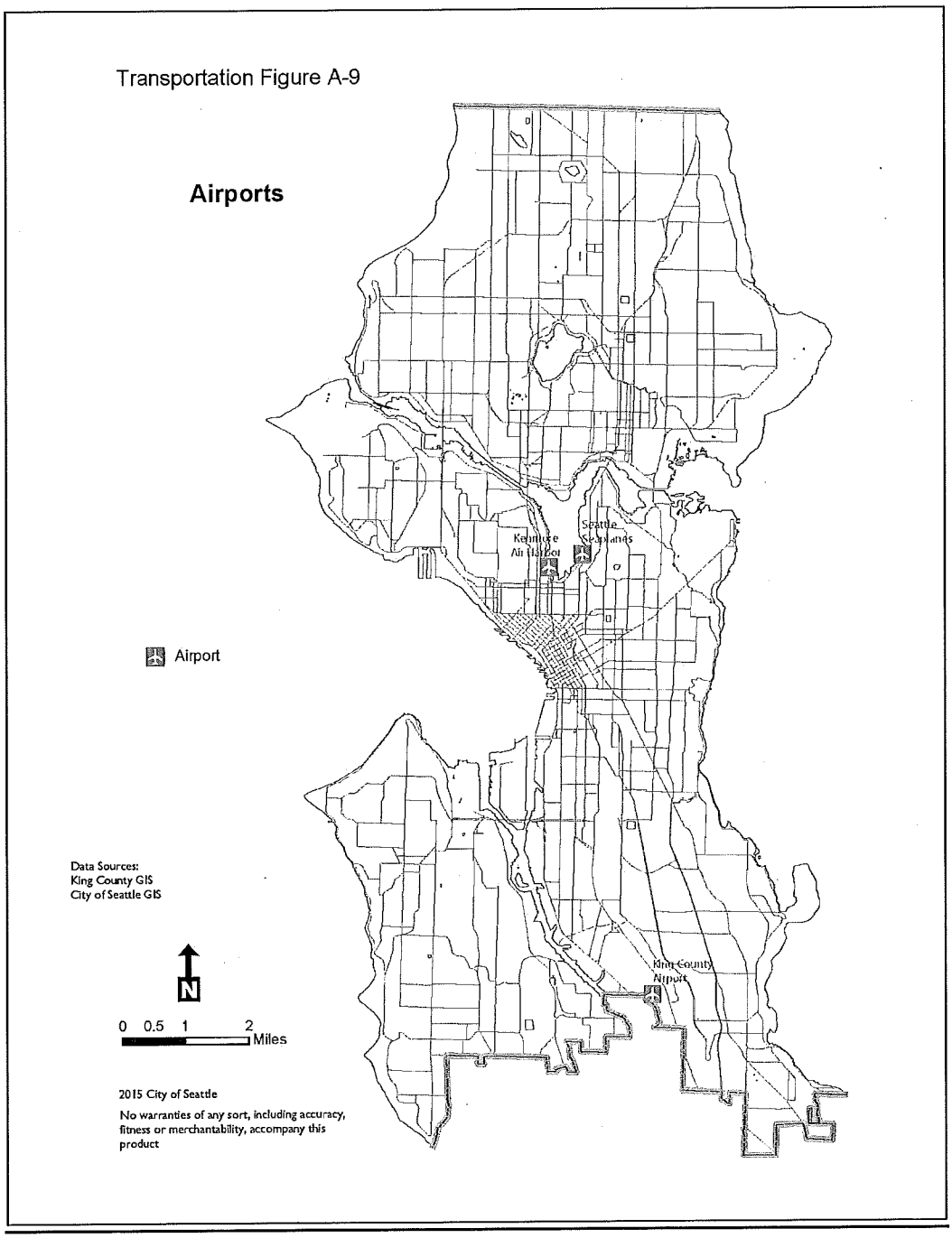
Port of Seattle Facilities

Transportation Figure A-8



Transportation Figure A-9

Airports



C Local Level of Service Standards for Arterials and Transit Routes[3]

[3] (RCW 36.70A.070. (6)(A)(iii)(B)), (RCW 36.70A.070.(6)(A)(iii)(C))

traffic forecasts

The v/c ratios in Transportation Figure A-11 are based on a model that reflects the PSRC Regional Transportation model. However, the model also modifies PSRC's model to better represent street conditions such as arterial speeds, future transit routing and service levels, the distribution of trips and choice of transportation modes.

The model's current and 2035 region-wide and city-limit traffic volume estimates are shown in the following table. These inform the Comprehensive Plan's assumed future v/c ratios. The methodology used is that traffic volumes are modeled for arterial streets for the year 2035 and compared to current conditions as of 2014/2015. The modeled volumes are then totaled for all arterials crossing a particular screenline. These totals are then compared to the sum of the arterials' rated capacities. The arterial capacity ratings were systematically reviewed and updated in 2015 to provide a consistent and accurate basis for comparison. This yields a ratio of volume-to-capacity (v/c) for each direction of traffic for each screenline.

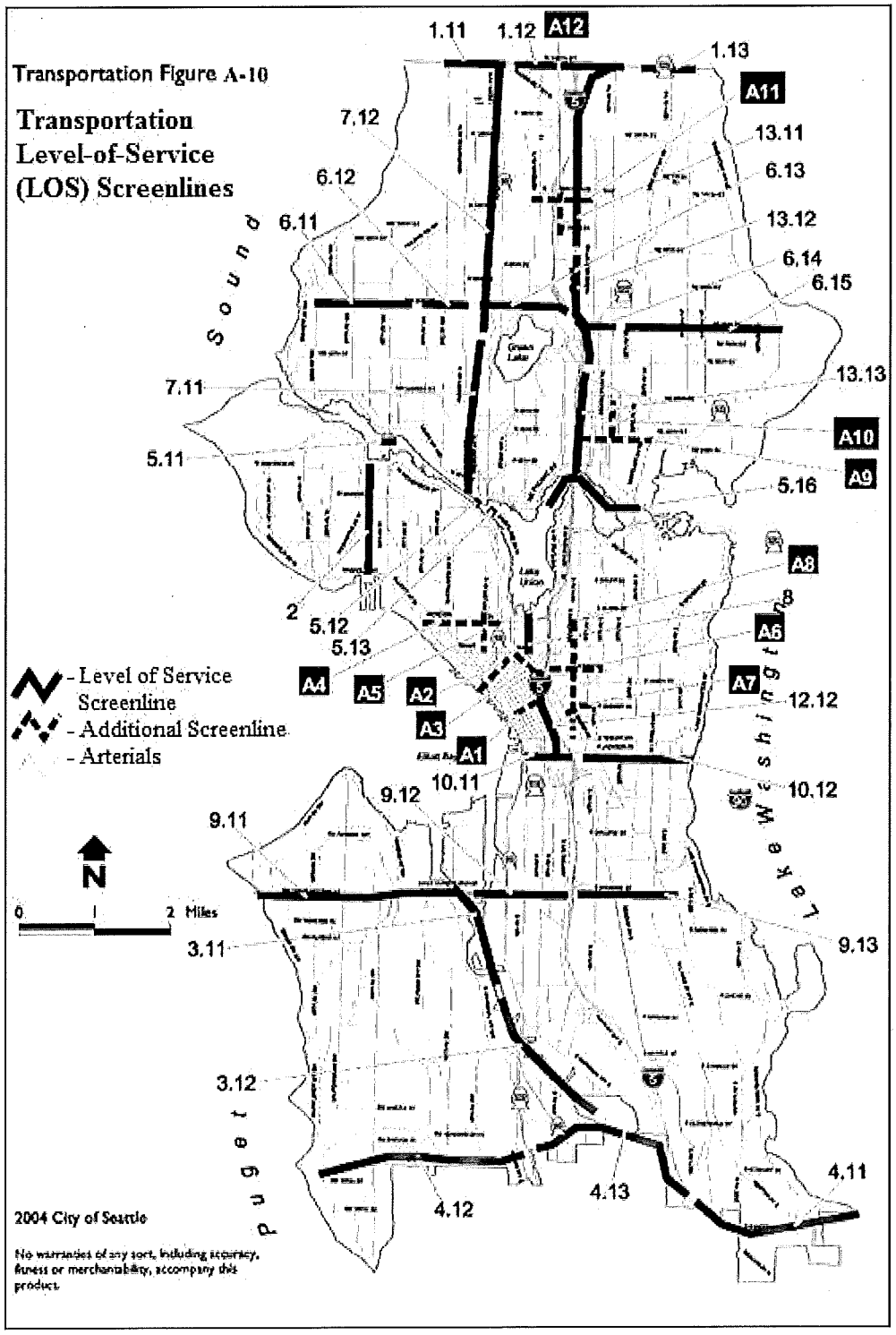
Total vehicle-miles-of-travel (VMT) for the region (per day):	
Existing:	81.1 million
2035 forecasts:	105.3 million (+30%)
Traffic volume at north city limit (vehicles per day):	
Existing	360,800
2035 forecasts:	464,900 (+29%)
Traffic volume at south city limit (vehicles per day):	
Existing	503,600
2035 forecasts:	637,500 (+27%)
Traffic volume at east city limit (SR 520 and I-90) (vehicles per day):	
Existing	213,000
2035 forecasts:	269,500 (+27%)

Transportation Figure A-10 is a map illustrating the location of 42 screenlines. Thirty of these screenlines are part of the City's evaluative system for level of service (LOS) performance and correspond to the screenlines in Transportation Figure A-11. Twelve other screenlines (labeled as A1 - A12 on Transportation Figure A-10) focus geographically on Seattle's urban centers.

A screenline methodology is favored because it addresses the broader geographic impacts of development and travel patterns. The methodology recognizes that no single intersection or arterial operates in isolation. Motorists have choices, and they select particular routes based on a wide variety of factors such as avoiding blocking conditions, and minimizing travel times. Accordingly, this analytic methodology focuses on a "traffic-shed" where the screenlines measure groups of arterials among which drivers logically can choose to travel.

Transportation Figure A-10

Transportation Level-of-Service (LOS) Screenlines



Transportation Figure A-11 lists for each screenline the current conditions and modeled traffic results for the evening peak hour in year 2035, in comparison to the LOS standard for each

screenline. The standards are expressed as vehicle-to-capacity (v/c) ratios of 1.0 or 1.20, which indicates a level of use equivalent to 100 percent or 120 percent of rated roadway capacity, measured during peak commute times.

With the anticipated implementation of the Comprehensive Plan, the future transportation and circulation conditions in the 2035 evening peak hour at all of the screenlines will not exceed the City's adopted LOS standards for peak hour congestion.

This Plan includes policies to improve transit service and related transit capital facilities, as well as to improve non-motorized transportation facilities, to provide ways for people to avoid the traffic congestion inherent in dense urban centers and urban village areas.

These results are evaluated in more detail below.

- The forecasted screenline v/c ratios for the year 2035 evening peak hour range from 0.38 to 1.19.
- Future peak hour traffic conditions will continue to reflect patterns similar to today, with the heaviest congestion at bridge locations including the Ballard Bridge (v/c = 1.19 northbound), the West Seattle Freeway and Spokane St. bridges (collectively a v/c = 1.15 westbound), the University and Montlake Bridges (collectively a v/c = 0.96 northbound and 1.06 southbound), and the Aurora Bridge (v/c = 0.94 northbound and 0.82 southbound).
- Congestion is also projected to increase in other locations as well. This is due to growth or, in some cases, related to future planned road improvements addressing automobiles and bicycles. With respect to the latter factor, this analysis makes conservative assumptions about potential loss of automobile travel lanes. As part of future projects such as bicycle-serving "cycle tracks," a determination would be made contemporaneous with that project whether and how automobile travel lanes would be diminished. This caveat applies to all references below to future bicycle projects.
- Volumes on Aurora Ave N, Lake City Way N, Greenwood Ave N, and 3rd Ave NW near the north city limits will continue to be heavy during evening commutes, and will contribute to conditions that approach or slightly exceed the rated capacity level by 2035. (Screenlines 1.11, 1.13).
- Volumes on MLK Jr. Way S., Rainier Ave S., and Renton Ave S. near the south city limits will continue to grow, and will contribute to greater use of capacity in the southbound peak direction, approaching the rated capacity level by 2035. (Screenline 4.11).
- Southbound volumes toward southeast Seattle measured at S. Jackson St. and at S. Spokane St will contribute to conditions that reach a v/c ratio of approximately 0.90, or using about 90 percent of rated capacity by 2035. This partly reflects the potential for changes in capacity related to future possible bicycle improvements (Screenlines 9.13 and 10.12). See above caveat about future bicyle improvements.

Transportation Figure A-11

Level of Service:

Screenline Volume-to-Capacity (V/C) Ratios

LOS Screen line #	Location	Span of Streets	LOS Standard	2013 PM Peak		2035 PM Peak	
				Dir.	V/C Ratios	Dir.	V/C Ratios
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	NB	0.70	NB	1.03
				SB	0.57	SB	0.80
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	NB	0.41	NB	0.76
				SB	0.32	SB	0.61
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	NB	0.73	NB	0.96
				SB	0.63	SB	0.83
2	Magnolia	Magnolia Bridge to W. Emerson Place	1.00	EB	0.53	EB	0.56
				WB	0.55	WB	0.56
3.11	Duwamish River	West Seattle Freeway and S. Spokane St	1.20	EB	0.61	EB	0.69
				WB	0.87	WB	1.15
3.12	Duwamish River	1st Ave S and 16th Ave S	1.20	EB	0.35	EB	0.38
				WB	0.52	WB	0.55
4.11	South City Limit	M L King Jr Way to Rainier Ave S	1.00	NB	0.47	NB	0.57
				SB	0.63	SB	0.98
4.12	South City Limit	Marine View Drive SW to Myers Way S	1.00	NB	0.37	NB	0.56
				SB	0.42	SB	0.72
4.13	South City Limit	SR 99 to Airport Way S	1.00	NB	0.41	NB	0.58
				SB	0.45	SB	0.73
5.11	Ship Canal	Ballard Bridge	1.20	NB	0.99	NB	1.19
				SB	0.52	SB	0.72
5.12	Ship Canal	Fremont Bridge	1.20	NB	0.71	NB	0.79
				SB	0.54	SB	0.71
5.13	Ship Canal	Aurora Ave N Bridge	1.20	NB	0.81	NB	0.94
				SB	0.62	SB	0.82
5.16	Ship Canal	University and Montlake Bridges	1.20	NB	0.80	NB	0.96
				SB	0.87	SB	1.06
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	NB	0.45	NB	0.52
				SB	0.43	SB	0.49

LOS Screen line #	Location	Span of Streets	LOS Standard	2013 PM Peak		2035 PM Peak	
				Dir.	V/C Ratios	Dir.	V/C Ratios
6.12	South of NW 80th St	8th Ave NW to Greenwood Ave N	1.00	NB	0.66	NB	0.87
				SB	0.49	SB	0.77
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	NB	0.44	NB	0.55
				SB	0.27	SB	0.41
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	NB	0.65	NB	0.76
				SB	0.53	SB	0.67
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	NB	0.49	NB	0.64
				SB	0.47	SB	0.58
7.11	West of Aurora Ave N	Fremont Pl N to N 65th St	1.00	EB	0.48	EB	0.55
				WB	0.58	WB	0.66
7.12	West of Aurora Ave N	N 80th St to N 145th St	1.00	EB	0.50	EB	0.56
				WB	0.57	WB	0.66
8	South of Lake Union	Valley Street to Denny Way	1.20	EB	0.78	EB	0.92
				WB	0.78	WB	0.83
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	NB	0.51	NB	0.59
				SB	0.58	SB	0.71
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	NB	0.47	NB	0.60
				SB	0.52	SB	0.71
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	NB	0.45	NB	0.67
				SB	0.58	SB	0.89
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	NB	0.56	NB	0.64
				SB	0.65	SB	0.84
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	NB	0.48	NB	0.74
				SB	0.58	SB	0.91
12.12	East of CBD	S Jackson St to Howell St	1.20	EB	0.35	EB	0.39
				WB	0.45	WB	0.52
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	EB	0.71	EB	0.84
				WB	0.59	WB	0.78
13.12	East of I-5	NE 65th St to NE 80th St	1.00	EB	0.44	EB	0.50
				WB	0.41	WB	0.53

LOS Screen line #	Location	Span of Streets	LOS Standard	2013 PM Peak		2035 PM Peak	
				Dir.	V/C Ratios	Dir.	V/C Ratios
13.13	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	EB	0.55	EB	0.62
				WB	0.54	WB	0.67
A1	North of Seneca St	1st Ave to 6th Ave	NA	NB	0.55	NB	0.67
				SB	0.40	SB	0.59
A2	North of Blanchard	Elliott Ave to Westlake Ave	NA	NB	0.43	NB	0.55
				SB	0.36	SB	0.52
A3	East of 9th Ave	Lenora St to Pike St	NA	EB	0.36	EB	0.44
				WB	0.32	WB	0.43
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	NA	NB	0.78	NB	0.93
				SB	0.51	SB	0.78
A5	East of 5th Ave N	Denny Way to Valley St	NA	EB	0.39	EB	0.55
				WB	0.40	WB	0.48
A6	North of Pine St	Melrose Ave E to 15th Ave E	NA	NB	0.45	NB	0.53
				SB	0.50	SB	0.63
A7	North of James St – E Cherry St	Boren Ave to 14th Ave	NA	NB	0.62	NB	0.72
				SB	0.57	SB	0.78
A8	West of Broadway	Yesler Way to E Roy St	NA	EB	0.50	EB	0.57
				WB	0.60	WB	0.71
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	NA	NB	0.70	NB	0.79
				SB	0.70	SB	0.75
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	NA	EB	0.52	EB	0.54
				WB	0.46	WB	0.53
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	NA	NB	0.50	NB	0.66
				SB	0.49	SB	0.61
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	NA	EB	0.48	EB	0.61
				WB	0.62	WB	0.88

Results for areas around Seattle's six urban centers are summarized as follows.

Downtown: Screenlines 10.11, 12.12, A1, A2, and A3 pass through or along the edge of the Downtown Urban Center, some encompassing north-south avenues, and some encompassing east-west streets. Higher v/c ratios reflect higher future volumes on most avenues and streets, and increased congestion. However, for all five of these screenlines, the future v/c ratios will remain below 1.0 in 2035 with Comprehensive Plan implementation and thus meet LOS standards.

Uptown: For the Uptown Urban Center, screenline A4 is an east-west screenline south of Mercer St extending as far west as Elliott Ave W and east to include Aurora Ave N, while screenline A5 is drawn north-south between 5th Ave N. and Taylor Ave N. The predicted increase in congestion, reaching above a v/c ratio of 0.90 for northbound traffic, relates to major traffic volumes on Elliott Ave W, Aurora Ave N. It also relates to a possible reduction in capacity on 5th Ave N if bicycle improvements reduce lanes for motorized vehicle travel. Measures of east-west travel congestion will worsen but remain well below a 1.0 v/c ratio; improvements enabling a two-way Mercer Street add capacity in the westbound direction.

South Lake Union: For the South Lake Union Urban Center, Screenline 8 is drawn north-south at Fairview Ave N. Volumes will continue to increase, and road improvements will continue to occur for a number of years into this planning period. The v/c ratios for both directions along this screenline will decline by 2035, with higher evening congestion levels in the eastbound direction reflected by a v/c ratio of 0.93. However, the ratio will remain below the 1.20 LOS standard for this screenline.

First Hill/Capitol Hill: Screenlines A6, A7, and A8 are drawn through the First Hill/ Capitol Hill Urban Center. Screenline 12.12 is on the west edge of the First Hill/Capitol Hill Urban Center adjacent to Downtown. For all four of these screenlines, the year 2035 v/c ratios under the Comprehensive Plan will remain well below the 1.20 LOS standard that applies to Screenline 12.12. Although the findings for Screenline A7 and A8 illustrate a somewhat elevated congestion level in all directions in the area between Boren Ave and 14th Ave by 2035, near James Street, and for travel east-west across Broadway, these areas are currently often congested at peak hours.

University District: For the University District Urban Center, screenlines 5.16 and 13.13 cover the south and west boundaries of the Urban Center, while screenline A9 passes east-west through the Center and screenline A10 is drawn north-south through the Center. Higher v/c ratios suggest higher volumes and a degree of increased congestion by 2035. However, the year 2035 v/c ratios will be below 1.0 for all four of these screenlines in the peak commuting directions. At the University and Montlake Bridges, evening peak hour volumes will continue to be high, and the southbound volumes on the University Bridge are projected to exceed the northbound volumes. This may reflect the diverse range of destinations of University employees and students. Given the pass-through nature of many evening commuters, the projected volumes for Roosevelt Way NE and Montlake Blvd. NE would continue to be high and grow slightly by 2035.

Northgate: For the Northgate Urban Center, screenline A11 is drawn east-west just south of Northgate Way, while screenline A12 passes north-south just east of 1st Ave NE. Screenline 13.11 also measures east-west traffic crossing 5th Ave NE. The year 2035 v/c ratios for these three screenlines will worsen but remain below 1.0. The measures of east-west traffic both indicate increasing congestion that will reach v/c ratio levels of approximately 0.8 to 0.9, meaning much of the available capacity will be used by 2035. The analysis also shows relatively high volumes west of I-5, for westbound Northgate Way and for both directions of Meridian Ave N.

State highway level
of service standards

There are two different types of State highways with segments in Seattle with two different Level of Service standards. The larger facilities are "Highways of Statewide Significance" (HSS), These are I-5, I-90, SR 99, SR 509, SR 519, SR 520, and SR 522. Highways of Statewide Significance include, at a minimum, interstate highways and other principal arterials needed to connect major communities in the state.

For all the HSS, the State defines a level of service standard of "D." RCW 36.70A.070(6)(a)(iii)(C) provides that local jurisdictions' Comprehensive Plans should indicate LOS for state-owned facilities, but specifies that local concurrency requirements do not apply to the HSS routes. Including LOS standards for HSS is a communication and coordination tool in local plans, so that the State of Washington has a current understanding of performance on their facilities. Accordingly, the State legislation that designates HSS also directs the State Transportation Commission to give higher priority for correcting identified deficiencies on highways of statewide significance.

Non-HSS facilities (also called "Highways of Regional Significance") in Seattle are SR 513, SR 523, and SR 99 (only those portions south of S Holden St). These highways are monitored by the Puget Sound Regional Council for regional planning purposes. For these highways the Level of Service standard is "E/mitigated."

state-funded highway improvements
and local improvements to State highways

The City of Seattle will continue to coordinate with the Washington State Department of Transportation (WSDOT) for consistency in plans and projects. Transportation Figure A-12 shows the known anticipated major projects for the metropolitan area that will address State highways and facilities including ferries, and an indication of project status as applicable today and/or into the future until 2035.

These are the primary projects in the city and broader metropolitan area that will affect the functioning of portions of the State highway system within the City's boundaries. Planned local system improvements are diverse; these are addressed as presented in the City's functional plans, including but not limited to the Transit Master Plan, Pedestrian Master Plan, Bicycle Master Plan, and the successor document to the Transportation Strategic Plan.

Transportation Figure A-12 **State Highway Project List**		
Project	**2015**	**2035**
SR 99 tunnel (with tolls)	_	x
SR 520 HOV lanes to Montlake	x	x
Second Montlake Bascule Bridge	_	_
SR 520 Tolling	x	x
I-90 HOV lanes	x	x
I-405 Widening (SR 167 to SR 527)	_	x
Passenger-only Ferries (Kingston, Southworth, Juanita)	_	_
Montlake Blvd NE HOV Lane and ITS Improvements	_	x

D Estimated Traffic Impacts to State-Owned Transportation Facilities

Transportation Figure A-13 includes, for State highways, the latest existing conditions information and future modeled conditions for 2035. This data is organized by "average annual daily traffic" (AADT), "average weekday daily traffic" (AWDT), and a calculation of the modeled increase in AWDT for each highway segment expressed as a percentage.

AWDT is emphasized here as an analytical tool because it is the most representative of the peak commuting periods when volumes and congestion are highest. Existing conditions are based on available information from WSDOT, with factoring to estimate AADT in certain locations. By contrast, the modeled future conditions forecasts AWDT. These raw model volume results for 2035 were further analyzed by using the "difference method." [4]

Forecasts are for particular components of State facilities including HOV lanes, express lanes and collector-distributor lane volumes. Note the explanation on page 29 of the different LOS for state highways designated as "HSS" and those designated as Highways of Regional Significance.

[4] The findings are consistent with findings of the *"Draft Environmental Impact Statement for the Seattle Comprehensive Plan Update"* (May 2015) and were made using a consistent methodological approach.

Transportation Figure A-13

State Highway Traffic Volumes – 2013 – 2035

State Highway	Location (Roads here are cross-streets that show approx. endpoints of State Hwy. segments)	Direction	2013 Avg. Annual Daily (AADT) Volume	2013 Avg. Weekday Daily (AWDT) Volume	2035 Avg. Annual Daily (AADT) Volume	2035 Avg. Weekday Daily (AWDT) Volume	% Change In AWDT From 2013 To 2035
I-5	Boeing Access Rd. - Swift Ave. S	NB	95,900	100,300	115,000	120,200	20%
		SB	104,500	109,200	120,700	126,300	16%
I-5	Corson - Columbia Way S/West Seattle Bridge	NB	103,800	108,600	119,400	124,800	15%
		SB	121,500	127,100	135,300	141,500	11%
I-5	I-90 – James St.	NB	133,200	139,300	162,600	170,100	22%
		SB	146,900	153,600	164,900	172,400	12%
I-5	Lakeview Blvd. E - SR 520	NB	123,700	139,800	142,200	160,700	15%
		SB	114,200	129,000	132,100	149,300	16%
I-5	SR 520 - NE 50th St.	NB	133,400	135,900	156,100	158,900	17%
		SB	121,900	124,100	138,000	140,500	13%
I-5	NE 65th St. - SR 522	NB	117,700	119,900	137,900	140,400	17%
		SB	119,000	121,200	135,500	138,000	14%
I-5	NE 130th St. - NE 145th St.	NB	98,000	99,800	114,300	116,300	17%
		SB	98,700	100,400	116,200	118,300	18%
I-90	Rainier Ave. S - Lake Washington (mainline)	EB	65,000	70,300	82,600	89,200	27%
		WB	68,100	72,500	89,700	95,600	32%
SR	14th Ave. S -	NB	16,300	19,200	21,100	24,800	29%

99	S Cloverdale St.*	SB	13,700	16,200	15,700	18,500	14%
SR 99	W Marginal Way S- S Michigan St. (1st Ave. S Br.)	NB	44,000	48,500	56,700	62,500	29%
		SB	42,000	46,300	54,100	59,700	29%
SR 99	E Marginal Way - West Seattle Bridge	NB	21,300	23,500	30,100	33,200	41%
		SB	17,700	19,500	25,500	28,100	44%
SR 99	1st Ave. S Ramps - Seneca/Spring	NB	33,900	37,400	31,100	34,300	-8%
		SB	36,100	39,800	29,300	32,300	-19%
SR 99	Raye St - Bridge Way N	NB	32,900	36,000	42,600	46,500	29%
		SB	36,100	39,500	46,800	51,200	30%
SR 99	Winona Ave. N – N 80th St.	NB	14,700	16,100	18,900	20,600	28%
		SB	17,300	18,900	23,100	25,300	34%
SR 99	Roosevelt Way N - N 145th St.	NB	14,400	15,700	20,700	22,600	44%
		SB	14,600	16,000	21,700	23,800	49%
SR 509	S 112th St. - S Cloverdale St.	NB	26,500	28,800	36,700	39,900	39%
		SB	26,600	28,900	35,200	38,300	33%
SR 513	SR 520 Ramps - NE Pacific St. (Montlake Bridge)	NB	16,600	18,100	20,700	22,600	25%
		SB	19,400	21,300	23,000	25,100	18%
SR 513	Montlake Blvd. NE - Union Bay Pl. NE	EB	18,600	20,300	18,600	20,300	0%
		WB	19,400	21,300	19,400	21,300	0%
SR 522	Roosevelt Way NE - 12th Ave. NE	EB	12,300	13,500	14,300	15,700	16%
		WB	15,700	17,200	18,100	19,700	15%
SR 522	NE 137th St. - NE 145th St.	NB	15,100	16,500	18,100	19,800	20%

		SB	16,900	18,500	22,800	24,900	35%
SR 523	5th Ave. NE - 15th Ave. NE	EB	13,900	15,200	14,300	15,600	3%
		WB	13,100	14,300	14,800	16,200	13%
SR 520	Between I-5 and Montlake Blvd.	EB	30,000	33,900	34,700	39,200	16%
		WB	42,600	48,100	48,900	55,200	15%
SR 520	Between Montlake Blvd.-Lake Wash.	EB	30,100	33,900	35,600	40,200	19%
		WB	32,100	36,300	39,300	44,500	23%
SR 519	1st Ave. S - 4th Ave. S	EB	14,800	16,100	18,100	19,800	23%
		WB	12,200	13,400	12,200	13,400	0%

Footnote for Transportation Figure A-13:
*SR 99 14th Ave/Cloverdale Street: SR 99 south of Holden Street is a Highway of Regional Significance, with a level of service of "E/Mitigated

Findings in Transportation Figure A-13 also show impacts on various segments of state highways and are described more specifically as follows:

- **I-5 Downtown and north of Downtown** – Future weekday daily volumes (AWDT) will increase by between 13-18 percent by 2035 in both directions in the four studied segments of I-5 north of Downtown. Daily volumes in the central segment of I-5 through Downtown will increase by 12-22 percent and be the most-used portions of I-5 in Seattle. Future volumes in segments farther from Downtown will also grow but volumes will be comparatively lesser than in the segments nearest Downtown. This is an expected pattern, given the number of motorists that use I-5 and enter or exit from places including the University District, Wallingford, Green Lake, Roosevelt, and other neighborhoods in northwest and northeast Seattle. The added volumes through the day could exacerbate congestion, most notably during peak commuting periods, which could diminish overall freeway efficiency and performance.

- **I-5 south of Downtown** – Future volumes (AWDT) will increase by 15-20 percent northbound and 11-16 percent southbound by 2035 in two studied segments south of Downtown. Approaching Downtown from the south, the segment between I-90 and James Street would experience an approximately 22 percent increase in AWDT, likely due to volume contributions from I-90 and other local sources. The AWDT volumes on I-5 south of Downtown, ranging from approximately 120,000 to 140,000 vehicle trips, would be about 25 percent lower than for the segment of I-5 just north of Downtown.

- **I-90** – I-90 will experience AWDT increases of approximately 27 to 32 percent by 2035, with westbound volumes increasing to about 96,000 per day, slightly exceeding eastbound volumes.

- **SR 520** – For this highway that has experienced volume decreases due to the initiation of tolling, and construction east of Lake Washington, the projected future conditions are for increases in AWDT volumes of about 15 to 23 percent by 2035. This will be equivalent to an increase of about 5,000 to 6,000 vehicles in the eastbound direction, reaching about 40,000 vehicles per day east of Montlake, and about 44,500 vehicles per day in the westbound direction east of Montlake. Closer to I-5, the projected AWDT will reach approximately 55,000 vehicles in the westbound direction by 2035. Tolling is likely to continue to limit the rate of growth in usage over time on SR 520.

- **SR 99 Downtown and north of Downtown** – This highway is anticipated to operate in a tunnel through Downtown by 2035, which may mean a change in volume trends compared to current operations. For three studied segments of SR 99 north of Downtown, future AWDT would increase by about 28 to 34 percent between the lower Queen Anne and Green Lake vicinities, and would increase by up to 45 to 50 percent in the segment near the north city limits at N 145th St. The projected volumes in this vicinity would be highest in the portion nearest Lake Union and the Ship Canal, reaching about 46,000 – 50,000 vehicles per day AWDT in each direction, while in the other segments farther north, the volumes would range from about 20,000 – 25,000 vehicles per day in each direction.

- **SR 99 south of Downtown** – South of Downtown, SR 99 provides access to the SODO and Greater Duwamish industrial areas, as well as southwest Seattle and points south including Burien and Tukwila. South of South Park, SR 99 reconnects to I-5 in Tukwila. The 1st Avenue S Bridge crosses the Duwamish Waterway and accommodates traffic to/from Georgetown and the King County International Airport vicinity as well. The variety of its connections and configurations leads to different trends for projected AWDT. This includes: anticipated AWDT increases of approximately 29 percent in each direction at the 1st Avenue S Bridge (approximately 60,000 to 63,000 vehicles in each direction); increased volumes in the SODO area north of Georgetown of 40 to 44 percent (28,000 to 33,000 vehicles in each direction); and similar gains in the southern segment near South Park of 25 to 40 percent (22,000 to 30,000 vehicles in each direction).

- **SR 522 (Lake City Way)** – Future volumes (AWDT) would increase by about 15 percent in each direction in Roosevelt near I-5 (15,000 to 20,000 vehicles in each direction), and by 20 to 35 percent in each direction in Lake City near the north city limits at NE 145th Street (20,000 to 25,000 vehicles in each direction). These trends likely reflect anticipated increases in commuting traffic as well as projected traffic growth over time contributed to by nearby neighborhoods such as Lake City and Northgate.

- **SR 513 (Montlake Blvd. to Sand Point Way)** – Future volumes (AWDT) would increase by about 17 to 25 percent in this segment that includes the Montlake Bridge just north of SR 520. This would represent AWDT volumes of approximately 25,000 vehicles per day southbound and 22,600 vehicles per day northbound. This would exacerbate congestion during peak hours in this route that is used heavily for daily commuting. However, other analysis indicates that the future 2035 conditions would still meet the LOS standards for the applicable screenline that covers both the University Bridge and the Montlake Bridge.

- **SR 519 (Edgar Martinez Way)** – Future volumes (AWDT) would increase by about 23 percent in the eastbound direction for this segment that provides access to/from the Port of Seattle and SODO industrial area near the major sports stadiums. No increase in the westbound direction was projected in the modeling.

- **SR 523 (NE 145th St. east of I-5)** – This route provides east-west access from Lake City and Lake Forest Park to I-5 and is on the north city limits boundary. Future volumes (AWDT) would increase modestly by 3 to 13 percent, reaching volumes of approximately 16,000 vehicles in each direction by 2035.

impacts on adjacent jurisdictions

Four jurisdictions are adjacent to the City of Seattle: the City of Shoreline, and the City of Lake Forest Park along Seattle's north boundary, and the City of Tukwila and King County along Seattle's south boundary. Several major arterials that connect to streets in these jurisdictions near the Seattle borders were selected for analysis. For each arterial, the existing PM peak hour traffic volume and forecasted year 2035 traffic volume were compared to the rated capacity of the arterial, yielding a volume-to-capacity (v/c) ratio. The results of this analysis are shown in Transportation Figure A-14.

Transportation Figure A-14

Arterials Reaching Adjacent Jurisdictions: PM Peak Hour Capacities, Volumes and V/C Ratios

A. Major arterials within Seattle just south of the Seattle/Shoreline-Lake Forest Park Border (145th St.)

Arterial	Existing (2014) – PM Peak Hour						2035 – PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	V/C ratio	Capacity	Volume	V/C ratio	Capacity	Volume	V/C ratio	Capacity	Volume	V/C ratio
Greenwood Ave. N	1,940	1,223	0.63	1,940	838	0.45	1,940	1,740	0.90	1,940	1,221	0.63
Aurora Ave. N	2,100	1,681	0.80	2,000	1,223	0.61	2,100	2,427	1.16	2,000	1,879	0.94
Meridian Ave N	770	312	0.41	770	162	0.21	770	581	0.75	770	369	0.48
5th Ave. NE	770	366	0.48	770	205	0.27	770	550	0.71	770	340	0.44
15th Ave NE	2,040	891	0.44	2,040	640	0.31	1,010	891	0.88	1,010	727	0.72
30th Ave NE	770	433	0.56	770	365	0.47	770	592	0.77	770	550	0.71
Lake City Way	2,150	1,697	0.79	2,040	1,388	0.68	2,150	2,215	1.03	2,040	1,790	0.88

B. Major arterials within Seattle just north of the Seattle/King County Border

Arterial	Existing (2014) – PM Peak Hour						2035 – PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	V/C ratio	Capacity	Volume	V/C ratio	Capacity	Volume	V/C ratio	Capacity	Volume	V/C ratio
26th Ave SW	770	401	0.52	770	336	0.44	770	522	0.68	770	374	0.49
16th Ave SW	770	292	0.38	770	216	0.28	770	524	0.68	770	250	0.32
Olson Pl. SW	2,040	1,442	0.71	2,040	1,070	0.52	1,010	1,442	1.43	1,010	1,070	1.06
Myers Way S	1,540	264	0.17	1,540	190	0.12	1,540	670	0.43	1,540	230	0.15
8th Ave S	770	93	0.12	770	99	0.13	770	222	0.29	770	99	0.13
14th Ave S	1,540	498	0.32	1,540	394	0.26	1,540	848	0.55	1,540	584	0.38
Renton Ave S	770	570	0.74	770	393	0.51	770	951	1.23	770	501	0.65
Rainier Ave S	1,460	967	0.66	1,460	663	0.45	1,460	1,421	0.97	1,460	991	0.68
E Marginal Way S	2,040	699	0.34	2,040	703	0.34	2,040	994	0.49	2,040	779	0.38
Airport Way S	2,000	756	0.38	2,000	356	0.18	1,000	1,123	1.12	1,000	822	0.82
M L King Jr. Way S	2,040	1,297	0.64	2,040	1,076	0.53	2,040	1,885	0.92	2,040	1,078	0.53
51st Ave S	770	351	0.46	770	219	0.28	770	698	0.91	770	310	0.40

For all but five instances for the arterials shown in Transportation Figure A-14, the PM peak hour v/c ratio is below 1.0, indicating that there currently is remaining traffic capacity and that the capacity will continue into the forecasted future. The exceptions are:

- Aurora Avenue N (SR 99), as the primary north-south highway arterial to/from Shoreline, is projected to experience considerable growth in evening peak hour volumes by 2035 (nearly 750 added vehicles), which will raise the projected northbound v/c ratio from 0.80 to 1.16.
- Lake City Way (SR 522), as the primary north-south highway arterial in north Seattle to/from Lake Forest Park, is projected to experience considerable growth in evening peak hour volumes by 2035 (nearly 520 added vehicles), which will raise the projected northbound v/c ratio from 0.79 to 1.03.
- Olson Place SW, a route to/from White Center and Burien, may experience a projected v/c ratio of 1.43 in the peak westbound direction by 2035, but this is tempered by a recognition that the conservative analysis of road capacity predicts a reduced capacity with a possible future bicycle improvement, and the future volumes for 2035 are not otherwise projected to increase over existing 2014 volumes. A similar effect on the eastbound direction of travel on

Olson Place SW leads to a projected congestion level measured as a 1.06 v/c ratio. Future bicycle facility design would determine whether vehicle lanes would actually be reduced; given the street's width such reductions ultimately might not be needed.

- Renton Ave S, a route to/from Skyway and the City of Renton, is projected to experience growth of approximately 380 vehicles in the southbound direction by 2035, which will raise the corresponding v/c ratio to 1.23.
- Airport Way (a route to/from Tukwila), like Olson Place SW, may be affected in its capacity by a future possible bicycle improvement, and given projected increases in peak hour traffic southbound (360 added vehicles) could experience congestion measured as a v/c ratio of 1.12.

In other locations, including Rainier Ave. S and MLK Jr. Way S., both leading toward the City of Renton, projected v/c ratios of 0.97 and 0.92 respectively indicate future increases in traffic and probable congestion.

These modeled traffic volume and v/c findings for 2035 reflect growth not only under Seattle's Comprehensive Plan, but also the probable growth in the adjacent jurisdictions and throughout the central Puget Sound region that contributes to total traffic growth. Much of the traffic on these arterials is and will continue to be through-traffic, although the destinations of some motorists will be to and from Seattle as well as the neighboring jurisdictions.

In addition to the City of Seattle's analysis of transportation impacts on adjacent jurisdictions, as described in this section, Seattle continues to work with the adjacent jurisdictions to coordinate traffic operations and to minimize cross-boundary impacts.

E Intergovernmental Coordination Efforts[5]

This section describes the City's intergovernmental coordination efforts during the development of the Comprehensive Plan, and potential impacts of the plan on the transportation systems of adjacent jurisdictions.

Seattle is an active member of the Puget Sound Regional Council (PSRC), which is charged with certifying that local transportation plans are consistent with regional plans and goals. The City supports PSRC's Vision 2040, a transportation/land use plan that describes linking high density residential and employment centers throughout the region by high capacity transit and promoting a multi modal transportation system. Vision 2040's goals are carried forward by this Comprehensive Plan.

The PSRC provides population, employment, and transportation data to Seattle and other jurisdictions. Coordination is established via this centralized information resource. The PSRC is charged with allocating certain federal funds. Seattle has participated in establishing the criteria and selection process to determine how funds will be distributed among transportation projects.

5 (RCW 36.70A.070(6)(a)(v))

The City of Seattle cooperates with the Washington State Department of Transportation (WSDOT) and the Puget Sound Regional Council regarding improvements to state transportation facilities and services and to ensure that the City's plans are consistent with the State Transportation Plan and the Transportation 2040 plan. The PSRC also monitors State highways of regional significance, such as non–HSS, for regional planning purposes.

((~~A Inventory of Existing Facilities & Services~~

((~~limited access facilities~~
~~arterials & streets~~

~~There are approximately 54,000 acres of land in the city, nearly 14,000 of which (about 26 percent) are used for street rights of way. Seattle's street network in 2004 consists of 1,534 miles of arterials, including some that are designated state routes, and 2,412 miles of non arterials (see Transportation Figure A-1). In the arterial system there are 620 miles of principal arterials, 566 miles of minor arterials, and 348 miles of collector arterials. High-occupancy vehicle (HOV) lanes exist on some arterials and limited access facilities as shown in Transportation Figure A-3. There are 975 signalized intersections, 4,596 non signalized arterial intersections and 7,029 non arterial intersections. Transportation Figures A-2a-c show the locations of traffic and pedestrian crossing signals in Seattle. The "state signals" are managed by the Washington State Department of Transportation and are located mostly at freeway on- and off-ramps.~~

~~traffic volumes~~

~~Transportation Figure A-4 shows the 2002 average weekday traffic volumes on Seattle's arterials and freeways. To analyze trends, traffic counts are taken annually on arterials and freeways along screenlines at or near the city limits, and are added together to estimate the traffic volume entering and exiting the city daily. Transportation Figure A-5 shows the trend in average weekday traffic at the city limit screenlines; the volume has increased from 758,000 in 1980 to 1,190,800 in 2003 — a 64 percent increase over 23 years. During the same period, Seattle's population increased by 9.3 percent. However, between 1995 and 2002 approximately 51,000 new jobs were added within the city, a 12 percent increase.~~

~~Transportation Figure A-6 similarly shows the trend in average weekday traffic crossing an imaginary cordon around downtown Seattle, bounded by Lenora Street, I-5, Royal Brougham Way, and Alaskan Way. The volumes include traffic getting on and off the ferries. From 1980 to 2003, downtown cordon traffic grew 22 percent, from 371,000 to 475,980.~~

~~transit~~

~~Public transit in Seattle is provided by three agencies. Metro provides bus, trolley and streetcar services that cover most of King County. Community Transit and Sound Transit operate express bus services to Seattle from King, Snohomish and Pierce Counties. As of 2002, Metro serves a population of nearly 2 million over a 2,128 square-mile service area. It operates approximately~~

~~1300 vehicles on about 188 routes representing 7,050 route miles with annual ridership of over 75 million. Transportation Figure A-7 shows Metro's 2004 transit routes in Seattle.~~

~~Metro currently operates a 1.3-mile long tunnel under Third Avenue and Pine Street from the International District to 9th Avenue and Pine Street. The tunnel has five stations, and connects to Interstate 90 at the south end and to the Interstate 5 express lanes at the north end. Dual powered buses operate through the tunnel; diesel power is used on streets and highways, while electric power is used in the tunnel. In addition to dual powered buses, the tunnel will be used as part of Sound Transits Link light rail line through downtown. Renovation of the tunnel for use by both buses and trains is scheduled for completion by 2009.~~

~~Metro has about 56 miles of two way overhead electric trolley wire in Seattle used by approximately 146 trolley buses. Trolleys produce no tailpipe emissions and are considerably quieter than diesel buses.~~

~~All buses operating in downtown Seattle are free to riders from 6 a.m. to 7 p.m. The ride-free zone boundaries are Battery Street, Sixth Avenue, I-5, Jackson Street, and the waterfront. The ride-free zone significantly reduces the need to use cars for short trips around downtown. The Waterfront Streetcar system includes three streetcars, nine stations, and more than two miles of rail. The tracks and overhead wire run along Alaskan Way and South Main Street from Myrtle Edwards Park to the International District.~~

~~Sound Transit is the regional transit authority for the Puget Sound area (which includes portions of King, Snohomish and Pierce Counties.) Sound Transit was created in 1996 by voters within its boundary, and is implementing the first phase of its "Sound Move" regional transit plan. The Sound Move plan includes: operation of a 14-mile light rail system (called "Link") between SeaTac and downtown Seattle, with possible extension to Northgate; peak period commuter rail services (called "Sounder") along existing rail lines between downtown Seattle, Tacoma and Everett; and regional bus services.~~

~~As of 2004, Sound Transit provides regional express bus services between suburban areas within its three-county service area, downtown Seattle, West Seattle, and the University District. Sounder commuter rail provides rail service between Tacoma and Seattle and between Everett and Seattle. Besides the King Street Station, where the Tacoma and Everett services reach downtown Seattle, there are two provisional Sounder stations identified in Seattle in the Georgetown and Ballard communities.~~

~~By 2009 there will be at least 11 Link light rail stations in Seattle: in the Rainier Valley at Henderson Street (Rainier Beach area), Othello Street (Holly Park area), Edmunds Street (Columbia City area), and McClellan Street (Mount Baker area); Beacon Avenue and Lander Street (Beacon Hill area), and through downtown using the existing downtown tunnel stations. Stations planned but deferred for future operation include Graham Street, and Royal Brougham. Currently, planning for extension of Link north of downtown to Northgate is under study. In 2004, Sound Transit identified a preferred route for North Link. The preferred North Link route will stretch north of the Downtown Seattle Transit Tunnel with stations at Madison Street (First Hill area), Nagle Place (Capitol Hill area), Husky Stadium and Brooklyn at NE 43rd Street (University~~

~~District), NE 65th Street (Roosevelt Neighborhood) and Northgate. It is anticipated that by 2030 this line will have a daily ridership in excess of 150,000 passengers.~~

~~In 2002, Seattle Voters approved a measure to fund construction of a monorail linking Ballard, Downtown, and West Seattle. Construction of the 14-mile line is scheduled to begin in 2005 with partial opening planned for 2007 and full operation in 2009. Planning for the 2nd of potentially 5 lines by the Seattle Monorail Project began in 2003. Currently, the City of Seattle operates a monorail on a mile of elevated guideway between Westlake Mall in downtown Seattle and the Seattle Center. The monorail carried about 2.1 million riders in 2003. The Seattle Monorail will close in the fall of 2005 to make way for construction of the Seattle Monorail Projects' Green Line.~~

~~Metro and WSDOT operate 15 park and ride lots in Seattle with approximately 2,280 parking spaces, as shown in Transportation Figures A-9 and A-10. There is also a Metro transit center just south of the Northgate Mall. The park-and-ride lots may be used by commuters, free of charge, to meet a carpool, vanpool or bus. Metro provides wheelchair accessible buses and other special transportation services for persons unable to use regular bus service. For example, low income King County residents 65 years or older and people with disabilities are eligible for reduced cost taxi trips. Other Metro programs and services include custom buses, special event service, the U-Pass program with the University of Washington, bikes on buses, vanpools, and a ridematch service.~~

~~bicycles & pedestrians~~

~~Bicycles are classified as "vehicles" in the Seattle Traffic Code and have the right to use all streets in the city except where explicitly prohibited. Transportation Figure A-11 shows the three categories of bike facilities, and the miles of each. Bicycle racks are provided in neighborhood commercial areas and downtown, and some work places provide secure, weather protected bike parking, showers, and lockers. As of 2000, the City has installed over 1900 bike racks across the city. Seattle's Land Use Code requires that many new developments include bike parking where parking is built for cars.~~

~~Metro first installed bike racks on buses in 1979 to carry bicyclists across the SR-520 Bridge. Metro has since installed bike racks on their entire fleet of buses. Metro also has bike racks and lockers at some of its Seattle park-and-ride lots and at the Northgate Transit Center. The Washington State Ferry Colman Dock in downtown Seattle has bicycle racks for 10 to 15 bikes, while the Fauntleroy dock has none. All ferries provide simple tie-downs for bicycle transport, although the passenger-only ferries can carry only five bikes.~~

~~Of the City's 479 miles of arterials (in 1995), about 306 miles had sidewalks or asphalt walkways on both sides of the street, and 140 miles had a sidewalk or walkway on one side of the street; about 33 miles of arterials do not have sidewalks or asphalt walkways on either side of the street. "School walk boundaries" define areas where school bus service is not provided and students generally walk to school. In 1995, there were 20 miles of arterials in elementary school walk boundaries without sidewalks on either side of the street; and there were 362 miles of Seattle residential streets (non-arterials) lacking sidewalks within the school walk boundaries.~~

~~parking~~

~~On-street parking occurs in the public right-of-way and is therefore regulated by the City through the creation of no-parking and special-use parking zones, time-of-day restrictions, parking duration limits, pay stations/meters, and residential parking zones. In 2004, the City started converting most single-space parking meters to parking pay station kiosks. All pay stations will be installed at the rate of $1.50 per hour. As electric meters are reprogrammed, the parking meter rate will increase to $1.50 per hour. Because existing mechanical meters cannot be reprogrammed, they will remain at $1.00 or $0.60 per hour and will be phased out as pay stations are installed.~~

~~Residential parking zones (RPZ's) are designed to protect Seattle's residential neighborhoods from parking impacts and congestion from major employment and/or retail centers. In an RPZ, on-street parking is generally restricted to one or two hours, except for residents and guests who display special RPZ decals. Existing RPZ's are in the following communities: Montlake, Squire Park, West Seattle Fauntleroy, Capitol Hill, Wallingford, University District, First Hill, Eastlake, Magnolia, North Queen Anne, North Capitol Hill, Uptown (Seattle Center), Central District (Garfield High School), Belmont/Harvard, Mount Baker (Franklin high school), North Beacon Hill, Licton Springs (North Seattle Community College), Cowen Park/Roosevelt, Ravenna Bryant~~

~~Off-street parking facilities are usually privately-owned and operated. The City regulates the location and size of garages and lots through the Land Use Code and facilities with paid parking pay a licensing fee. Transportation Figure A-12 shows inventory data for off-street parking in three Seattle areas: the Central Business District, Uptown/South Lake Union, First Hill and the University District.~~

~~Carpools receive preferential parking treatment through City programs, allocation of on-street parking spaces, and Land Use Code requirements for carpool parking in new developments.~~

~~rail~~

~~**Passenger Rail**: Amtrak operates trains over 900 miles of Burlington Northern tracks in the state and provides service to 16 cities. The Empire Builder provides daily service from Seattle to Spokane and on to Chicago; the Cascades operates twice a day to/from Portland, and daily to/from Vancouver, B.C. The Coast Starlight runs daily connecting Seattle to Portland, Oakland and on to Los Angeles~~

~~**Freight**: Burlington Northern Santa Fe (BNSF) owns and operates a mainline dual-track from Portland to Seattle. Union Pacific owns and operates a single mainline track with two-way train operations between Tacoma and Seattle. BNSF owns and operates tracks that extend north from downtown Seattle to Snohomish County and then east to Spokane. A connecting spur, operated by the Ballard Terminal Rail Company, serves the Ballard and the western ship canal area. BNSF trains range up to 5,500 feet in length; Union Pacific trains are up to 7,700 feet long.~~

~~Rail-line capacity depends on train length, operating speeds, the number of switch crossover points, and whether the line has one- or two-way traffic. Current train speed limits in the City are 10, 20, or 40 mph depending on the segment.~~

~~There are three truck-to-train intermodal terminals serving the Duwamish Industrial area: Burlington Northern Santa Fe operates the Seattle International Gateway yard north of S. Hanford~~

~~Street, Union Pacific operates the Seattle Yard north of the Georgetown neighborhood, and the Port of Seattle operates an intermodal facility at Terminal 18. North of downtown Seattle is BNSF's Interbay rail yard.~~

~~air transportation~~

~~There are three commercial aircraft landing facilities in the greater Seattle metropolitan area: Seattle-Tacoma International Airport (Sea-Tac), operated by the Port of Seattle and located in the City of SeaTac; the Lake Union seaplane base in Seattle; and the Lake Washington seaplane base near Kenmore. Sea-Tac's facilities include two instrument runways, 76 loading gates, one main and two satellite terminals, and 4.5 miles of intra-airport roads. Sea-Tac accommodates over 38 airlines, including 13 international passenger carriers and 18 all-cargo carriers. In 2003 there were 354,770 aircraft operations at Sea-Tac.~~

~~The majority of general aviation flights take off and land either at King County International Airport (Boeing Field) or at one of the 11 active privately-operated helistops and heliports around the city. Boeing Field has one 10,000-foot runway with an instrument landing system and one 3,700-foot runway. The number of flight operations at Boeing Field was 363,838 in 2000.~~

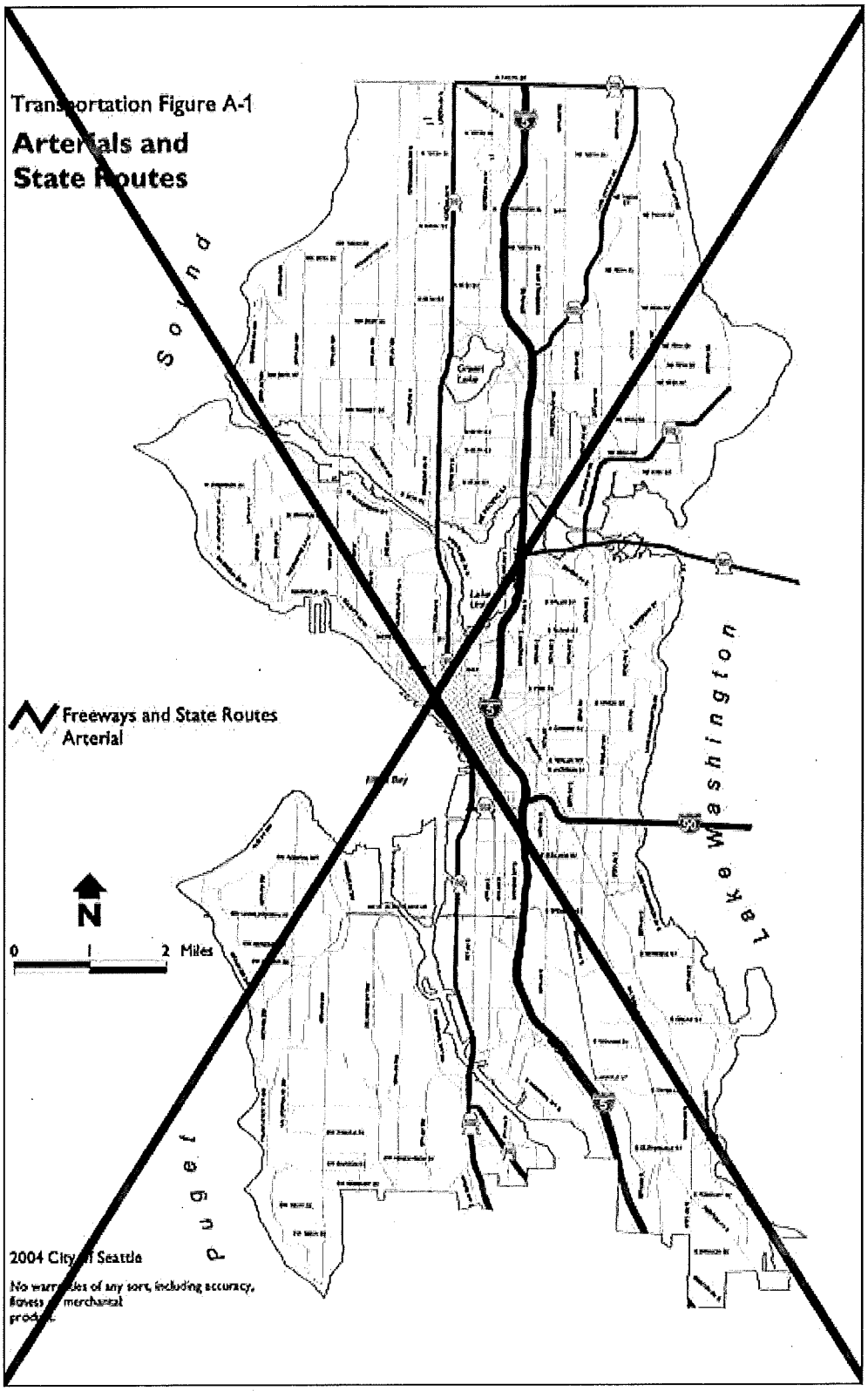
~~water transportation~~

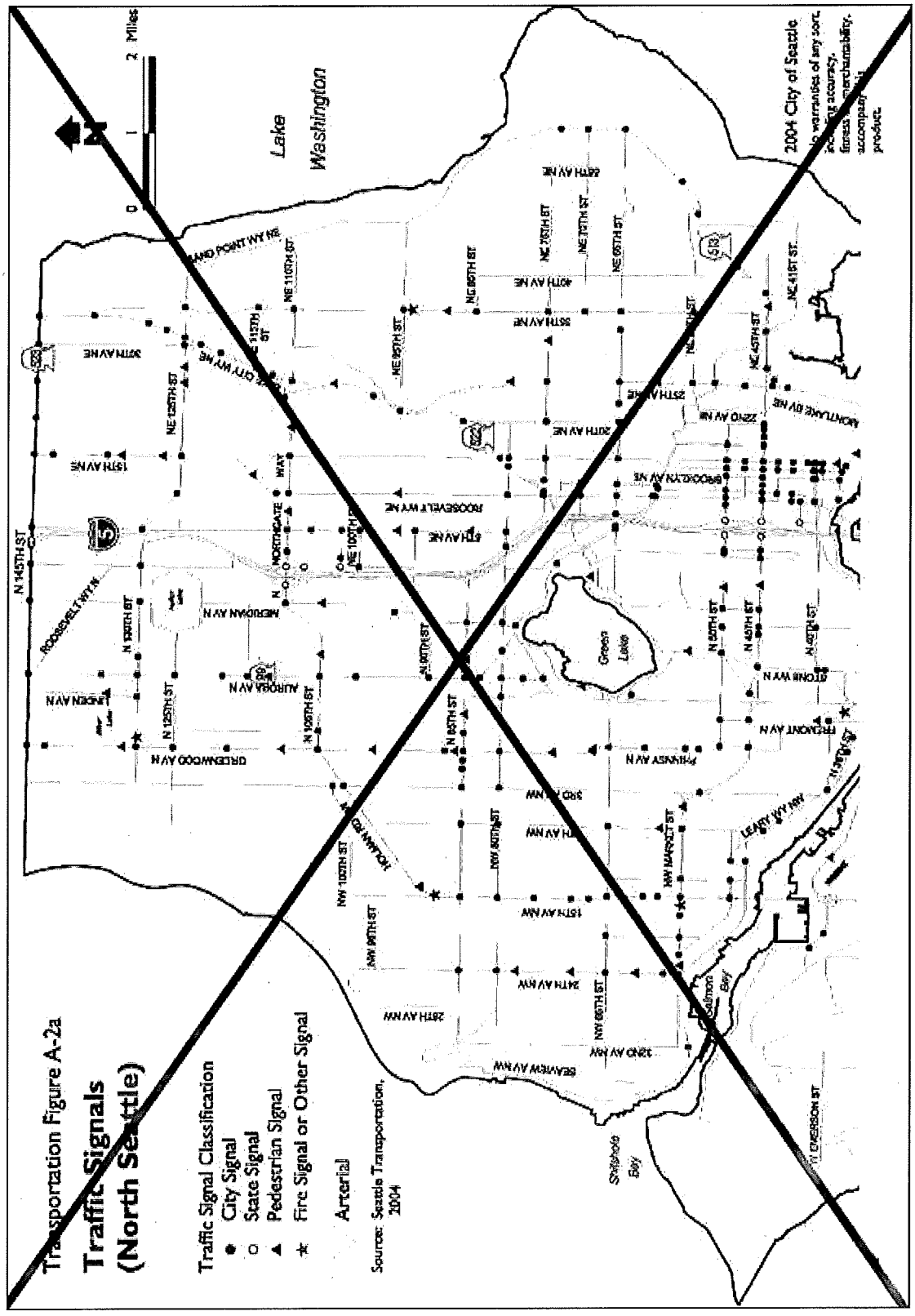
~~The Washington State Ferry (WSF) system operates two terminals in Seattle - Colman Dock in downtown Seattle, and the Fauntleroy terminal in West Seattle. Passenger-and-vehicle service is provided on two ferry routes from Colman Dock - to Bainbridge Island and to Bremerton. Passenger-and-vehicle ferries link Fauntleroy with Vashon Island and Southworth.~~

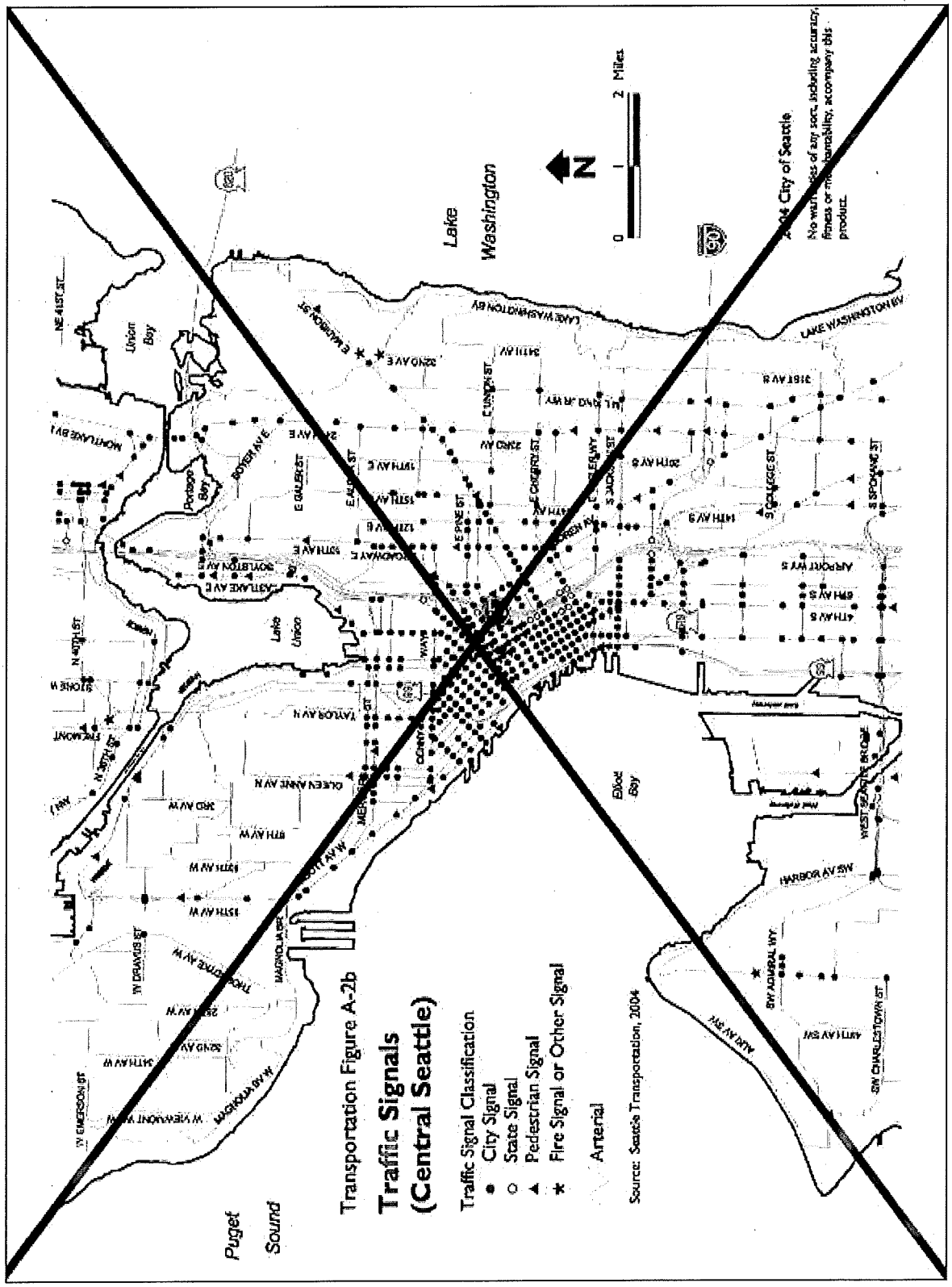
~~The Victoria Clipper operates between one to four round trips daily, depending on the season, between Seattle and Victoria on passenger-only catamarans.~~

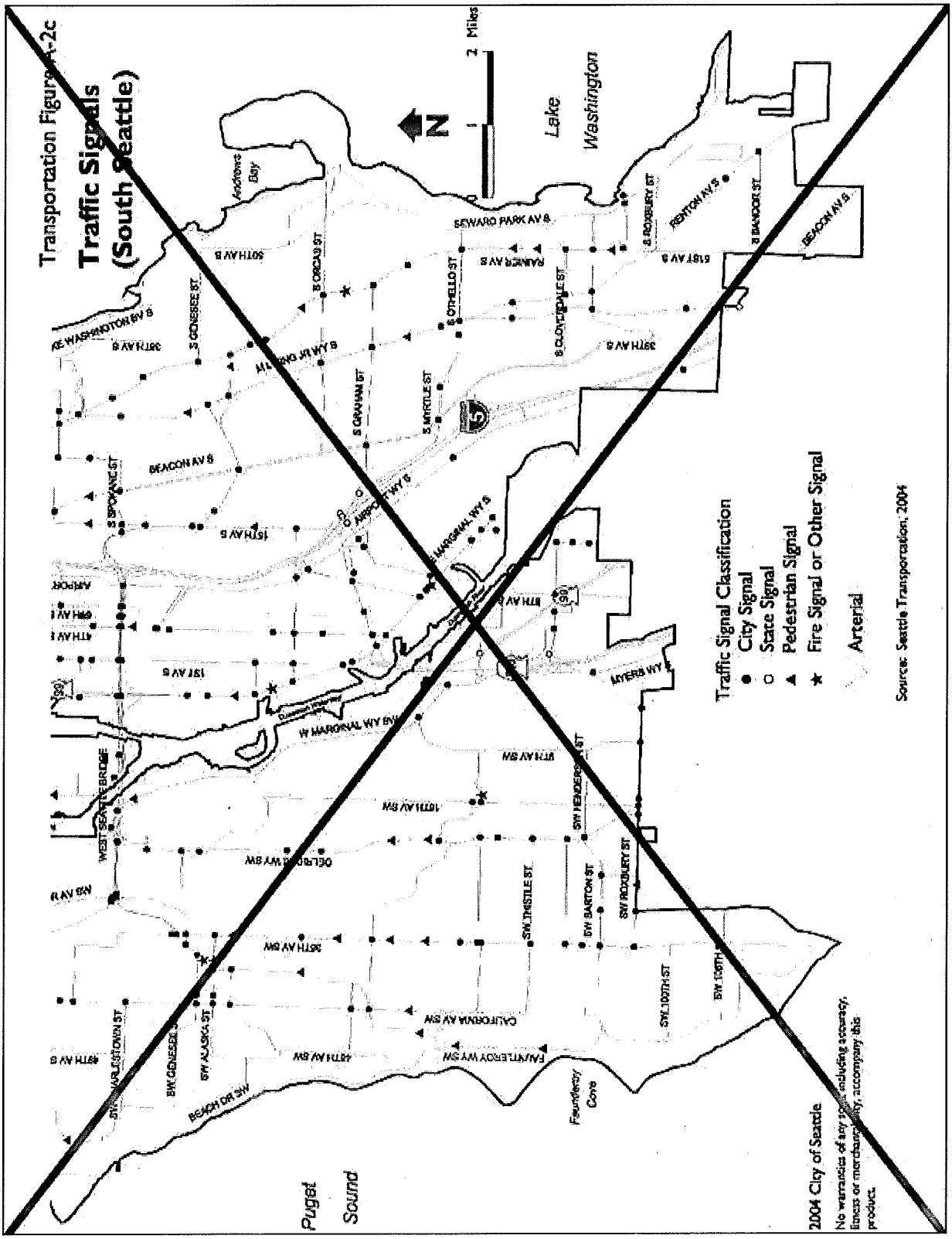
~~other intermodal facilities~~

~~The Port of Seattle operates and supports marine, rail, and air intermodal facilities. Port of Seattle facilities include 25 commercial marine terminals, three container terminals with 23 container cranes, a warehouse complex and distribution center, and a deep-draft grain terminal. Services are offered by about 100 steamship operators and agents; about 30 tug and barge operators; about 100 truck and warehouse operators; and Burlington Northern Santa Fe and Union Pacific railroads, operating intermodal yards. Transportation Figure A-13 shows the Port of Seattle facilities located in Seattle.~~))


Transportation Figure A-1
Arterials and
State Routes
Freeways and State Routes
Arterial
N
0
1
2 Miles
Lake Washington
Puget Sound
2004 City of Seattle


Transportation Figure A-2a
Traffic Signals
(North Seattle)
Traffic Signal Classification
City Signal
State Signal
Pedestrian Signal
Fire Signal or Other Signal
Arterial
Source: Seattle Transportation, 2004
Lake Washington
Green Lake
Shilshole Bay
Salmon Bay
2004 City of Seattle


Transportation Figure A-2b
Traffic Signals
(Central Seattle)
Traffic Signal Classification
City Signal
State Signal
Pedestrian Signal
Fire Signal or Other Signal
Arterial
Source: Seattle Transportation, 2004
Lake Washington
Puget Sound
Union Bay
Portage Bay
Lake Union
Elliot Bay
N
0
1
2 Miles
2004 City of Seattle


Transportation Figure A-2c
Traffic Signals
(South Seattle)
2 Miles
N
Lake Washington
Puget Sound
Traffic Signal Classification
City Signal
State Signal
Pedestrian Signal
Fire Signal or Other Signal
Arterial
Source: Seattle Transportation, 2004
2004 City of Seattle
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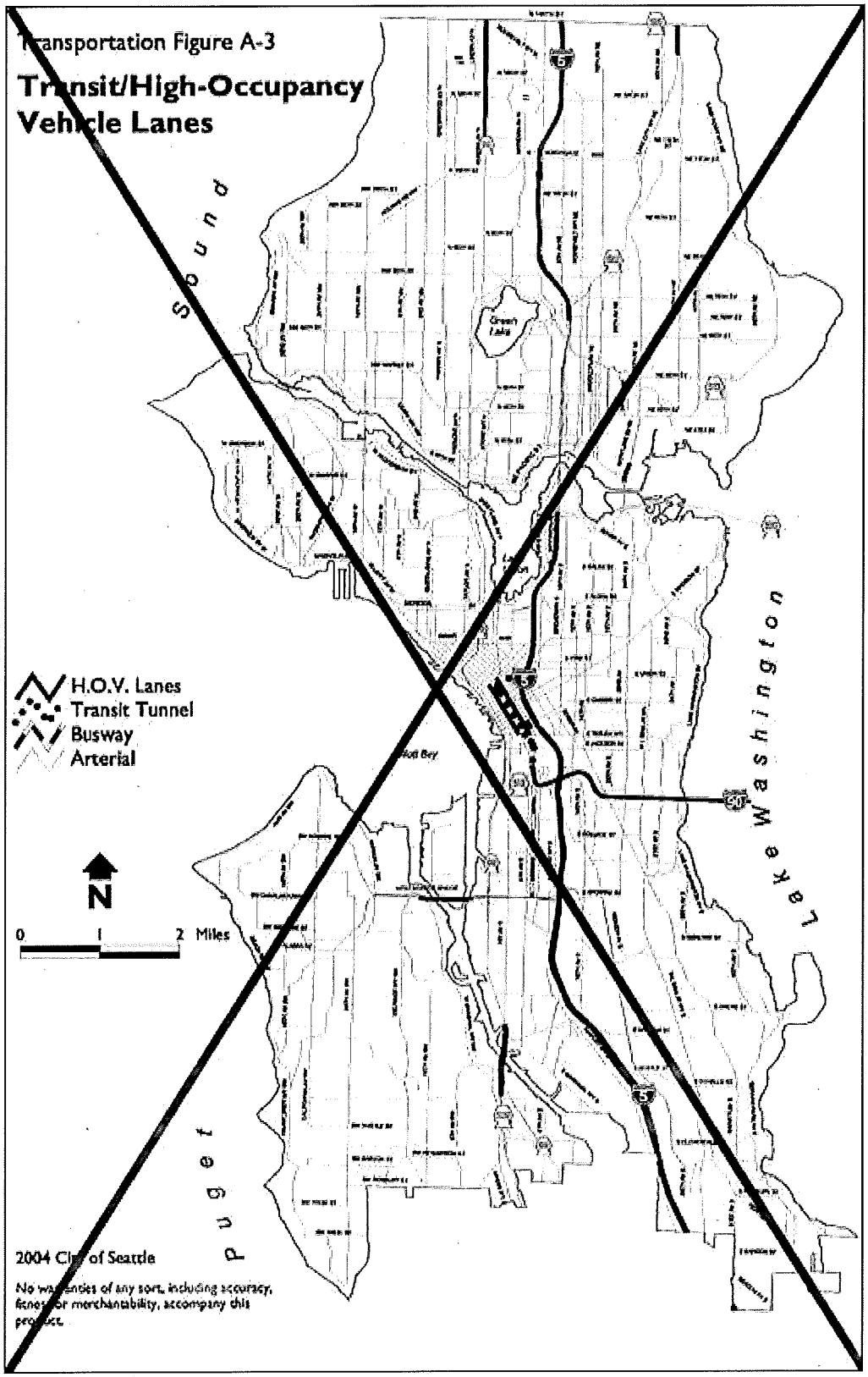
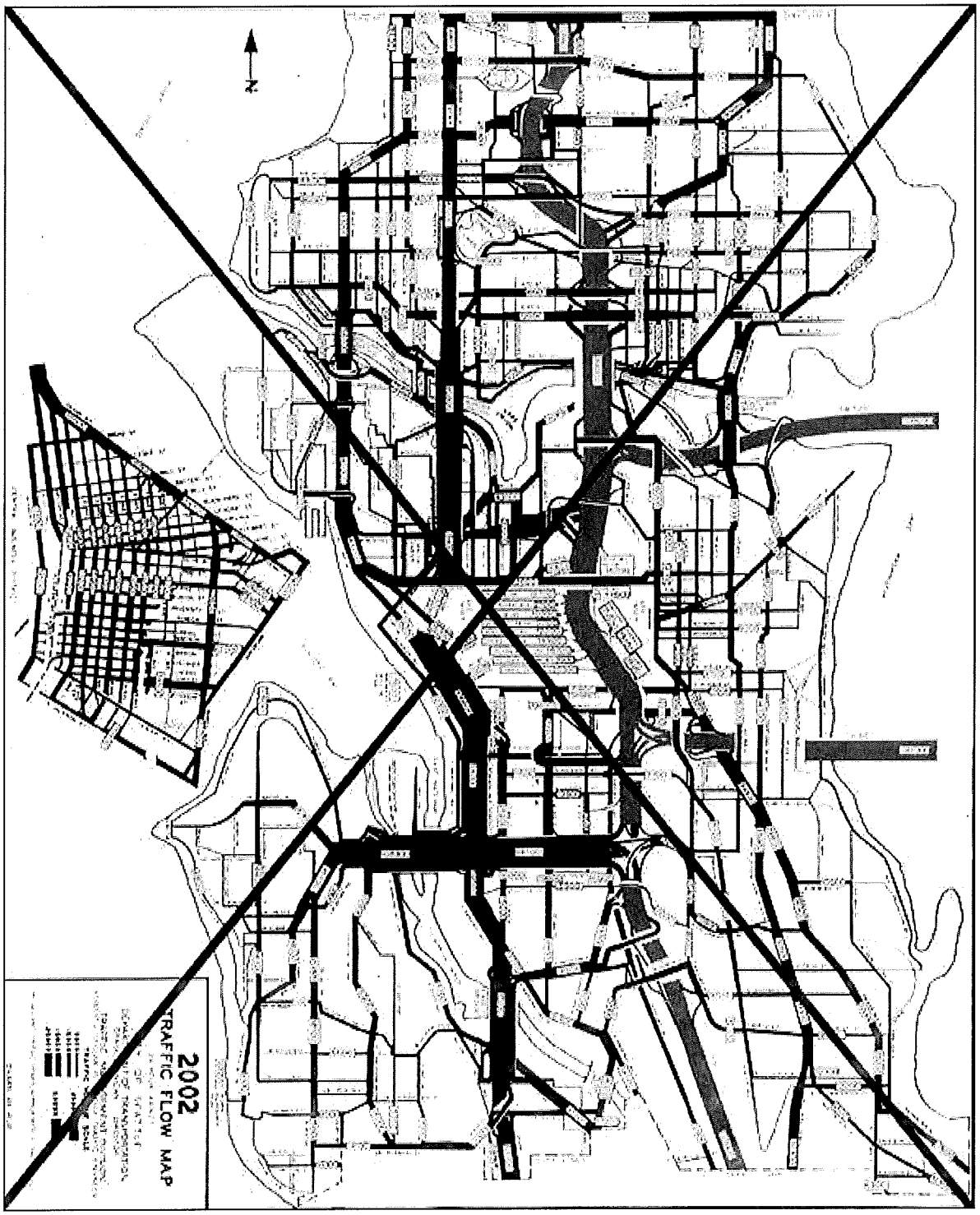
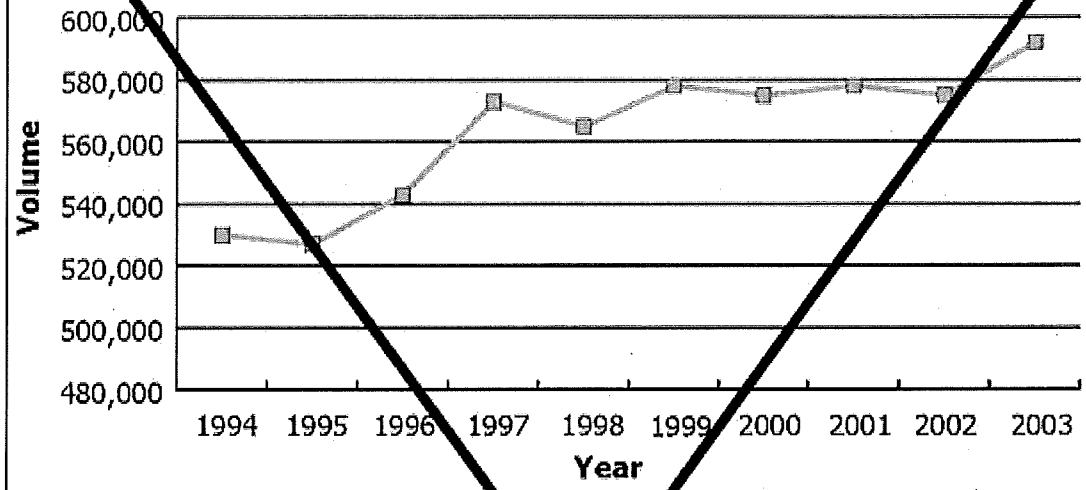


((~~Transportation Figure A-4~~

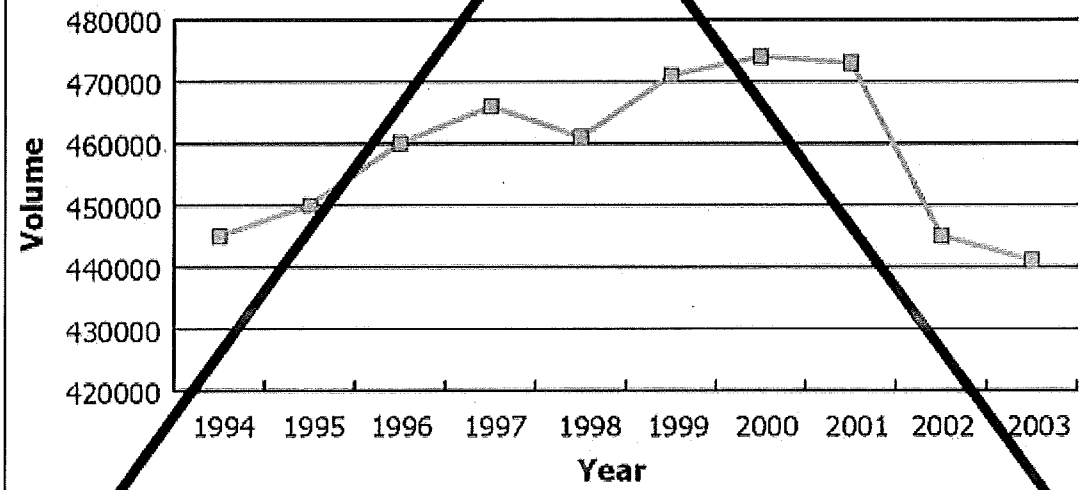
~~2002 Traffic Flow Map – Average Weekday Daily Traffic~~))

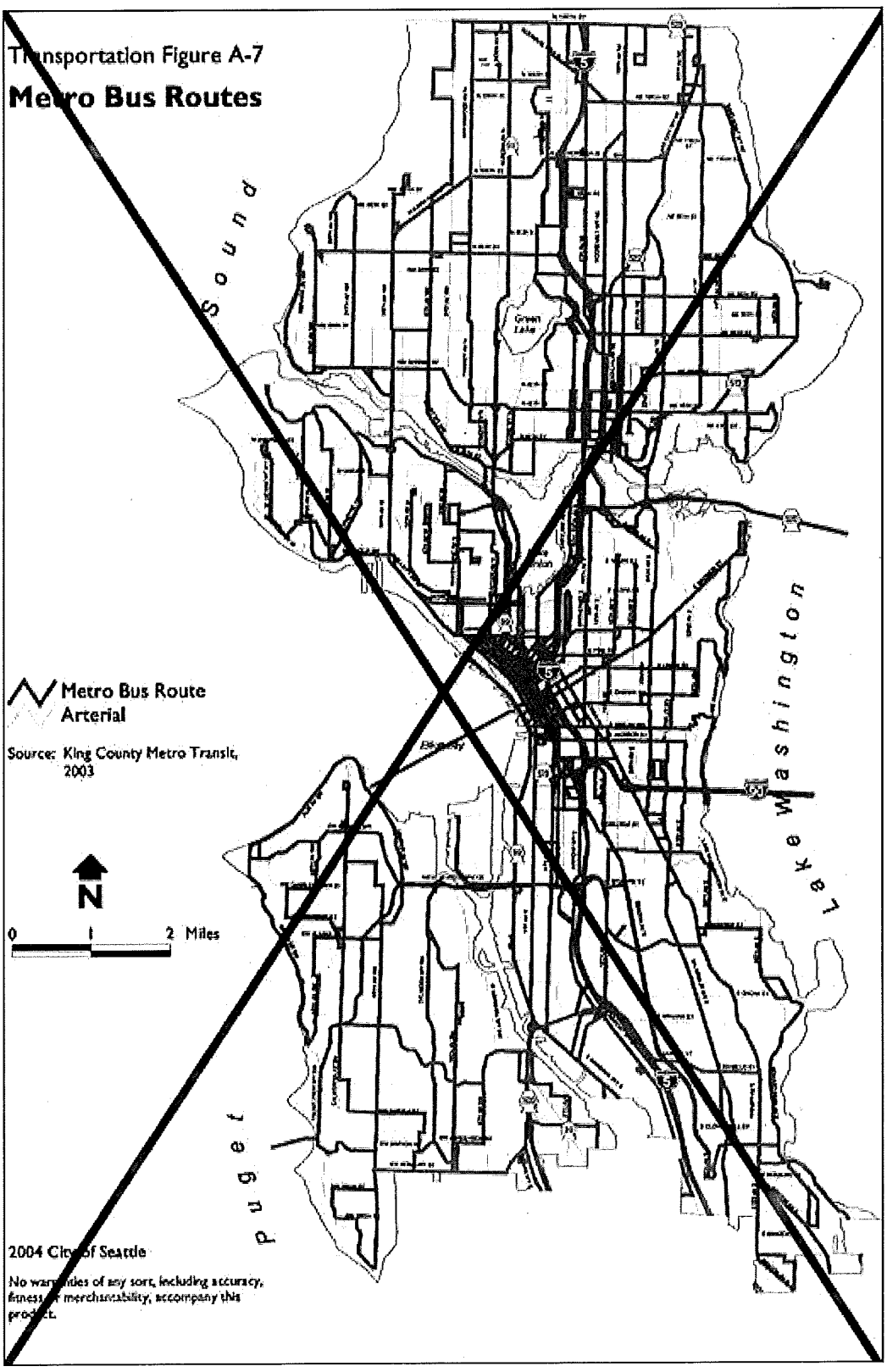


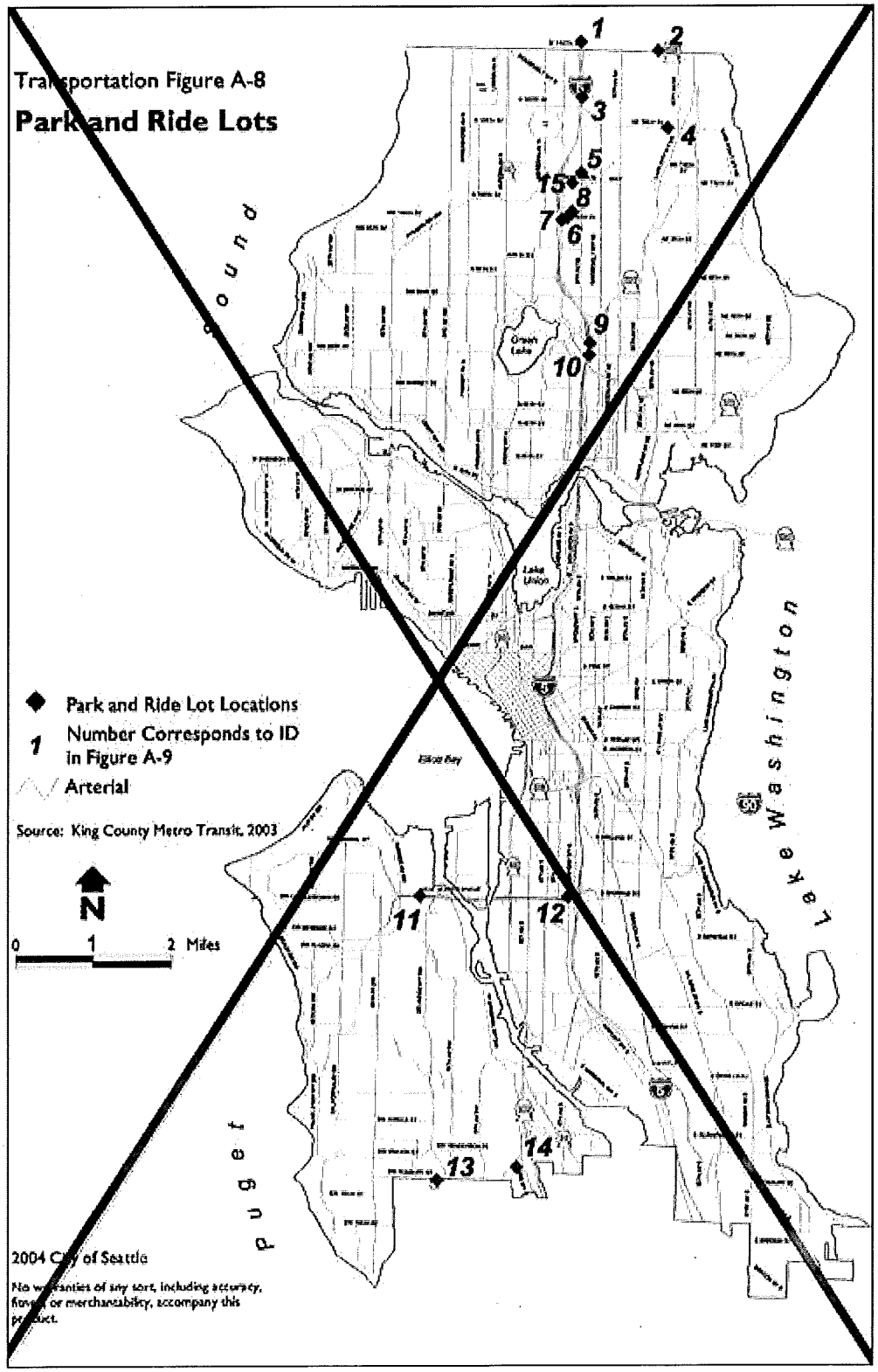
Transportation Figure A-5
Average Weekday Traffic at City Limit Screenlines
1993 - 2003



Transportation Figure A-6
Average Weekday Traffic at Downtown Cordon
1993 - 2003




Transportation Figure A-7
Metro Bus Routes
Sound
Lake Washington
Puget
Metro Bus Route
Arterial
Source: King County Metro Transit, 2003
N
0
1
2 Miles
2004 City of Seattle
No warranties of any sort, including accuracy, fitness or merchantability, accompany this product.



((~~Transportation Figure A-9~~

~~Park & Ride Lot Inventory~~

ID	Park & Ride Location	Address	Number of Parking Stalls (1999)
1	North Jackson Park	14711 5th Ave. NE	68
2	Shoreline United Methodist Church	NE 145th St./25th Ave. NE	20
3	5th Ave. NE/NE 133rd St.	5th Ave. NE/NE 133rd St.	46
4	Our Savior Lutheran Church	NE 125th/27th Ave. NE	21
5	Northgate	11203 5th Ave. NE	401
6	Northgate Transit Center	10200 1st Ave. NE	296
7	North Seattle	10001 1st Ave. NE	141
8	Northgate TC Extension	3rd Ave. NE & NE 103rd St.	412
8	Northgate TC Extension Carpool	3rd Ave. NE & NE 103rd St.	75
9	Calvary Temple Church	6810 8th Ave. NE	75
10	I-5/NE 65th St.	6601 8th Ave. NE	446
11	Southwest Spokane St.	26th Ave. SW & SW Spokane St.	62
12	Airport Way/Spokane St.	Airport Way/Spokane St.	25
13	Holy Family Church	SW Roxbury/20th SW	36
14	Olson Way/Myers	9000 Olson Pl. SW	100
15	Northgate North Garage	300 NE Northgate Way	63

Source: Metro King County, December 2003. (Second Quarter Statistics)))

((~~Transportation Figure A-10~~

~~Bicycle Facilities, 2004~~

~~Routes~~	**~~Miles~~**
~~Bicycle Paths (Multi-use) - Total~~	**~~28~~**
~~Duwamish River (Duwamish Head to Michigan St.)~~	~~4.0~~
~~Harbor Island/West Seattle Bridge~~	~~1.0~~
~~Interstate 90 Path~~	~~3.5~~
~~Waterfront/Elliott Bay/Interbay~~	~~4.0~~
~~Burke Gilman Trail~~	~~14.5~~
~~South Lake Union~~	~~1.0~~
~~Bicycle Lanes - Total~~	**~~22~~**
~~Alki~~	~~2.5~~
~~Green Lake~~	~~4.0~~
~~Ravenna~~	~~1.0~~
~~Interstate 90 Extension (Dearborn)~~	~~1.0~~
~~Dexter/7th~~	~~2.2~~
~~Alaskan Way~~	~~2.0~~
~~Gilman/Government Way~~	~~1.6~~
~~Martin Luther King Way~~	~~0.8~~
~~Bicycle Routes (Signed) - Total~~	**~~90~~**
~~Alki~~	~~15.5~~
~~Duwamish (City limit to Michigan St.)~~	~~3.4~~
~~Sea-Tac Route~~	~~13.0~~
~~Lake Washington Boulevard~~	~~19.7~~
~~Magnolia Loop~~	~~7.5~~

Routes	Miles
Ravenna	2.5
8th Ave. NW (Burke Gilman Trail to 3rd Ave. NW)	5.5
Sand Point Way (Burke Gilman Trail By-pass Route)	10.0
Lake Union Route	2.0
Ballard/Seaview Route	4.5

Source: Seattle Department of Transportation, 2004.

Definitions:

Bicycle Path: A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way.

Bicycle Lane: A portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.

Bicycle Route: A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number.))

((~~Transportation Figure A-11~~
~~2002 Off-Street Parking Inventory~~

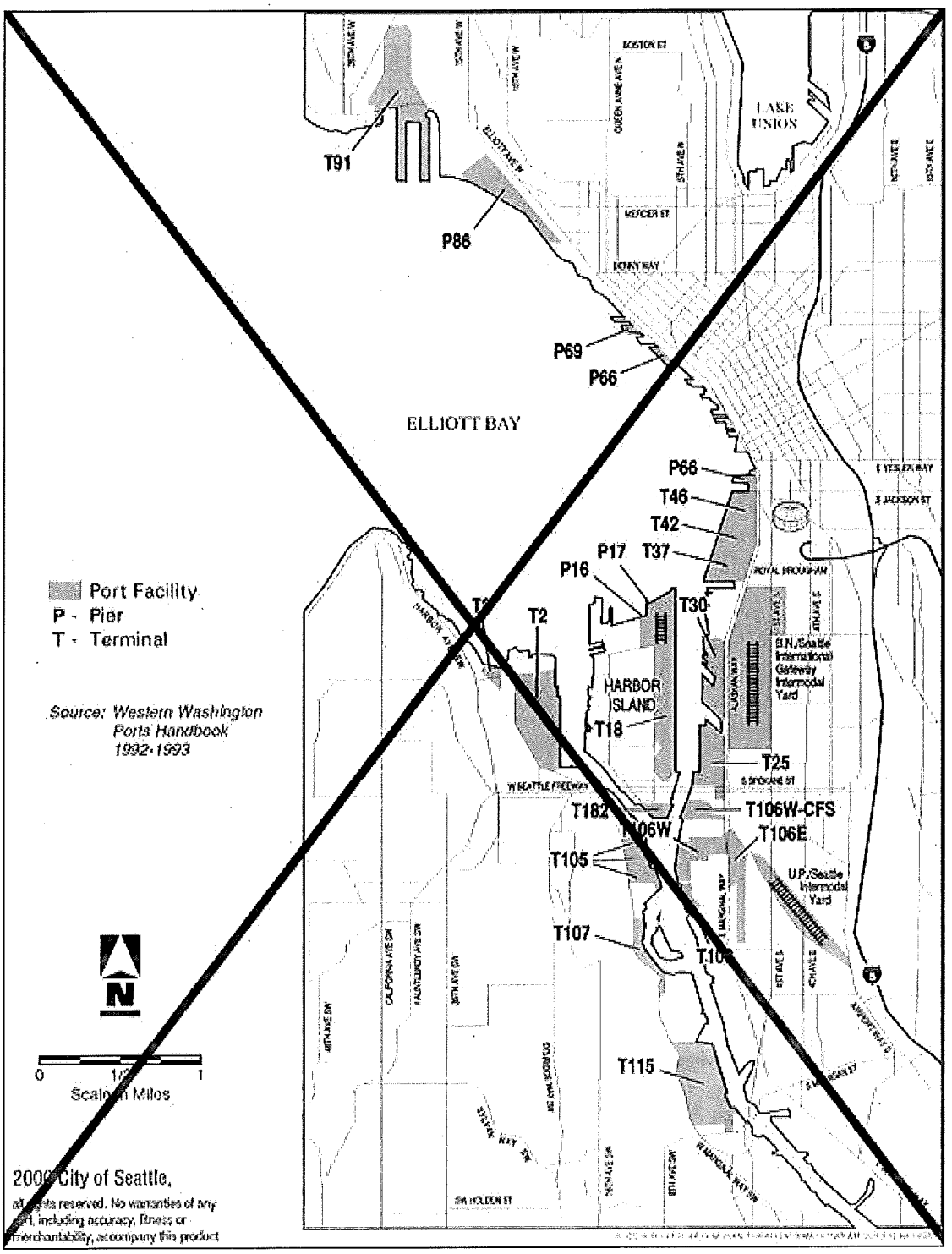
~~Seattle Area~~	~~Total Stalls (2002)~~	~~Annual % Supply Change (1996-2002)~~	~~Average Occupancy Rate~~	~~Annual % Change in Average Occupancy. Rate 1996-2002~~	~~Average Two Hour Rate~~	~~Average Daily Rate~~	~~Average Monthly Rate~~	~~Annual % Change in Average Daily Rate 1996-2002~~
~~Central Business District~~	~~58,538~~	~~+1.6%~~	~~63.2%~~	~~-3.9%~~	~~$7.20~~	~~$14.52~~	~~$200.29~~	~~6.7%~~
~~Lower Queen Anne/South Lake Union~~	~~17,644~~	~~+0.7%~~	~~46.8%~~	~~-3.5%~~	~~$4.51~~	~~$6.52~~	~~$106.03~~	~~1.0%~~
~~First Hill~~	~~10,800~~	~~+0.7%~~	~~76.2%~~	~~0.0%~~	~~$3.60~~	~~$12.37~~	~~$91.71~~	~~11.4%~~
~~University District~~	~~5,134~~	~~N/A~~	~~63.8%~~	~~N/A~~	~~$3.35~~	~~$7.15~~	~~$74.37~~	~~N/A~~

~~N/A = Not Available~~
~~Source: Parking Inventory for the Central Puget Sound Region, PUGET SOUND REGIONAL COUNCIL / JANUARY 2002. For copy of report, go to~~
~~http://www.psrc.org/datapubs/pubs/parking2002.htm~~

~~Note that the PSRC collected University District data for the first time in 2002.~~))

((~~Transportation Figure A-12~~

~~Port of Seattle Facilities~~))



((B Land Use Assumptions Used in Estimating Travel

To estimate future travel levels, assumptions were made for a variety of factors related to future population, employment, and transportation facilities. These include the number and geographic distribution of both households and employment in Seattle and the region, characteristics of households and jobs (e.g., number of residents per household, household income), and the transportation network (e.g., streets, transit routes). Then, a computer model was used to predict the total number of person-trips between various zones, the number of trips that would use various modes (e.g., car, bus, bike, walk), and the resulting vehicle traffic volumes on various streets throughout the city.

existing conditions

In 2000, the census counted 563,374 people living in Seattle; 2004 state estimates place the number at about 572,600. But Seattle's daytime population is much larger than the number of people who live in the city. A conservative 2000 estimate that takes employment into account but does not consider other reasons people come to, or leave, Seattle during the daytime—such as attending college classes, shopping, business travel, entertainment, tourism, and medical care—would number at least 717,465 in 2000. This estimate is based on the following data from the 2000 census:

- 563,374 people lived in Seattle in 2000
- 59,000 Seattle residents worked outside the city
- approximately 220,000 people commuted to Seattle from other places for work

Seattle covers about 54,000 acres of land. Most areas of the city are of predominantly one type of land use (e.g., residential, commercial, or industrial). About 40 percent of the city's land area is occupied by residential uses. In 1990, there were a total of about 249,000 housing units in the city. Estimates in 2003 place the total number of housing units in the city at about 269,069. The area north of the ship canal has more of its land area occupied by housing than mid-Seattle (south of the ship canal to I-90) or south Seattle (south of I-90).

Street rights-of-way take up the next largest amount of land, almost 26 percent. Commercial and industrial areas, where most of the jobs in the city are located, occupy about 13 percent of the land area. Parks occupy nine percent; cemeteries, reservoirs, and other uses occupy six percent; and six percent of the land is vacant.

regional land use assumptions

The Puget Sound Regional Council (PSRC) conducts regional planning for the four-county (Snohomish, King, Pierce, and Kitsap) central Puget Sound region. The PSRC's Vision 2020 Growth Strategy and Transportation Plan presents a vision and array of strategies designed to achieve goals of growth management, transportation demand management, and improved transportation investment decisions. The PSRC provides population and employment forecasts for the region, focusing future population and employment growth into urban centers.

~~Seattle land use assumptions~~

~~Within Seattle, the upper limits of the growth targets in the adopted Plan for population, households, and employment were used to estimate future travel. These targets call for an additional 47,000 households and 67,200 jobs over the 20-year life of this plan. This growth was allocated within the city~~

~~2004-2024 Growth Distribution~~

	~~Household Growth~~	**~~Employment Growth~~**
~~Urban centers~~	~~28,300 (60%)~~	~~67,200 (80%)~~
~~Hub urban villages~~	~~4,800 (10%)~~	~~4,200 (5%)~~
~~Residential villages~~	~~7,000 (15%)~~	~~4,200 (5%)~~
~~Areas outside centers and villages~~	~~7,000 (15%)~~	
~~Manufacturing/ industrial centers~~	~~—~~	~~8,400 (10%)~~
~~TOTAL~~	~~47,000 (100%)~~	~~84,000 (100%)~~

~~N/A = Not Available~~

~~Source: Parking Inventory for the Central Puget Sound Region, PUGET SOUND REGIONAL COUNCIL / JANUARY 2002. For copy of report, go to http://www.psrc.org/datapubs/pubs/parking2002.htm~~

~~Note that the PSRC collected University District data for the first time in 2002.~~))

~~C Traffic Forecasts~~

~~Region-wide and city-limit traffic volume forecasts for the Comprehensive Plan are as follows:~~

~~Total vehicle-miles-of-travel (VMT) for the region (per day):~~	
~~1998 estimate:~~	~~76 million~~
~~2020 forecasts:~~	~~106 million (+39%)~~

~~Traffic volume at north city limit (vehicles per day):~~	
~~1998 estimate:~~	~~361,000~~
~~2020 forecasts:~~	~~413,000 (+14%)~~

~~Traffic volume at south city limit (vehicles per day):~~	
~~1998 estimate:~~	~~482,000~~
~~2020 forecasts:~~	~~546,000 (+13%)~~

~~Traffic volume at east city limit (SR 520 and I-90) (vehicles per day):~~	
~~1998 estimate:~~	~~259,300~~
~~2020 forecasts:~~	~~284,000 (+10%)~~

~~Regional transit trips as a percent of total motorized trips:~~	
~~1998 estimate:~~	~~3 percent~~
~~2020 forecasts:~~	~~6 percent~~

~~To analyze the transportation effects of the Comprehensive Plan goals and policies on the City's arterial streets in urban centers and in urban village areas, traffic conditions were analyzed for a system of 42 screenlines, shown in Transportation Figure A-13. These screenlines functionally cover the entire City, including urban centers and areas identified for future designation as urban villages. The Comprehensive Plan's level-of-service (LOS) system uses a similar screenline system, with 30 of the same screenlines. Twelve screenlines were added for this traffic forecast analysis to supplement the data in urban centers.~~

~~Traffic volumes were forecasted for arterial streets for the year 2020. These forecasted volumes were totaled for all arterials crossing a particular screenline, and this screenline volume was compared to the sum of the "planning capacities" for the arterials crossing the screenline, yielding a ratio of volume-to-capacity (v/c) for each direction of traffic for each screenline.~~

~~The screenline methodology was used both for the Comprehensive Plan's level-of-service system to judge the performance of the arterial system, and for the traffic forecast analysis described in this Appendix. This system was selected because it steps back from the micro-level focus of traditional intersection LOS analysis, and recognizes explicitly the broader geographic impacts of development and travel patterns. The system recognizes that no single intersection or arterial~~

~~operates in isolation. Motorists have choices, and they select particular routes based on a wide variety of factors. If traffic congestion on one arterial increases, it may not make sense to expand the capacity of that arterial. The City, instead, may want to shift traffic to a nearby under-used arterial, or to expand capacity on a different nearby arterial, or to implement measures to reduce travel demand — or a combination of these strategies. Accordingly, this analytic methodology focuses on a "traffic-shed," an area where arterials among which drivers logically can choose are organized for functional analysis.~~

~~Transportation Figure A-14 lists, for each screenline, the forecasted year 2020. (This Figure supplements the more limited information provided in Transportation Figure 3 in Section E. of the Comprehensive Plan Transportation Element.)~~

~~As can be seen in Transportation Figure A-14, the forecasted screenline v/c ratios for the year 2020 under the Comprehensive Plan range from 0.32 to 1.2. With one exception, each screenline that serves as a level-of-service (LOS) screenline, the forecasted year 2020 v/c ratio is below the LOS standard established for that screenline. By analyzing the forecasted year 2020 v/c ratios at screenlines in or near urban centers, one can evaluate the effects of the Comprehensive Plan goals and policies on the transportation systems in the urban centers.~~

~~**Downtown**: Screenlines 10.11, 12.12, A1, A2, and A3 pass through or along the edge of the Downtown Urban Center, some encompassing north-south avenues, and some encompassing east-west streets. For all five of these screenlines, the year 2020 v/c ratios under the Comprehensive Plan are below 1.0. This means that for screenlines 10.11 and 12.12, the year 2020 v/c ratios are also below the established LOS standards of 1.0 for screenline 10.11 and 1.2 for screenline 12.12.~~

~~**Seattle Center**: For the Seattle Center Urban Center, screenline A4 is an east-west screenline while screenline A5 is drawn north-south through the Urban Center. For both of these screenlines, the year 2020 v/c ratios are well below 1.0.~~

~~**First Hill/Capitol Hill**: Screenlines A6, A7, and A8 are drawn through the First Hill/ Capitol Hill Urban Center. Screenline 12.12, on the east edge of the Downtown Urban Center, is on the west edge of the First Hill/Capitol Hill Urban Center. For all four of these screenlines, the year 2020 v/c ratios under the Comprehensive Plan are well below 1.0.~~

~~[1] As with the region-wide and city-limit traffic volume forecasts described earlier in this Appendix, the v/c ratios in Transportation Figure A-14 are based on the output of the PSRC Regional Transportation model. The traffic volume values produced from the model for this analysis differ slightly from values produced in earlier updates to the Comprehensive because of updates to the model, including a revised zone structure and revised employment estimates.~~

~~**University District**: For the University District Urban Center, screenlines 5.16 and 13.13 cover the south and west boundaries of the Urban Center, while screenline A9 passes east-west through the Center and screenline A10 is drawn north-south through the Center. The year 2020 v/c ratios under the comprehensive Plan for all four of these screenlines are below 1.0. The forecasted year 2020 v/c ratios for screenline 5.16 are nearly 1.0, compared to the LOS standard~~

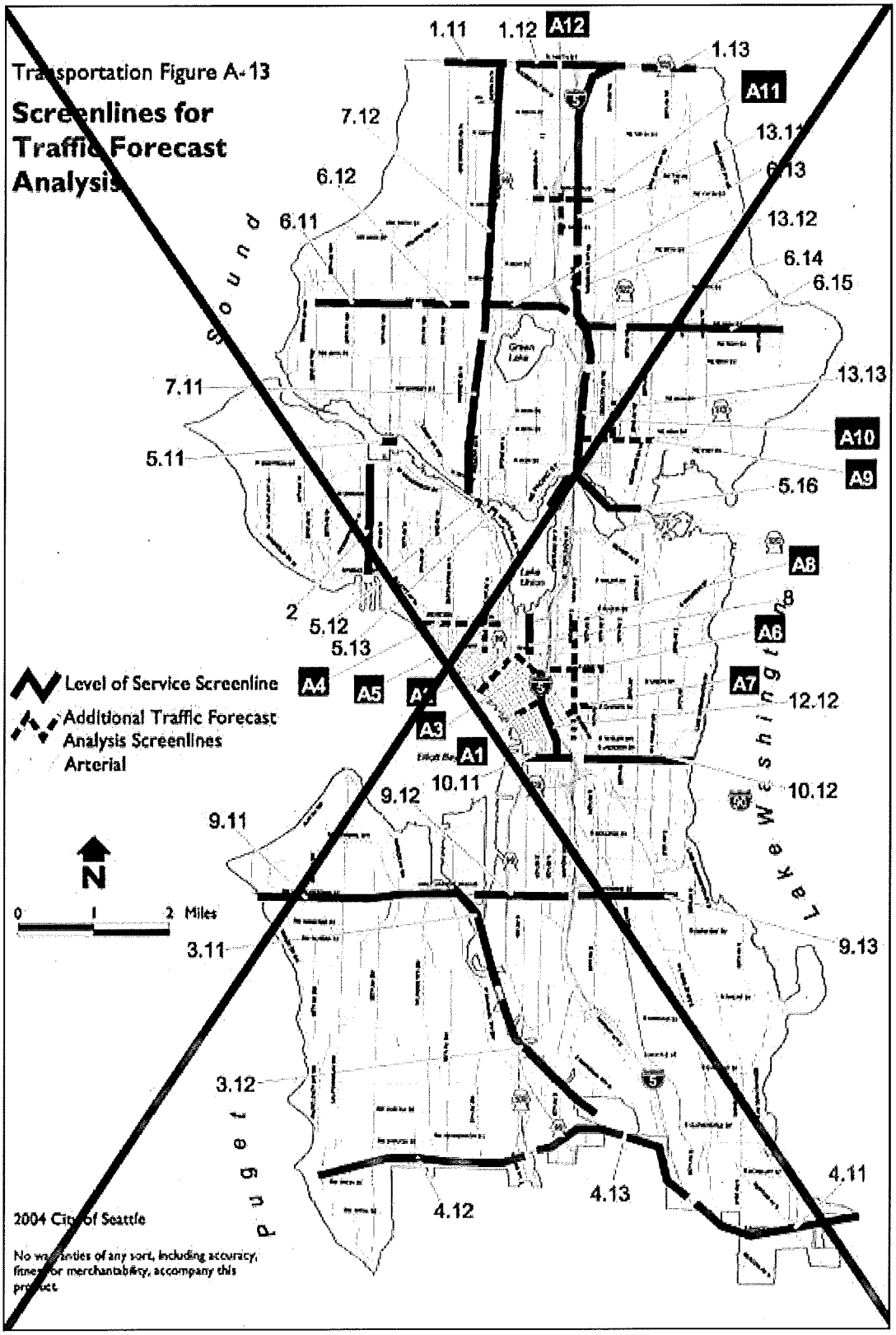
~~of 1.2. These high v/c ratios reflect traffic congestion around the University District, much of which is due to through traffic.~~

~~**Northgate**: For the Northgate Urban Center, screenline A11 is drawn east-west through the Center, while screenline A12 passes north-south through the Center. The year 2020 v/c ratios for both of these screenlines are well below 1.0.~~

~~**South Lake Union**: For the South Lake Union Urban Center, Screenline 8 is drawn is drawn in a north-south, south of Lake Union. The year 2020 v/c ratio for this screenline is below 1.2 LOS standard.~~

~~The Comprehensive Plan includes policies to improve transit service and related transit capital facilities, as well as to improve non-motorized transportation facilities, to afford ways for people to avoid the traffic congestion inherent in dense urban centers and urban village areas. In this way, people may avoid the congestion reflected in higher v/c ratios across some screenlines.~~

~~As this analysis of transportation impacts demonstrates, the forecasted year 2020 screenline volume-to-capacity ratios under the Comprehensive Plan do not exceed the established LOS standards for any screenlines. With the exception of Screenline 5.16 for the Ballard Bridge, the forecasted year 2020 v/c ratios are within acceptable ranges. The 2020 v/c ratio forecast for Screenline 5.16 is 1.2 and the standard for that screen line is also 1.2. As provided in Comprehensive Plan Policy T69, when the calculated v/c ratio for a screenline approaches the LOS standard for that screenline, the City will pursue strategies to reduce vehicular travel demand across the screenline and/or increase the operating capacity across the screenline.~~



~~Transportation Figure A-14~~

Level of Service:

Screenline Volume-to-Capacity Ratios

Level-of-Service Screenline No.	Screenline Location	Segment	LOS Standard	Direction	2020 V/C Ratios
1.11	North City Limit	3rd Ave. NW to Aurora Ave. N	1.20	NB	0.96
				SB	0.61
1.12	North City Limit	Meridian Ave. N to 15th Ave. NE	1.20	NB	0.83
				SB	0.43
1.13	North City Limit	30th Ave. NE to Lake City Way NE	1.20	NB	0.93
				SB	0.58
2	Magnolia		1.00	EB	0.51
				WB	0.64
3.11	Duwamish River	West Seattle Fwy. & Spokane St.	1.20	EB	0.55
				WB	0.86
3.12	Duwamish River	1st Ave. S & 16th Ave. S	1.20	NB	0.51
				SB	0.75
4.11	South City Limit	MLK Jr. Way to Rainier Ave. S	1.00	NB	0.46
				SB	0.61
4.12	South City Limit	Marine Dr. SW to Meyers Way S	1.00	NB	0.33
				SB	0.39
4.13	South City Limit	SR 99 to Airport Way S	1.00	NB	0.41
				SB	0.49
5.11	Ship Canal	Ballard Bridge	1.20	NB	1.20
				SB	0.81
5.12	Ship Canal	Fremont Bridge	1.20	NB	1.07
				SB	0.73

Level-of-Service Screenline No.	Screenline Location	Segment	LOS Standard	Direction	2020 V/C Ratios
5.13	Ship Canal	Aurora Bridge	1.20	NB	0.90
				SB	0.78
5.16	Ship Canal	University & Montlake Bridges	1.20	NB	1.10
				SB	1.07
6.11	South of NW 80th St.	Seaview Ave. NW to 15th Ave. NW	1.00	NB	0.47
				SB	0.32
6.12	South of N(W) 80th St.	8th Ave. NW to Greenwood Ave. N	1.00	NB	0.56
				SB	0.33
6.13	South of N(E) 80th St.	Linden Ave. N to 1st Ave. NE	1.00	NB	0.46
				SB	0.36
6.14	South of NE 80th St.	5th Ave. NE to 15th Ave. NE	1.00	NB	0.76
				SB	0.48
6.15	South of NE 80th St.	20th Ave. NE to Sand Point Way NE	1.00	NB	0.55
				SB	0.38
7.11	West of Aurora Ave.	Fremont Pl N to N 65th St.	1.00	EB	0.52
				WB	0.71
7.12	West of Aurora Ave.	N 80th St. to N 145th St.	1.00	EB	0.46
				WB	0.56
8	South of Lake Union		1.20	EB	0.96
				WB	1.06
9.11	South of	Beach Dr. SW to W	1.00	NB	0.45

Level-of-Service Screenline No.	Screenline Location	Segment	LOS Standard	Direction	2020 V/C Ratios
	Spokane St.	Marginal Way SW		SB	0.59
9.12	South of Spokane St.	E Marginal Way S to Airport Way S	1.00	NB	0.52
				SB	0.63
9.13	South of Spokane St.	15th Ave. S to Rainier Ave. S	1.00	NB	0.58
				SB	0.64
10.11	South of S Jackson St.	Alaskan Way S to 4th Ave. S	1.00	NB	0.70
				SB	0.69
10.12	South of S Jackson St.	12th Ave. S to Lakeside Ave. S	1.00	NB	0.52
				SB	0.66
12.12	East of CBD		1.20	EB	0.61
				WB	0.74
13.11	East of I-5	NE Northgate Way to NE 145th St.	1.00	EB	0.76
				WB	0.63
13.12	East of I-5	NE 65th St. to NE 80th St.	1.00	EB	0.46
				WB	0.48
13.13	East of I-5	NE Pacific St. to NE Ravenna Blvd.	1.00	EB	0.64
				WB	0.77

Transportation Figure A-15

Traffic Forecast:

Screenline Volume-to-Capacity Ratios

Traffic forecast Analysis Screenline No.	Screenline Location	Segment	Direction	2020 V/C Ratios
A1	North of Seneca St.	1st Ave. to 6th Ave.	NB	0.86
			SB	1.06
A2	North of Blanchard	Elliott Ave. to Westlake Ave.	NB	0.56
			SB	0.62
A3	East of 9th St.	Lenora St. to Pike St.	EB	0.42
			WB	0.42
A4	South of Mercer	Elliott Ave. W to Aurora Ave. N	NB	0.47
			SB	0.51
A5	East of 5th Ave. N	Denny Way to Valley St.	EB	0.47
			WB	0.59
A6	North of Pine St.	Melrose Ave. to 15th Ave.	NB	0.48
			SB	0.56
A7	North of James St. E Cherry St.	Boren Ave. to 14th Ave.	NB	0.61
			SB	0.77
A8	West of Broadway	Yesler Way to E Roy St.	EB	0.60
			WB	0.55
A9	South of NE 45th St.	7th Ave. NE to Montlake Blvd. NE	NB	0.75
			SB	0.51
A10	East of 15th Ave. NE	NE 45th St. to NE 52nd St.	EB	0.64
			WB	0.91
A11	South of Northgate Way N 110th St.	N Northgate Way to Roosevelt Way NE	NB	0.61
			SB	0.35
A12	East of 1st Ave. NE	NE 100th St. to NE Northgate Way	EB	0.70
			WB	0.43))

((~~D Intergovernmental Coordination Efforts~~

~~This section describes the City's intergovernmental coordination efforts during the development of the Comprehensive Plan, and potential impacts of the plan on the transportation systems of adjacent jurisdictions.~~

~~Puget Sound Regional Council~~

~~Seattle is an active member of the Puget Sound Regional Council (PSRC), which is charged with certifying that local transportation plans are consistent with regional plans and goals. The City supports PSRC's Vision 2020, a transportation/land use plan that describes linking high density residential and employment centers throughout the region by high capacity transit and promoting a multi modal transportation system. Vision 2020's goals are carried forward by this Comprehensive Plan.~~

~~The PSRC provides population, employment, and transportation data to Seattle and other jurisdictions coordination is established via this centralized information resource.~~

~~In addition, the PSRC is charged with allocating certain federal funds. Seattle has participated in establishing the criteria and selection process to determine how funds will be distributed among transportation projects.~~

~~impacts on adjacent jusrisdictions~~

~~Four jurisdictions are adjacent to the City of Seattle: the City of Shoreline, King County, and the City of Lake Forest Park along Seattle's north boundary, and the City of Tukwila and King County along Seattle's south boundary. In consultation with adjacent jurisdictions, several major arterials that lie within these jurisdictions near the Seattle border were selected for analysis. For each arterial, the existing p.m. peak hour traffic volume and forecasted year 2020 traffic volume were compared to the "planning capacity" of the arterial, yielding a volume-to-capacity (v/c) ratio. The results of this analysis are shown in Transportation Figure A-15.~~

~~For all but two of the arterials shown in Transportation Figure A-16, the p.m. peak hour v/c ratio is below 1.0, indicating that there is remaining traffic capacity currently and forecasted for the future. The exceptions are Bothell Way NE just north of NE 145th St., where the existing v/c is estimated to be .90 and the forecasted year 2020 v/c is estimated to be 1.08, and Greenwood Ave. N at 145th St. where existing outbound v/c is .5 and the forecasted year 2020 is 1.03.~~

~~These traffic volume and v/c figures reflect not only growth under Seattle's Comprehensive Plan, but also growth in the adjacent jurisdictions and throughout the central Puget Sound region. Much of the traffic on these arterials is through-traffic, with neither an origin nor a destination near the arterial.~~

~~In addition to the City of Seattle's analysis of transportation impacts on adjacent jurisdictions, as described in this section, Seattle continues to work with the adjacent jurisdictions to coordinate traffic operations and to minimize cross-boundary impacts.~~

Transportation Figure A-16

Adjacent Jurisdiction Arterials:

P.M. Peak Hour Capacities, Volumes & v/c Ratios

A. Major arterials just north of Seattle/King County-Shoreline-Lake Forest Park Border (145th St.)

Arterial	Existing - PM Peak Hour						2020 - PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio
Greenwood Ave. N	760	380	0.50	760	410	0.54	760	780	1.03	760	380	0.50
Westminster Way N	2,600	1,590	0.61	2,600	660	0.25	2,600	2,190	0.84	2,600	700	0.27
Aurora Ave. N	3,060	1,790	0.58	3,060	890	0.29	3,060	2,200	0.72	3,060	1,080	0.35
Meridian Ave. N	1,030	750	0.73	1,030	210	0.20	2,160	1,015	0.47	2,160	260	0.12
5th Ave. NE	760	550	0.72	760	230	0.30	2,160	740	0.34	2,160	200	0.09
15th Ave. NE	2,160	1,380	0.64	2,160	240	0.11	2,160	1,920	0.89	2,160	260	0.12
25th Ave. NE	740	450	0.61	740	200	0.27	740	570	0.77	740	220	0.30
Bothell Way NE	2,450	2,510	0.90	2,450	1,150	0.47	2,450	2,640	1.08	2,450	1,250	0.51

B. Major arterials just south of Seattle/King County Border

Arterial	Existing - PM Peak Hour						2020 - PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio
SW 106th St.	1,030	200	0.19	1,030	520	0.50	1,030	290	0.28	1,030	860	0.83

Arterial	Existing - PM Peak Hour						2020 - PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio
26th Ave. SW	760	90	0.12	760	300	0.39	760	200	0.26	760	620	0.82
16th Ave. SW	2,160	1,010	0.47	2,160	740	0.34	2,160	1,280	0.53	2,160	930	0.43
4th Ave. SW	760	310	0.41	760	350	0.46	760	320	0.42	760	250	0.33
Myers Way S	1,320	700	0.53	1,320	170	0.13	1,320	660	0.50	1,320	50	0.04
8th Ave. S	760	260	0.34	760	100	0.13	760	360	0.47	760	80	0.11
Military Rd. S	2,600	600	0.23	2,600	380	0.15	1,930	770	0.40	1,930	320	0.17
14th Ave. S	2,600	1260	0.48	2,600	540	0.21	2,600	1,340	0.52	2,600	590	0.23
Beacon Ave. S	760	430	0.57	760	150	0.20	760	490	0.64	760	210	0.28
Renton Ave. S	1,930	280	0.15	1,930	140	0.07	1,930	400	0.21	1,930	120	0.06
Rainier Ave. S	2,160	990	0.46	2,160	200	0.09	2,160	1,220	0.56	2,160	310	0.14

C. Major arterials just south of Seattle/Tukwila Border

Arterial	Existing - PM Peak Hour						2020 - PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio
E Marginal Way S	1,800	1,320	0.73	1,800	680	0.38	1,800	1,760	0.98	1,800	640	0.52
Airport Way S	2,200	1,400	0.64	2,200	380	0.17	2,200	1,520	0.69	2,200	410	0.19
Martin Luther King Jr Way S	2,700	1,360	0.50	2,700	950	0.35	2,700	1,790	0.66	2,700	1370	0.51

Arterial	Existing - PM Peak Hour						2020 - PM Peak Hour					
	Outbound			Inbound			Outbound			Inbound		
	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio	Capacity	Volume	v/c Ratio
51st Ave. S	1,980	430	0.22	1,980	150	0.08	1,980	480	0.24	1,980	210	0.11

Notes:

Outbound and inbound directions relative to Seattle.

Capacities for King County, Shoreline, Lake Forest Park, and Tukwila are from PSRC and Seattle traffic models.

All volumes are from Seattle traffic model-Forecast Years 1998 (existing) and 2020.

v/c Ratio = volume divided by capacity.

5th Ave. NE location north of I-5 on-ramp.

Volumes rounded to the nearest ten.

Sources: City of Seattle Traffic Model; Puget Sound Regional Council (PSRC) Traffic model.))

~~E State Highways in Seattle~~
~~Inventory, Projects & Impacts~~

~~state highways~~

~~The City of Seattle cooperates with the Washington State Department of Transportation (WSDOT) and the Puget Sound Regional Council to plan improvements to state transportation facilities and services and to ensure that the City's plans are consistent with the State Transportation Plan and the Metropolitan Transportation Plan – Destination 2030. This section describes the state highways within the city, level-of-service standards on state highways, and impacts of the Comprehensive Plan and Regional growth plans on state highways. Other state transportation facilities are described in preceding sections of this chapter.~~

~~inventory~~

~~There are ten state highways within Seattle city limits. They are shown in Transportation Figure A-1, and include: I-5, I-90, SR 99, SR 509, SR 513, SR 519, SR 520, SR 522, SR 523, and SR 900. I-5, I-90, SR 509, and SR 520 are limited access freeways. SR 99, while not classified as a limited access facility, functions as such through most of the segment between South Spokane Street and Winona Avenue North (near Green Lake), as well as south of the intersection of First Avenue South and East Marginal Way South.~~

~~Transportation Figure A-16 summarizes general information on state highways in Seattle, as provided by WSDOT. Traffic volumes for the year 2002 and projected volumes for the year 2020 are shown in Transportation Figure A-17. The 2002 volumes were compiled from traffic counts collected by WSDOT (freeways) and Seattle Transportation (non-freeways.) The 2020 projections were developed using the City of Seattle traffic forecasting model with regional population and employment forecasts.~~

~~The following are designated as "Highways of Statewide Significance" (HSS): I-5, I-90, SR 99, SR 509, SR 519, SR 520, and SR 522. Highways of statewide significance include, at a minimum, interstate highways and other principal arterials that are needed to connect major communities in the state. The state legislation designating HSS directs the State Transportation Commission to give higher priority for correcting identified deficiencies on highways of statewide significance. Non-HSS facilities in Seattle are SR 513, SR 523, and SR 900. These highways are monitored by the Puget Sound Regional Council for regional planning purposes.~~

~~level of service standards~~
~~for highways of statewide significance~~

~~WSDOT is responsible for setting level-of-service standards on highways of statewide significance, while local jurisdictions work with the Puget Sound Regional Council to establish level-of-service standards on other state highways.~~

~~WSDOT uses an Annual Average Daily Traffic to one hour capacity ratio (AADT/C) to determine the severity of congestion over a 24 hour period. Index values under this system range from 1 (little to no congestion) to 24 (theoretically, congestion over the entire 24 hour day). This~~

~~congestion indicator enables the comparison of each highway's daily volume of traffic to a one-hour capacity.~~

~~The Washington State Transportation Commission adopted this congestion index measure and established thresholds to identify "congested" highways at the index values of 10 for urban highways and 6 for rural highways. When compared to traditional peak hour measures, these thresholds approximate LOS D operation in urban areas and LOS C operation in rural areas. Highways above these thresholds are identified as deficient.~~

~~WSDOT recognizes that achieving the preferred level of service for urban areas may require solutions other than increasing capacity in all locations. Mitigation can include providing alternatives, e.g., light rail or commuter rail parallel to I-5.~~

~~Level of service standards for regionally significant highways (non HSS)~~

~~The Puget Sound regional Council is responsible for setting levels of standards for non-HSS highways. PSRC has adopted a three-tiered LOS standard that is designed to meet the needs of the Puget Sound region. These standards are as follows:~~

- ~~Tier 1 (LOS E-mitigated) is applied to all of the designated urban centers as well as a three mile buffer around the most heavily traveled freeways (I-5, I-90, I-405, SR 167, and SR 520)~~
- ~~Tier 2 (LOS D) is applied to the "outer" urban area outside the three mile buffer area and connecting the principal Urban Growth Area to the smaller Urban Growth Areas.~~
- ~~Tier 3 (LOS C) is applied to rural highway routes that would not fit into the Tier 2 category.~~

~~In addition, non-HSS are incorporated into the City's level-of-service standards for arterial streets. The non-HSS are included in screenlines with other arterial streets.~~

~~impacts on state highways~~

~~The impacts of Seattle's Comprehensive Plan on state highways are not independent of impacts from the region's transportation and land use plans. Without growth in housing and employment in Seattle, traffic volumes on state highways would still increase due to growth in other parts of the region. Transportation Figure A-18 shows the allocation of year 2024 daily trips on each of the state highways within Seattle comparing trips with origins and destinations in Seattle compared with the rest of the region. Close to 50 percent of the trips on SR 99, SR 513, SR 519, and SR 522 within the city limits have both their origin and destination within the city limits. Only two state highways – I-90 and SR 509 – have more than 10 percent of their trips with neither an origin nor destination in Seattle.~~

~~Transportation Figure A-17 summarizes 2002 and projected 2020 traffic volumes and volume-to-capacity (V/C) ratios on selected segments of state highways*. The use of V/C to indicate impacts is consistent with the methodology for measuring level-of-service standards on the City's arterial street system. In the case of arterial level-of-service standards, the City estimates V/C ratios across screenlines.~~

state highway improvements

The City of Seattle will continue to coordinate with WSDOT for consistency between our plans and projects. Transportation Figure A-19 shows the Financially Constrained 20-Year Mobility Strategies from the 2002 to 2023 State Highway System Plan. In addition, the City of Seattle is participating in the planning and project development process for improvements to the SR 520 corridor across Lake Washington, and for addressing the Alaskan Way Viaduct portion of SR 99.

Transportation Figure A-17

State Highway Inventory

Route Designation	Enter City (Arm)	Leave City (Arm)	Length	Federal Functional Class	HSS or Non-HSS	Access Class	Posted Speed	# Lanes
I-5	158.24	174.64	16.40	Urban Interstate	HSS	Full limited access	60	6 to 8
I-5 Reversible Lanes	0.00	7.14	7.14	Urban Interstate	HSS	Full limited access	60	1 to 4
I-90	0.00	3.14	3.14	Urban Interstate	HSS	Full limited access	60	4 to 8
I-90 Reversible Lanes	0.00	3.09	3.09	Urban Interstate	HSS	Full limited access	60	2
SR 99	21.22	36.75	15.53	Urban Principal Arterial	HSS	Class 4 - 1st Ave. S. bridge to Spokane St. Class 1 - Spokane St. to Thomas St. Class 3 - Thomas St. to N 85th Class 4 - N. 85th to N 145th	30 to 50	4 to 7
SR 509	33.50	35.17	1.67	U1	HSS	Full limited access	45 to 55	4 to 5
SR 513	0.00	3.35	3.35	Urban Other Principal Arterial	Non-HSS	Full limited access @ SR 520 I/C Class 2 - SR 520 to NE 44th Class 3 - NE 44th to Magnuson Pk.	30 to 40	4 to 6
SR 519	0.00	1.14	1.14	U1	HSS	Class 5	30 to 40	4 to 6
SR 520	0.00	3.07	3.07	U1	HSS	Full limited access	40 to	4

Route Designation	Enter City (Arm)	Leave City (Arm)	Length	Federal Functional Class	HSS or Non-HSS	Access Class	Posted Speed	# Lanes
							50	
SR 522	0.00	4.22	4.22	U1	HSS	Full limited access @ I-5 I/C Class 4 for remainder	30 to 35	2 to 5
SR 523	0.00	2.45	2.45	U1	Non-HSS	Full limited access @ I-5 I/C Class 4 for remainder	35	4
SR 900	0.90	1.05	0.15	U1	Non-HSS	Class 3	50	4

*This data does not include HOV lanes. Data sources are the Washington State Department of Transportation, the Puget Sound Regional Council Traffic Model, and the City of Seattle Department of Transportation.

Transportation Figure A-18

State Highway Traffic Volumes – 2002

State Highway	Location	Direction	AADT Volume	AWDT Volume	PM Peak Hour		AADT/ Capacity	AWDT/ Capacity
					Volume	V/C		
I-5	Boeing Access Rd. - Swift Ave. S	NB	105,284	108,540	6,890	0.73	11.20	11.55
		SB	111,812	115,270	8,800	0.94	11.89	12.26
I-5	Corson - Columbia Way S/West Seattle Bridge	NB	119,950	123,660	8,190	0.87	12.76	13.16
		SB	124,626	128,480	9,360	1.00	13.26	13.67
I-5	I-90 - James St.	NB	139,282	143,590	10,100	0.74	10.24	10.56
		SB	138,351	142,630	10,710	0.88	11.34	11.69
I-5	Lakeview Blvd. E - SR 520	NB	148,672	153,270	13,090	0.88	10.05	10.36
		SB	137,692	141,950	7,540	0.84	15.30	15.77
I-5	SR 520 - NE 50th St.	NB	138,438	142,720	13,630	0.95	9.61	9.91
		SB	134,791	138,960	7,430	1.03	18.72	19.30
I-5	NE 65th St. - SR 522	NB	121,357	125,110	12,040	1.00	10.11	10.43
		SB	114,363	117,900	6,100	0.85	15.88	16.38
I-5	NE 130th St. - NE 145th St.	NB	102,393	105,560	9,150	1.02	11.38	11.73
		SB	101,947	105,100	6,120	0.68	11.33	11.68

State Highway	Location	Direction	AADT Volume	AWDT Volume	PM Peak Hour		AADT/ Capacity	AWDT/ Capacity
					Volume	V/C		
I-90	I-5 - Rainier Ave. S	EB	56,866	62,490	6,190	0.61	5.58	6.13
		WB	54,054	59,400	5,490	0.83	8.19	9.00
I-90	Rainier Ave. S - Lake Washington	EB	71,562	78,640	7,300	0.81	7.95	8.74
		WB	71,035	78,060	5,460	1.01	13.15	14.46
SR 99	14th Ave. S - S Cloverdale St.	NB	18,775	21,580	1,690	0.56	6.26	7.19
		SB	15,016	17,260	1,470	0.49	5.01	5.75
SR 99	14th Ave. S - S Cloverdale St.	NB	18,775	21,580	1,690	0.56	6.26	7.19
		SB	15,016	17,260	1,470	0.49	5.01	5.75
SR 99	W Marginal Way S - S Michigan St. (1st Ave. S Br.)	NB	38,767	44,560	2,880	0.48	6.46	7.43
		SB	35,044	40,280	4,450	0.74	5.84	6.71
SR 99	E Marginal Way - West Seattle Bridge	NB	23,777	27,330	2,530	0.94	8.81	10.12
		SB	21,976	25,260	2,500	0.93	8.14	9.36
SR 99	1st Ave. S Ramps - Seneca/Spring	NB	48,851	56,150	5,100	0.94	9.05	10.40
		SB	46,006	52,880	5,200	0.96	8.52	9.79
SR 99	Roy St. - Bridge Way N (Aurora Bridge)	NB	35,199	38,680	4,050	0.79	6.90	7.58
		SB	37,965	41,720	3,460	0.68	7.44	8.18
SR 99	Winona Ave. N - N 80th St.	NB	18,355	20,170	2,100	0.78	6.80	7.47
		SB	19,265	21,170	1,500	0.56	7.14	7.84
SR 99	Roosevelt Way N - N 145th St.	NB	17,536	19,270	1,860	0.94	8.86	9.73
		SB	18,236	20,040	1,350	0.68	9.21	10.12
SR 99	S 112th St. - S Cloverdale St.	NB	16,617	19,100	1,460	0.41	4.62	5.31
		SB	14,999	17,240	1,690	0.47	4.17	4.79

Transportation Figure A-18 (continued)

State Highway Traffic Volumes – 2020

State Highway	Location	Direction	AADT Volume	AWDT Volume	P.M. Peak Hour		AADT/ Capacity	AWDT/ Capacity
					Volume	V/C		

State Highway	Location	Direction	AADT Volume	AWDT Volume	P.M. Peak Hour		AADT/ Capacity	AWDT/ Capacity
					Volume	V/C		
I-5	Boeing Access Rd. - Swift Ave. S	NB	113,781	117,300	6,090	0.65	12.10	12.48
		SB	109,251	112,630	9,300	0.99	11.62	11.98
I-5	Corson - Columbia Way S/West Seattle Bridge	NB	136,110	140,320	7,920	0.84	14.48	14.93
		SB	141,329	145,700	10,010	1.06	15.04	15.50
I-5	I-90 - James St.	NB	161,554	166,550	11,110	0.82	11.88	12.25
		SB	163,280	168,330	13,290	1.09	13.38	13.80
I-5	Lakeview Blvd. E - SR 520	NB	173,213	178,570	16,490	1.11	11.70	12.07
		SB	168,547	173,760	9,520	1.06	18.73	19.31
I-5	SR 520 - NE 50th St.	NB	171,380	176,680	15,600	1.08	11.90	12.27
		SB	169,090	174,320	8,970	1.25	23.48	24.21
I-5	NE 65th St. - SR 522	NB	153,483	158,230	14,120	1.18	12.79	13.19
		SB	147,780	152,350	7,350	1.02	20.52	21.16
I-5	NE 130th St. - NE 145th St.	NB	137,342	141,590	11,070	1.23	15.26	15.73
		SB	134,772	138,940	6,850	0.76	14.97	15.44
I-90	I-5 - Rainier Ave. S	EB	48,185	52,950	8,500	0.83	4.72	5.19
		WB	38,648	42,470	6,500	0.98	5.86	6.43
I-90	Rainier Ave. S - Lake Washington	EB	69,797	76,700	9,240	1.03	7.76	8.52
		WB	69,251	76,100	7,070	1.31	12.82	14.09
SR 99	14th Ave. S - S Cloverdale St.	NB	22,168	25,480	2,030	0.68	7.39	8.49
		SB	21,393	24,590	1,910	0.64	7.13	8.20
SR 99	W Marginal Way S-S Michigan St. (1st Ave. S Br.)	NB	48,459	55,700	3,320	0.55	8.08	9.28
		SB	46,684	53,660	5,910	0.99	7.78	8.94
SR 99	E Marginal Way - West Seattle Bridge	NB	32,338	37,170	2,640	0.98	11.98	13.77
		SB	30,963	35,590	3,120	1.16	11.47	13.18
SR 99	1st Ave. S Ramps - Seneca/Spring	NB	51,304	58,970	4,400	0.81	9.50	10.92
		SB	48,946	56,260	5,240	0.97	9.06	10.42
SR 99	Roy St. - Bridge Way	NB	37,801	41,540	5,390	1.06	7.41	8.15

State Highway	Location	Direction	AADT Volume	AWDT Volume	P.M. Peak Hour		AADT/ Capacity	AWDT/ Capacity
					Volume	V/C		
	N (Aurora Bridge)	SB	38,493	42,300	4,460	0.87	7.55	8.29
SR 99	Winona Ave. N - N 80th St.	NB	24,980	27,450	2,300	0.85	9.25	10.17
		SB	23,724	26,070	1,840	0.68	8.79	9.66
SR 99	Roosevelt Way N - N 145th St.	NB	25,234	27,730	2,670	1.35	12.74	14.01
		SB	25,571	28,100	1,680	0.85	12.91	14.19
SR 99	S 112th St. - S Cloverdale St.	NB	32,329	37,160	1,960	0.54	8.98	10.32
		SB	29,824	34,280	2,340	0.65	8.28	9.52

Transportation Figure A-18 (continued)

State Highway Traffic Volumes – 2020

State Highway	Location	Direction	AADT Volume	AWDT Volume	P.M. Peak Hour		AADT/ Capacity	AWDT/ Capacity
					Volume	V/C		
SR 513	SR 520 Ramps - NE Pacific St. (Montlake Br.)	NB	24,684	26,830	2,870	1.30	11.22	12.20
		SB	24,573	26,710	3,380	1.54	11.17	12.14
SR 513	Montlake Blvd. NE - Union Bay Pl. NE	EB	18,216	19,800	2,040	0.85	7.59	8.25
		WB	18,216	19,800	1,450	0.60	7.59	8.25
SR 522	Roosevelt Way NE - 12th Ave. NE	NB	14,194	15,100	1,680	1.05	8.87	9.44
		SB	20,475	22,500	920	0.46	10.24	11.25
SR 522	NE 137th St. - NE 145th St.	NB	19,176	20,400	2,250	1.02	8.72	9.27
		SB	18,655	20,500	1,250	0.57	8.48	9.32
SR 523	5th Ave. NE - 15th Ave. NE	EB	18,414	19,800	1,400	0.78	10.23	11.00
		WB	18,693	20,100	920	0.51	10.39	11.17
SR 520	I-5-Montlake Blvd.	EB	51,051	56,100	5,430	1.01	9.45	10.39
		WB	55,829	61,350	5,470	1.01	10.34	11.36
SR 520	Montlake Blvd. - Lake Washington	EB	58,804	64,620	6,780	1.26	10.89	11.97
		WB	60,333	66,300	6,090	1.13	11.17	12.28
SR 519	1st Ave. S - 4th Ave. S	EB	20,157	22,150	1,830	0.83	9.16	10.07
		WB	12,103	13,300	1,500	0.68	5.50	6.05

Transportation Figure A-19

Origins & Destinations of Trips on State Highways Within Seattle - Comp Plan Year 2024

	Seattle to Seattle (internal)	Seattle to Region	Region to Seattle	Region to Region (external)
PM Peak Hour				
I-5 @ Ship Canal Bridge	29%	37%	19%	15%
I-90 w/o Rainier Ave. S	10%	44%	26%	20%
SR 99 @ Viaduct	42%	52%	2%	4%
SR 509 n/o Cloverdale Int.	7%	57%	24%	12%
SR 513 n/o Montlake Br.	36%	38%	26%	0%
SR 519/Royal Brough. Way	32%	39%	7%	22%
SR 520 w/o Montlake Br.	13%	44%	34%	9%
SR 522 btwn. 15th/20th Ave. NE	58%	29%	9%	4%
SR 523 btwn. 5th/15th Ave. NE	13%	43%	35%	9%
Daily				
I-5 @ Ship Canal Bridge	32%	22%	21%	25%
I-90 w/o Rainier Ave. S	5%	41%	41%	13%
SR 99 @ Viaduct	46%	26%	26%	2%
SR 509 n/o Cloverdale Int.	5%	45%	43%	7%
SR 513 n/o Montlake Br.	36%	32%	32%	0%
SR 519/Royal Brough.Way	53%	15%	26%	6%
SR 520 w/o Montlake Br.	18%	36%	39%	7%
SR 522 btwn. 15th/20th Ave. NE	64%	16%	17%	3%
SR 523 btwn. 5th/15th Ave. NE	13%	41%	39%	7%

Source: City Of Seattle Traffic Model

~~Transportation Figure A-20~~

~~WSDOT State Highway Project List~~

~~Region~~	~~CTY~~	~~SR~~	~~NHS~~	~~Section Length~~	~~Improvement Program~~	~~Location~~	~~Description of Improvement~~	~~Est. Cost 1997$~~		~~Accuracy~~	~~Financially Constrained~~
								~~Low~~	~~High~~		
~~Northwest~~	~~King~~	~~5~~	~~Y~~	~~0.45~~	~~Mobility~~	~~Airport/Industrial Way Interchange Vicinity~~	~~HOV direct access to Industrial Way and the E-3 Busway.~~	~~$44.77 M~~	~~$60.57 M~~	~~Planning~~	~~yes~~
~~Northwest~~	~~King~~	~~5~~	~~Y~~	~~1.40~~	~~Mobility~~	~~E. Denny Way to SR 520~~	~~NFS - modify Mercer St. I/C and reversible lane for weave from SR 520 to Mercer St.~~	~~$133.4 M~~	~~$180.48 M~~	~~Planning~~	~~yes~~
~~Northwest~~	~~King~~	~~5~~	~~Y~~	~~0.00~~	~~Mobility~~	~~NE 50th St. I/C~~	~~HOV Direct Access Ramps at NE 50th St.~~	~~$24.96 M~~	~~$33.78 M~~	~~Planning~~	~~yes~~
~~Northwest~~	~~King~~	~~5~~	~~Y~~	~~0.00~~	~~Mobility~~	~~SR 523 (NE 145th St.) I/C Vicinity~~	~~HOV Direct Access Ramps at SR 523/145th~~	~~$8.78 M~~	~~$11.88 M~~	~~Planning~~	~~yes~~
~~Northwest~~	~~King~~	~~99~~	~~Y~~	~~3.05~~	~~Mobility~~	~~SR 509 I/C to Spokane St.~~	~~[New parallel 1st Ave. southbound bridge, rehab existing bridge] NFS - HOV lanes, partial access control, signal coordination? Regional rail system.~~	~~$1.41 M~~	~~$1.91 M~~	~~Scoping~~	~~yes~~
~~Northwest~~	~~King~~	~~99~~	~~Y~~	~~3.05~~	~~Mobility~~	~~1st Ave. S to Denny Way.~~	~~Study w/ city of Seattle for seismic retrofit of existing facility or removal of existing facility & construction of new roadway~~	~~$850,000~~	~~$1.10 M~~	~~Planning~~	~~Yes~~
~~Northwest~~	~~King~~	~~99~~	~~Y~~	~~1.94~~	~~Mobility~~	~~N. 105th St. to N 145th St. (Seattle - NCL)~~	~~Study with city of Seattle - Widen to 6/7 lanes for HOV w/ transit & pedestrian improvements. Aggressive access management. Signal coordination. Regional Bus service~~	~~$16.01 M~~	~~$21.67 M~~	~~Planning~~	~~yes~~

~~Region~~	~~CTY~~	~~SR~~	~~NHS~~	~~Section~~	~~Improvement~~	~~Location~~	~~Description of Improvement~~	~~Est. Cost 1997$~~		~~Accuracy~~	~~Financially Constraine~~
~~Northwest~~	~~King~~	~~509~~	~~Y~~	~~3.99~~	~~Mobility~~	~~S 136th St. to 1st Ave. S~~	~~NFS - widen to 6 lanes w/ HOV~~	~~$44.25 M~~	~~$59.87 M~~	~~Planning~~	~~yes~~
~~Northwest~~	~~King~~	~~520~~	~~Y~~	~~12.83~~	~~Mobility~~	~~Seattle to Redmond~~	~~Needs further study~~	~~$5,100 M~~	~~$6,900 M~~	~~Planning~~	~~Yes~~
~~Northwest~~	~~King~~	~~522~~	~~Y~~	~~11.10~~	~~Mobility~~	~~I-5 to I-405~~	~~SR 522 Transportation Demand Management (TDM) Project~~	~~$2.64 M~~	~~$3.58 M~~	~~Planning~~	~~Yes))~~