

CHAPTER 2

regional context

Geographic Setting

Those geographic features that uniquely define Western Washington also present barriers to providing an effective transportation system. The region is located between the Cascade and Olympic mountain ranges and is bisected by Puget Sound. Largely surrounded by mountains and water, the region's land is further restricted by steep hills and environmentally sensitive areas. This limits the amount and location of land that is suitable for development, and imposes complex and expensive infrastructure requirements.

The central Puget Sound region is a strategic link within a larger global region, providing access between other Pacific Rim countries and this region, the state and the nation. While this provides many economic opportunities, it also presents challenges to the efficient movement of people and freight. See Map 1, Central Puget Sound Region.

Regional Growth and Travel

POPULATION GROWTH

As the population of the central Puget Sound region continues to increase, and as new housing and commercial activity are developed more intensely within the urban growth area, the existing transportation system experiences greater challenges. Although about 35 percent of the population lives in unincorporated areas, incorporation of the more densely populated portions of counties has been an emerging trend. Since 1990, 13 new cities have been formed and numerous annexations have occurred in the region, adding more than half a million people to cities and towns.

Between 1960 and 2000, the region's population grew from 1.5 million to 3.2 million. Rapid growth occurred in the late 1960s, in the late 1970s and early 1980s, and in the late 1980s and early 1990s. Over half of the population gain during this period (56 percent) is accounted for by net migration into the region. Today, the region has an employment base of 1.9 million jobs. The region's economic base evolved from resource-oriented industries early in this century, to manufacturing-dominated industries, including a strong aerospace

sector after World War II. The employment base in the central Puget Sound region more than doubled in the past 30 years. The region's economy remains strongly linked to the aerospace sector, but substantially less so than in previous decades. Employment in the services sector, especially high technology, has continued to grow rapidly throughout the 1990s. The strong regional economy will continue to contribute to growth pressures in central Puget Sound, which is expected to accommodate a total of 4.7 million people and 2.6 million jobs by 2030.

TABLE 1. Central Puget Sound Region Population and Employment

	1998	2010	2020	2030
Population	3,148,700	3,802,200	4,262,800	4,695,300
Annual Percent Growth	NA	1.6	1.2	1.0
Total Employment	1,845,000	2,211,800	2,409,700	2,601,400
Annual Percent Growth	NA	1.5	0.9	0.8
Households	1,230,100	1,591,600	1,787,200	2,012,300
Percent Single Family	69.9	64.3	64.1	62.4
Single-Family	859,900	1,022,500	1,145,000	1,255,800
Annual Percent Growth	NA	1.5	1.1	0.9
Multi-Family	370,200	569,100	642,200	756,600
Annual Percent Growth	NA	3.6	1.2	1.7

TABLE 2. Central Puget Sound Region Population and Households by Subarea

SUBAREA	1998 POPULATION	1998 HOUSEHOLDS	2030 POPULATION	2030 HOUSEHOLDS
Region	3,148,700	1,230,100	4,695,300	2,012,300
Northwest King County	607,200	279,800	810,900	422,400
East King County	478,700	174,700	647,600	280,500
South King County	579,700	228,200	855,500	375,200
King County	1,665,600	682,600	2,314,000	1,078,100
Kitsap County	229,000	84,400	433,200	171,500
Pierce County	686,900	254,000	1,031,100	401,200
Snohomish County	567,200	209,000	917,000	361,500

ECONOMIC GROWTH

Job growth has been a primary driver in the region's population growth. A strong job market keeps people here and attracts newcomers. This growth has resulted in unprecedented demands on the region's natural resources and built infrastructure. Long-range forecasts indicate continued steady growth in population and employment. Planning for this growth can have a beneficial influence on future economic vitality and environmental health, the adequacy of transportation systems and other infrastructure, and the costs of doing business and providing public services. All of these things contribute to the region's reputation as a uniquely attractive place to live and work — a distinction critical to the region's economic success.

Between 1995 and 1998, the region experienced what was perhaps the most richly diverse job growth in its history. During this period, the region's job growth soared higher and faster than strong job growth nation-



wide, adding about 215,000 jobs at an annual average growth rate of 3.8 percent. Nationwide employment grew by about 7 percent between 1995 and 1998, or an average of 2.3 percent annually. During the same period, employment in the region increased by about 12 percent. In 1998 there were an estimated 1,845,000 total jobs in the region. "Total" job figures include all covered wage and salary employment plus estimates of military and self-employed jobs. The trends that emerge from this job growth influence land use and other regional dynamics and impact the region's economic, growth management and transportation plans.

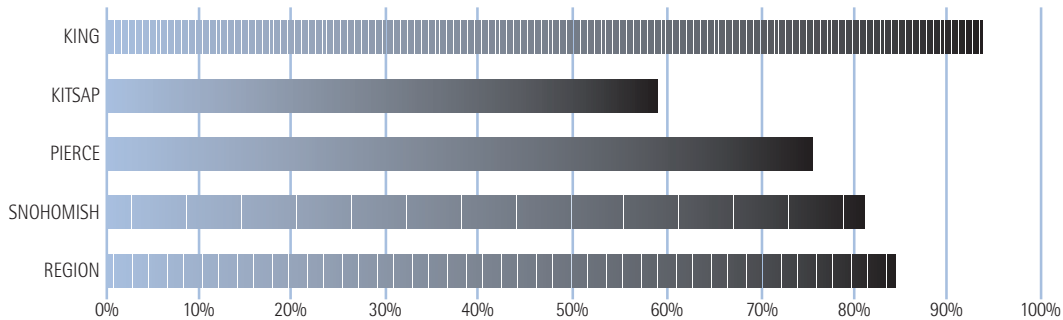
Covered employment was up between 1995 and 1998 in all six major sectors of the region's economy, including 1) Services, 2) Manufacturing, 3) Retail Trade, 4) Wholesale and Utilities, 5) Government and Education, and 6) Construction and Resources. "Covered" employment refers to jobs covered by state unemployment insurance and tracked by the state Employment Security Department. The Services sector continued to grow rapidly throughout the 1990s. Roughly 12 percent of service jobs are related to high technology services including computer software. Business services account for roughly 25 percent of service sector jobs. The sector also includes health care, accounting for just less than 25 percent of all service sector jobs.

The region's high technology leadership is transforming the world, and technology employment is also changing the region's landscape. New ways of doing business, referred to as the "New Economy," are based on communication and connectivity. Goods, information and services are now instantly transferred from senders to receivers via rapidly expanding infrastructure of computer chips, wires, and satellites. Many companies based in the region provide the products and services necessary to compete in the New Economy, like Microsoft and Boeing, or have responded by developing pioneering enterprises, such as Amazon.com and Starbucks. As a consequence of this economic development, the region is growing in new spatial patterns created by business location decisions. Understanding these employment trends is critical to planning the region's transportation system.

GROWTH TRENDS

The region has a goal to focus new development within established urban growth areas. Over the next 30 years, the urban growth area will become more densely developed, on the whole, as an additional one and a half million people live in the region by 2030. The counties, however, have had varied success in the degree to which they have been able to focus new development within the urban area and the 21 designated urban centers of the region.

Approximate Percentage of Population Living Within the Urban Growth Area in 1998



A variety of housing development trends may limit the region's ability to realize its growth and transportation objectives over the next 20 to 30 years if the trends are not slowed or reversed. These trends create land use patterns that are difficult for pedestrians to negotiate, and that cannot be served efficiently by transit:

- Low-density suburban development often occurs in areas that are not close to employment opportunities.
- The affordability of housing developed in a given area may not match the income level of jobs in that area.
- Low-density suburban development that does not provide the critical mass of population necessary to support the siting of pedestrian-friendly development, commercial shopping areas, and transportation services.
- The high costs and complexity of in-fill development that can lead to higher costs of housing in urban areas and tend to under-produce urban housing stock affordable to lower and middle income residents.
- Comparatively low-density development dispersed throughout the urban growth area.

TRAVEL TRENDS

Travel behavior is influenced by many factors, including demographics, land uses, personal lifestyles, the economy, and business locations and practices. An understanding of travel trends helped to shape how *Destination 2030* addresses existing and future transportation needs.

Throughout the 1980s, personal travel, as measured by the number of total vehicle miles traveled, grew almost three times faster than population and employment, largely due to the growth in two-worker households and longer commute distances. However, growth in vehicle miles traveled reached a plateau during the 1990s, matching growth in employment and population. It is estimated that the region's current population makes around 10 million daily trips by some form of motorized travel, such as cars, buses, trains or vanpools.

Due to increased travel and limited investment in transportation infrastructure and services, many of the region's major facilities are functioning at or beyond their capacity, earning the Seattle metropolitan area the dubious distinction of "third worst traffic in the nation" according to the Texas Transportation Institute. By this same analysis the Seattle area ranked second only to Los Angeles for the extra time a peak commute period trip takes, compared to a non-peak commute period trip, due to congestion. Other research suggests that the third worst bottleneck in the nation is at the intersection of I-5 and I-90, although many regional residents might argue that state route 520 between I-5 and I-405, or I-405 between I-90 and I-5, are as bad or worse. In the central Puget Sound region, as in other urban regions in the country, congestion wastes millions of dollars worth of economic resources each year.

Despite serious congestion, the average commute time has not grown by more than a few minutes since 1989, indicating that people make other lifestyle adjustments to keep commute times reasonable. Some commuters have begun to switch to other travel modes. In 1985, only 6 percent of the Burke-Gilman/Sammamish River Trail users were commuters to work. In 2000, 32 percent were commuters. In fact, according to the 1999 PSRC Household Travel Survey, five percent of all trips taken are biking or walking trips. This is more than 500,000 nonmotorized trips per day. The average walking trip is 2 miles, and the average bike trip is 4 miles. Ferry ridership is also on the rise, growing an annual average rate of 3 percent for the past 50 years, to a total of 24 million trips in 1999. Park-and-ride lots are increasingly popular. Demand for space grew by 22.7 percent between 1995 and 1999. Supply did not keep pace in many parts of the region, although region-wide the park-and-ride utilization rate is currently 84 percent.

Of all trips taken by all transportation modes, the average trip length is 8 miles. Work trips comprise 22 percent of all trips, whereas non-work trips make up the majority of trips taken (78 percent). 7.5 miles is the average length traveled in a non-work trip and 10 miles is the average length of a work trip. Morning trips tend to be commute trips, going directly from home to work. Evening trips involve a larger variety of origins and destinations. Due to the extra trips that occur in the evenings, the PM peak period has more intense traffic that is spread over a longer period of time. Evening peak trips tend to have a higher vehicle occupancy, which, in part, is explained by a wider variety of purposes and destinations for evening trips.

CONGESTION

In the central Puget Sound region, as in other urbanized regions of the country, congestion causes delay and frustration for drivers, and wastes millions of dollars worth of economic resources each year. The causes

Interstate 5



of congestion, both structural and behavioral, are numerous. The "solutions" to congestion are likewise diverse and encompass management strategies as well as infrastructure and service development. Long-term approaches to congestion reduction may require large-scale programs that address supply and demand imbalances, as well as approaches to regional growth and development. The Blue Ribbon Commission on Transportation has the following to say about addressing traffic congestion in a more comprehensive manner:

Congestion cannot be treated effectively by isolated spot improvements. While new roads will have to be built, the most effective mix of strategies considering all transportation modes in a corridor will yield the best results.

Yet some delay due to congestion results from identifiable bottlenecks that can respond to discrete engineering and infrastructure solutions. Where these problems can be identified and where unambiguous solutions present themselves, early action should be taken.

CHALLENGES AND OPPORTUNITIES

Within the next thirty years, the region can meet its travel needs in a far more effective and cost efficient manner than it has during the past thirty years. The statistics pertaining to future travel and performance of the transportation system contained in Appendix 8 (under separate cover) assume that travel characteristics, and the factors which influence them, will remain similar to those exhibited today.

Continued high amounts of congestion and less than optimal system performance associated with the future forecasts in Appendix 8 are avoidable if the region gives attention to all of the factors which influence travel. While considerable attention is traditionally given to multi-modal infrastructure and transportation services investments, less attention is directed at regional development patterns and system management practices, such as the pricing of transportation and technological management systems, as a means to influence travel and reduce overall personal and public costs of regional transportation.

Since 1991, the central Puget Sound region has made considerable progress in addressing the relationships between development patterns and transportation through implementation of the Growth Management Act. It will, however, take many years to achieve noticeable regional transportation benefits accruing from implementation of local growth plans. Major changes in the way transportation is priced could result in travel demand that more closely reflects actual costs, transportation supply that more efficiently responds to demand, and reduced total costs of transportation in the region.

Currently, there is a general lack of understanding regarding the total costs of transportation and how real and perceived costs influence individual travel decisions. In the simplest terms, since current transportation prices do not reflect actual costs and benefits as prices do in most other parts of our economic lives, the region loses efficiency, increases congestion, adds to environmental problems and spends more on infrastructure and transportation services over the long term than might otherwise be necessary. Some of the future revenues and investments currently anticipated to support the amount of travel and system performance forecasted for 2030 may not be needed if the region continues to manage growth more efficiently and pursue transportation pricing reforms.

Development Patterns

Public policy to protect the environment and quality of life in the State of Washington has evolved during the last 30 years in response to increased growth and on-going development. The first major steps were taken in 1971 with the passage of the State Environmental Policy Act (SEPA), followed shortly by the Shoreline Management Act. During the 1980s, several individual jurisdictions, including King County, engaged in a new generation of comprehensive planning in an attempt to manage growth and influence development patterns in the region. In 1990 and 1991 the Washington Legislature passed the Growth Management Act



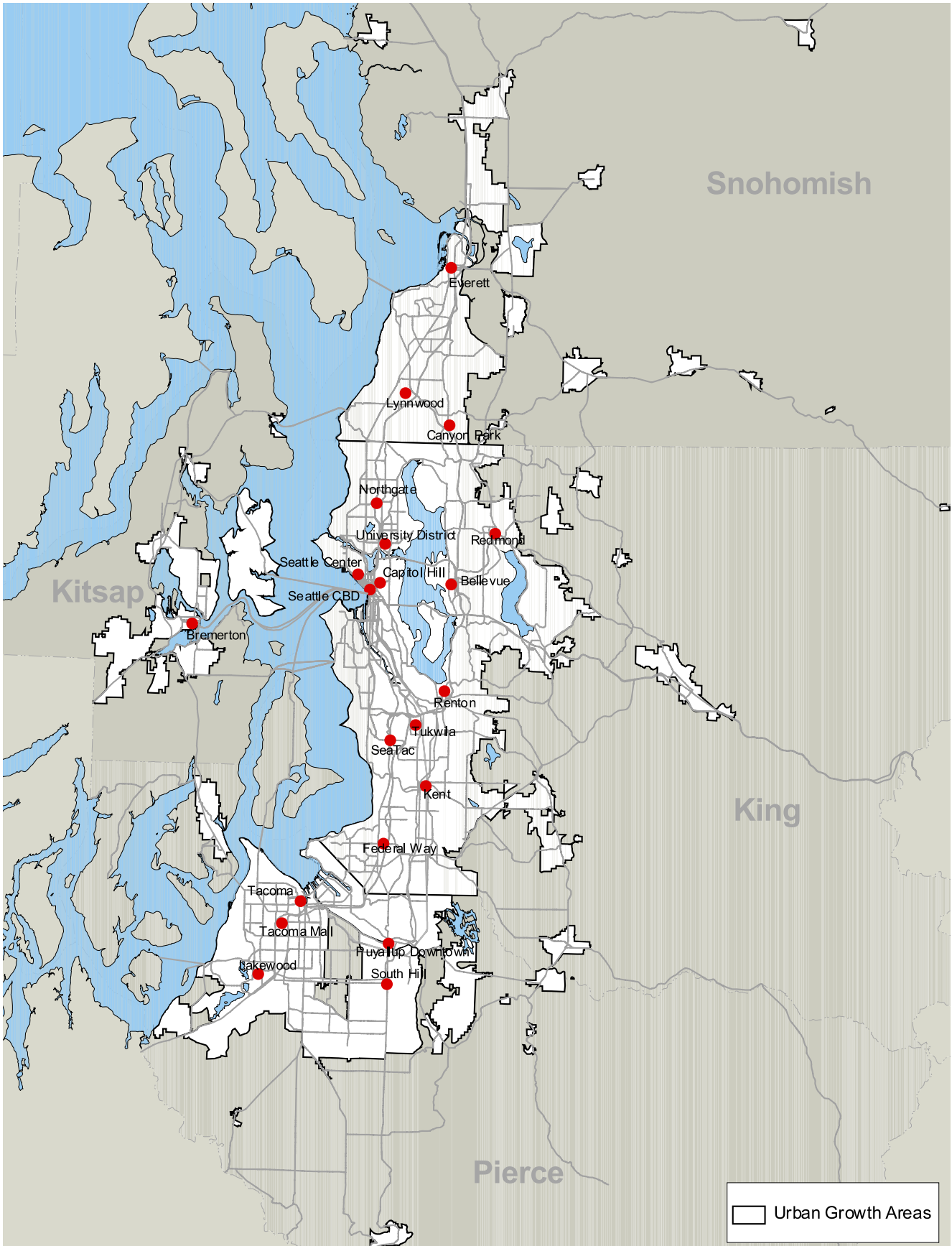
MAP 2. Designated Urban Centers

King County-12: Bellevue CBD, Kent, Federal Way, Redmond, Renton, SeaTac, Seattle CBD, Seattle Center, Seattle First Hill/Capitol Hill, Seattle Northgate, Seattle University District, Tukwila

Kitsap County-1: Bremerton

Pierce County-5: Lakewood, Puyallup CBD, South Hill, Tacoma CBD, Tacoma Mall

Snohomish County-3: Canyon Park, Everett, Lynnwood



(GMA) to mandate local comprehensive planning in heavily populated and high growth areas of the state. Also in 1990, the Puget Sound Council of Governments (a predecessor agency to the Regional Council) adopted VISION 2020 as the region's growth management and transportation strategy. VISION 2020 was updated by the Regional Council with refinements adopted in 1995.

The policies in VISION 2020 reflect broad directions agreed to by member jurisdictions and agencies that, in general, will be implemented through local comprehensive and agency plans. These policies are designed to assist the region in managing growth in ways that optimize the movement of goods and people, protect the environment, revitalize communities, and develop a healthy economy. The Puget Sound Regional Council's role is to provide a forum in which regional policies and decisions are developed and maintained by local officials. The Regional Council also acts as a resource for jurisdictions and agencies as they make local decisions.

Changing development patterns by concentrating new growth into existing urban areas is a core strategy of VISION 2020, countywide planning policies, and local comprehensive plans. This strategy is designed to curb suburban sprawl, conserve agricultural and resource lands, promote economically strong cities and towns, and allow transportation and other services to be more effective and efficient.

URBAN CENTERS AND COMPACT COMMUNITIES

A key element of this urban growth strategy is the development of "urban centers" within the urban growth area. Centers are places that contain a mix of business, commercial, residential, and cultural activity within a compact area. Centers are places where walking and transit use, as well as automobile and bicycle access, are viable transportation options. VISION 2020 and the region's local growth management plans envision urban centers in revitalized downtown districts, as well as in emerging sub-urban hubs. To date, 21 urban centers have been formally designated in the central Puget Sound region by the counties and cities as a result of growth management planning efforts. Twelve urban centers are located in King County, one in Kitsap County, five in Pierce County, and three in Snohomish County, see Map 2. Designated Urban Centers.

VISION 2020's three-part strategy for urban growth includes identification of urban growth areas, focusing growth in urban centers, and encouraging the creation and support of areas between centers that currently function as, or offer the potential to be "compact communities." VISION 2020 defines compact communities as:

"...urban locations which offer transportation, housing, and shopping choices that reduce the need for automobile travel and support an efficient development pattern. The VISION 2020 strategy is to support communities that currently have these qualities, add these characteristics to locations that offer few choices, and develop vacant urban land when necessary in a manner that supports transit, conserves resources, and builds communities."

These nodes of compact development should be located throughout the urban growth area's existing cities, towns, and communities.



City of Everett

Concentrations of activity have been developing in suburban areas outside of the designated centers. Researchers at the University of Washington found nearly 100 of these concentrations, which they dubbed "suburban clusters." Suburban clusters were defined as having at least 1,400 people within one-half mile areas, usually ringed around a commercial or neighborhood retail center. Unlike pre-World War II neighborhoods found in the region's oldest cities, most of these cluster communities were not built with the intent that they should function as traditional neighborhoods.

Further analysis has found that suburban clusters often lack many of the basic elements of older neighborhoods, such as connected sidewalks, small blocks that make it easier to walk, stores that open directly onto the sidewalk instead of parking lots, and transit that is close and convenient to residential areas. These areas are often difficult to serve with public transit, and lack clear pedestrian routes for easy internal circulation. These concentrations must be considered as part of the regional hierarchy of compact communities.

LOCAL PLANNING

The Growth Management Act requires that all jurisdictions in the central Puget Sound region develop comprehensive plans. To date, 82 of the 86 jurisdictions in the region have done so. Unless a plan is challenged and appealed to a Growth Management Hearings Board, the plan is presumed to be consistent with statewide and regional planning requirements. The Act also requires the Regional Council to certify that the transportation elements of comprehensive plans of jurisdictions within the region conform to state transportation planning requirements, including consistency with the region's metropolitan transportation plan, *Destination 2030*. As part of this certification process, the Regional Council also reviews local jurisdictions' plans and amendments and certifies that they are consistent with regional guidelines and principles for transportation planning, as expressed in the multi-county planning policies included in *Destination 2030*. In the central Puget Sound region, certification establishes eligibility for transportation funding that is available under the Regional Transportation Improvement Program (TIP). The Regional Council uses its review of local plans to gain a better understanding of how local governments are implementing the regional growth management and transportation vision at the local level. It is also a process through which the Regional Council can provide information to jurisdictions within the region and help local and regional agencies to coordinate better with one another.

The Metropolitan Transportation System

As part of a cooperative effort between the Regional Council, Washington State Department of Transportation (WSDOT) and local jurisdictions, regional facilities and services that comprise the region's Metropolitan Transportation System were identified as part of the 1995 Metropolitan Transportation Plan (MTP) and updated in 1998.

Destination 2030 once again updates the Metropolitan Transportation System. The plan emphasizes an integrated multi-modal transportation system and describes the regionally significant modal components of that system. The Metropolitan Transportation System consists of regionally significant multi-modal transportation facilities and services that are crucial to the mobility needs of the region. The Metropolitan Transportation System serves as a planning tool used to identify regional transportation problems, analyze and develop regional solutions, and it serves as a focus for required state and regional transportation system performance monitoring, particularly for the federally-required congestion management system (CMS). Maps 3 through 8 display the components of the Metropolitan Transportation System.

Some transportation facilities may be included within more than one Metropolitan Transportation System component; this occurs most often with roadway facilities. These systems are highly interdependent.

METROPOLITAN TRANSPORTATION SYSTEM (MTS) DEFINITION

MTS facilities and services are defined both functionally and geographically. A facility or service is part of the MTS if it provides access to any activities crucial to the social or economic health of the central Puget Sound region. Facilities that weave parts of the region together by crossing county or city boundaries are critical to the MTS. Any link that accesses major regional activity centers, such as an airport, is also a critical element of the MTS. Specific facilities or services are included in the MTS based on their function within the regional transportation system rather than their geometric design or physical characteristics.

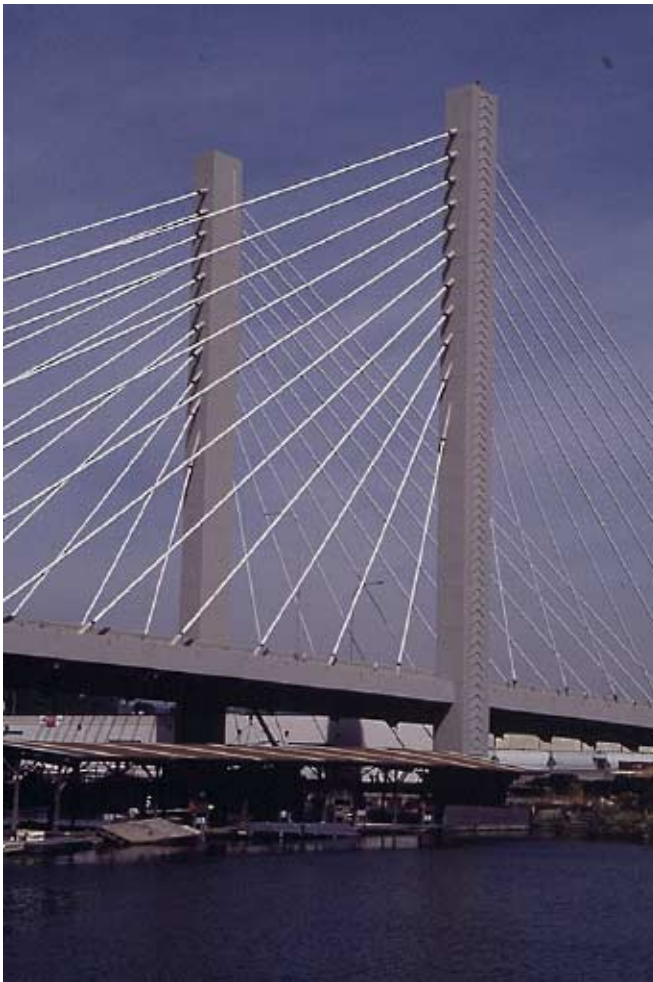
Facilities in the MTS include those from the following seven transportation systems, supported by Transportation System Management services:

- Roadway System
- Ferry System
- Transit System
- Non-motorized System
- Freight and Goods System
- Intercity Passenger Rail
- Regional Aviation



COMMUTE TRIP REDUCTION

The Commute Trip Reduction (CTR) law was enacted in 1991 as part of the Washington Clean Air Act. It has proven that vehicle trip reduction programs can have a significant impact on the populations they serve. Between 1993 and 1999, the region reduced its single-occupant vehicle rate for work commutes of CTR-covered employees by 5.5 percent. However, only 22 percent of the region's jobs are covered by the law, and only 20 percent of the region's trips are work trips. Expanding CTR and other vehicle trip reduction services and incentives to other work commutes and to nonwork trips could potentially result in significant vehicle-travel reductions for the region, but would require significantly greater investment in these services and incentives to provide viable alternatives for more dispersed trip-making patterns.



City of Tacoma

The ferry system, for example, would not perform as well without a roadway or transit system. Services included in the Metropolitan Transportation System, unlike facilities, do not necessarily have a physical structure to them, but nevertheless are considered regionally significant. Services help provide access to activities that are crucial to the social or economic health of the central Puget Sound region. Regionally significant transportation services help to improve overall system performance. These services are generally known as Transportation System Management, which includes intelligent transportation systems (ITS) and vehicle trip reduction programs. ITS services help to optimize and integrate the operation of the multi-modal transportation system,

while vehicle trip reduction (also known as transportation demand management (TDM)) programs encourage people to make fewer single occupant vehicle trips. A more detailed description of the Metropolitan Transportation System and its components is contained in Appendix 4.

Most of the systems that are part of the Metropolitan Transportation System include system management elements so that they can be operated and used as safely and efficiently as possible. System operations on the Puget Sound region's multimodal transportation system are the responsibility of many jurisdictions and agencies. In many cases the safety, efficiency and dependability of the overall Metropolitan Transportation System can be enhanced by developing methods for integrating various system management organizations. *Destination 2030* identifies the management centers, communications infrastructure and roadside equipment that make up the Regional Intelligent Transportation System Architecture and are used to operate and integrate this system as an integral part of the Metropolitan Transportation System.

The WSDOT Traffic Operation Centers (TOCs) in Shoreline and Tacoma are examples of the type of management center that is used to optimize the performance of part of the MTS, in this case the freeway system. The TOCs monitor traffic and road conditions, identify and verify incidents, detect faults in operations, and collect data for traffic strategy development and long range planning. This is done using information collected by roadside equipment, such as cameras and loop detectors, and supplied by a communication link to the TOC. The WSDOT TOCs also have a communication link to the Washington State Patrol's Computer Aided Dispatch System so they can respond quickly to incidents in a coordination with the state patrol.

Transit agencies also operate management centers, communications and roadside equipment that help optimize the routing and scheduling transit services. Transit operators use management centers to monitor performance of the transit system to aide in schedule adherence and to respond to incidents. This information is provided to the management center over communication links. Transit vehicles also communicate in the

field with other devices to enable technologies like transit signal priority (TSP). TSP is where a transit vehicle is given a longer green light at traffic signals so that it can remain on schedule or get back on schedule.

Vehicle trip reduction is a major policy area included in *Destination 2030*. Unlike many other Metropolitan Transportation System components, demand management is not focused on facilities. Rather, it is a program of strategies designed to manage demand for vehicle travel to achieve system performance, environmental, and growth objectives through influencing travel choices. Demand management strategies are designed to 1) promote alternatives to driving alone, 2) shift trips out of peak travel periods, or 3) eliminate the need for certain trips. One of the best known vehicle trip reduction programs is the Commute Trip Reduction law enacted in 1991.

TRANSPORTATION FACILITIES AND SERVICES OF STATEWIDE SIGNIFICANCE

In 1998, the State Legislature enacted HB 1487, more commonly known as the Level of Service or LOS bill, to recognize the importance of specific categories of transportation facilities and services that are of statewide significance. This legislative action amended the Growth Management Act (RCW 36.70A), Priority Programming for Highways (RCW 47.05), and Regional Transportation Planning Organizations (RCW 47.80) to direct further definition and planning through state, regional and local actions. As now codified under RCW 47.06.140, nine categories of transportation facilities and services of statewide significance are defined. See Appendix 4 for additional detail regarding central Puget Sound Metropolitan Transportation System facilities that are of statewide significance.

