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Volume I Policies and System Improvements

Volume I included Transportation Element of the Comprehensive Plan, Transportation System Improvements, Refinement Plans and Studies, Modal Plans and Management Plans, and Implementation Strategies and Regulations

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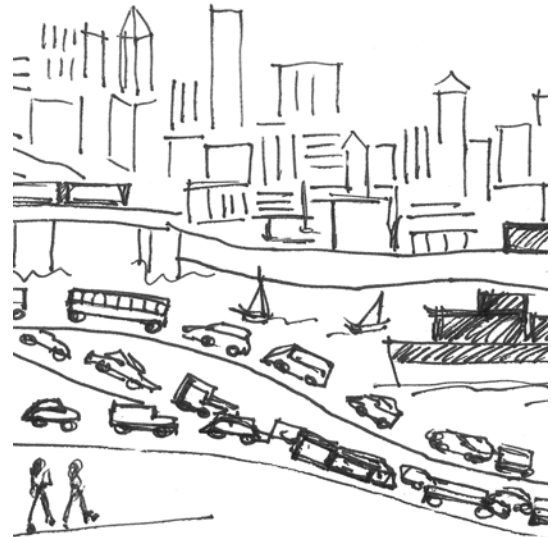
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INTRODUCTION

1

Portland is a vibrant and healthy city. As Portland and the region grow, however, there is a continuing challenge to maintain the natural environment, economic prosperity, and overall quality of life.

Transportation planning is essential to preserving the City's 'user-friendly' character. Constructing significant amounts of new automobile capacity to accommodate growth is not the answer because of the enormous costs and impacts. Adding more streets and parking lots divides neighborhoods, uses valuable land, encourages urban sprawl, and has negative environmental impacts. Alternative approaches must be used to ensure integrated, comprehensive solutions. Portland has spent the last several years working with Metro and other agencies, citizens, and community and business groups to develop the City's first Transportation System Plan (TSP). The TSP is a comprehensive 20-year plan for transportation improvements in Portland. Its goal is to provide transportation choices for residents, employees, visitors, and firms doing business in Portland.



The TSP helps implement the region's 2040 Growth Concept by supporting a transportation system that makes it more convenient for people to walk, bicycle, use transit, and drive less to meet their daily needs. The TSP also recognizes that the transportation system must sustain the City's economic health by accommodating the needs of businesses and supporting Portland's role in the international economy. The TSP meets State and regional planning requirements and addresses local transportation needs for cost-effective road, transit, freight, bicycle, and pedestrian improvements.

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TSP THEMES

As the TSP was developed, several themes emerged that reflect the community's transportation values. These themes provide a cohesive framework that informs each element of the TSP.

2040 Growth Concept

The TSP supports the region's 2040 Growth Concept, which calls for maintaining thriving communities and a healthy economy while containing urban sprawl. The 2040 Growth Concept identifies the preferred form of long-term regional growth and development, including where growth should be clustered, appropriate densities for various land uses, and the protection of open space.

Stewardship

Portland's transportation system has been built over the last 150 years. Managing these transportation assets in a fiscally responsible way ensures that transportation dollars are available for a wide range of transportation solutions. These solutions include non-capital strategies (such as reducing travel demand), efficient use of resources, and cost-effective partnerships with other agencies.

Transportation Choices

People will not use alternatives to driving unless they have viable choices. In areas with mixed uses and good transit, people take almost 30 percent fewer auto trips than in the rest of the region (see Table 1.1). Transportation choices are important for achieving regional 'mode split' goals (the percentage of trips taken by each of the possible modes of travel: auto, transit, bicycle, and walking). They are even more important for people who cannot or choose not to drive.

Table 1.1
Metro Region Travel Behavior (1994)

Land Use Type	Mode Share (percent)					Vehicle Miles per Capita	Auto Ownership per Household
	Auto	Walk	Transit	Bike	Other		
Good Transit and Mixed Use	58.1	27.0	11.5	1.9	1.5	9.80	0.93
Good Transit Only	74.4	15.2	7.9	1.4	1.1	13.28	1.50
Remainder of Multnomah County	81.5	9.7	3.5	1.6	3.7	17.34	1.74
Remainder of Region	87.3	6.1	1.2	0.8	4.6	21.79	1.93

Source: Metro 1994 Travel Behavior Survey

Environmental Sustainability

Transportation activities have impacts on air and water quality, noise levels, land use, energy consumption, and levels of greenhouse gases that contribute to global climate change.

Portland's Office of Transportation (PDOT) is actively identifying and implementing activities that are environmentally responsible. For example, air quality is very dependent on traffic congestion. Portland restricts the amount of parking available in the Central City to help manage congestion and reduce air pollution. The TSP focuses on reducing automobile travel and providing alternative modes that will help sustain air quality and other environmental resources.

Transportation projects and activities should also respect the built environment, including cultural and historic resources. Environmental sustainability includes preserving and enhancing scenic views, designing projects to be compatible with historic districts, and calming traffic in neighborhoods.

Comprehensive Approach

Transportation projects are not single, unrelated activities that address isolated problems. Rather, they must be considered within a citywide and regional context. It is most efficient to coordinate and combine geographically related projects when possible. A comprehensive approach is also needed to ensure a unified system, where the various components recognize and contribute to each other.

The TSP includes performance measures and benchmarks that will be used to monitor and evaluate the impacts of implementing the projects, activities, and strategies identified in the TSP. As implementation proceeds, funding priorities may need to change to better meet these performance measures and benchmarks. The TSP is a 'living' document that will be updated at frequent intervals to respond to changing financial climates, partnership opportunities, and new initiatives.

REGULATORY FRAMEWORK

The TSP addresses and complies with a number of State and regional goals, policies, and regulations, as summarized below. (Chapter 7: Framework and Process, contains a more detailed discussion.)

State of Oregon

Statewide Planning Goals

Oregon has 19 goals that provide a foundation for the State's land use planning program. The TSP must comply with all applicable State goals. The two goals directly applicable to the TSP are Goal 11: Public Facilities Plan and Goal 12: Transportation.

Transportation Planning Rule

The Transportation Planning Rule (TPR) implements statewide planning Goal 12: Transportation. The TPR requires State, regional, and local jurisdictions to develop Transportation System Plans (TSPs) that comply with TPR provisions. These provisions include reducing vehicle miles traveled (VMT) per capita by 10 percent over the next 20 years, reducing parking spaces per capita, and improving opportunities for alternatives to the automobile.

Oregon Transportation Plan

The Oregon Transportation Plan (OTP) serves as the State's TSP. Regional and local TSPs must be consistent with the OTP.

Regional (Metro)

Regional Urban Growth Goals and Objectives

Metro adopted the Regional Urban Growth Goals and Objectives (RUGGOs) in 1991 (amended in 1995) to provide general direction for the region. They include two principal goals:

- Goal I addresses the regional planning process.
- Goal II addresses urban form, and includes the Region 2040 Growth Concept and Concept Map.

Region 2040 Growth Concept

Metro adopted the 2040 Growth Concept as part of the RUGGOs in 1995. The 2040 Growth Concept states the preferred form of long-term regional growth and development, including the urban growth boundary (UGB), density, and open space protection. It also designates design types, such as central city, regional center, town center, and main street.

Regional Framework Plan

The Regional Framework Plan (adopted in 1997) contains policies that implement the 2040 Growth Concept. While it is not binding on local jurisdictions, it provides a policy basis for local functional plans that do have binding requirements. Chapter 2 of the Regional Framework Plan contains transportation policies.

Urban Growth Management Functional Plan

Metro adopted the Urban Growth Management Functional Plan (UGMFP) in 1996 to provide for early implementation of the 2040 Growth Concept. It serves as a regional functional plan that implements the policies of the Regional Framework Plan. The UGMFP addresses the accommodation of regional population and job growth, as well as regional parking management. Its requirements are binding on cities and counties.

Regional Transportation Plan

Adopted by Metro on August 10, 2000, the Regional Transportation Plan (RTP) serves as the regional TSP. As such, the RTP:

- Is consistent with the requirements of the State TPR and OTP
- Implements the 2040 Growth Concept and Regional Framework Plan
- Serves as the 20-year functional plan for transportation in the region
- Focuses on streets of regional significance
- Includes multimodal classifications and street design classifications
- Includes a list of major system improvements

City of Portland

Comprehensive Plan

Portland's Comprehensive Plan guides the development and redevelopment of the City. It contains goals, policies, objectives, and a plan map. State law requires major development decisions to be consistent with the Comprehensive Plan. For this reason, the City periodically reviews the goals and policies and modifies them as necessary to respond to changing conditions and policy direction.

Transportation Element of the Comprehensive Plan

The Transportation Element (TE) of the Comprehensive Plan is a subset of policies of the City's Comprehensive Plan that provides the framework for developing and implementing transportation plans and projects in the City. It includes three goals and their associated policies and objectives:

- Comprehensive Plan Goal 6, Transportation
- Comprehensive Plan Goal 11B, Public Rights-of-Way
- Central City Transportation Management Plan Goal

The TE serves as the policy basis for the TSP and provides the framework for the remainder of the TSP.

Transportation System Plan

Portland's TSP is the City's 20-year plan for transportation improvements. It incorporates the City's public facility plan for transportation. In addition to meeting the requirements discussed above, the TSP helps Portland comply with federal requirements, including the Transportation Equity Act, Clean Air Act, Clean Water Act, and Americans with Disabilities Act. The TE is part of the City's TSP.

TSP DEVELOPMENT AND REVIEW

Phases I and II

The TSP was developed in two phases:

- Phase I began in January 1995. Its purpose was to update the transportation policies and street classifications contained in the TE and to incorporate the newly adopted Pedestrian and Bicycle Master Plans. City Council adopted Phase I on May 22, 1996.
- Phase II began immediately after Phase I was adopted, and focused on completing the remaining elements of the TSP.

Public Involvement Process

In compliance with State law, Metro, and City regulations, development of the TSP included an ongoing public involvement process with key stakeholders and community members.

In 1994, before phase I began, a community Transportation System Plan Forum introduced the plan concept to citizens and solicited interested in participating on a citizen advisory committee (CAC). The CAC representing a cross-section of citizens, business representatives, and stakeholders, convened in 1995 and has participated throughout the TSP process.

Phase I included significant public outreach and input, including two citywide workshops. Phase II activities included brochures, newsletters, eight district workshops in 1998, seven district coalition focus groups in 1999 and 2000, nine district coalition briefings in 2001, three open houses in 2001, and numerous other meetings with interest groups, neighborhoods, and district coalitions.

Chapter 8: Public Involvement, provides additional information about this process.

Coordination

PDOT has coordinated the development of the TSP with affected agencies, governments, and service providers. Key participants include Metro; the Oregon Department of Transportation (ODOT); Tri-Met; the Port of Portland; Multnomah, Washington, and Clackamas counties; and neighboring jurisdictions. Metro has reviewed the TSP for consistency with the RTP, and ODOT has reviewed it for consistency with the OTP. The Portland Planning Commission and City Council held public hearings about the plan. Metro and ODOT have also provided comments to City Council and the State Department of Land Conservation and Development (DLCD).

The TSP will be in effect after it is adopted by City Council and acknowledged by the State Land Conservation and Development Commission (LCDC).

PDOT will update the TSP at least every five years. Part of the update process will include assessing progress reports on the TSP benchmarks and incorporating recommendations from refinement plans and area studies.

TSP ELEMENTS

The TSP comprises three volumes:

- Volume I (Chapters 1 through 6) contains elements of the TSP that must be incorporated into the City's Comprehensive Plan or adopted as regulations. Chapter 2: Transportation Element, is part of Comprehensive Plan policies. Chapter 3: Transportation System Improvements, contains the 20-year list of projects that represent the Public Facility Plan for Transportation. As required by the TPR, Chapter 4: Refinement Plans and Studies and Chapter 5: Modal Plans and Management Plans must be adopted as part of the Comprehensive Plan as supporting documents. Chapter 6: Implementation Strategies and Regulations, contains new regulations adopted into City codes that will implement the policies. Other parts of Chapter 6 are not required to be adopted, but are included to show how other aspects of the TSP are implemented over time.
- Volume II (Chapters 7 through 16) contains background information and analysis. These elements are adopted as support documents to the City's Comprehensive Plan.

- Volume III (Appendices A through F) contains supplementary information and reference materials.

In addition, the TSP Inventory is a separate document. The inventory is also required by the TPR and is adopted as a support document.

The contents of each of the 16 chapters are summarized below.

Volume I – Policies and System Improvements

Chapter 1: Introduction

The Introduction provides an overview of the TSP’s purpose, themes, regulatory framework, development process, and elements.

Chapter 2: Transportation Element of the Comprehensive Plan

The TE is the policy portion of the TSP. It comprises three goals and their associated policies and objectives:

- Goal 6 Transportation. This includes street classifications and maps and district policies for most of the City.
- Goal 11B Public Rights-of-Way. This is the City’s public facility goal and policies for transportation.
- Central City Transportation Management Plan (CCTMP) Goal. The TE updates the street classification maps for the Central City, but does not change the CCTMP policies adopted in 1995.

Chapter 3: Transportation System Improvements

The TPR requires TSPs to include a list of planned transportation facilities and major improvements. The definition of ‘major’ includes consideration of a jurisdiction’s size and situation. Chapter 3 describes Portland’s 20-year list of major transportation system improvements, including general location and timing, responsible agency, and approximate cost. It also describes how the projects were evaluated, summarizes financing mechanisms, and explains how projects will be selected.

Chapter 4: Refinement Plans and Studies

The TPR allows jurisdictions to defer response to specific transportation needs if there was insufficient time or information to respond during the TSP process. Chapter 4 identifies refinement plans that will be undertaken at a later date and become amendments to the TSP. It also identifies studies that may not necessarily address a defined need, but will respond to issues identified by the community or other entities. Some of the plans and studies are taken from the RTP, while others were identified through the TSP process. Plans and studies of both local and regional significance are included.

Chapter 5: Modal Plans and Management Plans

Chapter 5 includes plans for the various modes of travel: motor vehicle, public transportation, pedestrian, bicycle, freight, and miscellaneous means of transport including air, rail, water, and pipeline. It also includes a plan that addresses transportation demand management (TDM) and parking, and a plan for transportation system management (TSM). The TPR requires these modal plans to address the multiple facilities, services, and improvements that make up the transportation system.

Chapter 6: Implementation Strategies and Regulations

Chapter 6 contains the regulations that implement the TSP. It includes City Code amendments, including Title 16: Vehicles and Traffic; Title 17: Public Improvements; and Title 33: Planning and Zoning. It also identifies street standards, guidelines for project development, and best management practices.

Volume II – Background and Analysis

Chapter 7: Framework and Process

Chapter 7 provides background information about the TSP requirements and process. It summarizes Phase I of the TSP, outlines the policy and regulatory framework, and discusses the review process.

Chapter 8: Public Involvement

Chapter 8 provides details about the public involvement process associated with the development of the TSP.

Chapter 9: Inventory Summary

The TPR requires an inventory of roads, public transportation, bicycle, and pedestrian facilities by function, type, capacity, and condition. Portland completed its inventory in 1996, far exceeding the baseline requirements of the TPR. In addition to the required elements, Portland's TSP inventory includes air, freight, mainline, and pipeline facilities and maps of environmental constraints. Chapter 9 summarizes this inventory. The full inventory is in a separate document, the Transportation System Plan Inventory.

Chapter 10: Needs Assessment

The TPR requires the TSP to identify transportation needs for its planning area. The needs assessment must include State, regional, and local transportation needs; the needs of the 'transportation disadvantaged'; and the needs for the movement of goods and services to support industrial and commercial development.

Chapter 10 summarizes Portland's needs assessment. The assessment relies on ODOT's analysis of State transportation needs and Metro's analysis of regional needs, supplemented by local transportation needs. Portland used a variety of sources to derive its list of City needs, including significant community input.

Chapter 11: Master Street Plans

Chapter 11 responds to the TPR requirement for a “system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections.” Portland’s arterial system is essentially complete. (Portland classifies all non-local streets as arterials.) The master street plans in Chapter 11 identify new, primarily local, streets in areas that currently lack a complete grid.

The RTP includes spacing standards for new streets and pedestrian/bicycle connections. These spacing standards are addressed in Chapter 2 connectivity policies and Chapter 6 regulations.

Chapter 12: Area Studies

Portland uses area studies to review and update the Comprehensive Plan for land use and to propose transportation projects and activities to support the adopted land use patterns. Numerous plans and studies have been completed since the Comprehensive Plan was adopted in 1980. In the last several years, community plans, neighborhood plans, and transportation studies have been completed to implement and refine the 2040 Growth Concept, particularly in centers and for main streets. These include transportation and land use plans for Hollywood and Sandy Boulevard, Lents, and Gateway, and a transportation plan for the Columbia Corridor. Chapter 12 provides information about these studies.

Chapter 13: Transportation and Land Use Alternatives

The TPR requires TSPs to be based on an evaluation of system alternatives. The alternatives must include improvements to existing facilities, new facilities, transportation system management measures, transportation demand management measures, and a “no-build” system. Local governments in the Metro region must also include land use alternatives that meet local and regional transportation needs. Portland relied for the most part on Metro’s land use and transportation alternatives, supplementing them with area plans and studies where needed. Chapter 13 summarizes this approach.

Chapter 14: Financial Plan

The TPR requires TSPs to have a financing program. The finance element must include a list of planned transportation facilities and major improvements for a 20-year horizon, including a general estimate of timing and cost, policies to guide project selection, and an estimate of the fiscal requirements. Chapter 3: Transportation System Improvements, and Chapter 14 together meet these requirements. One of the major precepts of the financing program is to phase major transportation improvements to encourage infill and redevelopment of urban lands before urbanization of rural lands. The financial plan presents a number of financial scenarios and recognizes partnerships to fund transportation projects. Chapter 14 provides details of the financial plan for the TSP.

Chapter 15: System Performance

The TPR requires TSPs to include interim benchmarks and provide for five-year updates to ensure satisfactory progress towards reducing reliance on the automobile. The TPR also requires metropolitan planning organization (MPO) areas with over one million people to demonstrate a 10 percent reduction in VMT per capita within 20 years of TSP adoption. In addition, the RTP stipulates that jurisdictions must demonstrate compliance with non-single-occupant vehicle mode-split targets established for trips to and within 2040 design types. Chapter 15 discusses indicators, performance measures, and benchmarks that address these requirements and provide a comprehensive evaluation of the transportation system.

Chapter 16: Findings

The TSP must include legal findings to support its compliance with the State, regional, and local requirements for the TSP and amendments to the Comprehensive Plan and City regulations. The findings will be included after Planning Commission review of the TSP is completed.

Volume III – Appendices

The Appendices include supporting technical memos, cited materials, and a list of references.

Supporting Document

The inventory of transportation facilities is in a separate supporting document titled Transportation System Plan Inventory. Chapter 9: Inventory Summary summarizes the contents of this document. The inventory was prepared in 1996, consistent with TPR requirements.

Transportation System Plan Updates

In order to keep the TSP current and up-to-date with recent transportation planning and development activities, it is updated at frequent intervals. The first two updates are not intended to include new policy initiatives. They are primarily technical in nature and include corrections, updates to project descriptions, updates on studies, and inclusion of new master street plans adopted as a part of planning efforts.

The first update was completed and adopted by City Council on October 13, 2004 (effective date, November 12, 2004; Ordinance Nos. 178815 and 1788826).

The second update was completed and adopted by City Council on April 5, 2007 (effective date, May 5, 2007; Ordinance No.). While primarily technical in nature, this update also includes new policy language to implement the City's Green Street Policy.

TRANSPORTATION ELEMENT OF THE COMPREHENSIVE PLAN

2

INTRODUCTION

Portland has spent the last several years working with Metro and other agencies, citizens, and community and business groups to develop the City's first Transportation System Plan (TSP). The TSP is the 20-year plan for transportation improvements in Portland. The goal of the TSP is to provide transportation choices for residents, employees, visitors, and firms doing business in Portland.

The Transportation Element (TE) of the City of Portland Comprehensive Plan consists of two Comprehensive Plan goals – Goal 6, Transportation, and Goal 11B, Public Rights-of-Way – and the Central City Transportation Management (CCTMP) Goal, along with their associated policies and objectives. Within Goal 6 and the CCTMP are sets of street classification maps, which guide the use of the transportation system.



Goals are the broadest expressions of a community's desires. Goals give direction and are concerned with the long term, and often describe ideal situations. Policies are broad statements that set preferred courses of action. Policies are choices made to carry out the goals in the foreseeable future. Policies should be specific enough to help determine whether or not a proposed project, program, or course of action will advance community values expressed in the goals. Objectives are specific statements that carry out a plan in the short term. Objectives help assess incremental progress toward achieving the broader purposes expressed in goals and policies.

The street classification maps and the street plan maps in the TSP are adopted as part of the Comprehensive Plan, as are the policies. Comprehensive Plan policies are used to review changes to the Comprehensive Plan; to Title 33, Planning and Zoning; or for a goal exception. In reading the policies, care should be taken to note that language may be aspirational (such as 'should' or 'encourage') or mandatory (such as 'shall' or 'will'). Most Comprehensive Plan policies are 'balancing' policies that should be looked at together to determine whether an activity achieves the optimal balance.

Goal 6, Transportation, provides the overall guidance on how Portland's transportation system should function over the life of the Comprehensive Plan. It describes what the system should look like and what purposes it fulfills. Within Goal 6 are policies that address the following areas:

- Coordination and Involvement
- Street Classification and Description

- Transportation Function
- Land Use and Transportation
- Pedestrian and Bicycle
- Public Transportation
- Parking and Demand Management
- Freight, Terminals, and Truck
- Regional Transportation
- Transportation Districts

The goal, policies, and objectives of the CCTMP were first adopted in 1995. They have not been changed as part of the TSP development, except for the street classification maps, which have been revised to be consistent with the 2000 Regional Transportation Plan (RTP).

The glossary is adopted policy language that explains terms used in transportation and land use planning. By being adopted in the glossary, the terms can help explain legislative intent.

GOAL 6 TRANSPORTATION

Develop a balanced, equitable, and efficient transportation system that provides a range of transportation choices; reinforces the livability of neighborhoods; supports a strong and diverse economy; reduces air, noise, and water pollution; and lessens reliance on the automobile while maintaining accessibility.

Explanation: Goal 6 and its policies describe the many elements of the transportation system that Portland supports. The goal statement reflects the multiple functions of a balanced transportation system, which distributes transportation benefits and effects fairly across the many populations of users.

Coordination and Involvement Policies

Policy 6.1 Coordination

Coordinate with affected state and federal agencies, local governments, special districts, and providers of transportation services when planning for and funding transportation facilities and services.

Explanation: The State of Oregon's Transportation Planning Rule (TPR) and Metro's 2000 Regional Transportation Plan (RTP) require the City to coordinate transportation system planning and other multi-jurisdictional transportation issues. Portland has had a coordination policy since 1992.

Objectives:

- A. Coordinate the funding and development of transportation facilities with regional transportation and land use plans and with public and private investments.
- B. Participate in Metro's processes for allocating and managing transportation funds and resources to achieve maximum benefit with limited available funds.
- C. Involve affected agencies, local governments, special districts, and transportation providers in updates of the Transportation System Plan (TSP).
- D. Pursue opportunities to improve the transportation system, including grants, private/public partnerships, and other non-traditional funding mechanisms.

Policy 6.2 Public Involvement

Carry out a public involvement process that provides information about transportation issues, projects, and processes to citizens, businesses and other stakeholders, especially to those traditionally underserved by transportation services, and that solicits and considers feedback when making decisions about transportation.

Explanation: Transportation decision making should actively seek to include disenfranchised populations by making the process clear and straightforward and including mechanisms for public accountability.

Objectives:

- A. Involve community members who are traditionally under-represented in transportation planning activities.
- B. Give consideration to Metro's Local Public Involvement Policy for Transportation Planning in Portland's transportation planning activities.

Explanation: Metro adopted public involvement guidelines in July 1995 for transportation planning. Local jurisdictions must be consistent with these guidelines in developing their TSPs and any other projects or programs submitted to Metro for regional funding. The guidelines require local plan development to meet minimum standards for public involvement before the Metro Council takes action on the plan.

Policy 6.3 Transportation Education

Implement educational programs that support a range of transportation choices and emphasize safety for all modes of travel.

Objectives:

- A. Publicize activities and the availability of resources and facilities that promote a multimodal transportation system.
- B. Implement educational programs that recognize the need for developing and maintaining a multimodal transportation system that supports the movement of freight as well as people.
- C. Encourage walking by developing education programs for both motorists and pedestrians and by supporting and participating in encouragement events for pedestrians.
- D. Develop and implement education and encouragement plans aimed at youth and adult cyclists and motorists.
- E. Increase public awareness of the benefits of walking and bicycling and of available resources and facilities.
- F. Develop a strong school curriculum and program on transportation safety and travel choices with emphasis on environmental consequences, neighborhood livability, personal safety, and health.
- G. Educate citizens and businesses about Green Streets and how they can serve as urban greenways to enhance, improve, and connect neighborhoods to encourage their support, demand and funding for these projects.

Street Classification and Description Policies

Policy 6.4 Classification Descriptions

Street classification descriptions and designations describe the types of motor vehicle, transit, bicycle, pedestrian, truck, and emergency vehicle movement that should be emphasized on each street.

Explanation: This policy describes how the classification descriptions and designations are used. Classifications for regionally significant streets must be consistent with the street classifications in Metro's 2000 RTP. While Portland uses different names than Metro, the classifications are generally equivalent, as shown on the matrices in the relevant modal plans comparing classifications between jurisdictions.

Objectives:

- A. Classification descriptions and designations are used to determine the appropriateness of street improvements and to make recommendations on new and expanding land uses through the land use review processes.

Explanation: Many land use reviews consider the classifications of streets adjacent to and near a site to determine the appropriateness of a proposed use and its impacts.

- B. Classification descriptions are used to describe how streets should function for each mode of travel, not necessarily how they are functioning at present.

Explanation: Sometimes a street carries more traffic or types of traffic than its classification would indicate. This does not necessarily mean that the street should be reclassified. It could mean that the street design should be changed to reduce or mitigate for the inappropriate traffic.

- C. All of a street's classifications must be considered in designing street improvements and allocating funding. While a proposed project may serve only one classification, improvements should not preclude future modifications to accommodate other classifications of the street.

Explanation: Streets are classified for six types of movement: motor vehicle traffic, trucks, transit vehicles, emergency vehicles, pedestrians, and bicycles.

- D. When the existing use of a street does not comply with its classification, no additional investments should be made that encourage that inappropriate use.

Explanation: A street may carry more traffic, trucks, or through-traffic than is appropriate for its classification. Improvements made to the street should not result in facilitating these inappropriate movements.

- E. Designate new streets within a land division site as Local Service Streets for all modes unless otherwise designated through a concurrent or subsequent Comprehensive Plan amendment to the Transportation Element.
- F. Designate new streets within Pedestrian Districts and Freight Districts as Local Service Streets unless otherwise designated through a Comprehensive Plan amendment to the Transportation Element.

Policy 6.5 Traffic Classification Descriptions

Maintain a system of traffic streets that support the movement of motor vehicles for regional, interregional, interdistrict, and local trips as shown. For each type of traffic classification, the majority of motor vehicle trips on a street should conform to its classification description.

Explanation: There are six classifications for traffic streets. Each classification describes how a traffic street should function (what kinds of traffic and what kinds of trips are expected) and what types of land uses the street should serve. Eight maps show the traffic classifications. One map is located with the policy associated with each of the seven transportation districts other than the Central City. The classification map for the Central City (the eighth transportation district) is located with the Central City Transportation Management Plan goal, policies, and objectives in this chapter.

Objectives:

- A. **Regional Trafficways**
Regional Trafficways are intended to serve interregional district movement that has only one trip end in a transportation district or to serve trips that bypass a district completely.
- Land Use/Development. Regional Trafficways should serve the Central City, regional centers, industrial areas, and intermodal facilities and should connect key freight routes within the region to points outside the region. Encourage private and public development of regional significance to locate adjacent to Regional Trafficway interchanges.
 - Connections. Regional Trafficways should connect to other Regional Trafficways, Major City Traffic Streets, and District Collectors. A ramp that connects to a Regional Trafficway is classified as a Regional Trafficway from its point of connection up to its intersection with a lower-classified street.
 - Buffering. Adjacent neighborhoods should be buffered from the impacts of Regional Trafficways.
 - Dual Classification. A street with dual Regional Trafficway and Major City Traffic Street classifications should retain the operational characteristics of a Major City Traffic Street and respond to adjacent land uses.
- B. **Major City Traffic Streets**
Major City Traffic Streets are intended to serve as the principal routes for traffic that has at least one trip end within a transportation district.

- **Land Use/Development.** Major City Traffic Streets should provide motor vehicle connections among the Central City, regional centers, town centers, industrial areas, and intermodal facilities. Auto-oriented development should locate adjacent to Major City Traffic Streets, but should orient to pedestrians along streets also classified as Transit Streets or within Pedestrian Districts.
- **Connections.** Major City Traffic Streets should serve as primary connections to Regional Trafficways and serve major activity centers in each district. Traffic with no trip ends within a transportation district should be discouraged from using Major City Traffic Streets.
- **On-Street Parking.** On-street parking may be removed and additional right-of-way purchased to provide adequate traffic access when consistent with the street design designation of the street. Evaluate the need for on-street parking to serve adjacent land uses and improve the safety of pedestrians and bicyclists when making changes to the roadway.

C. Traffic Access Streets

Traffic Access Streets are intended to provide access to Central City destinations, distribute traffic within a Central City district, provide connections between Central City districts, and distribute traffic from Regional Trafficways and Major City Traffic Streets for access within the district. Traffic Access Streets are not intended for through-traffic with no trip ends in the district.

- **Land Use/Development.** Traffic Access Streets serve Central City land uses. Solutions to congestion problems on Traffic Access Streets must accommodate the high-density pattern desired in the Central City.
- **Connections.** Connections to adjoining transportation districts should be to District or Neighborhood Collectors. Intersections of Traffic Access Streets and streets with higher or similar classifications should be signalized, where warranted, to facilitate the safe movement of traffic along each street as well as turning movements from one street to the other.
- **Access.** Reduction in motor vehicle congestion is given less priority than: supporting pedestrian access and enhancing the pedestrian environment; maintaining on-street parking to support land uses; accommodating transit; or accommodating bicycles. Access to off-street parking is allowed.
- **Right-of-way Acquisition.** Acquisition of additional right-of-way to reduce congestion is discouraged.

D. District Collectors

District Collectors are intended to serve as distributors of traffic from Major City Traffic Streets to streets of the same or lower classification. District Collectors serve trips that both start and end within a district.

- **Land Use/Development.** District Collectors generally connect town centers, corridors, main streets, and neighborhoods to nearby regional centers and other major destinations. Land uses that attract trips from the surrounding neighborhoods or from throughout the district should be encouraged to locate on District Collectors. Regional attractors of traffic should be discouraged from locating on District Collectors.

- **Connections.** District Collectors should connect to Major City Traffic Streets, other collectors, and local streets and, where necessary, to Regional Trafficways.
- **On-Street Parking.** Removal of on-street parking and right-of-way acquisition should be discouraged on District Collectors, except at specific problem locations to accommodate the equally important functions of traffic movement and vehicle access to abutting properties.

E. Neighborhood Collectors

Neighborhood Collectors are intended to serve as distributors of traffic from Major City Traffic Streets or District Collectors to Local Service Streets and to serve trips that both start and end within areas bounded by Major City Traffic Streets and District Collectors.

- **Land Use/Development.** Neighborhood Collectors should connect neighborhoods to nearby centers, corridors, station communities, main streets, and other nearby destinations. New land uses and major expansions of land uses that attract a significant volume of traffic from outside the neighborhood should be discouraged from locating on Neighborhood Collectors.
- **Connections.** Neighborhood Collectors should connect to Major City Traffic Streets, District Collectors, and other Neighborhood Collectors, as well as to Local Service Streets.
- **Function.** The design of Neighborhood Collectors may vary over their length as the land use character changes from primarily commercial to primarily residential. Some Neighborhood Collectors may have a regional function, either alone or in concert with other nearby parallel collectors. All Neighborhood Collectors should be designed to operate as neighborhood streets rather than as regional arterials.
- **On-Street Parking.** The removal of on-street parking and right-of-way acquisition should be discouraged on Neighborhood Collectors.

F. Local Service Traffic Streets

Local Service Traffic Streets are intended to distribute local traffic and provide access to local residences or commercial uses.

- **Land Use/Development.** Discourage auto-oriented land uses from using Local Service Traffic Streets as their primary access.
- **Classification.** Streets not classified as Regional Trafficways, Major City Traffic Streets, District Collectors, or Neighborhood Collectors are classified as Local Service Traffic Streets.
- **Connections.** Local Service Traffic Streets should connect neighborhoods, provide local circulation, and provide access to nearby centers, corridors, station areas, and main streets.
- **Function.** Local Service Traffic Streets provide local circulation for traffic, pedestrians, and bicyclists and (except in special circumstances) should provide on-street parking. In some instances where vehicle speeds and volumes are very low (for example, woonerfs and accessways), Local Service Traffic Streets may accommodate both vehicles and pedestrians and bicyclists in a shared space.

Policy 6.6 Transit Classification Descriptions

Maintain a system of transit streets that supports the movement of transit vehicles for regional, interregional, interdistrict, and local trips.

Explanation: Eight maps show the transit classifications. One map is located with the policy associated with each of the eight transportation districts.

*Objectives:***A. Regional Transitways**

Regional Transitways are intended to provide for interregional and interdistrict transit trips with frequent, high-speed, high-capacity, express, or limited service, and to connect the Central City with all regional centers.

- **Land Use.** Development with a regional attraction (e.g., shopping centers, arenas) are encouraged to locate adjacent to Regional Transitways to reduce traffic impacts on adjoining areas and streets. Locate high-density development within a half-mile of transit stations on Regional Transitways, with the highest densities closest to the stations.
- **Access to Transit.** Transit stations should be designed to accommodate a high level of multimodal access within a half-mile radius of the station. Use feeder bus service to access Regional Transit stations. Use park-and-ride facilities to access Regional Transit stations only at ends of Regional Transitways or where adequate feeder bus service is not feasible.
- **Improvements.** Use transit-preferential treatments to facilitate light rail and bus operations. Consider the use of access management measures to reduce conflicts between transit vehicles and other vehicles. Where compatible with adjacent land uses, right-of-way acquisition or parking removal may occur to accommodate transit-preferential measures and improve access to transit.
- **Transfer Points.** Provide safe and convenient transfer points with covered waiting areas with transit route information, benches, trash receptacles, enhanced signing, lighting, and telephones.
- **Bus Stops.** Buses providing local service along Regional Transitways should have more frequent stop spacing, similar to stop spacing along Major Transit Priority Streets.
- **Dual Classification.** A street with a dual Regional Transitway and Major Transit Priority Street classifications should retain the operational characteristics of a Major Transit Priority Street and respond to adjacent land uses.
- **Connections.** A ramp that connects to a Regional Transitway is classified as a Regional Transitway up to its intersection with a lower-classified street.

B. Major Transit Priority Streets

Major Transit Priority Streets are intended to provide for high-quality transit service that connects the Central City and other regional and town centers and main streets.

- **Land Use.** Transit-oriented land uses should be encouraged to locate along Major Transit Priority Streets, especially in centers. Discourage auto-oriented development from locating on a Major Transit Priority Street, except where the street is

outside the Central City, regional or town center, station community, or main street and is also classified as a Major City Traffic Street. Support land use densities that vary directly with the existing and planned capacity of transit service.

- **Access to Transit.** Provide safe and convenient access for pedestrians and bicyclists to, across, and along Major Transit Priority Streets.
- **Improvements.** Employ transit-preferential measures, such as signal priority and bypass lanes. Where compatible with adjacent land use designations, right-of-way acquisition or parking removal may occur to accommodate transit-preferential measures or improve access to transit. The use of access management should be considered where needed to reduce conflicts between transit vehicles and other vehicles.
- **Transfer Points.** Provide safe and convenient transfer points with covered waiting areas, transit route information, benches, trash receptacles, enhanced signing, lighting, and telephones. Limited transit service should stop at transfer points and activity centers along Major Transit Priority Streets.
- **Dual Classification.** Streets with dual Regional Transitway and Major Transit Priority Street classifications should retain the operational characteristics of Major Transit Priority Streets, and development should orient to the street.
- **Bus Stops.** Locate bus stops to provide convenient access to neighborhoods and commercial centers. Stops should be located relatively close together in high-density and medium-density areas, including regional and town centers and along most main streets, and relatively farther apart in lower-density areas. Passenger amenities should include shelters and route information.

C. Transit Access Streets

Transit Access Streets are intended for district-oriented transit service serving main streets, neighborhoods, and commercial, industrial, and employment areas.

- **Land Use.** Encourage pedestrian- and transit-oriented development in commercial, institutional, and mixed-use areas along Transit Access Streets.
- **Access to Transit.** Provide safe and convenient pedestrian and bicycle access to transfer points and stops and along Transit Access Streets.
- **Transfer Points.** Provide bus shelters, safe and convenient pedestrian crossings, and transit information at transfer points.
- **Improvements.** Employ transit-preferential measures at specific intersections to facilitate bus operations where there are significant bus delays. Applicable preferential treatments include signal priority, queue jump lanes, and curb extensions.
- **Bus Stops.** Locate stops closer together in neighborhood commercial areas and somewhat farther apart in other areas along Transit Access Streets. Passenger amenities, including covered waiting areas, are appropriate along Transit Access Streets.

D. Community Transit Streets.

Community Transit Streets are intended to serve neighborhoods and industrial areas and connect to citywide transit service.

- **Land Use.** Encourage pedestrian- and transit-oriented development in commercial, institutional, and mixed-use areas along Community Transit Streets.

- **Transit Service.** Community Transit Streets typically carry feeder bus service, mini-bus, or demand-responsive services. Demand-responsive service may include service that is tailored to areas (e.g., industrial areas) that have unusual transit service needs. The size and type of transit vehicle should be appropriate to the needs of the land uses served.
- **Pedestrian and Bicycle Access.** Provide safe and convenient pedestrian and bicycle access along Community Transit Streets and to transfer points and stops.
- **Improvements.** Community Transit Streets are typically used for access by bicyclists, pedestrians, and drivers to reach neighborhood destinations. Parking removal or the acquisition of additional right-of-way should not be undertaken to enhance transit service on Community Transit Streets, except at specific locations to correct unsafe transit operations or accommodate access to transit.
- **Transfer Points.** Provide covered waiting areas and transit information at transfer points.
- **Bus Stops.** Locate stops closer together in neighborhood commercial areas and farther apart in other areas along Community Transit Streets.

E. Local Service Transit Streets

Local Service Transit Streets are intended to provide transit service to nearby residents and adjacent commercial areas.

- **Land Use.** Transit operations on Local Service Transit Streets should give preference to access for individual properties and to the specific needs of property owners and residents along the street.
- **Classification.** Streets not classified as Regional Transitways, Major Transit Priority Streets, Transit Access Streets, or Community Transit Streets are classified as Local Service Transit Streets.
- **Function.** Local Service Transit Streets may be used for paratransit service, end loops for regularly scheduled routes, and may carry school buses.
- **Bus Stops.** Locate stops along Local Service Transit Streets based on Tri-Met service standards.

Explanation: Local Service Transit Streets seldom carry regular bus service, except for short street segments to accommodate bus operations and for loops at the ends of routes.

F. Transit Stations

Transit stations are locations where light rail vehicles or other high-capacity transit vehicles stop to board and unload passengers.

- **Locations.** Locate Transit Stations on Regional Transitways to provide direct and convenient service to regional and town centers and major trip generators along the transitway. Station locations are conceptual. Actual locations should be used for regulatory purposes such as measuring distances.
- **Passenger Facilities.** Provide safe and convenient covered waiting areas and easy transfer to other transit services. Provide transit information and access for pedestrians and bicyclists. Transit Stations should have a full range of passenger services, including route information, benches, secure bicycle parking, trash receptacles, enhanced signing, lighting, and telephones.

- **Transit Station Spacing.** Place Transit Stations along Regional Transitways with light rail service or other high-capacity transit service at intervals of approximately one-half mile. In high-density areas in the Central City, consider closer station spacing of three to four blocks.

G. Intercity Passenger Rail

Intercity Passenger Rail provides commuter and other rail passenger service.

- **Station Spacing.** Stations are typically located one or more miles apart, depending on overall route length.

H. Passenger Intermodal Facilities

Passenger Intermodal Facilities serve as the hub for various passenger modes and the transfer point between modes.

- **Connections.** Passenger Intermodal Facilities connect inter-urban passenger service with urban public transportation service and are highly accessible by all modes.

Policy 6.7 Bicycle Classification Descriptions

Maintain a system of bikeways to serve all bicycle users and all types of bicycle trips.

Explanation: Eight maps show the bicycle classifications. One map is located with the policy associated with each of the eight transportation districts.

Objectives:

A. City Bikeways

City Bikeways are intended to serve the Central City, regional and town centers, station communities, and other employment, commercial, institutional, and recreational destinations.

- **Land Use.** Auto-oriented land uses should be discouraged from locating on City Bikeways that are not also classified as Major City Traffic Streets.
- **Design.** Consider the following factors in determining the appropriate design treatment for City Bikeways: traffic volume, speed of motor vehicles, and street width. Minimize conflicts where City Bikeways cross other streets.
- **Improvements.** Consider the following possible design treatments for City Bikeways: bicycle lanes, wider travel lanes, wide shoulders on partially improved roadways, bicycle boulevards, and signage for local street connections.
- **On-Street Parking.** On-street motor vehicle parking may be removed on City Bikeways to provide bicycle lanes, except where parking is determined to be essential to serve adjacent land uses, and feasible options are not available to provide the parking on-site.
- **Bicycle Parking.** Destinations along City Bikeways should have long-term and/or short-term bicycle parking to meet the needs of bicyclists.

- Traffic Calming. When bicycle lanes are not feasible, traffic calming, bicycle boulevards, or similar techniques will be considered to allow bicyclists to share travel lanes safely with motorized traffic.

B. Off-Street Paths

Off-Street Paths are intended to serve as transportation corridors and recreational routes for bicycling, walking, and other non-motorized modes.

- Connections. Use Off-Street Paths as convenient shortcuts to link urban destinations and origins along continuous greenbelts such as rivers, park and forest areas, and other scenic corridors, and as elements of a regional, citywide, or community recreational trail plan.
- Location. Establish Off-Street Paths in corridors not well served by the street system.
- Improvements. Use the Bikeway Design and Engineering Guidelines to design Off-Street Paths. Off-Street Paths should be protected or grade-separated at intersections with major roadways.

C. Local Service Bikeways

Local Service Bikeways are intended to serve local circulation needs for bicyclists and provide access to adjacent properties.

- Classification. All streets not classified as City Bikeways or Off-Street Paths, with the exception of Regional Trafficways not also classified as Major City Traffic Streets, are classified as Local Service Bikeways.
- Improvements. Consider the following design treatments for Local Service Bikeways: shared roadways, traffic calming, bicycle lanes, and extra-wide curb lanes. Crossings of Local Service Bikeways with other rights-of-way should minimize conflicts.
- On-Street Parking. On-street parking on Local Service Bikeways should not be removed to provide bicycle lanes.
- Operation. Treatment of Local Service Bikeways should not have a side effect of creating, accommodating, or encouraging automobile through-traffic.

Policy 6.8 Pedestrian Classification Descriptions

Maintain a system of pedestrianways to serve all types of pedestrian trips, particularly those with a transportation function.

Explanation: Eight maps show the pedestrian classifications. One map is located with the policy associated with each of the eight transportation districts.

Objectives:

A. Pedestrian Districts

Pedestrian Districts are intended to give priority to pedestrian access in areas where high levels of pedestrian activity exist or are planned, including the Central City, Gateway regional center, town centers, and station communities.

- **Land Use.** Zoning should allow a transit-supportive density of residential and commercial uses that support lively and intensive pedestrian activity. Auto-oriented development should be discouraged in Pedestrian Districts. Institutional campuses that generate high levels of pedestrian activity may be included in Pedestrian Districts. Exceptions to the density and zoning criteria may be appropriate in some designated historic districts with a strong pedestrian orientation.
- **Streets within a District.** Make walking the mode of choice for all trips within a Pedestrian District. All streets within a Pedestrian District are equal in importance in serving pedestrian trips and should have sidewalks on both sides.
- **Characteristics.** The size and configuration of a Pedestrian District should be consistent with the scale of walking trips. A Pedestrian District includes both sides of the streets along its boundaries, except where the abutting street is classified as a Regional Trafficway. In these instances, the land up to the Regional Trafficway is considered part of the Pedestrian District, but the Regional Trafficway itself is not.
- **Access to Transit.** A Pedestrian District should have, or be planned to have, frequent transit service and convenient access to transit stops.
- **Improvements.** Use the Pedestrian Design Guide to design streets within Pedestrian Districts. Improvements may include widened sidewalks, curb extensions, street lighting, street trees, and signing. Where two arterials cross, design treatments such as curb extensions, median pedestrian refuges, marked crosswalks, and traffic signals should be considered to minimize the crossing distance, direct pedestrians across the safest route, and provide safe gaps in the traffic stream.

B. Pedestrian-Transit Streets

Pedestrian-Transit Streets are intended to create a strong and visible relationship between pedestrians and transit within the Central City.

- **Land Use.** Pedestrian-Transit Streets respond to significant public investments in public transportation, including light rail, the transit mall, and streetcar, and enhance the pedestrian environment adjacent to high-density land uses.
- **Improvements.** Improvements should include wide sidewalks to accommodate high levels of pedestrian traffic, urban design features that promote pedestrian activity, and visual signals to motor vehicles to recognize the priority of pedestrian and transit vehicles.

C. City Walkways

City Walkways are intended to provide safe, convenient, and attractive pedestrian access to activities along major streets and to recreation and institutions; provide connections between neighborhoods; and provide access to transit.

- **Land Use.** City Walkways should serve areas with dense zoning, commercial areas, and major destinations. Where auto-oriented land uses are allowed on City Walkways, site development standards should address the needs of pedestrians for access.

- Improvements. Use the Pedestrian Design Guide to design City Walkways. Consider special design treatment for City Walkways that are also designated as Regional or Community Main Streets.

D. Off-Street Paths

Off-Street Paths are intended to serve recreational and other walking trips.

- Function. Use Off-Street Paths as short cuts to link urban destinations and origins along continuous greenbelts such as rivers, park and forest areas, and other scenic corridors, and used as elements of a regional, citywide, or community recreational trail plan.
- Location. Establish Off-Street Paths in corridors not well served by the street system. On existing rights-of-way that are not developed or likely to be developed in the near future, Off-Street Paths may be designated where needed to complete the pedestrian system.
- Improvements. Use the Pedestrian Design Guide to design Off-Street Paths. Design Off-Street Paths as separated facilities that accommodate pedestrians and may accommodate other non-motorized vehicles.

E. Local Service Walkways

Local Service Walkways are intended to serve local circulation needs for pedestrians and provide safe and convenient access to local destinations, including safe routes to schools.

- Land Use. Local Service Walkways are usually located in residential, commercial, or industrial areas on Local Service Traffic Streets.
- Classification. All streets not classified as City Walkways or Off-Street Paths, with the exception of Regional Trafficways not also classified as Major City Traffic Streets, are classified as Local Service Walkways.
- Improvements. Use the Pedestrian Design Guide to design Local Service Walkways.

Policy 6.9 Freight Classification Descriptions

Designate a system of truck streets, railroad lines, and intermodal freight facilities. That support local, national, and international distribution of goods and services.

Explanation: Eight maps show the freight classifications. One map is located with the policy associated with each of the eight transportation districts.

Objectives:

A. Freight Districts

Freight Districts are intended to provide safe and convenient truck mobility and access in industrial and employment areas serving high levels of truck traffic and to accommodate the needs of intermodal freight movement.

- Land Use. Support locating industrial and employment land uses that rely on multimodal freight movement in Freight Districts.

- **Function.** Freight District streets provide local truck access and circulation to industrial and employment land uses.
- **Connections.** In Freight Districts, streets not classified as Regional Truckways or Priority Truck Streets are classified as Freight District streets. Freight Districts connect individual properties to Priority Truck Streets.
- **Design.** Freight District streets should be designed to facilitate the movement of all truck types and over-dimensional loads, as practicable.

Explanation: Within Freight Districts, only Regional Truckways, Priority Truck Streets and Major Truck Streets are mapped. All streets within Freight Districts should be designed to accommodate truck movement. Streets with multiple designations should be designed to accommodate trucks and the other designated modes.

B. Regional Truckways

Regional Truckways are intended to facilitate interregional and movement of freight.

- **Land Use.** Support locating industrial and employment land uses with high levels of truck activity near Regional Truckway interchanges.
- **Function.** Provide for safe and efficient continuous-flow operation for trucks.
- **Connections.** Provide Regional Truckway interchanges that directly serve Freight districts and connect to Priority Truck Streets and other streets with high levels of truck activity. A ramp that connects to a Regional Truck Street is classified as a Regional Truck Street up to its intersection with a lower-classified street.
- **Design.** Design Regional Truckways to be limited access facilities and to standards that facilitate the movement of all types of trucks.

C. Priority Truck Streets

Priority Truck Streets are intended to serve as the primary route for access and circulation in Freight Districts, and between Freight Districts and Regional Truckways.

- **Land Use.** Support locating industrial and employment uses that generate high truck activity on corridors served by Priority Truck Streets.
- **Function.** Priority Truck Streets accommodate high truck volumes and provide high-quality mobility and access.
- **Connections.** Priority Truck Streets connect Freight Districts to Regional Truckways.
- **Design.** Priority Truck Streets should be designed to facilitate the movement of all truck classes and over-dimensional loads, as practicable. Buffer adjacent residential uses from noise impacts, where warranted.

D. Major Truck Streets

Major Truck Streets are intended to serve as principal routes for trucks in a Transportation District.

- **Land Use.** Commercial and employment land uses that generate high levels of truck activity should locate along Major Truck Streets.

- **Function.** Major Truck Streets provide truck mobility within a Transportation District and access to commercial and employment uses along the corridor.
- **Connections** Major Truck Streets connect Transportation district-level truck trips to Regional Truckways. Trucks with no trip ends within a Transportation District should be discouraged from using Major Truck Streets.
- **Design.** Major Truck Streets should accommodate all truck types, as practicable.

E. Truck Access Streets

Truck Access Streets are intended to serve as access and circulation routes for delivery of goods and services to neighborhood-serving commercial and employment uses.

- **Land Use.** Support locating commercial land uses that generate lower volumes of truck trips on Truck Access Streets.
- **Function.** Truck Access Streets provide access and circulation to land uses within a Transportation District. Non-local truck trips are discouraged from using Truck Access Streets.
- **Connections.** Truck Access Streets should distribute truck trips from Major Truck Streets to neighborhood-serving destinations.
- **Design.** Design Truck Access Streets to accommodate truck needs in balance with other modal needs of the street.

F. Local Service Truck Streets

Local Service Truck Streets are intended to serve local truck circulation and access.

- **Land Use.** Local Service Truck Streets provide for goods and service delivery to individual commercial, employment, and residential locations outside of Freight Districts.
- **Function.** Local Service Truck Streets should provide local truck access and circulation only.
- **Connections.** All streets, outside of Freight Districts, not classified as Regional Truckways, Priority Truck Streets, Major Truck Streets, or Truck Access Streets are classified as Local Service Truck Streets. Local Service Truck Streets with a higher Traffic classification are the preferred routes for local access and circulation.
- **Design.** Local Service Truck Streets should give preference to accessing individual properties and the specific needs of property owners and residents along the street. Use of restrictive signage and operational accommodation are appropriate for Local Service Truck Streets.

G. Railroad Main Lines

Railroad Main Lines transport freight cargo and passengers over long distances as part of a railway network.

H. Railroad Branch Lines

Railroad Branch Lines transport freight cargo over short distances on local rail lines that are not part of a rail network and distribute cargo to and from mail line railroads.

I. Freight Facilities

Freight Facilities include the major shipping and marine, air, rail, and pipeline terminals that facilitate the local, national, and international movement of freight.

Policy 6.10 Emergency Response Classification Descriptions

Emergency Response Streets are intended to provide a network of streets to facilitate prompt emergency response.

Explanation: Eight maps show the emergency response classifications. One map is located with the policy associated with each of the eight transportation districts.

Objectives:

A. Major Emergency Response Streets

Major Emergency Response Streets are intended to serve primarily the longer, most direct legs of emergency response trips.

- **Improvements.** Design treatments on Major Emergency Response Streets should enhance mobility for emergency response vehicles by employing preferential or priority treatments.
- **Traffic Slowing.** Major Emergency Response Routes are not eligible for traffic slowing devices in the future. Existing traffic slowing devices may remain and be replaced if necessary.

B. Minor Emergency Response Streets

Minor Emergency Response Streets are intended to serve primarily the shorter legs of emergency response trips.

- **Classification.** All streets not classified as Major Emergency Response Streets are classified as Minor Emergency Response Streets.
- **Improvements.** Design and operate Minor Emergency Response Streets to allow access to individual properties by emergency response vehicles, but maintain livability on the street.
- **Traffic Slowing.** Minor Emergency Response Streets are eligible for traffic slowing devices.

Explanation: The Emergency Response Street classification descriptions were developed as part of the Emergency Response Study adopted by City Council resolution in 1998.

Policy 6.11 Street Design Classification Descriptions

Street Design Classification Descriptions identify the preferred modal emphasis and design treatments for regionally significant streets and special design treatments for locally significant streets.

Explanation: Street Design is a new set of street classifications created to achieve consistency with Metro's Regional Transportation Plan. The classifications are consistent with Metro's Regional Street Design Classifications, but have different names to better reflect Portland's existing

street system. Eight maps show the street design classifications. One map is located with the policy associated with each of the eight transportation districts. The boundaries (termini) of street design classifications may change based on area plans that recommend new zoning patterns to better implement the 2040 Growth Concept. Transportation project design may also modify the street design termini based on more detailed information.

Objectives:

A. Urban Throughways

Urban Throughways are designed to provide high-speed travel for longer motor vehicle trips throughout the region.

- Land Use. Urban Throughways emphasize motor vehicle travel and connect major activity centers, industrial areas, and intermodal facilities. Adjacent land uses do not orient directly to Urban Throughways.
- Number of Lanes. Urban Throughways usually have four to six vehicle lanes, with additional lanes in some situations.
- Separation. Urban Throughways are completely divided, with no left turns. Street connections may occur at separated grades, with access controlled by ramps.
- Design Elements. Urban Throughway design shall consider the need for high vehicle speeds, pedestrian crossings on overpasses, parallel facilities for bicycles, and motor vehicle lane widths that accommodate freight movement and high-speed travel. Encourage the Oregon Department of Transportation to maintain a continuous landscape along Urban Throughways that reduces the visual impacts of the throughway on motorists and adjacent land uses.
- Dual Classification. A street with dual Urban Throughway and Urban Highway classifications should retain the operational characteristics of an Urban Highway and respond to adjacent land uses.
- Connections. A ramp that connects to an Urban Throughway is classified as a Urban Throughway up to its intersection with a lower-classified street.



Explanation: The Urban Throughway classification encompasses both of Metro's Throughway designs: Freeways and Highways.

B. Urban Highways

Urban Highways are designed to provide relatively high-speed travel for motor vehicle trips that traverse the region and also provide more localized access.



- Land Use. Urban Highways link major activity centers and link to Major City Traffic Streets. Adjacent land uses sometimes orient to the Urban Highway.
- Number of Lanes. Urban Highways usually consist of four travel lanes, with separate turning lanes in some locations.
- Separation. Urban Highways have limited street connections that may occur at same grade or separate grades.
- Design Elements. On-street parking is usually not included on Urban Highways, but may exist in some locations. Urban Highways include striped bikeways and sidewalks with optional buffering. Improved pedestrian crossings are located on overpasses, underpasses, or at same grade intersections.

C. Regional Main Streets

Regional Main Streets are designed to accommodate motor vehicle traffic, with features that facilitate public transportation, bicycles, and pedestrians.

- Land Use. Regional Main Streets are located within the Central City, Gateway regional center, station communities, and town centers, and along some main streets that have relatively high traffic volumes. Development consists of a mix of uses that are oriented to the street.
- Lanes. Regional Main Streets usually include four vehicle lanes, with additional lanes, such as turn lanes, or one-way couplets in some situations.

- Design Elements. Regional Main Street design shall consider the following: low to moderate vehicle speeds; the use of medians and curb extensions to enhance pedestrian crossings where wide streets make crossing difficult; combined driveways; on-street parking where possible; wide sidewalks with pedestrian amenities such as benches, awnings and special lighting;



- landscape strips, street trees, or other design features that create a pedestrian buffer between curb and sidewalk; improved pedestrian crossings at all intersections and mid-block crossings where intersection spacing exceeds 400 feet; striped bikeways or wide outside lane; and vehicle lane widths that consider the above improvements.

- **Design Treatment.** During improvement projects, the preservation of existing vegetation, topography, vistas and viewpoints, driver perception, street lighting, and sight distance requirements should be considered.
- **Utilities.** Consider undergrounding or reducing the visual impact of overhead utilities along Regional Main Streets.

Explanation: Regional Main Street is equivalent to Metro's Regional Boulevard classification. Within Portland, these street segments are mapped based on existing zoning and map designations, the outcome of studies, and where logical transitions to Regional Corridors can occur.

D. **Community Main Streets**

Community Main Streets are designed to accommodate motor vehicle traffic, with special features to facilitate public transportation, bicycles, and pedestrians.

- **Land Use.** Community Main Streets are located within the Central City, Gateway regional center, station communities, and town centers, and along most main streets. Development consists of a mix of uses oriented to the street.
- **Lanes.** Community Main Streets may include up to four lanes, with on-street parking. Fewer than four vehicle lanes are typically appropriate in Community Main Streets designs, particularly to allow on-street parking.
- **Design Elements.** Community Main Street design shall consider the following: low vehicle speeds; the use of medians and curb extensions to enhance pedestrian crossings where wide streets make crossing difficult; combined driveways; on-street parking where possible; wide sidewalks with pedestrian amenities such as benches, awnings, and special lighting; landscape strips, street trees, or other design features that create a pedestrian buffer between curb and sidewalk; improved pedestrian crossings at all intersections and mid-block crossings where intersection spacing exceeds 400 feet; striped bikeways or wide outside lane; and vehicle lane widths that consider the above improvements.
- **Design Treatment.** During improvement projects, the preservation of existing vegetation, topography, vistas and viewpoints, driver perception, street lighting, and sight distance requirements should be considered.
- **Utilities.** Consider undergrounding or reducing the visual impact of overhead utilities along Community Main Streets.



Explanation: Community Main Street is equivalent to Metro's Community Boulevard classification. Within Portland, these street segments are mapped

based on existing zoning and map designations, the outcome of studies, and where logical transitions can occur to Community Corridor designs.

E. **Regional Corridors**

Regional Corridors are designed to include special amenities to balance motor vehicle traffic with public transportation, bicycle travel, and pedestrian travel.

- **Land Use.** Regional Corridors are located primarily along major transit corridors and between Regional Main Street segments. Commercial and multifamily development should be oriented to the street where the Regional Corridor also has a transit designation.
- **Lanes.** Regional Corridors usually include four vehicle lanes. They occasionally have additional lanes in some situations, such as to allow turning movements.
- **Design Elements.** Regional Corridor design shall consider the following: moderate vehicle speeds; the use of medians and curb extensions to enhance pedestrian crossing where wide streets make crossing difficult or to manage motor vehicle access; combined driveways; on-street parking when feasible; buffered sidewalks with pedestrian amenities such as special lighting and special crossing amenities tied to major transit stops; landscape strips, street trees, or other design features that create a pedestrian buffer between curb and sidewalk; improved pedestrian crossings at signalized intersections; striped bikeways or wide outside lanes; and motor vehicle lane widths that consider the above improvements.



Explanation: The Regional Corridor classification is equivalent to Metro's Regional Street classification.

F. **Community Corridors**

Community Corridors are designed to include special amenities to balance motor vehicle traffic with public transportation, bicycle travel, and pedestrian travel.

- Land Use. Community Corridors are located along transit corridors and between segments of Community Main Streets. Commercial and multifamily development should be oriented to the street where the street also has a transit designation.
- Lanes. Community Corridors typically have two travel lanes, usually with on-street parking.
- Design Elements.



Community Corridor design shall consider the need for the following: moderate vehicle speeds; the use of medians and curb extensions to enhance pedestrian crossing and to manage motor vehicle access; combined driveways; on-street parking; buffered sidewalks with pedestrian amenities such as special lighting and special crossing amenities tied to major transit stops; landscape strips, street trees, or other design features that create a pedestrian buffer between curb and sidewalk; improved pedestrian crossings at intersections; striped bikeways or wide outside lanes; and usually narrower motor vehicle lane widths than Regional Corridors.

Explanation: The Community Corridor classification is equivalent to Metro's Community Street classification.

G. Urban Roads

Urban Roads are designed to carry significant motor vehicle traffic while providing for some public transportation, bicycle travel, and pedestrian travel.

- Land Use. Urban Roads typically serve industrial areas and freight intermodal sites, with a significant percentage of trips being made by trucks. Where Urban Throughways pass through residential or local commercial areas, an Urban Road designation may be appropriate.
- Number of Lanes. Urban Road design typically includes four vehicle lanes, with additional lanes in some situations.



- Urban Road design shall consider the following: moderate vehicle speeds; few driveways; sidewalks; improved pedestrian crossings at major intersections; striped bikeways; center medians that manage access and control left-turn movements; and other design treatments that improve freight mobility, including motor vehicle lane widths that consider the above improvements.

H. Greenscape Streets

Greenscape Street designs are applied to arterials where natural or informal landscapes dominate the adjacent areas and the right-of-way, such as lower-density residential areas in wooded settings.

- Dual Classifications. Where streets have a Greenscape Street design designation and another street design designation, consider the natural characteristics of the street during the design and implementation of street improvements.
- Design Treatment. During improvement projects, consider the use of vegetated stormwater treatment techniques; minimizing impervious surfaces; preservation of existing vegetation, topography, vistas and viewpoints, driver perception, street lighting, and sight distance requirements. Vegetation may be landscaped or native, depending on the existing and desired character.



Explanation: This new classification replaces the former Beautification Policy classification called Natural Design. It also includes reference to the City's green street policy efforts. Other street classifications that were on the Beautification Map are not now necessary, because their elements are incorporated into other current street design classifications. For example, streets that used to be classified as Parkways on the Beautification Map are now classified as Urban Throughways.

I. Local Streets

Local Streets are designed to complement planned land uses and reduce dependence on arterials for local circulation.

- Land Use. Local Streets are multimodal, but are not intended for trucks (other than local deliveries) in residential areas. Local Streets are important for local circulation of trucks in commercial and industrial areas.
- Design. Local Street design includes many connections with other streets, sidewalks, on-street parking, and planting of street trees and ground covers (where planting strips are included).
- Classification. All streets not classified as Urban Throughways, Regional and Community Main Streets, Regional and Community Corridors, Urban Roads, and Greenscape Streets are classified as Local Streets for street design.



J. Multimodal Intersections

Multimodal intersections are designed to meet the needs of pedestrians and promote pedestrian, bicycle, and public transportation travel, while accommodating a significant amount of motor vehicle traffic.

- Location. Multimodal Intersections are located where special attention should be given to accommodating pedestrians, bicycles, and public transportation.
- Mapping. All intersections of Main Streets with other Main Streets, with Regional Corridors, and with Community Corridors are considered Multimodal Intersections, even though they are not shown on the street design maps. Multimodal Intersection design should also be considered at intersections along main streets and corridors and where there is significant pedestrian and transit activity.
- Motor Vehicle Traffic. Manage motor vehicle traffic to limit negative impacts on other modes and on adjacent land uses.
- Pedestrian Improvements. Pedestrian improvements should include wide sidewalks, special lighting, crossings at all legs of the intersection, and special crossing features where motor vehicle volumes are high.
- Bicycle Improvements. Bicycle improvements should be designed to minimize conflicts and provide adequate bicycle crossings.

Explanation: Multimodal Intersections are called 'Possible Boulevard Intersections' on Metro's Regional Street Design Map. Since Portland is not using the term 'boulevard' in its classifications, Multimodal Intersection better describes the emphasis on safety and convenience for pedestrians and bicyclists, as well as cars and other vehicles, at these intersections. Rather than mapping these intersections, Portland is describing where they are

located and how they should be treated. In some cases, the need for special treatment of intersections is determined during the design phase of a project.

Transportation Function Policies

Policy 6.12 Regional and City Travel Patterns

Support the use of the street system consistent with its state, regional, and city classifications and its classification descriptions.

Objectives:

- A. Direct interregional traffic to use Regional Trafficways and Regional Transitways, and manage these facilities to maximize their existing capacity.
- B. Minimize the impact of interregional and long intraregional trips on Portland neighborhood and commercial areas, while supporting the travel needs of the community.
- C. Manage traffic on Neighborhood Collectors that Metro designates as Collectors of Regional Significance so they maintain their function as distributors of traffic between Major City Traffic Streets or District Collectors and Local Service Streets, rather than function primarily for regional traffic movement.
- D. Use the TSP refinement plan process to determine specific projects and actions to meet needs in identified transportation corridors.

Explanation: The appropriate functioning for Neighborhood Collectors and Local Service Streets is found in the following policy on Traffic Calming.

Policy 6.13 Traffic Calming

Manage traffic on Neighborhood Collectors and Local Service Traffic Streets, along main streets, and in centers consistent with their street classifications, classification descriptions, and desired land uses.

Objectives:

- A. Manage traffic on Neighborhood Collectors and Local Service Streets consistent with the land uses they serve and to preserve and enhance neighborhood livability.
- B. Use a combination of enforcement, engineering, and education efforts to calm vehicle traffic.
- C. Encourage non-local traffic, including trucks, to use streets of higher traffic and truck classifications through design, operations, permitting, and signing.
- D. Implement measures on Local Service Traffic Streets that do not significantly divert traffic to other streets of the same classification.

- E. Implement measures on Neighborhood Collectors that do not result in significant diversion of traffic to streets of lower classification.
- F. Reduce traffic speeds through enforcement and design in high-density 2040 Growth Concept areas, including main streets and centers, to levels that are comfortable for bicyclists and pedestrians.

Explanation: This policy was revised as part of the Emergency Response Route Study completed in 1998. This policy emphasizes neighborhood livability as a goal and reflects the range of measures the City uses to calm traffic.

Policy 6.14 Emergency Response

Provide a network of emergency response streets that facilitates prompt response to emergencies.

Objectives:

- A. Use the emergency response classification system to determine whether traffic-slowing devices can be employed.

Explanation: Emergency response streets are intended primarily to address the needs of Fire Bureau vehicles. Other emergency response vehicles can negotiate speed bumps.

- B. Use the emergency response classification system to guide the routing of emergency response vehicles.
- C. Use the emergency response classification system to help site future fire stations.

Explanation: This policy was adopted by City Council resolution as part of the Emergency Response Route Study completed in 1998.

Policy 6.15 Transportation System Management

Give preference to transportation improvements that use existing roadway capacity efficiently and improve the safety of the system.

Explanation: This policy addresses requirements of Metro's adopted 2000 Regional Transportation Plan and the desire to use transportation system management (TSM) measures first rather than add roadway capacity.

Objectives:

- A. Reduce and manage automobile travel demand and promote transportation choices before considering the addition of roadway capacity for single-occupant vehicles.
- B. Employ transportation system management measures, including coordinating and synchronizing signals and intersection redesign, to improve mobility and safety for all modes of travel.

- C. Design, build, and operate the transportation system so that it can be safely navigated by all users.

Policy 6.16 Access Management

Promote an efficient and safe street system, and provide adequate accessibility to planned land uses.

Objectives:

- A. Work with ODOT to manage the location, spacing, and type of road and street intersections on Regional Trafficways, St. Helens Road, Lombard east of Interstate 5, and McLoughlin, and develop access management plans for other City streets as needed to ensure the safe and efficient operation of these facilities.

Explanation: The State of Oregon establishes spacing standards on state highways, based on highway classification, type of area, and allowed speeds. Portland adopted an access management plan for NE Airport Way in 1991 and adopted an access management plan for a portion of NE Killingsworth Street (also known as NE Lombard, NE Portland Highway, No. 123 and US 30 BY) in 2004.

- B. Provide local access to arterials, while minimizing conflicts with through-traffic.

Explanation: The need for access to individual properties has to be balanced with the need for safe access. Reducing the number of curb cuts, either through consolidation or shared driveways, can improve the function of the street for all modes.

- C. Ensure that access management measures do not adversely impact any transportation mode, consistent with the classifications of the street where these measures are applied.

Land Use and Transportation Policies

Policy 6.17 Coordinate Land Use and Transportation

Implement the Comprehensive Plan Map and the 2040 Growth Concept through long-range transportation and land use planning and the development of efficient and effective transportation projects and programs.

Explanation: The portion of the former policy with this name required certain land use reviews to use the transportation policies as approval criteria. This will not be necessary in the future because the intent of the policies will be incorporated into the approval criteria in Title 33, Planning and Zoning, as needed.

Policy 6.18 Adequacy of Transportation Facilities

Ensure that amendments to the Comprehensive Plan (including goal exceptions and map amendments), zone changes, conditional uses, master plans, impact mitigation plans, and land use regulations that change allowed land uses are consistent with the identified

function and capacity of, and adopted performance measures for, affected transportation facilities.

Explanation: This policy reflects a requirement in the Transportation Planning Rule (OAR 660-012) to ensure that certain land use changes will not have an unacceptable impact on transportation facilities. Title 33, Planning and Zoning, contains approval criteria language that implements this policy.

Policy 6.19 Transit-Oriented Development

Reinforce the link between transit and land use by encouraging transit-oriented development and supporting increased residential and employment densities along transit streets, at existing and planned light rail transit stations, and at other major activity centers.

Objectives:

- A. Consider the existing or planned availability of high-quality transit service when adopting more intensive residential, commercial, and employment designations.
- B. Focus medium-density and high-density development, including institutions, in transit-oriented developments along transit lines.
- C. Require commercial and multifamily development to orient to and provide pedestrian and bicycle connections to transit streets and, for major developments, provide transit facilities on a site or adjacent to a transit stop.
- D. Examine the benefits of limiting drive-through facilities in existing or planned areas of high-intensity development and high levels of pedestrian, bicycle, and transit activity when planning studies are being done for these areas.

Explanation: Objective D addresses the inherent conflicts between drive-through facilities and desired levels of pedestrian and transit activity.

Policy 6.20 Connectivity

Support development of an interconnected, multimodal transportation system to serve mixed-use areas, residential neighborhoods, and other activity centers.

Objectives:

- A. Provide interconnected local and collector streets to serve new and redeveloping areas and to ensure safe, efficient, and convenient pedestrian, bicycle, and vehicle access with preference for public streets over private streets.
- B. Create short blocks through development of frequent street connections in mixed-use areas of planned high-density development.
- C. Provide convenient and safe bicycle and pedestrian connections to transit routes, schools, and parks, as well as within and between new and existing residential developments, employment areas, and other activity centers where street connections are not feasible.

Explanation: Along with Policy 11.11, this policy meets the connectivity requirements of Metro's 2000 Regional Transportation Plan.

- D. Use large-scale Green Streets as a means of connecting neighborhoods, using the right-of-way efficiently, and enhancing neighborhood livability.

Policy 6.21 Right-of-Way Opportunities

Preserve existing rights-of-way unless there is no existing or future need for them, established street patterns will not be significantly interrupted, and the functional purposes of nearby streets will be maintained.

Objectives:

- A. Evaluate opportunities and the existing and future need for a bikeway, walkway, or other transportation use or potential for use as a stormwater management facility when considering vacation of any right-of-way.
- B. As a condition of street vacation, require pedestrian and bicycle facilities if needed, with first preference for dedicated right-of-way and, secondarily, through a public walkway and bikeway easement.
- C. Acquire or control parcels of land that may be needed in the future for any transportation or transportation-related stormwater management purpose when the opportunity arises through sale, donation, or land use action.
- D. Preserve existing and abandoned rail rights-of-way and examine their potential for future rail freight, passenger service, or recreational trail uses.
- E. Consider the need for maintaining right-of-way for other infrastructure needs.

Pedestrian and Bicycle Policies

Policy 6.22 Pedestrian Transportation

Plan and complete a pedestrian network that increases the opportunities for walking to shopping and services, schools and parks, employment, and transit.

Objectives:

- A. Promote walking as the mode of choice for short trips by giving priority to the completion of the pedestrian network that serves Pedestrian Districts, schools, neighborhood shopping, and parks.
- B. Support walking to transit by giving priority to the completion of the pedestrian network that serves transit centers, stations, and stops; providing adequate crossing opportunities at transit stops; and planning and designing pedestrian improvements that allow adequate space for transit stop facilities.

- C. Improve the quality of the pedestrian environment by implementing pedestrian design guidelines to ensure that all construction in the right-of-way meets a pedestrian quality standard and by developing special design districts for Pedestrian Districts and main streets.
- D. Increase pedestrian safety and convenience by identifying and analyzing high pedestrian collision locations; making physical improvements, such as traffic calming, signal improvements, and crossing improvements in areas of high pedestrian use; and supporting changes to adopted statutes and codes that would enhance pedestrian safety.
- E. Develop a citywide network of pedestrian trails that increases pedestrian access for recreation and transportation purposes and links to schools, parks, transit, and shopping as well as to the regional trail system and adjacent cities.

Policy 6.23 Bicycle Transportation

Make the bicycle an integral part of daily life in Portland, particularly for trips of less than five miles, by implementing a bikeway network, providing end-of-trip facilities, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer.

Objectives:

- A. Complete a network of bikeways that serves bicyclists' needs, especially for travel to employment centers, commercial districts, transit stations, institutions, and recreational destinations.
- B. Provide continuous bicycle facilities and eliminate gaps in the bike lane system.
- C. Install bicycle signage along bikeways where needed to define the route and/or direct bicyclists to a destination or other bikeway.
- D. Increase bicyclist safety and convenience by making improvements, removing physical hazards such as dangerous storm grates, and supporting changes to adopted statutes and codes that would enhance the safety of bicyclists.
- E. Provide short-term and/or long-term bicycle parking in commercial districts, along main streets, in employment centers and multifamily developments, at schools and colleges, in industrial developments, at special events, in recreational areas, at transit facilities such as light rail stations and park-and-ride lots, and at intermodal passenger stations.
- F. Encourage the provision of showers and changing facilities for commuting cyclists, including development of such facilities in commercial buildings and at 'Bike Central' locations.
- G. Increase the number of bicycle-transit trips.
- H. Promote bicycling as safe and convenient transportation to and from school.

Public Transportation Policy

Policy 6.24 Public Transportation

Develop a public transportation system that conveniently serves City residents and workers 24 hours a day, seven days a week and can become the preferred form of travel to major destinations, including the Central City, regional and town centers, main streets, and station communities.

Objectives:

- A. Support light rail transit and bus connections as the foundation of the regional transit system, with completion of the system to connect all regional centers, downtown Vancouver, major attractions, and intermodal passenger facilities as a high priority for the region.
- B. Base decisions about light rail transitway alignments and their connections to other regional facilities on individual corridor studies.
- C. Expand primary and secondary bus service to meet the growing demand for work and non-work trips, operate as the principal transit service for access and mobility needs, help reduce congestion, and support the economic activities of the City.
- D. Implement transit-preferential measures on Major Transit Priority Streets to achieve travel times competitive with the automobile and to improve service reliability.
- E. Consider the use of alternative forms of transit, including vanpools and dial-a-ride in low-density areas and other forms of transit such as water taxis.
- F. Support a public transit system and regional transportation strategies that address the special needs of the transportation disadvantaged and provide increased mobility options and access.
- G. Locate major park-and-ride lots only where transit ridership is increased significantly, vehicle miles traveled are reduced, transit-supportive development is not hampered, bus service is not available or is inadequate, and the surrounding area is not negatively impacted.
- H. Develop streetcar lines in Portland to connect new or redeveloping neighborhoods to employment opportunities and other destinations, including shopping, education, and recreation.

Parking and Demand Management Policies

Policy 6.25 Parking Management

Manage the parking supply to achieve transportation policy objectives for neighborhood and business district vitality, auto trip reduction, and improved air quality.

Objectives:

- A. Implement measures to achieve Portland's share of the mandated 10 percent reduction in parking spaces per capita within the metropolitan area over the next 20 years.
- B. Consider transportation capacity and parking demand for all motor vehicles in the regulation of the parking supply.
- C. Develop parking management programs and strategies that improve air quality, reduce congestion, promote alternatives to the drive-alone commute, and educate and involve businesses and neighborhoods.

Policy 6.26 On-Street Parking Management

Manage the supply, operations, and demand for parking and loading in the public right-of-way to encourage economic vitality, safety for all modes, and livability of residential neighborhoods.

Objectives:

- A. Support land uses in existing and emerging regional centers, town centers, and main streets with an adequate supply of on-street parking.
- B. Maintain existing on-street parking in older neighborhoods and commercial areas where off-street parking is inadequate, except where parking removal is necessary to accommodate alternatives to the automobile.
- C. Support carpooling in commercial districts by providing convenient, affordable, and adequate on-street spaces.
- D. Develop and maintain on-street parking meter districts to provide for customer turnover, reduce on-street parking use by commuters, efficiently allocate parking among diverse users, encourage the use of alternatives to the automobile, and provide a funding source for transportation projects within the districts.

Policy 6.27 Off-Street Parking

Regulate off-street parking to promote good urban form and the vitality of commercial and employment areas.

Explanation: This policy focuses on the characteristics of areas where off-street parking is essential to economic vitality and to other areas where parking is de-emphasized in order to achieve good non-SOV (single-occupant vehicle) mode splits and compact development.

Objectives:

- A. Consider eliminating requirements for off-street parking in areas of the City where there is existing or planned high-quality transit service and good pedestrian and bicycle access.

- B. Encourage the redevelopment of surface parking lots into transit-supportive uses or development or to include facilities for alternatives to the automobile.

Explanation: Surface parking lots discourage compact development because they are space extensive. Existing parking lots can transition over time to provide less automobile parking and encourage better development and the use of alternatives. Examples include: making parking lots more efficient by including carpool and motorcycle parking, redeveloping parking as transit facilities such as bus waiting areas, removing parking for more development, or placing parking in structures rather than surface lots.

- C. Limit the development of new parking spaces to achieve land use, transportation, and environmental objectives.

Explanation: This objective was implemented in 2000 when parking maximums for non-residential uses throughout the City were adopted into Title 33.

Policy 6.28 Travel Management

Reduce congestion, improve air quality, and mitigate the impact of development-generated traffic by supporting transportation choices through demand management programs and measures and through education and public information strategies.

Explanation: This policy and its objectives address a range of measures that reduce the demand for parking, congestion, impervious surface areas, and vehicle miles traveled.

Objectives:

- A. Develop neighborhood-based programs to promote and support multimodal strategies and trip reduction strategies and programs.
- B. Meet the access and mobility needs of businesses and employees in key employment and regional centers with customized alternative transportation programs that result in reduced congestion and improved air quality.
- C. Support and encourage the growth of car sharing among City residents and businesses through actions that expand the supply of car sharing vehicles at convenient locations and actions that increase the demand for car sharing services.
- D. Require institutions to regulate parking facilities, first to provide short-term parking for visitors and, second, to minimize the amount of employee parking through demand management measures such as carpooling, ridesharing, flexible work hours, telecommuting, parking management, and employer-subsidized transit passes.
- E. Require institutions to mitigate excessive parking impacts on residential areas.
- F. Require institutions and other large employers to participate in programs to reduce single-occupant automobile trips.

Explanation: Transportation demand management measures are key to ensuring the compatibility of institutions with the neighborhoods in which they are located. The policy and objectives are implemented, in part, through conditional use and impact mitigation plan approval criteria language in Title 33: Planning and Zoning.

Freight, Terminals, and Truck Policies

Policy 6.29 Multimodal Freight System

Develop and maintain a multimodal freight transportation system for the safe, reliable and efficient movement of freight within and through the City.

Objectives:

- A. Support a well-integrated freight system that includes truck, rail, marine, air, and pipeline modes as vital to a healthy economy.
- B. Coordinate with private and public stakeholders to identify improvement and funding strategies for multimodal freight mobility needs.
- C. Participate with interjurisdictional partners in the development of corridor plans, master plans, and regional facility plans that impact freight mobility.
- D. Address freight access and mobility needs when conducting multimodal transportation studies or designing transportation facilities.
- E. Work with community stakeholders to minimize adverse impacts of freight activity on the environmental and residential and mixed-use neighborhoods.

Explanation: The movement of freight, goods, and services is addressed by other objectives under Policy 5.4, Transportation System, of the Economic Development goal of the Comprehensive Plan.

Policy 6.30 Truck Mobility

Develop, manage, and maintain a safe, efficient, and reliable freight street network to serve Freight Districts, commercial areas, and neighborhoods.

Explanation: This policy recognizes the City's role in managing truck movement on its street system.

Objectives:

- A. Prioritize transportation investments in the freight street network that improve connections between Freight Districts and Regional Truckways.
- B. Accommodate truck travel on designated truck streets through improvements to facility design and operations that address the dimensional needs of trucks.

- C. Encourage through-truck traffic to use Regional Truckways, Priority Truck Streets, and Major Truck Streets for mobility and Truck Access Streets and Local Service Truck Streets to access local destinations.
- D. Develop and implement street connectivity plans for Freight Districts to improve truck circulation and access to industrial land uses.
- E. Develop and implement a signage plan for designated truck routes and major freight destinations.
- F. Designate and maintain preferred routes to accommodate over-dimensional freight movement.
- G. Employ intelligent transportation system measures to reduce delays and improve travel time on Regional Truckways, Priority Truck Streets and Major Truck Streets.

Policy 6.31 Truck Accessibility

Improve truck access to and from intermodal freight facilities, industrial and commercial districts, and the regional freight system.

Objectives:

- A. Evaluate and improve locations where inadequate roadway design creates barriers for truck access in Freight Districts and on designated truck streets.
- B. Upgrade bridges to remove load limits and vertical clearance restrictions on designated truck streets.
- C. Use public-private collaboration to identify and implement measures to minimize delays and improve safety at at-grade rail freight crossings.
- D. Provide adequate off-street loading areas for larger employment, commercial and multi-family developments.
- E. Manage supply, operations, and demand of on-street truck loading spaces to ensure efficient, reliable and safe loading and unloading activities.
- F. Implement design guidelines for truck streets that meet the dimensional needs of trucks, particularly for Freight Districts, while balancing the needs of other transportation modes in the right-of-way.

Regional Transportation Policies

Policy 6.32 Regional Trafficways

Accommodate future increases in regional through-traffic in Portland on existing Regional Trafficways.

Objectives:

- A. Regard the City's Regional Trafficway system within Portland to be substantially complete, except for safety or other improvements to existing facilities that increase their efficiency.
- B. Oppose extension of a new circumferential freeway north of US 26 into the City and through Forest Park.

Policy 6.33 Multimodal Passenger Service

Participate in coordinated planning, development, and interconnection of Portland, regional, and intercity transportation services for passenger travel.

Objectives:

- A. Support continuation of Union Station as the multimodal transportation hub, serving as the primary passenger rail and intercity bus terminal in the Portland metropolitan area and providing direct connections among passenger rail, light rail, streetcar, intracity buses, taxis, and airport shuttle buses.
- B. Support continuation of Portland International Airport as the multimodal passenger air facility hub by encouraging direct connections for all modes, including light rail transit, buses, taxis, and airport shuttles.
- C. Support development of passenger transfer facilities in existing and emerging regional centers.
- D. Support commuter rail service where it will reinforce the 2040 Growth Concept and is an efficient alternative to the automobile.
- E. Support expansion of Northwest Corridor passenger rail service between Eugene, Portland, Seattle, and Vancouver, B. C. by incremental improvements in speed, frequency, and station facilities, in cooperation with the States of Oregon and Washington and the Province of British Columbia.

Policy 6.34 Congestion Pricing

Advocate for a regional, market-based system to price or charge for auto trips during peak hours.

Objectives:

- A. Support pricing strategies that are based on the environmental and social costs of motor vehicles.

- B. In cooperation with Metro and other jurisdictions, choose corridors to implement market-based pricing where high-quality transportation alternatives to driving exist.
- C. Support experiments in equitable and efficient pricing of new motor vehicle transportation facilities.

Transportation Districts Policies

Policy 6.35 North Transportation District

Reinforce neighborhood livability and commercial activity by planning and investing in a multimodal transportation network, relieving traffic congestion through measures that reduce transportation demand, and routing non-local and industrial traffic along the edges of the residential areas.

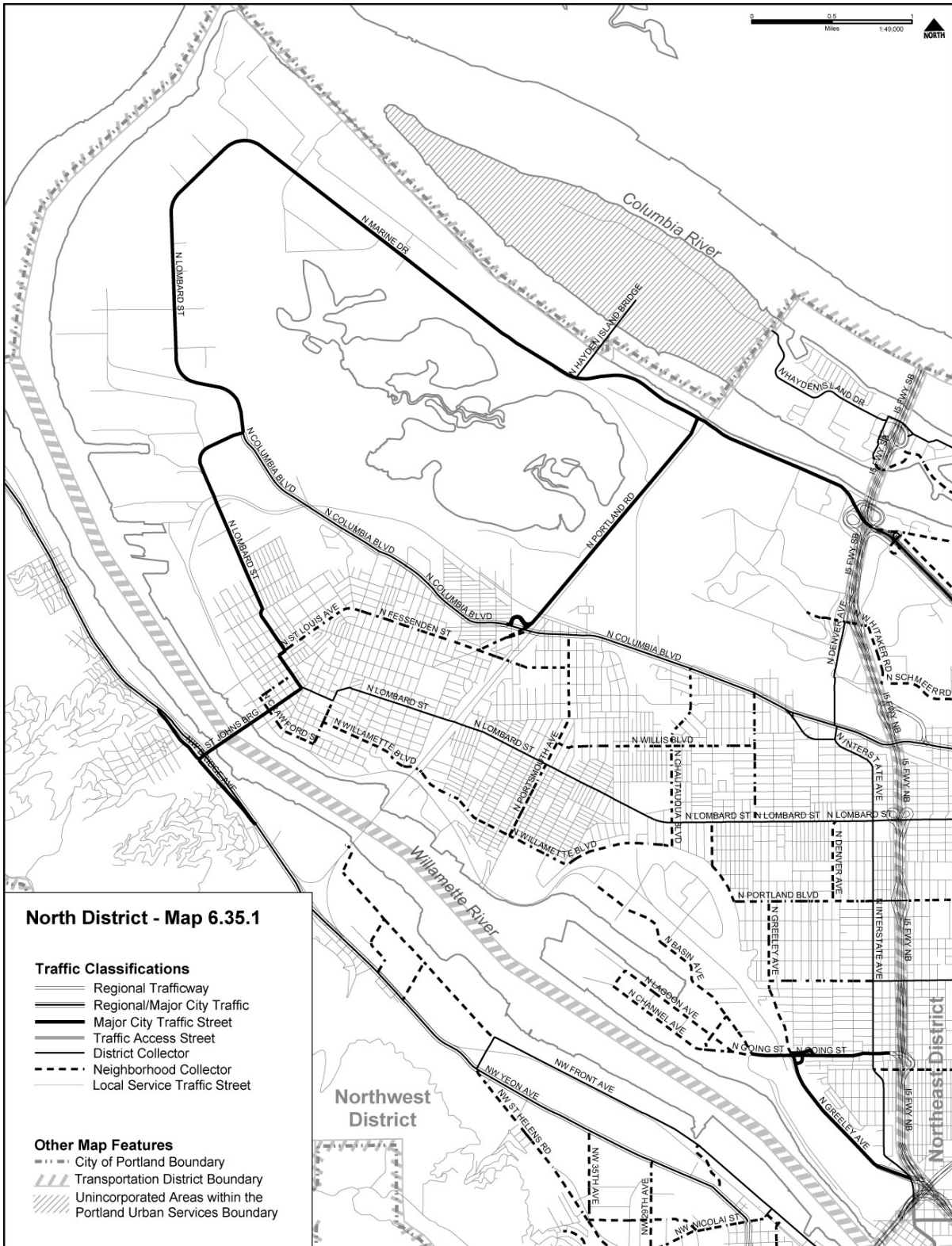
Objectives:

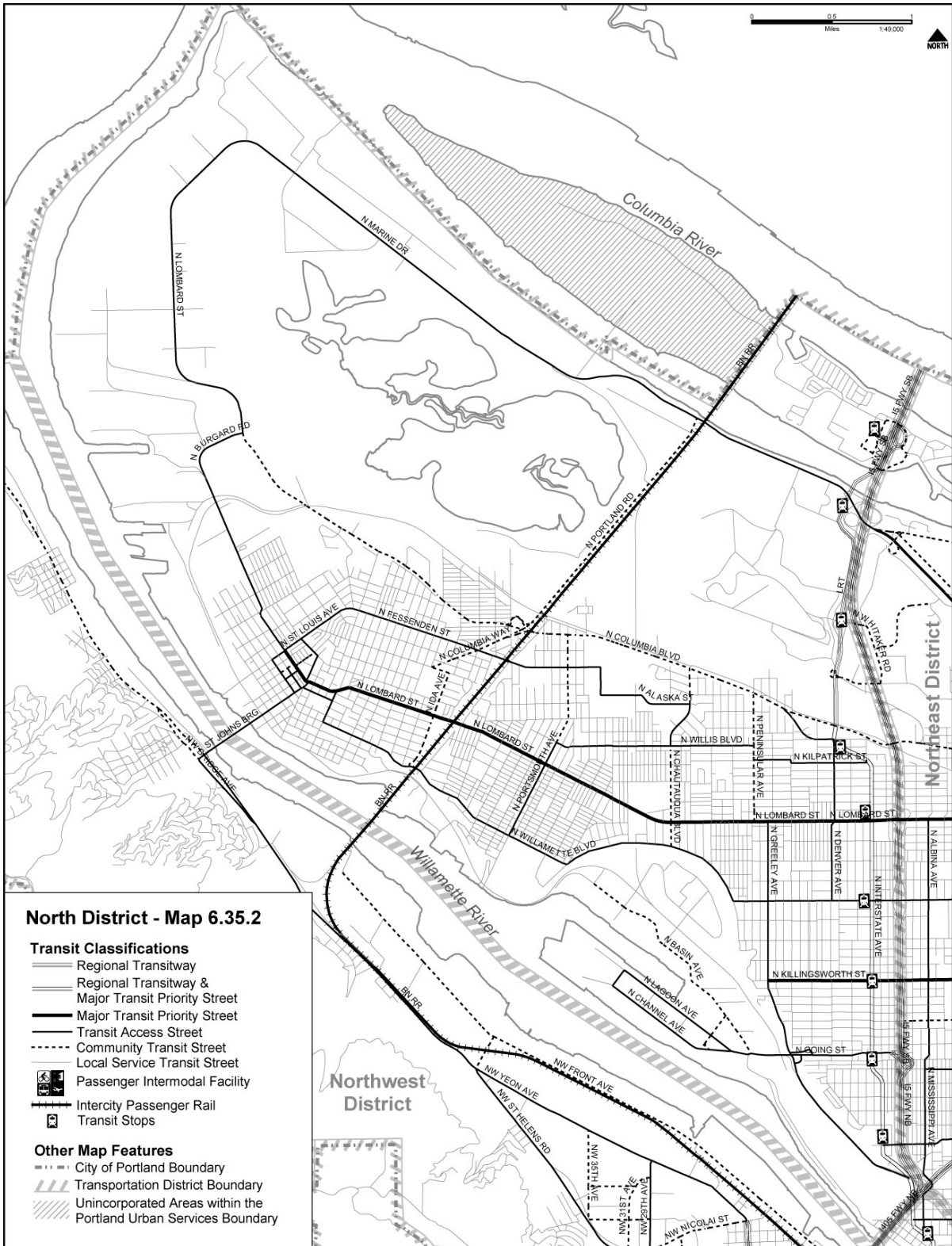
- A. Improve truck and freight movement in North Portland through changes to the street system, street classifications, and signing to enhance the economic vitality of the area and minimize impacts on residential, commercial, and recreational areas.
- B. Support efficient functioning of the N Marine Drive/ N Lombard (west of N Philadelphia)/N Columbia Boulevard loop as the truck and commuter access to the Rivergate industrial area and adjacent industrial areas.
- C. Direct industrial traffic onto N Columbia Boulevard, while allowing limited access from residential neighborhoods and mitigating for unacceptable traffic impacts.
- D. Implement the Phase 1 and Phase 2 improvements recommended in the I-5 Delta Park Environmental Assessment.

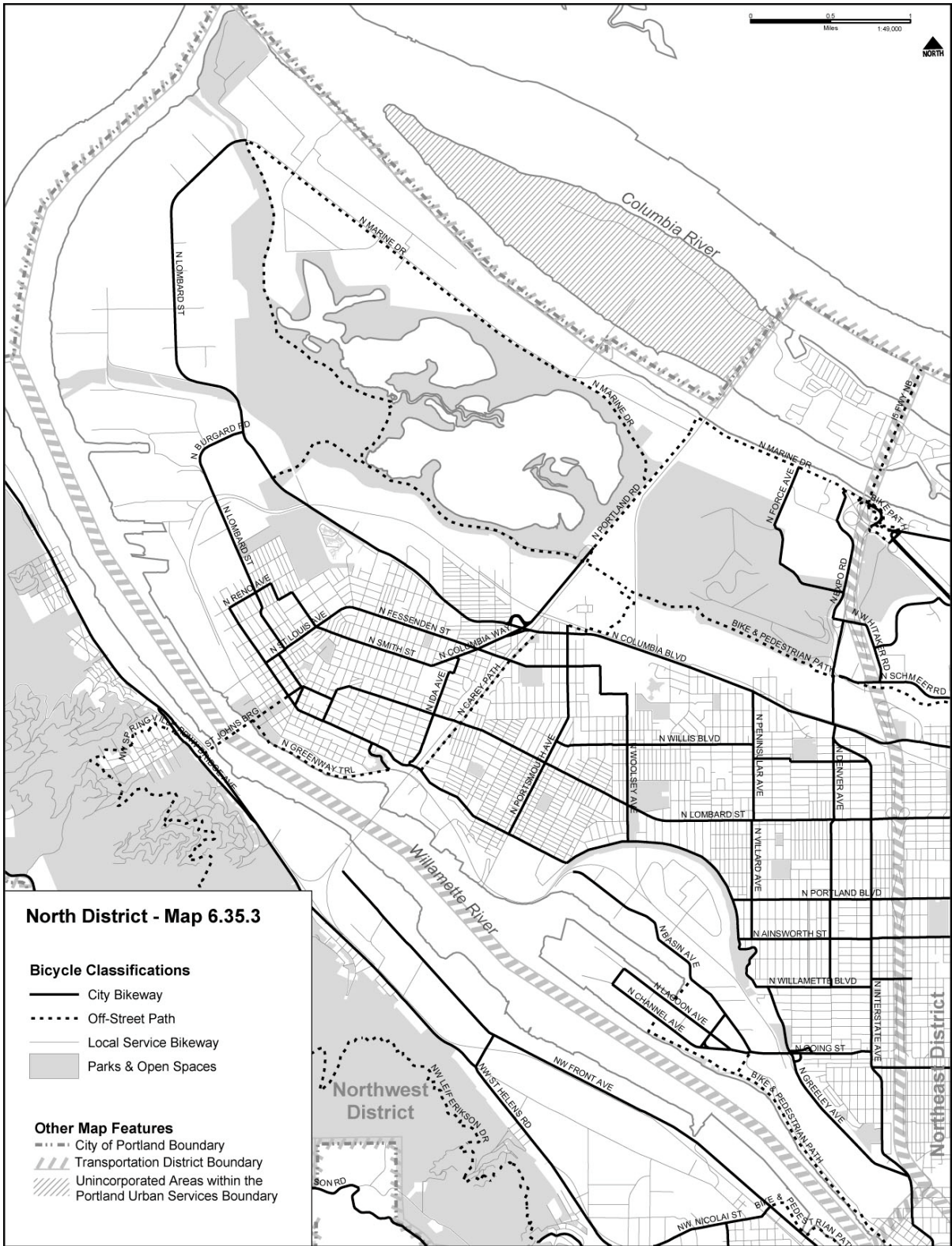
Explanation: City Council adopted the recommendations of the I-5 Delta Park Hearings Panel for the Locally Preferred Alternative for this project as identified in the Environmental Assessment document prepared by the Oregon Department of Transportation.

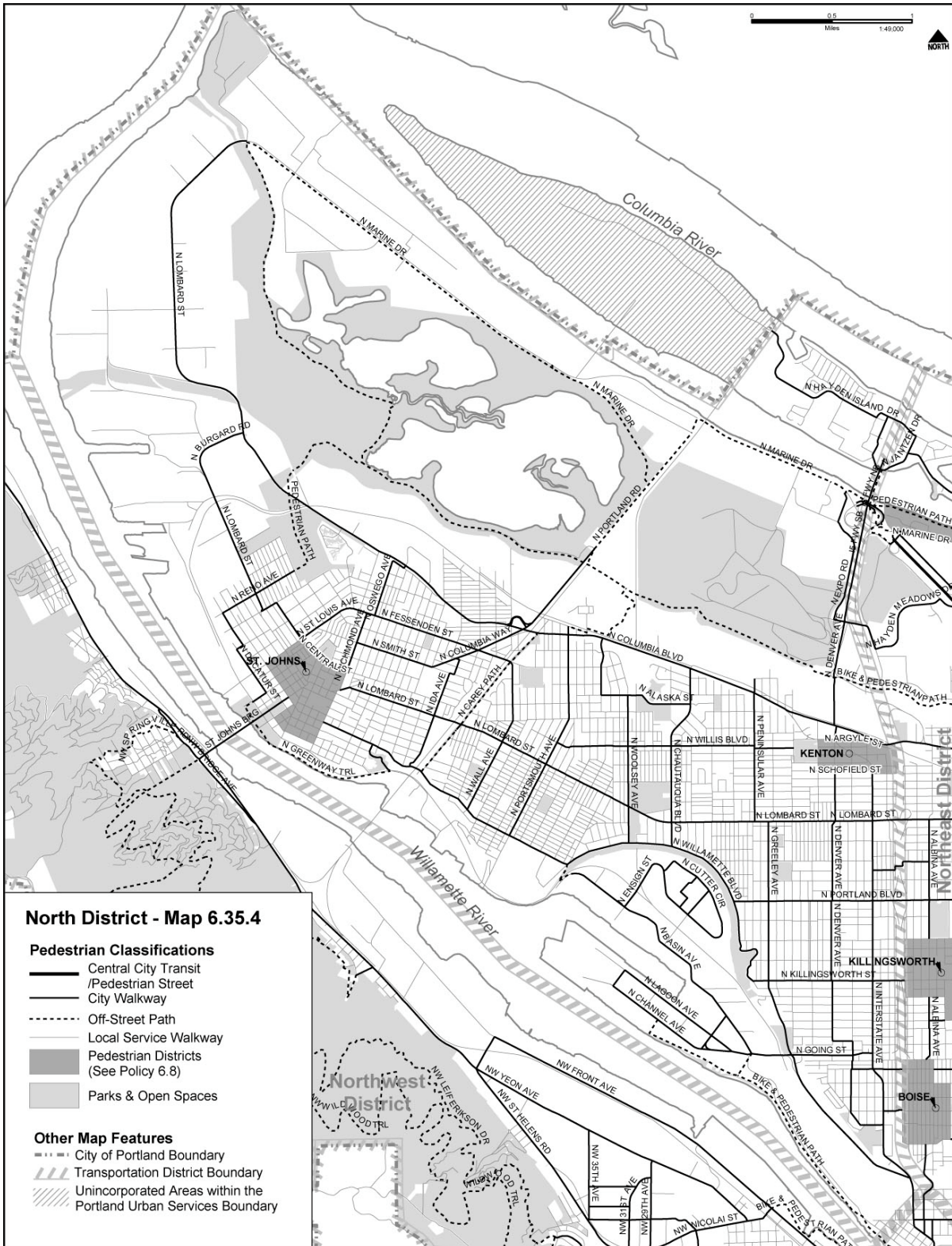
- E. Work with the Federal Highway Commission and ODOT to remove the US 30 Bypass designation from Philadelphia and Lombard, west of Martin Luther King, Jr. Boulevard, and relocate it to more appropriate streets to minimize impacts on the St Johns town center and the Lombard main street.
- F. Support improvements to transit service that will link North Portland to areas outside the downtown, especially to the Rose Quarter transit center and industrial areas within and outside the district.
- G. Encourage transit coverage and frequency improvements, as well as bus stop improvements, within the district and within commercial and employment centers, including Portland International Raceway, Swan Island, and Rivergate.
- H. Develop light rail transit on North Interstate and to the Exposition Center; place stations at major arterials where good feeder bus service can be provided; capitalize on redevelopment opportunities that support light rail; and mitigate potential negative impacts of diversion of automobile traffic onto nearby Neighborhood Collectors and Local Service Traffic Streets.
- I. Preserve the planned functions of Willamette Boulevard by evaluating and implementing transportation measures along N Lombard east of N St. Louis to

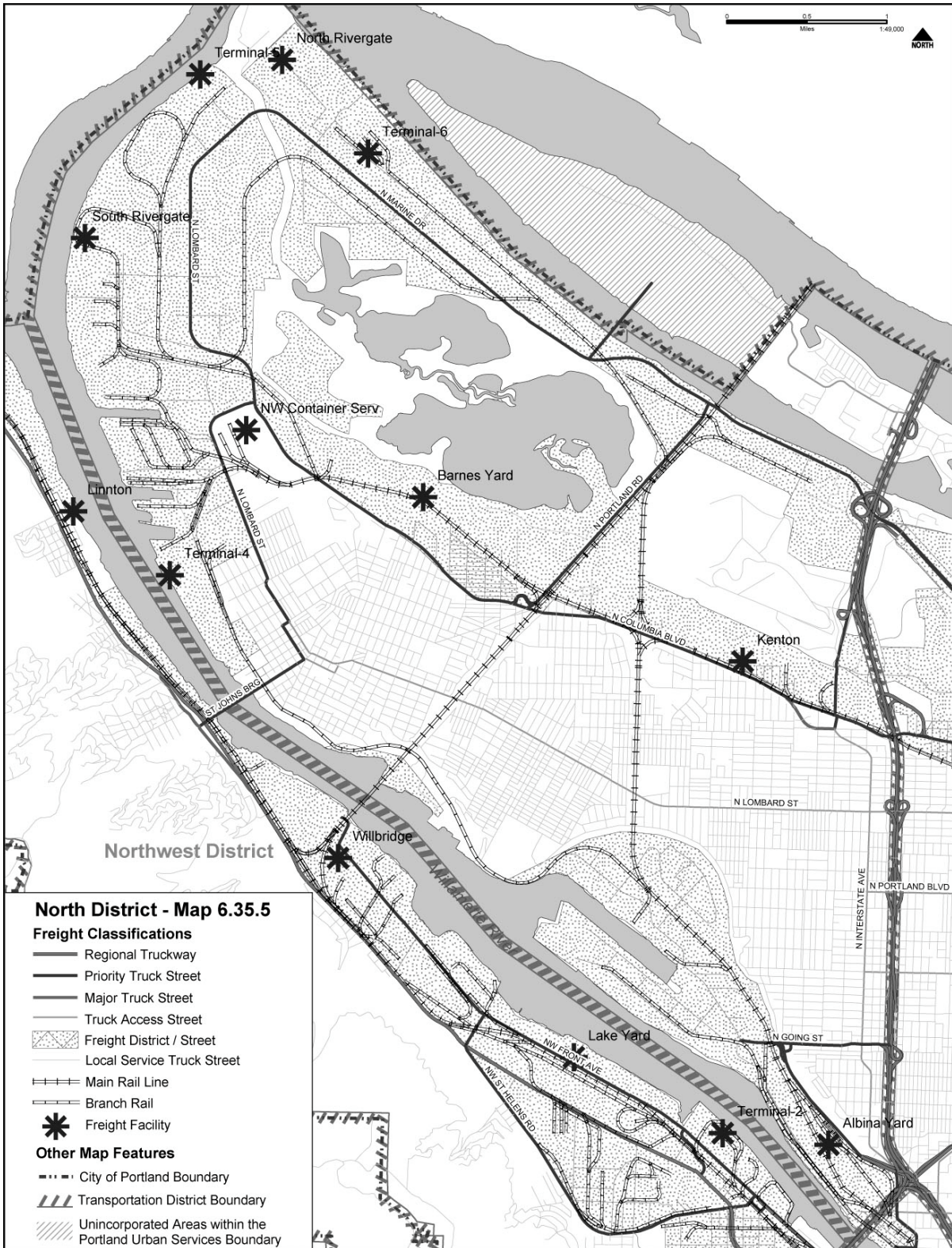
- improve Lombard's function as a District Collector and main street.
- J. Improve pedestrian and bicycle access within the St. Johns town center and from nearby destinations, including Pier Park, the Columbia Slough, and Smith and Bybee Lakes.
 - K. Develop additional east/west and north/south bicycle routes to serve commuter and recreational bicyclists and provide connections to Northeast Portland bikeways.
 - L. Complete the sidewalk system in North Portland, including enhanced pedestrian crossings on streets with high volumes of vehicle traffic.
 - M. Consider extension of the Willamette Greenway Trail south from its current designation that ends at Edgewater and connecting to the trail on Swan Island, following the outcome of a feasibility study.
 - N. Explore opportunities for additional street connections over the railroad cut and between the Willamette River and nearby residential areas.
 - O. Improve parking management within the St. Johns town center and at Portland International Raceway.
 - P. Encourage the use of Columbia Boulevard as the primary route for over-dimensional truckloads while ensuring the role of N Lombard (west of Martin Luther King, Jr. Boulevard) as an interim route until such time as improvements are completed that allow North Columbia to accommodate all types of over-dimensional truckloads.

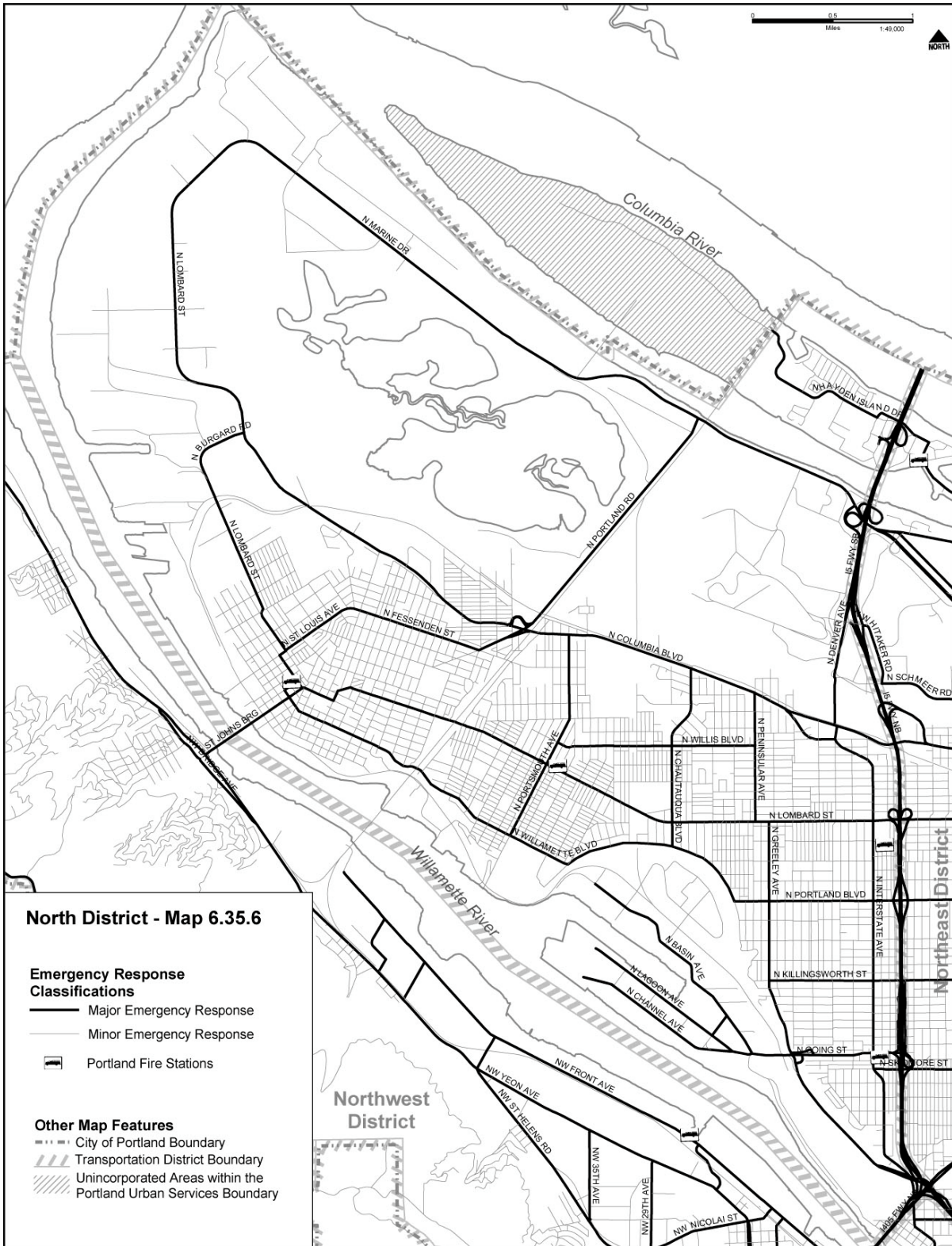


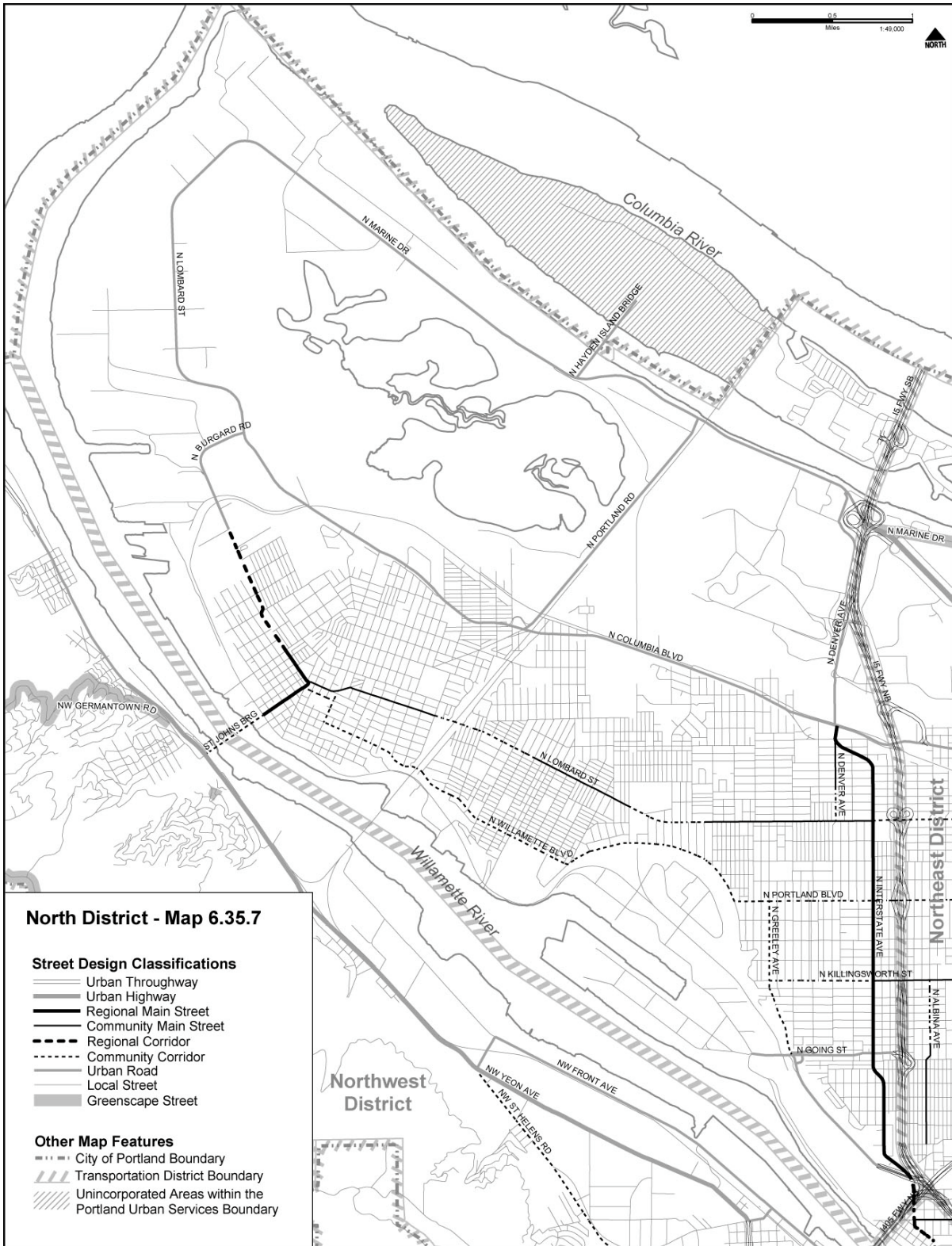












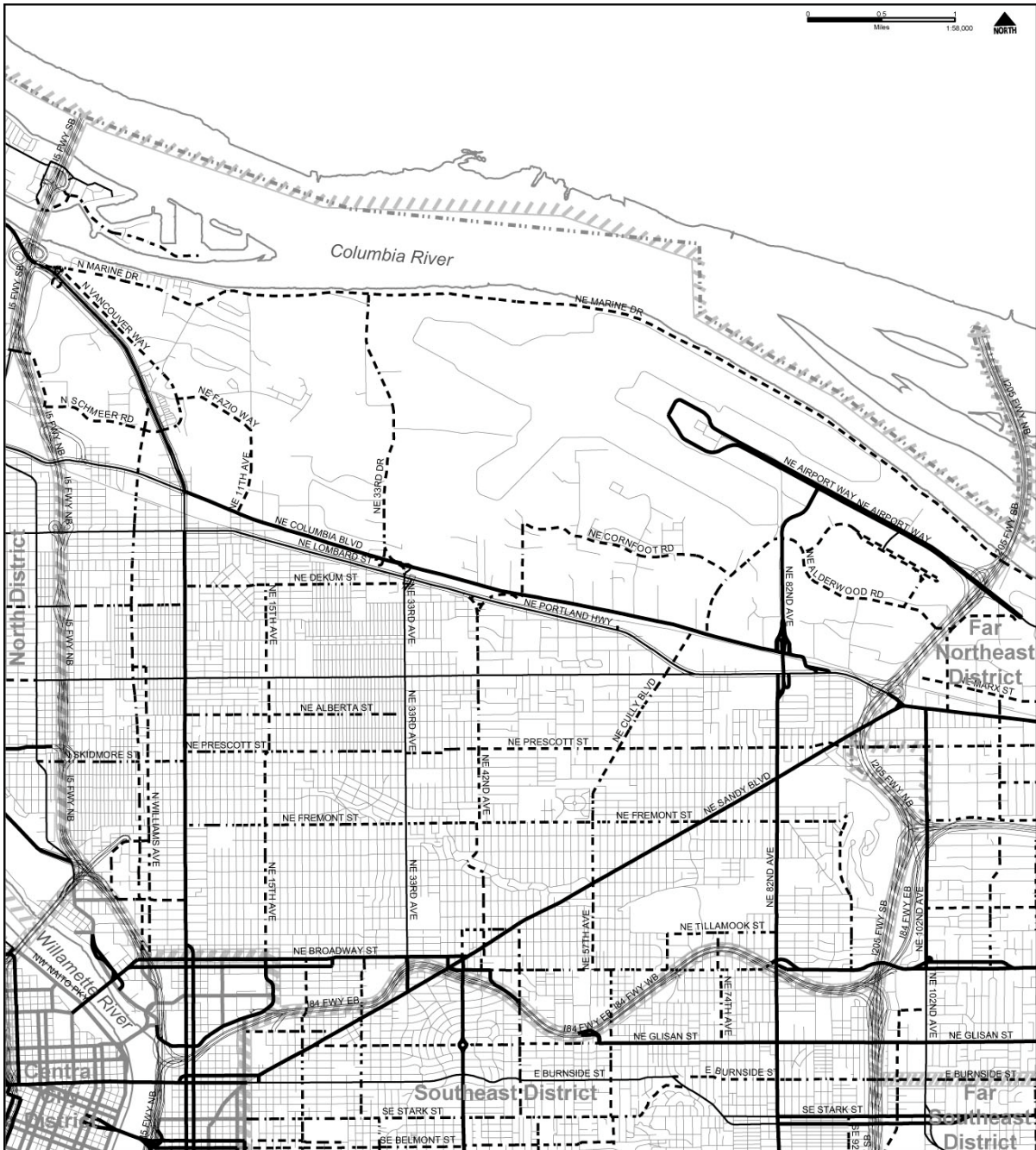
Policy 6.36 Northeast Transportation District

Support the efficient use of land in Northeast Portland by focusing development and redevelopment where there will be a reduction in reliance on the automobile.

Objectives:

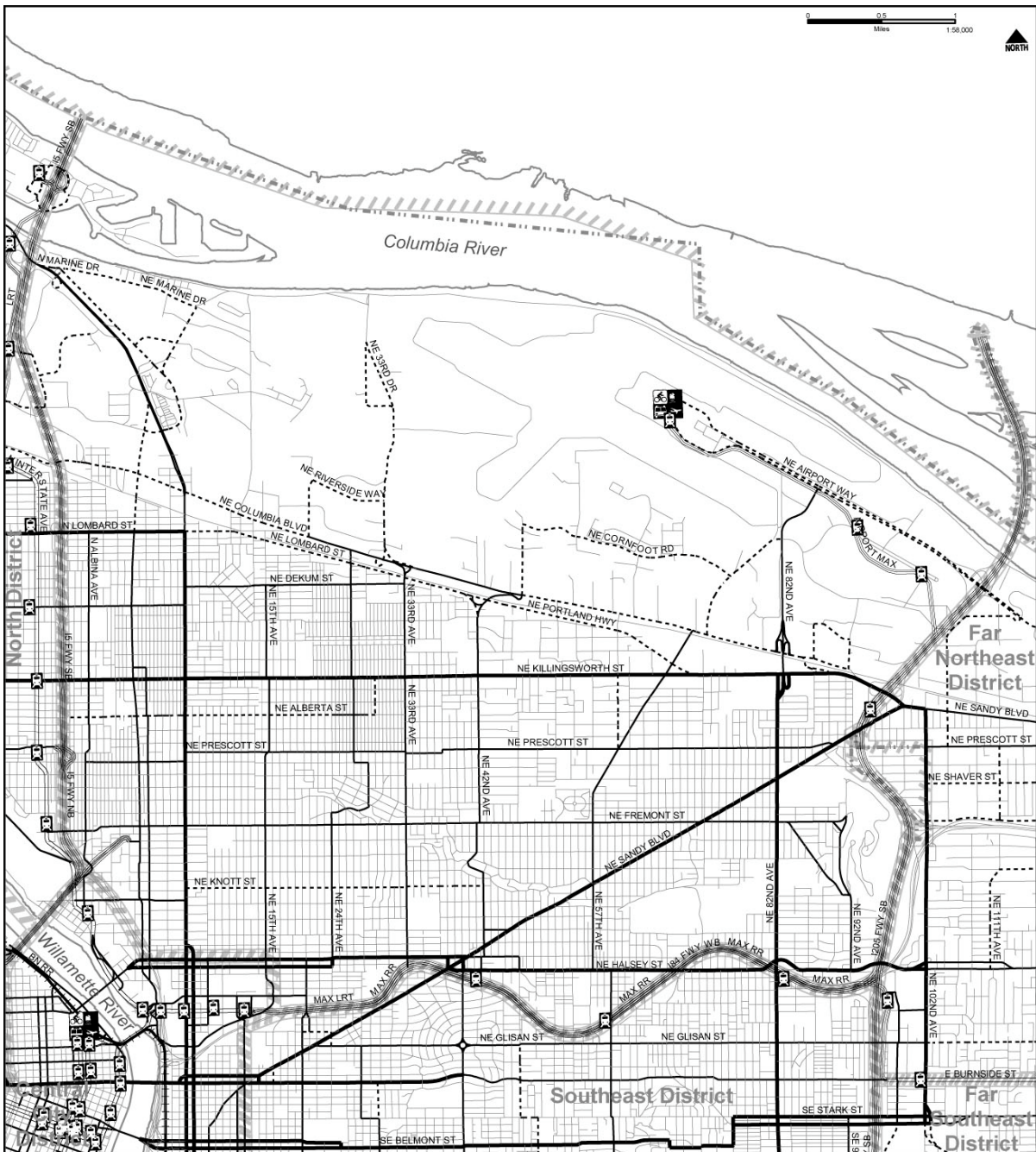
- A. Encourage automobile and truck through-traffic to use major arterials near the edges of the district to reduce peak-period traffic impacts and to preserve neighborhood livability.
- B. Enhance traffic and pedestrian access and improve transit service to regional and district commercial areas, including Lloyd Center, Hollywood, Rose City Park, Sandy Boulevard, and the neighborhood commercial district at NE 60th/Prescott/Cully.
- C. Retain Portland Boulevard's interchange with I-5, while maintaining its function and appearance as a Neighborhood Collector east of I-5.
- D. Encourage the use of I-84 and I-205 for primary access to the Columbia South Shore, Portland International Airport, and Portland International Center; encourage the use of NE Airport Way (east of I-205) and Portland Boulevard/Killingsworth (south of the Columbia Slough) as the secondary access from the interstate system.
- E. Improve transit service and facilities where needed to serve employment areas, including the Columbia Corridor, Northwest industrial area, and developing residential areas.
- F. Work with Tri-Met and businesses to encourage the use of alternatives to automobiles, particularly in the Columbia Corridor, through transit service improvements and incentives and transportation demand management techniques such as flexible work hours, telecommuting, carpooling, bicycling, and vanpooling.
- G. Continue to develop east/west and north/south bicycle routes, both on-street and off-street, to connect with existing bikeways (including those on East Burnside and I-205) and with work, school, commercial, and recreational destinations.
- H. Increase pedestrian access to transit throughout the district, including enhancing pedestrian districts where through-traffic is discouraged.
- I. Implement the projects recommended in the Columbia Corridor Transportation Study that improve vehicle and transit access, safety for all modes, and local connections.
- J. Balance the needs of adjacent land uses (located in a design zone) at the NE Lombard and Martin Luther King, Jr. Boulevard intersection with the need for truck movement.
- K. Implement the recommendations in the Hollywood and Sandy Plan to create a pedestrian-friendly and transit-supportive town center and main street, with emphasis at key nodes where neighborhood services and mixed-use development are encouraged.

- L. Use street dedications and street vacations as a tool to support development, while ensuring connectivity and access.
- M. Bring substandard streets up to City standards, including construction of sidewalks, especially in the Cully neighborhood.



Northeast District - Map 6.36.1

Traffic Classifications		Other Map Features
Regional Trafficway	Traffic Access Street	City of Portland Boundary
Regional/Major City Traffic	District Collector	Transportation District Boundary
Major City Traffic Street	Neighborhood Collector	Unincorporated Areas within the Portland Urban Services Boundary
	Local Service Traffic Street	



Northeast District - Map 6.36.2

Transit Classifications		Other Map Features
Regional Transitway	Community Transit Street	City of Portland Boundary
Regional Transitway & Major Transit Priority Street	Local Service Transit Street	Transportation District Boundary
Major Transit Priority Street	Intercity Passenger Rail	Unincorporated Areas within the Portland Urban Services Boundary
Transit Access Street	Passenger Intermodal Facility	
	Transit Stops	



Northeast District - Map 6.36.4

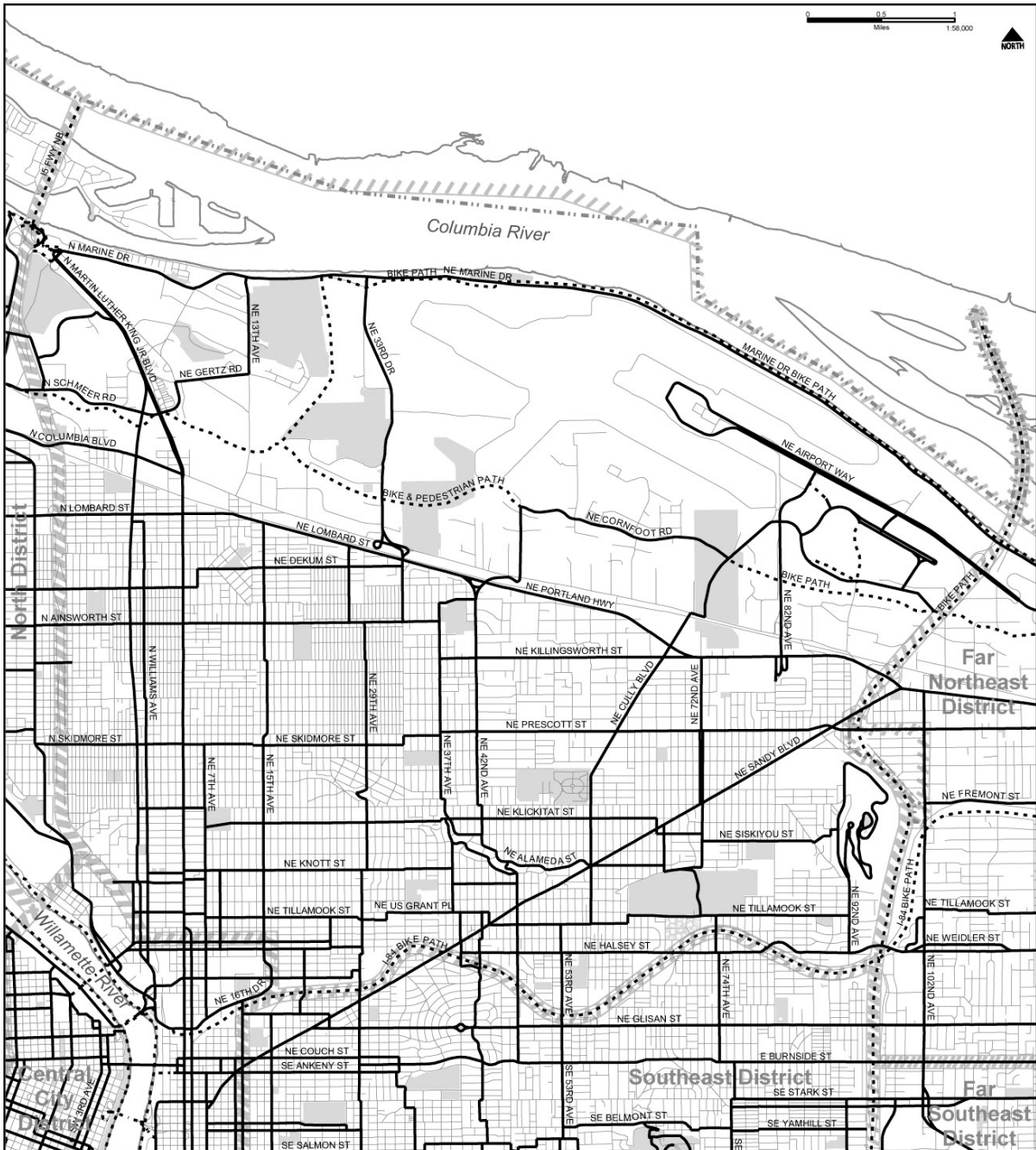
Pedestrian Classifications

- Central City Transit/Pedestrian Street
- City Walkway
- Off-Street Path
- Local Service Walkway

- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary



Northeast District - Map 6.36.3

Bicycle Classifications

- City Bikeway
- - - Off-Street Path
- Local Service Bikeway

■ Parks & Open Spaces

Other Map Features

- - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



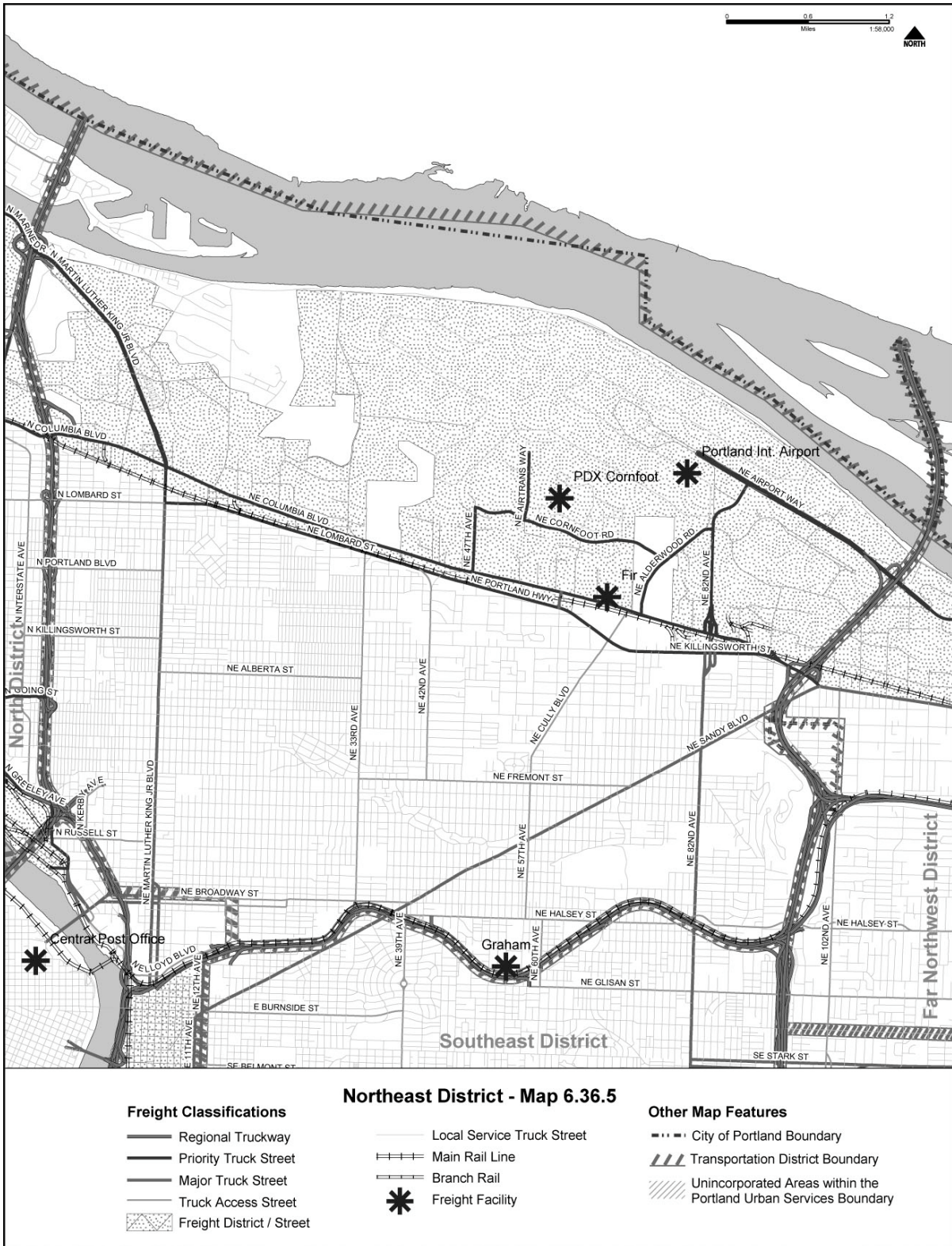
Northeast District - Map 6.36.4

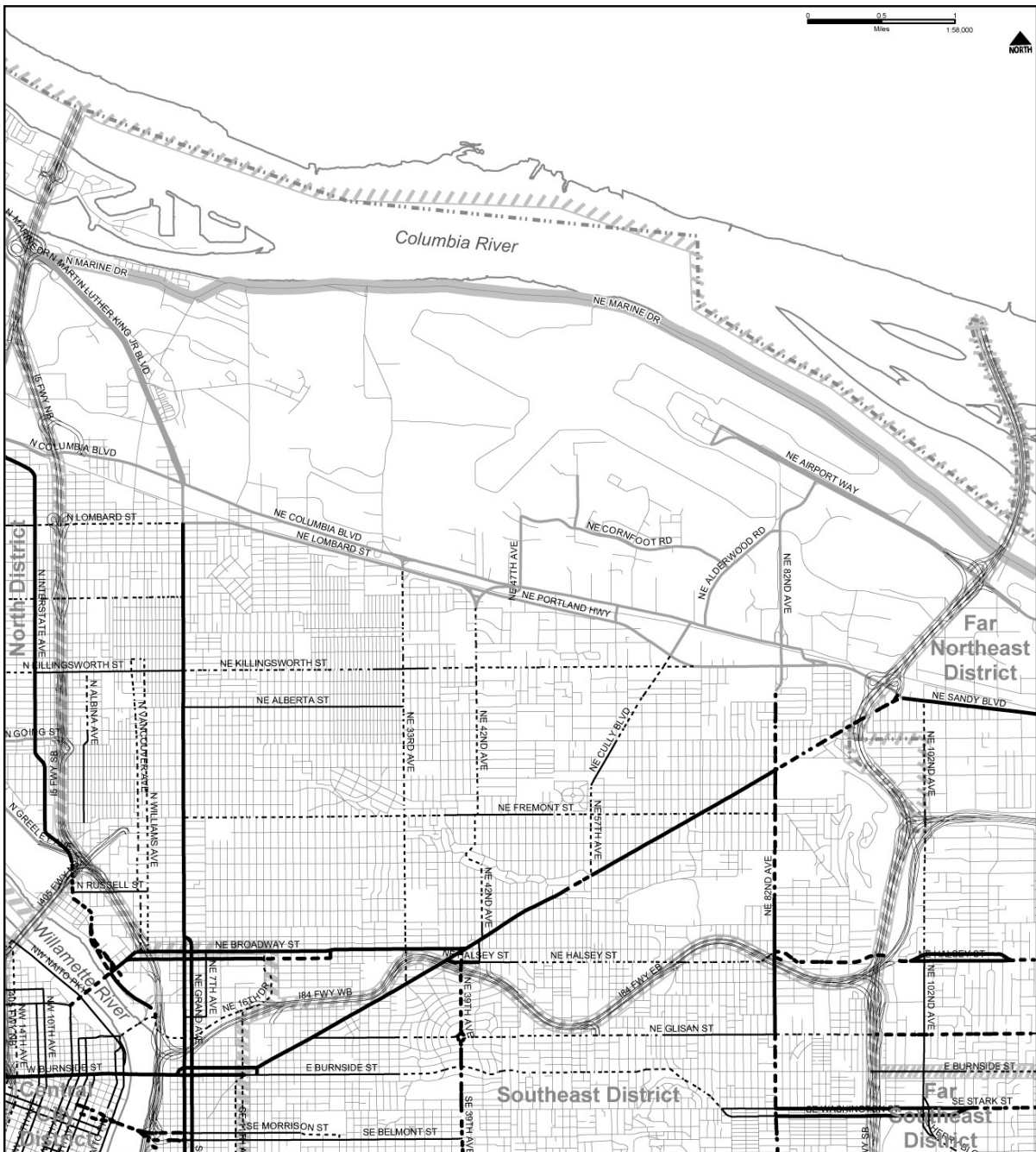
Pedestrian Classifications

- Central City Transit/Pedestrian Street
- City Walkway
- Off-Street Path
- Local Service Walkway
- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary





Northeast District - Map 6.36.7

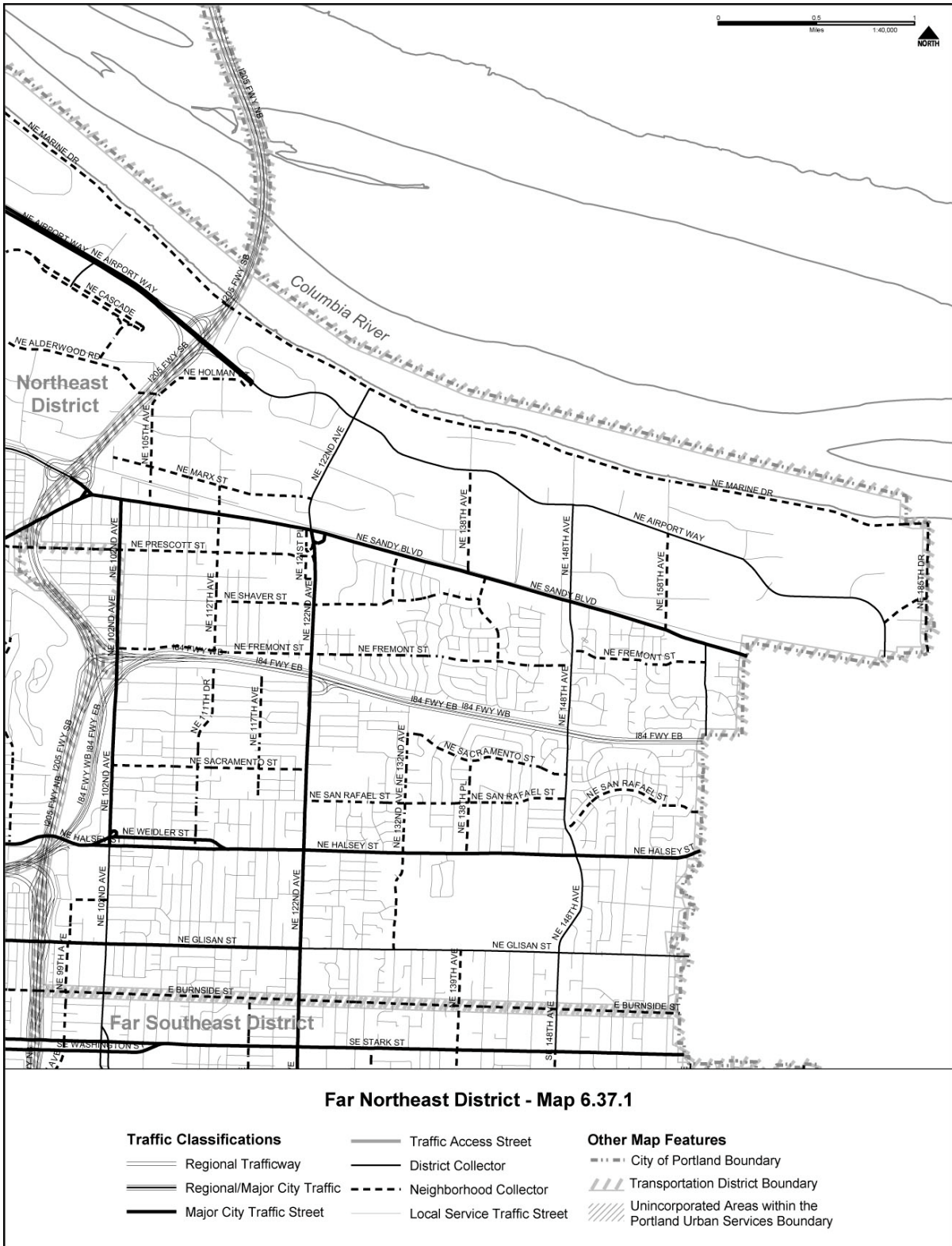
Street Design Classifications		Other Map Features	
Urban Throughway	Regional Corridor	City of Portland Boundary	Transportation District Boundary
Urban Highway	Community Corridor	Unincorporated Areas within the Portland Urban Services Boundary	
Regional Main Street	Urban Road		
Community Main Street	Local Street		
	Greenscape Street		

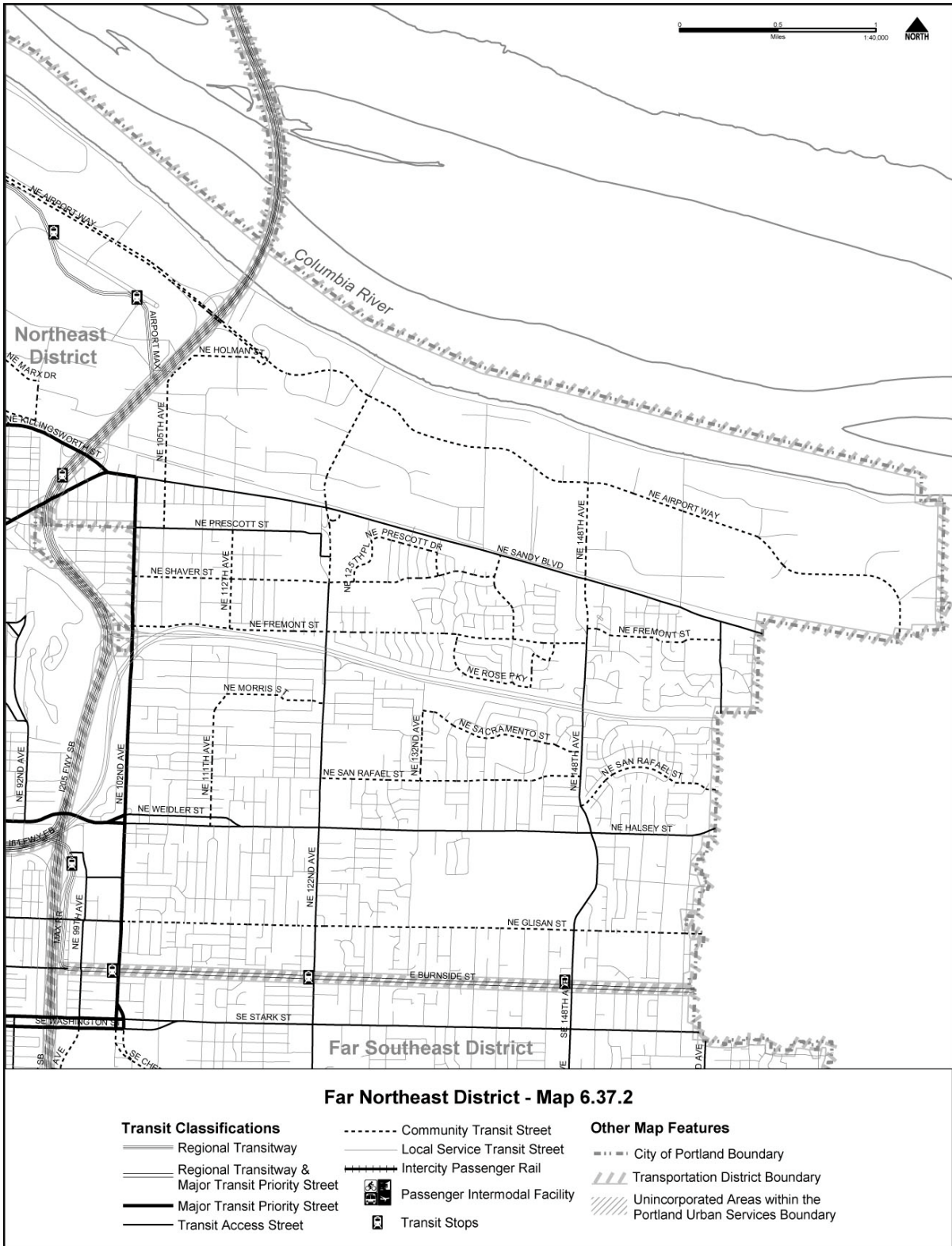
Policy 6.37 Far Northeast Transportation District

Support transportation choices by focusing transit and traffic movement on a well-defined system of arterials, implementing demand management measures, and encouraging walking and bicycling in the Far Northeast.

Objectives:

- A. Enhance the arterial street system by improving connections between Neighborhood Collectors and District Collectors and eliminating bottlenecks, such as narrow rail viaducts, that contribute to intrusions into residential neighborhoods by commercial, industrial, and non-local traffic.
- B. Improve cross-town transit service to accommodate trips within the Far Northeast District, transit service along Sandy, and transit connections to light rail.
- C. Improve the designated bicycle network and connect major routes to routes in adjacent districts and jurisdictions.
- D. Implement the Gateway Concept and Redevelopment Strategy recommendations to provide street connections as redevelopment occurs, manage regional traffic impacts, and focus boulevard and main street improvements on 102nd.
- E. Resolve the long-term future of the park-and-ride facility at the Gateway transit center to reinforce the regional center's long-term vitality.
- F. Add pedestrian facilities, including sidewalks and crossings, and enhancements, such as street trees and drinking fountains, to provide good access within neighborhoods and to Gateway and other commercial areas.











Far Northeast District - Map 6.37.3

Bicycle Classifications

-  City Bikeway
-  Off-Street Path
-  Local Service Bikeway

 Parks & Open Spaces

Other Map Features

-  City of Portland Boundary
-  Transportation District Boundary
-  Unincorporated Areas within the Portland Urban Services Boundary



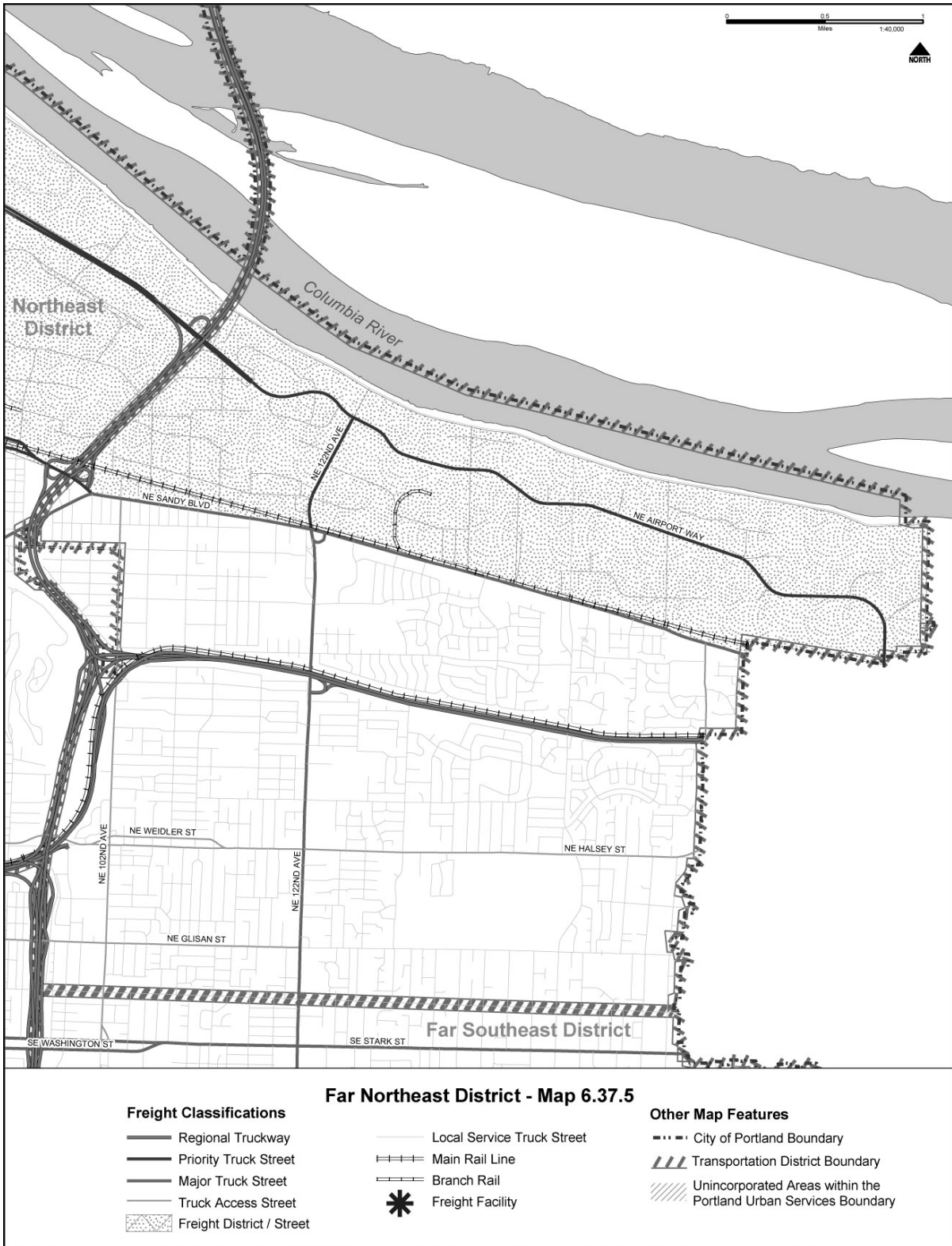
Far Northeast District - Map 6.37.4

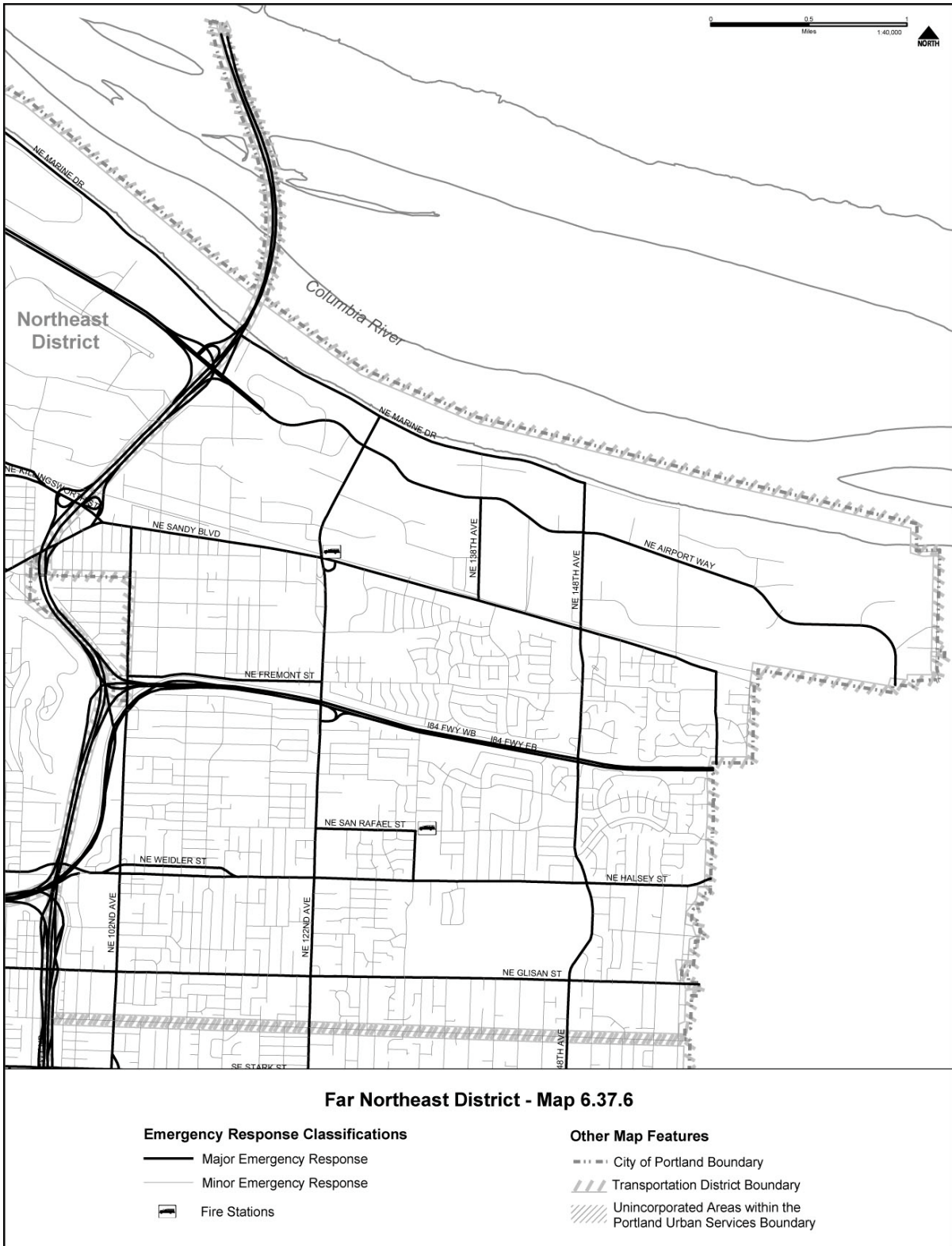
Pedestrian Classifications

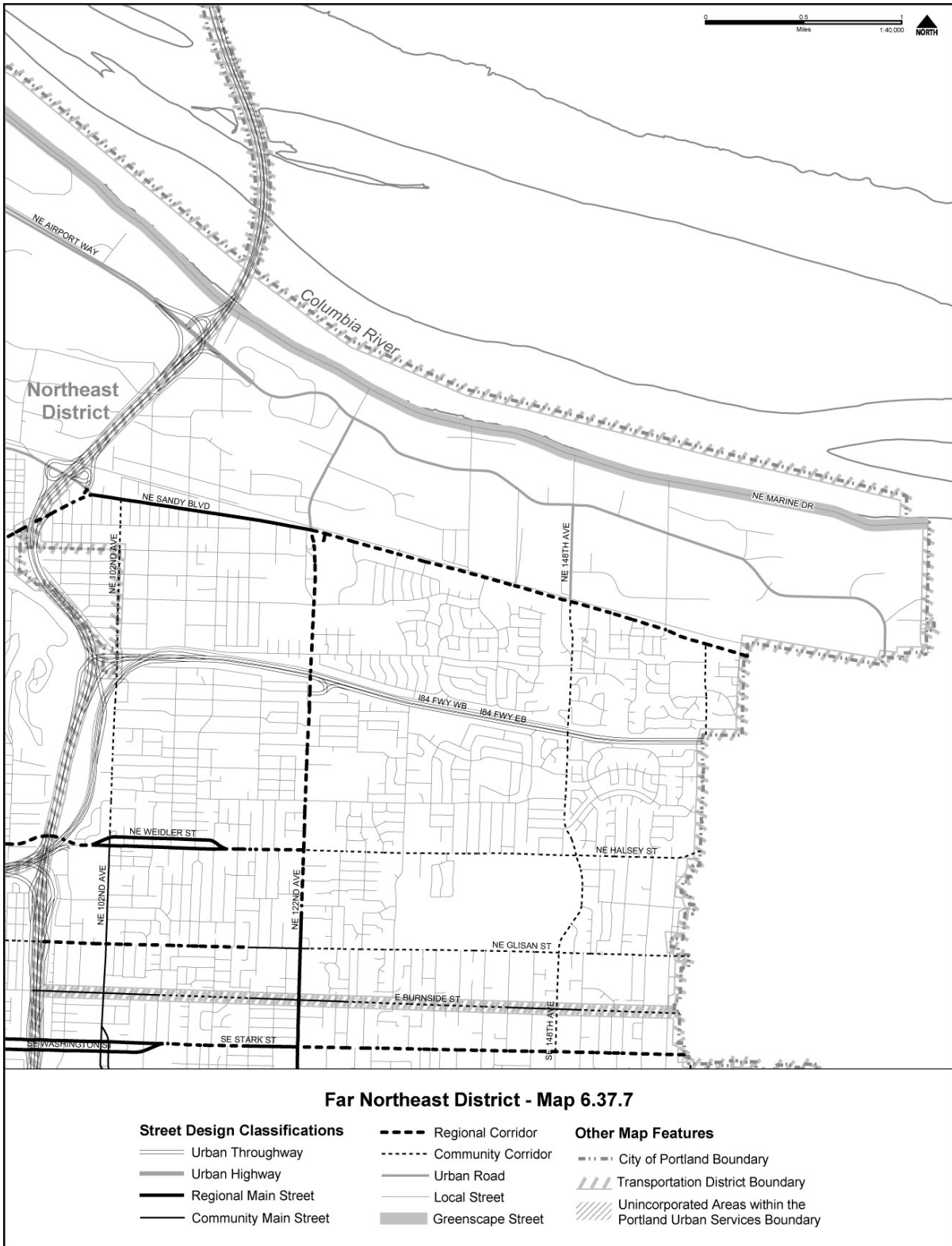
- Central City Transit/Pedestrian Street
- City Walkway
- Off-Street Path
- Local Service Walkway
- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary







Policy 6.38 Southeast Transportation District

Reduce travel demand and reliance on the automobile in Southeast Portland to protect residential areas and industrial sanctuaries from non-local traffic, while maintaining access to established commercial areas.

Objectives:

- A. Direct interdistrict traffic to Regional Trafficways on the edges of the district, and manage traffic on Major City Traffic Streets and other arterials primarily through transportation system management measures.
- B. Support improvements to SE McLoughlin Boulevard to ensure its function as the major north/south route for regional traffic, while maintaining its operational characteristics as a Major City Traffic Street between Powell and Reedway and addressing pedestrian and bicyclist access along and across the street.
- C. Operate Neighborhood Collectors in Southeast Portland to function primarily as circulation for district traffic rather than as regional streets, even where they carry a significant amount of regional traffic.
- D. Facilitate pedestrian access and safety in Southeast Portland by improving connections to the Willamette River; adding connections between neighborhoods and parks, institutions, and commercial areas; and enhancing pedestrian crossings with curb extensions and improved markings.
- E. Improve access and safety for bicycles through the development of more inner Southeast east/west bike routes and the provision of bicycle facilities across bridges and to a variety of destinations, including downtown, the river, and parks.
- F. Recognize SE Foster's (west of I-205) importance as a main street and as a Major City Traffic Street and Major City Transit Street by improving the pedestrian environment, preserving on-street parking, facilitating transit movement, and adding street trees.
- G. Encourage regional and interdistrict truck traffic to use Regional Truckways, Priority and Major Streets in southeast Portland by establishing convenient truck routing that better serves trucks, while protecting Southeast neighborhoods.
- H. Minimize left-turn movements to auto-accommodating development along SE 39th Avenue, and eliminate or consolidate driveways where possible.
- I. Continue to improve cross-town transit service, transit facilities and bus stops, and transit travel times, and expand off-peak and weekend service to provide access to activity centers on Portland's eastside.
- J. Support planning for and development of light rail transit and streetcars in Southeast Portland, including consideration of feeder transit service and pedestrian and bicycle access.

- K. Examine the potential for returning SE Belmont and SE Morrison between SE 12th and 25th to two-way streets in the future, and make changes to street classifications if needed to support and reinforce Belmont's role as a main street.

Explanation: A study was completed in 2000 to examine the possibility of decoupling Belmont and Morrison, with the decision not to pursue it at this time. If Belmont's evolution as a vital main street is impaired because of the couplet, the issue could be reexamined.

- L. Support SE Tacoma's function as a main street and District Collector in the future, and support and implement transportation projects that will reinforce these designations.
- M. Implement transportation improvements identified in the Lents Urban Renewal Plan that will revitalize its commercial core and environs.
- N. Support the livability of Southeast neighborhoods by improving the efficiency of parking and loading in commercial areas and by reducing commuter parking in residential areas.
- O. Address the safety and access needs of pedestrians and bicyclists as part of freight-related street improvements for SE Holgate between SE 26th Avenue and McLoughlin Boulevard.

Explanation: SE Holgate is a Priority Freight Street that provides an important truck access function to the Brooklyn freight district. However, street improvement plans for SE Holgate developed for the purpose of facilitating freight movements should not overwhelm the other modal uses of the street, especially the safety and access needs of pedestrians and bicyclists.



Southeast District - Map 6.38.1

Traffic Classifications

- Regional Trafficway
- Regional/Major City Traffic
- Major City Traffic Street
- Traffic Access Street
- District Collector
- - - Neighborhood Collector
- Local Service Traffic Street

Other Map Features

- · - · - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Southeast District - Map 6.38.2

- | | | | |
|---|-------------------------------|--|----------------------------------|
| Transit Classifications | | Other Map Features | |
| Regional Transitway | Community Transit Street | City of Portland Boundary | Transportation District Boundary |
| Regional Transitway & Major Transit Priority Street | Local Service Transit Street | Unincorporated Areas within the Portland Urban Services Boundary | |
| Major Transit Priority Street | Intercity Passenger Rail | | |
| Transit Access Street | Passenger Intermodal Facility | | |
| | Transit Stops | | |



Southeast District - Map 6.38.3

Bicycle Classifications

- City Bikeway
- - - - Off-Street Path
- Local Service Bikeway

■ Parks & Open Spaces

Other Map Features

- - - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Southeast District - Map 6.38.4

Pedestrian Classifications

- Central City Transit/Pedestrian Street
- City Walkway
- Off-Street Path
- Local Service Walkway

- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary



Southeast District - Map 6.38.5

Freight Classifications

- Regional Truckway
- Priority Truck Street
- Major Truck Street
- Truck Access Street
- Freight District / Street

- Local Service Truck Street
- Main Rail Line
- Branch Rail
- Freight Facility

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary



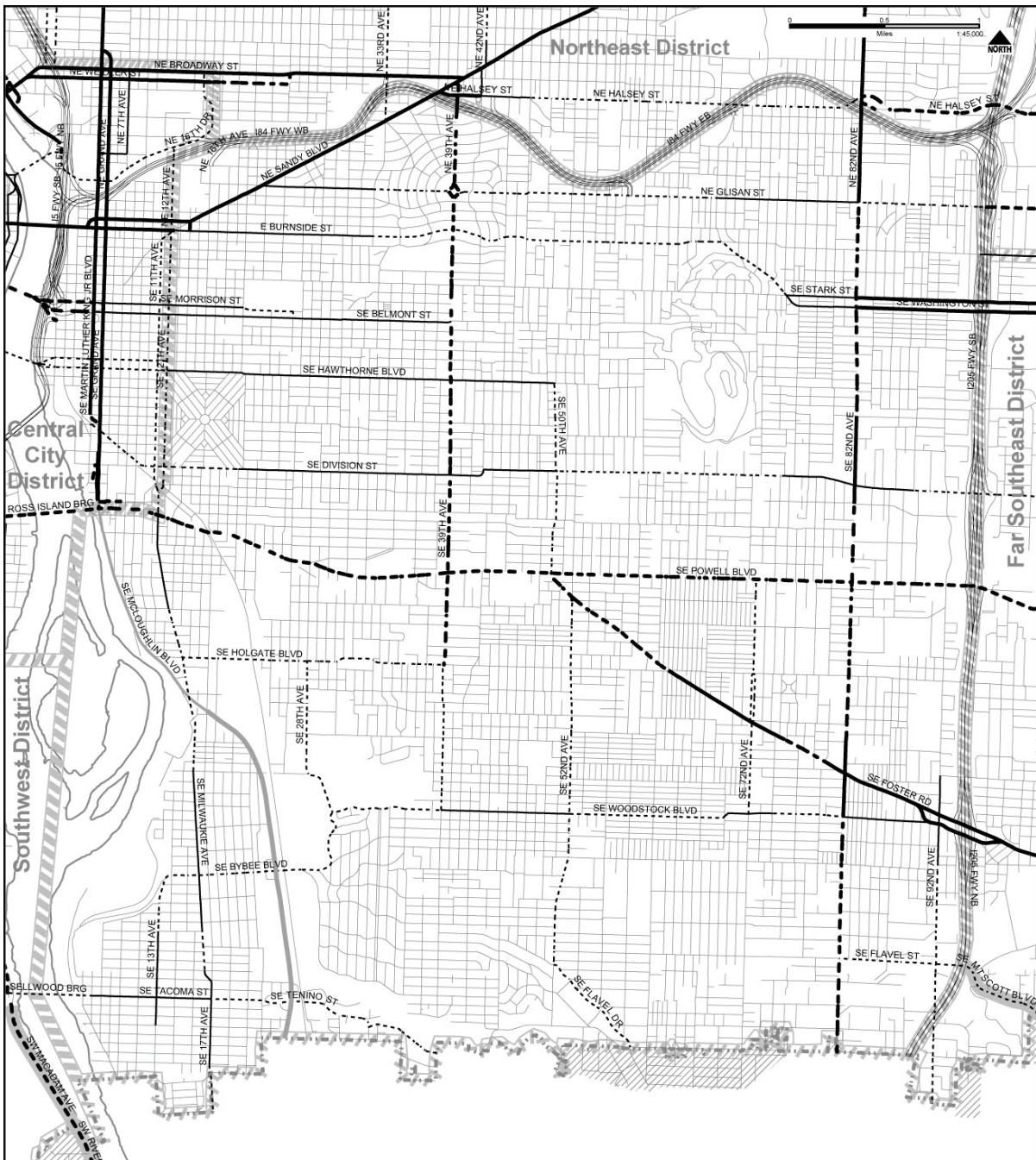
Southeast District - Map 6.38.6

Emergency Response Classifications

- Major Emergency Response
- Minor Emergency Response
- Fire Stations

Other Map Features

- - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Southeast District - Map 6.38.7

Street Design Classifications

- Urban Throughway
- Urban Highway
- Regional Main Street
- Community Main Street

- Regional Corridor
- Community Corridor
- Urban Road
- Local Street
- Greenscape Street

Other Map Features

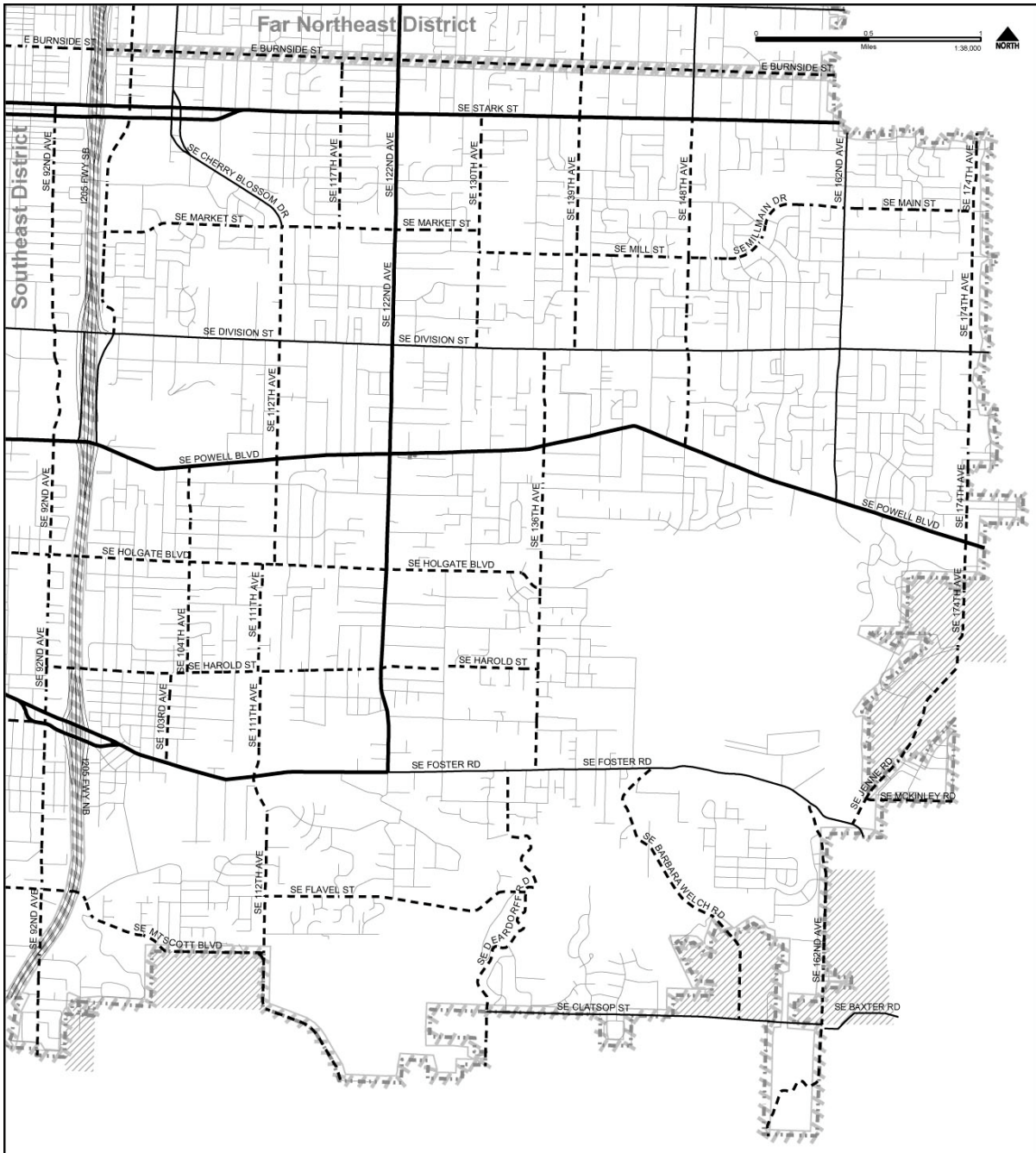
- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary

Policy 6.39 Far Southeast Transportation District

Address transportation issues in the Far Southeast District by encouraging the use of transit and demand management measures, improving pedestrian/bicycle access, creating a more connected street system, and improving the functioning of arterials.

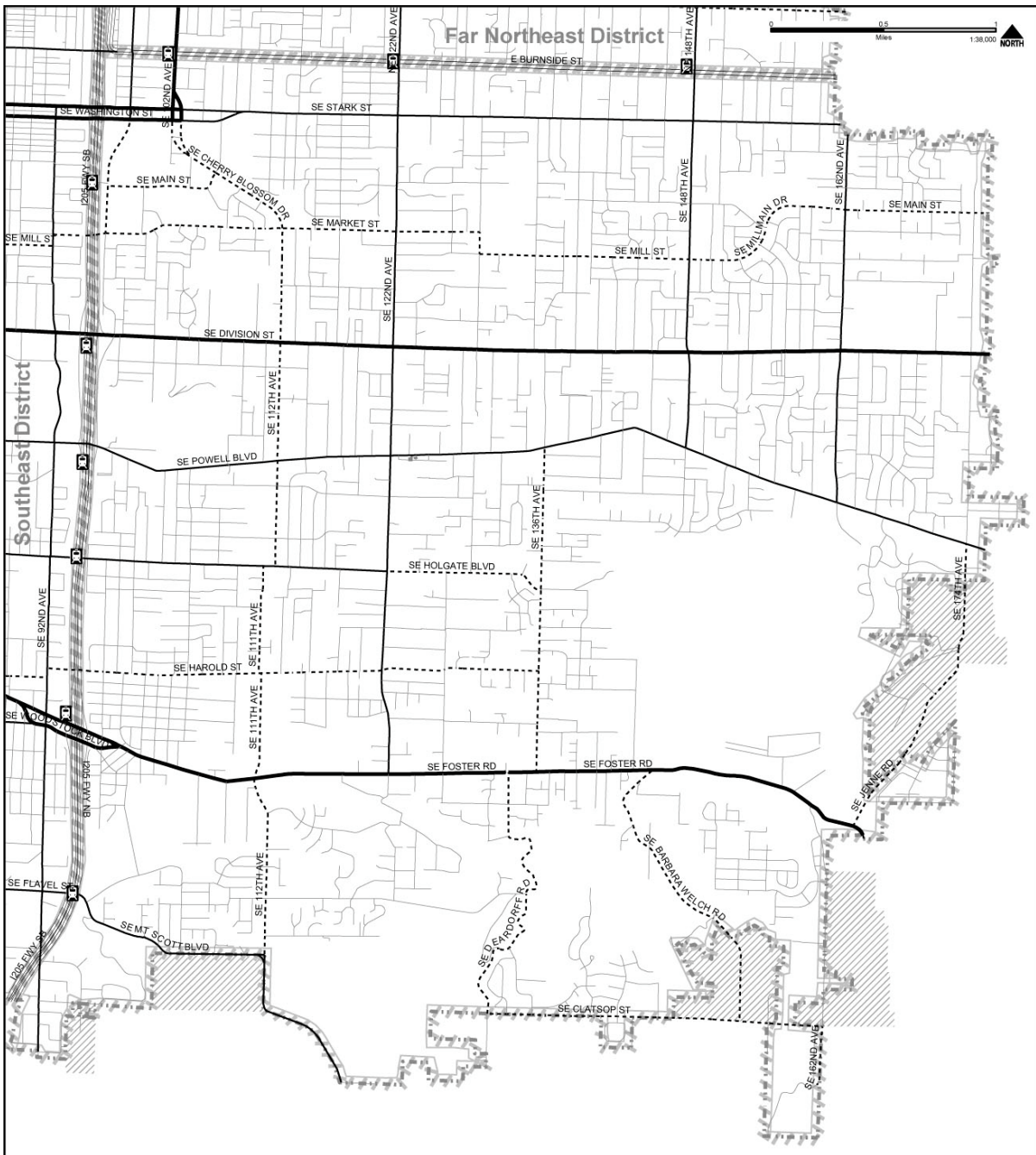
Objectives:

- A. Consider existing and future land use patterns, environmental impacts, the need for additional connectivity of collectors, and transit accessibility when improvements are planned and designed for the arterial system, particularly SE Powell and SE Foster.
- B. Improve arterials through better signalization and intersection design to serve adjacent land uses and to provide for access to adjacent neighborhoods, while minimizing non-local traffic on local streets.
- C. Accommodate bicyclists and pedestrians along arterials and at crossings, especially at activity nodes, through a combination of street and traffic management improvements.
- D. Reduce travel demand in the district by providing additional transit service, including feeder service to light rail and alternatives to buses for low-density areas.
- E. Consider implementing parking controls in the vicinity of light rail stations where commuter parking is impacting nearby residential neighborhoods.
- F. Provide adequate street connections in the Far Southeast District through the development and implementation of master street plans that identify connections for vehicles, pedestrians, and bicyclists.
- G. Support transit and pedestrian-friendly development along the Division main street with multimodal transportation investments.
- H. Implement transportation improvements identified in the Lents Urban Renewal Plan that will revitalize its commercial core and environs.
- I. Implement the Gateway Concept and Redevelopment Strategy recommendations to provide street connections as redevelopment occurs, manage regional traffic impacts, and focus boulevard and main street improvements on 102nd.
- J. Improve pedestrian access at the light rail transit stations by adding local street connections and improvements, including enhanced crossings and wider sidewalks.
- K. Provide an off-street pathway and reasonable public access between the neighborhood south of SE Market, through the medical center campus, and extending through the commercial area south of SE Washington.
- L. Implement recommendations from the Pleasant Valley Concept and Implementation Plans to create a community with a well-connected street system that provides safety and convenience for all modes of transportation.



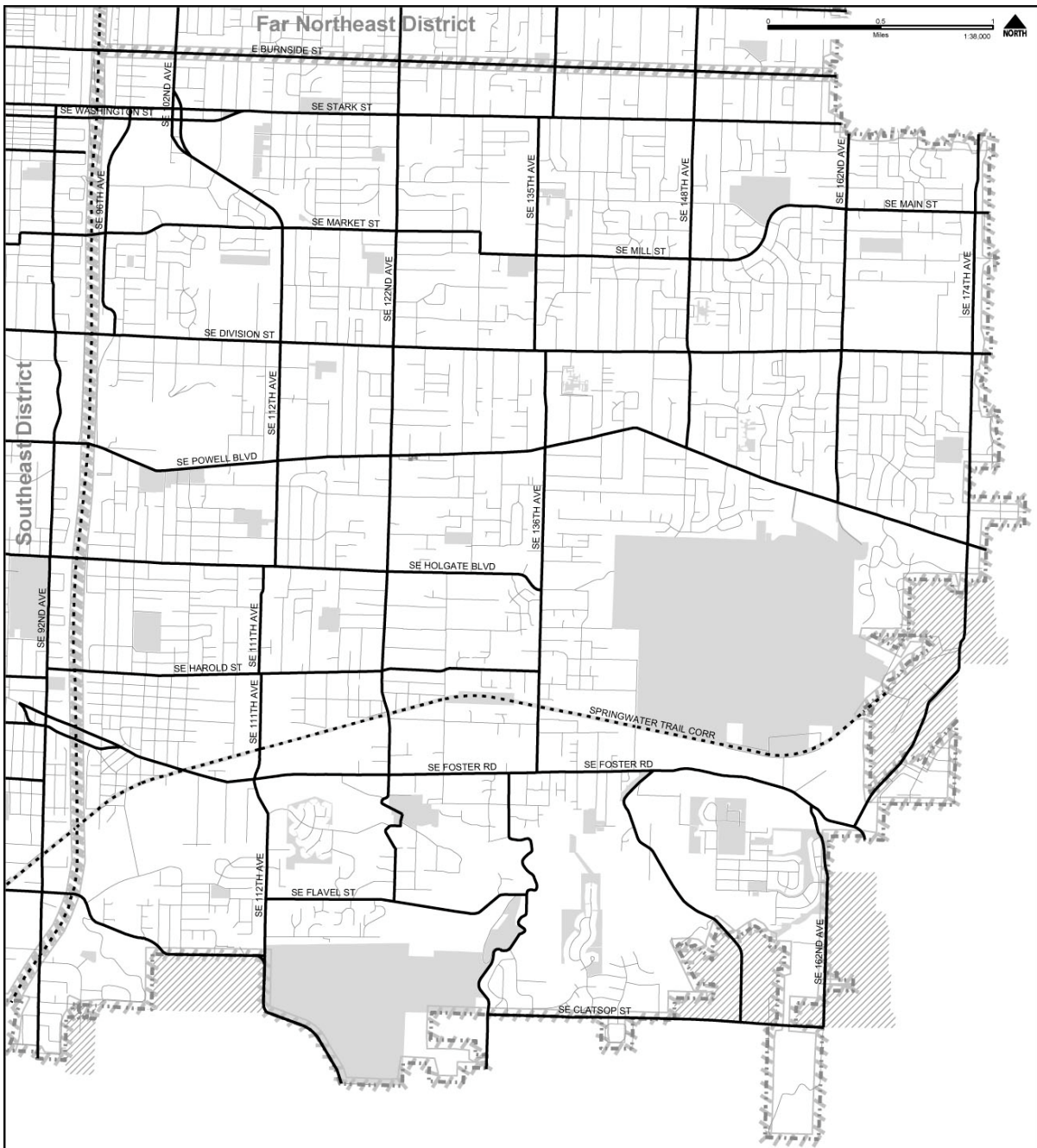
Far Southeast District - Map 6.39.1

Traffic Classifications		Other Map Features
Regional Trafficway	Traffic Access Street	City of Portland Boundary
Regional/Major City Traffic	District Collector	Transportation District Boundary
Major City Traffic Street	Neighborhood Collector	Unincorporated Areas within the Portland Urban Services Boundary
	Local Service Traffic Street	



Far Southeast District - Map 6.39.2

Transit Classifications		Other Map Features	
	Regional Transitway		Community Transit Street
	Regional Transitway & Major Transit Priority Street		Local Service Transit Street
	Major Transit Priority Street		Intercity Passenger Rail
	Transit Access Street		Passenger Intermodal Facility
			Transit Stops
			City of Portland Boundary
			Transportation District Boundary
			Unincorporated Areas within the Portland Urban Services Boundary



Far Southeast District - Map 6.39.3

Bicycle Classifications

- City Bikeway
- - - - Off-Street Path
- Local Service Bikeway

■ Parks & Open Spaces

Other Map Features

- - - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Far Southeast District - Map 6.39.4

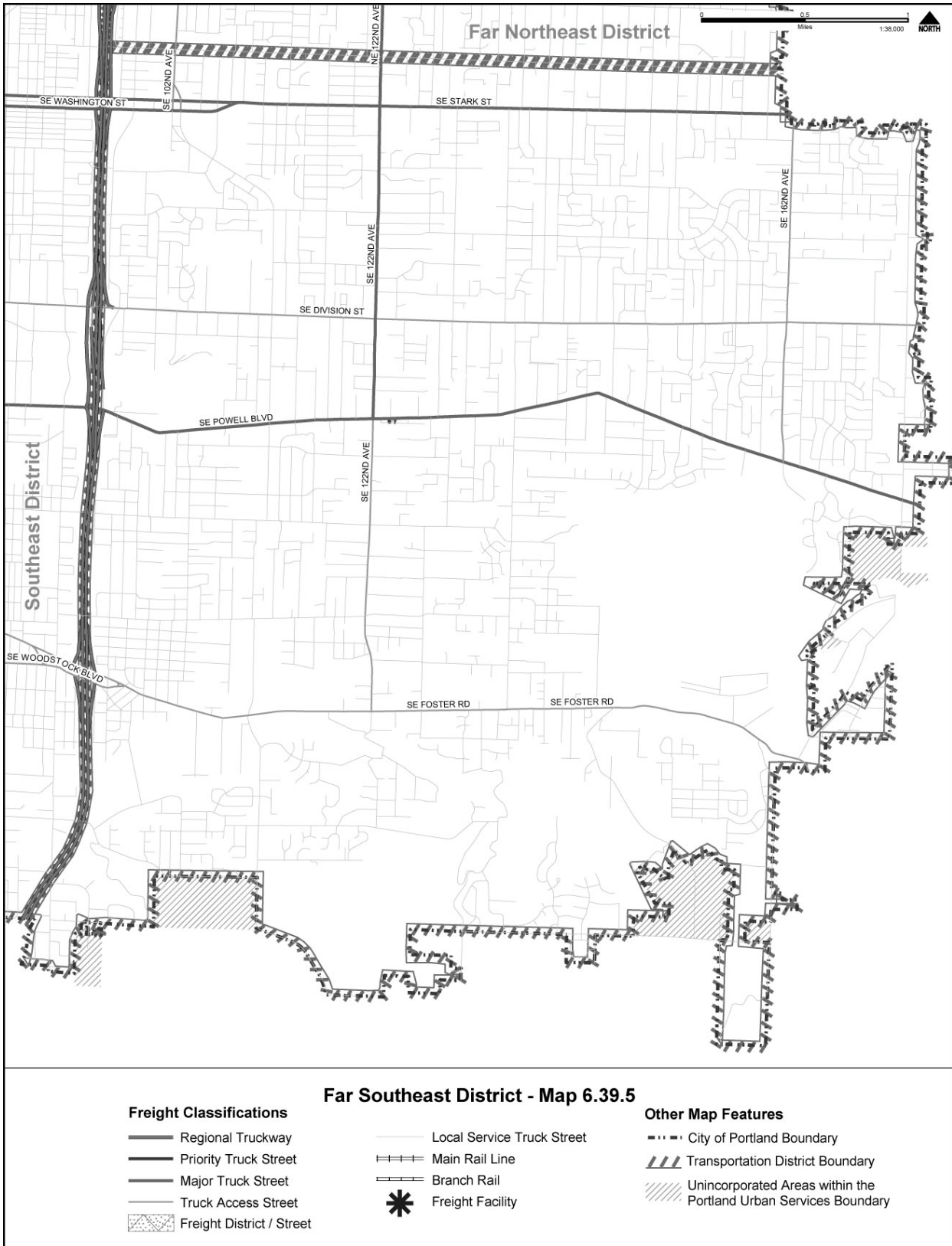
Pedestrian Classifications

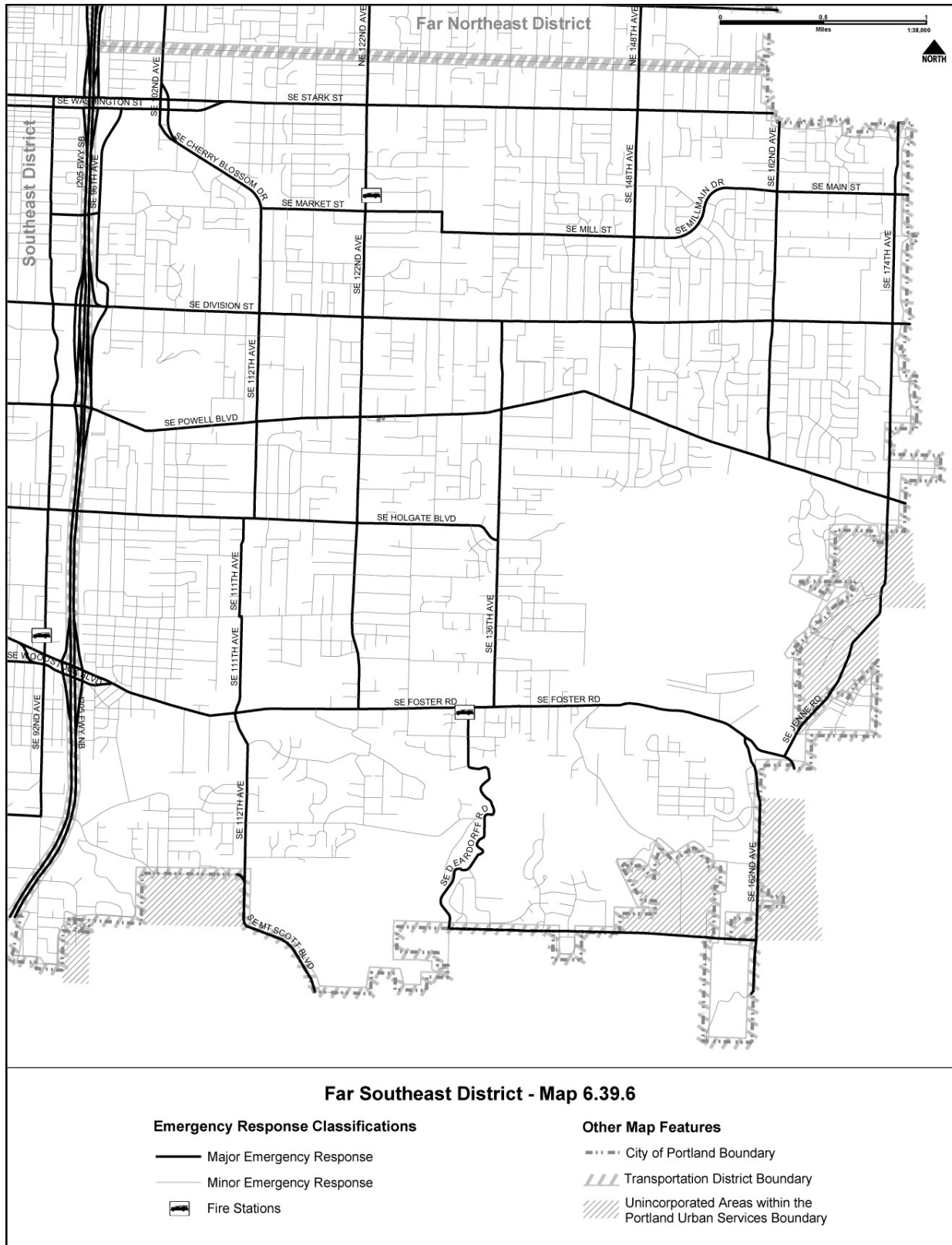
- Central City Transit/Pedestrian Street
- City Walkway
- Off-Street Path
- Local Service Walkway

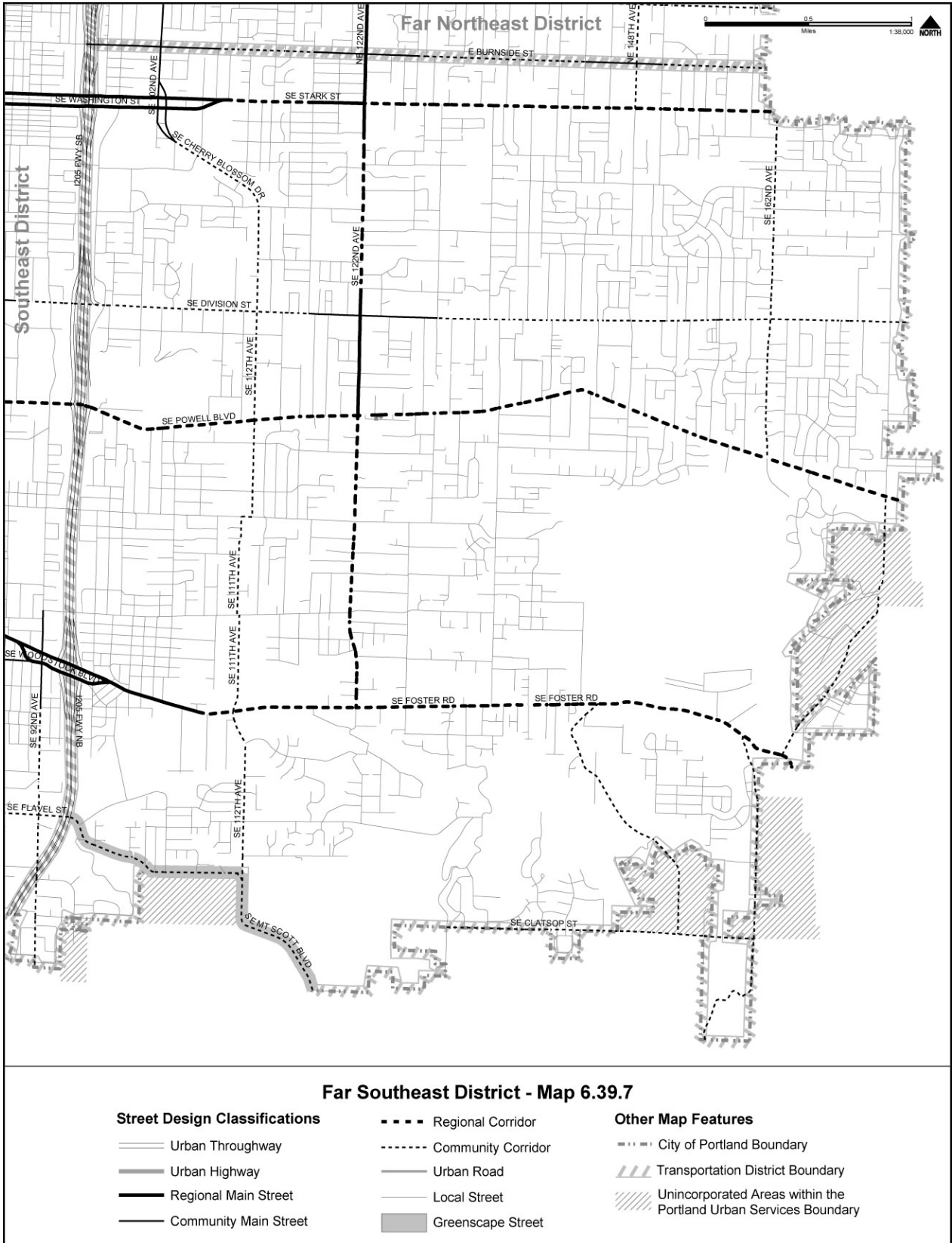
- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary





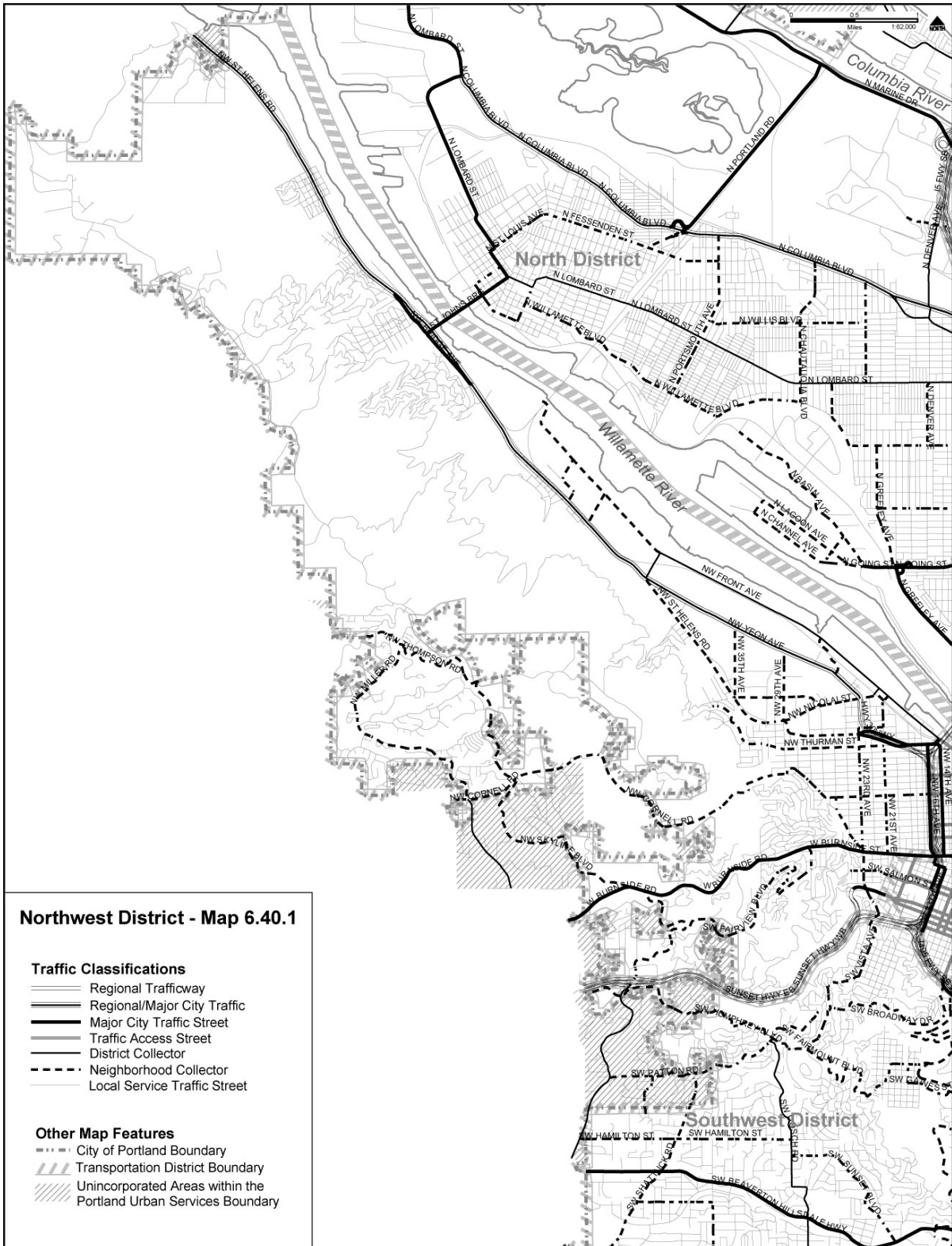


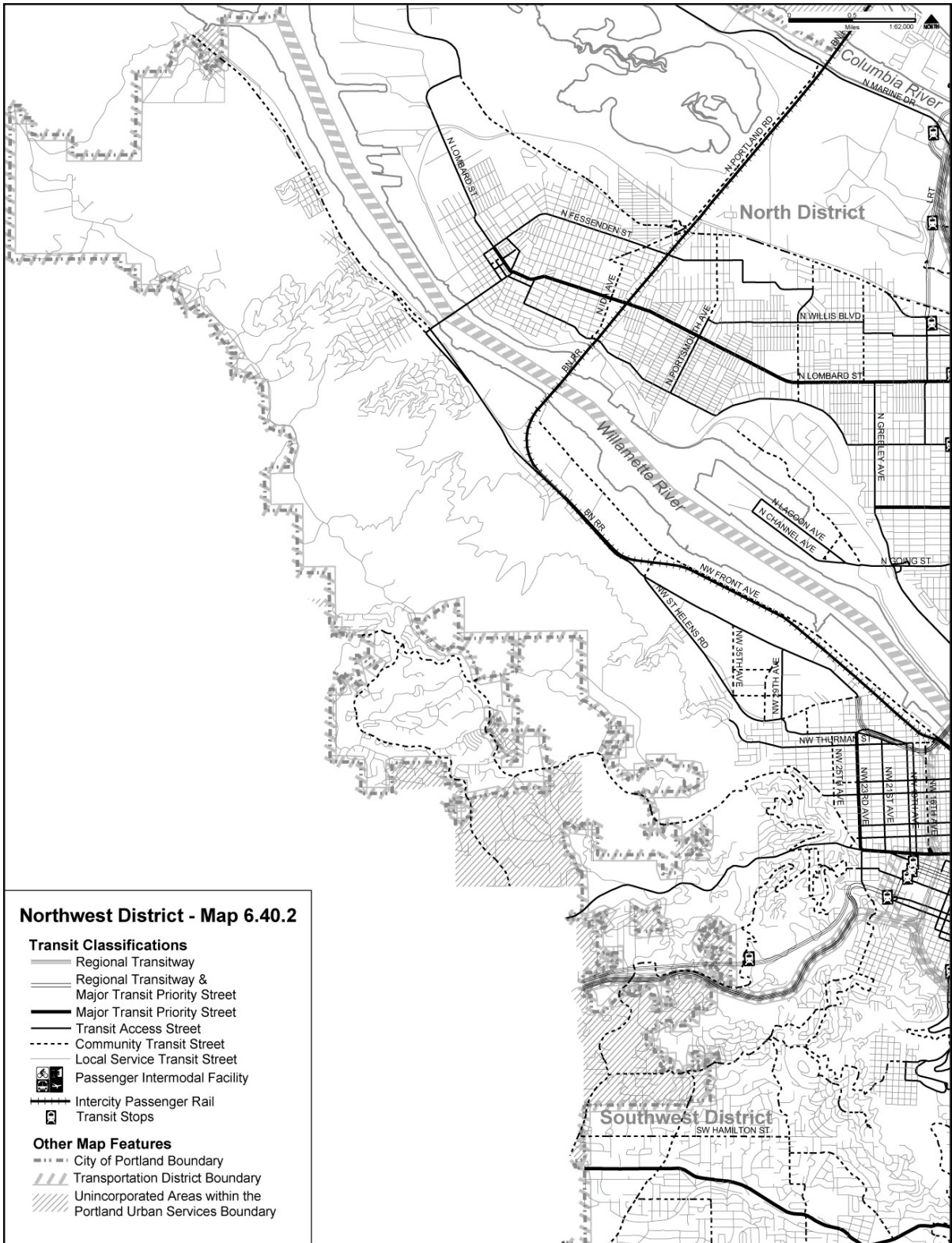
Policy 6.40 Northwest Transportation District

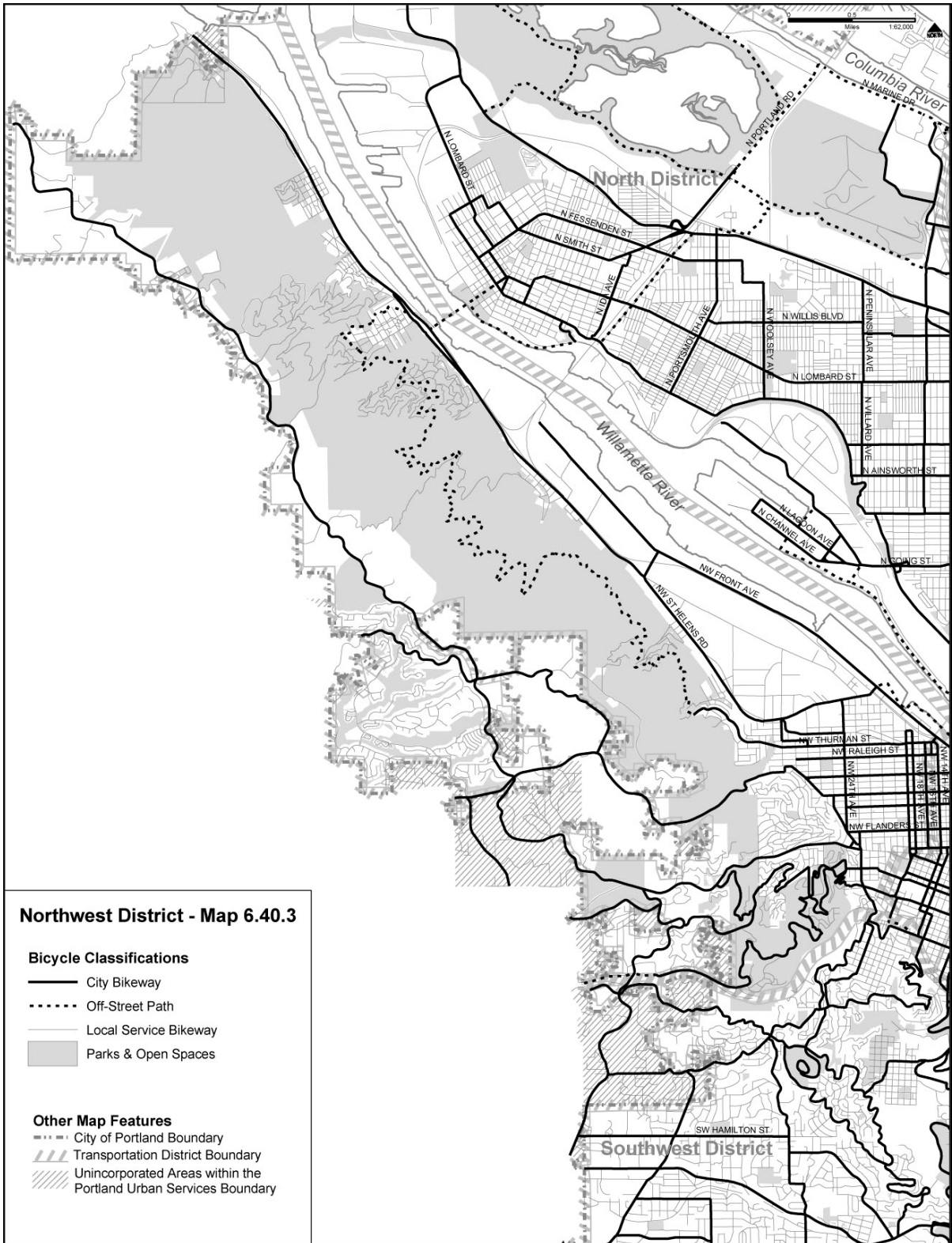
Strengthen the multimodal transportation system in the Northwest District by increasing public transit use, encouraging transportation demand management measures, and improving pedestrian and bicycle access.

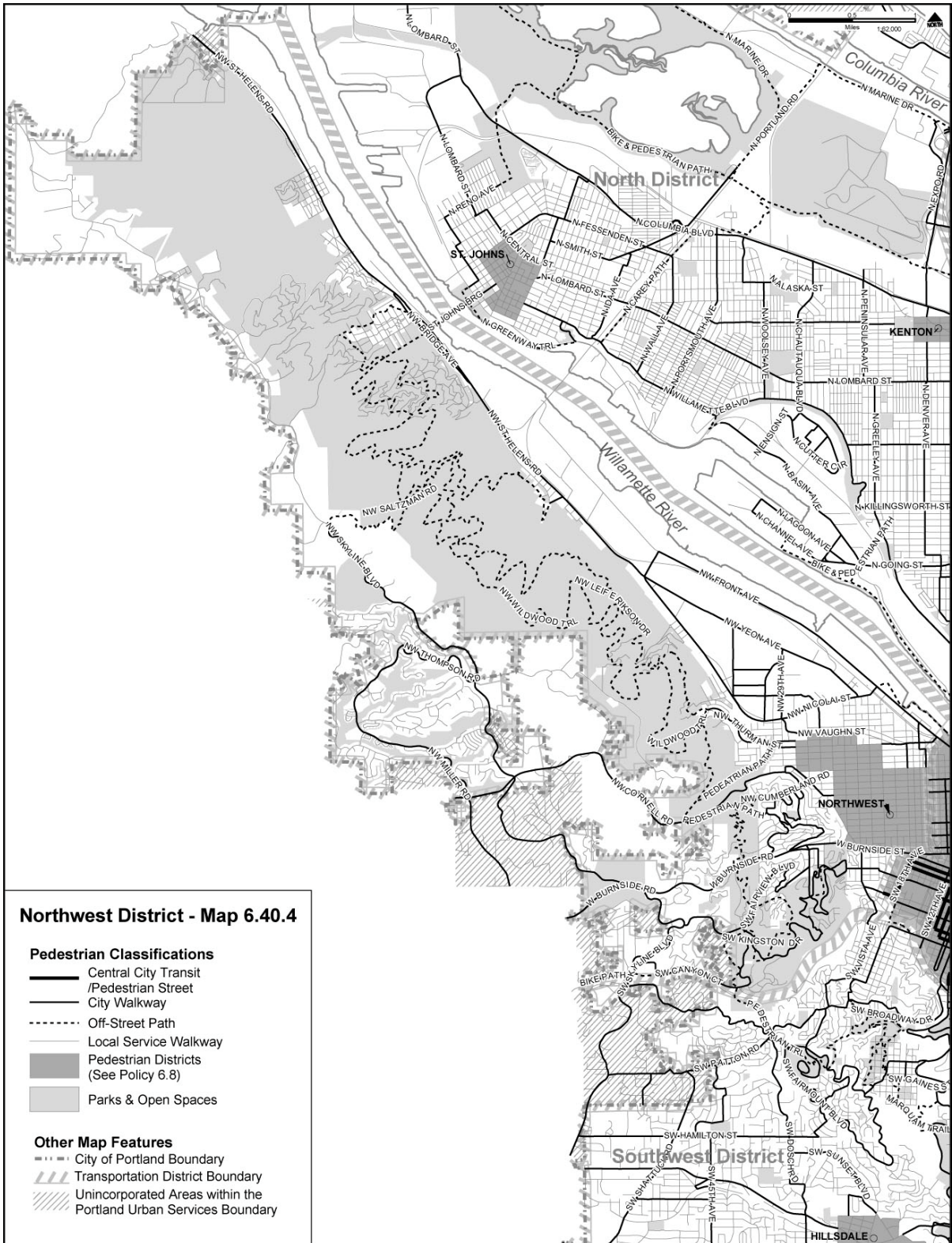
Objectives:

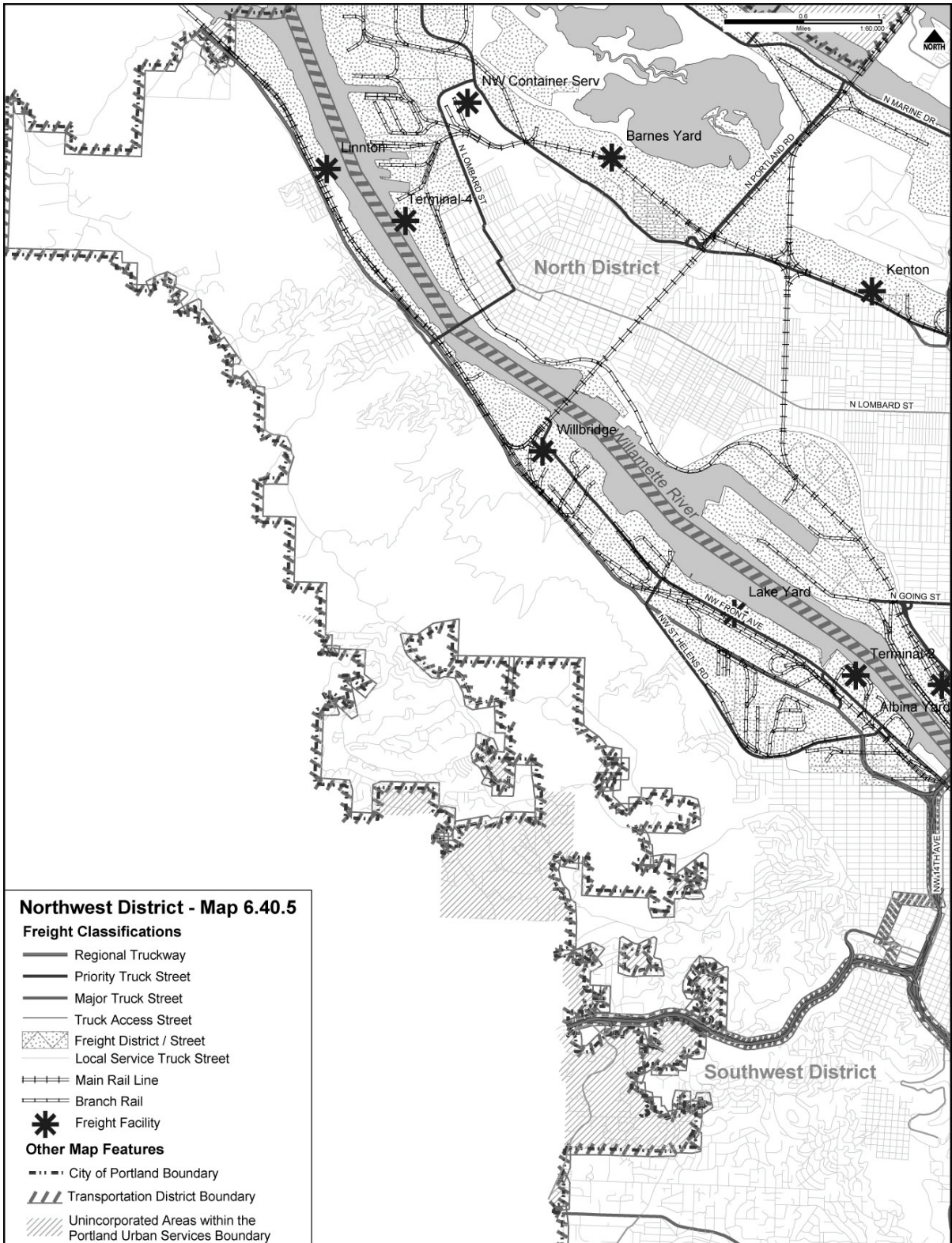
- A. Expand transit service throughout the district, including adding more cross-town service, connecting bus service from the Civic Stadium light rail station to the northwest industrial area, and improving service in low-density areas such as Linnton.
- B. Route non-local traffic, including non-local truck traffic, on Major City Traffic Streets and Regional Trafficways in order to minimize conflicts among modes.
- C. Incorporate pedestrian and bicycle access improvements into all transportation projects, especially along arterials and at crossing locations.
- D. Protect Forest Park's natural resources in the design and development of transportation projects in or near the park.
- E. Reinforce the Northwest District main streets – NW 21st, 23rd, Burnside, and Thurman – by retaining and improving their pedestrian-oriented character and improving access to transit.
- F. Support a range of strategies in the high-density portions of the district to address parking issues, including commuter and event parking impacts.
- G. Maintain neighborhood livability in the construction or reconstruction of streets by adding street trees, buffering pedestrians from traffic, and preserving on-street parking.
- H. Limit transportation projects on West Burnside to those that reduce vehicle miles traveled, give preference to transit, improve pedestrian and bicycle access, or improve safety, but do not increase automobile capacity.
- I. Improve access to NW 14th and 16th to support their function as connections to the commercial and industrial areas in Northwest Portland and to reduce impacts of non-local traffic on residential areas.
- J. Evaluate and make recommendations on returning the NW Everett/NW Glisan and the NW18th/NW 19th couplets to two-way streets.
- K. Support the scenic and natural character of NW Skyline Boulevard by focusing non-local north/south traffic between West Burnside and NW Cornell Road on NW Miller.
- L. Preserve and enhance freight mobility, and industrial access in the Freight District, by maintaining or improving truck operations on Front Avenue, Yeon Avenue, Nicolai Street, St Helens Road, and the 14th and 16th Avenues couplet.

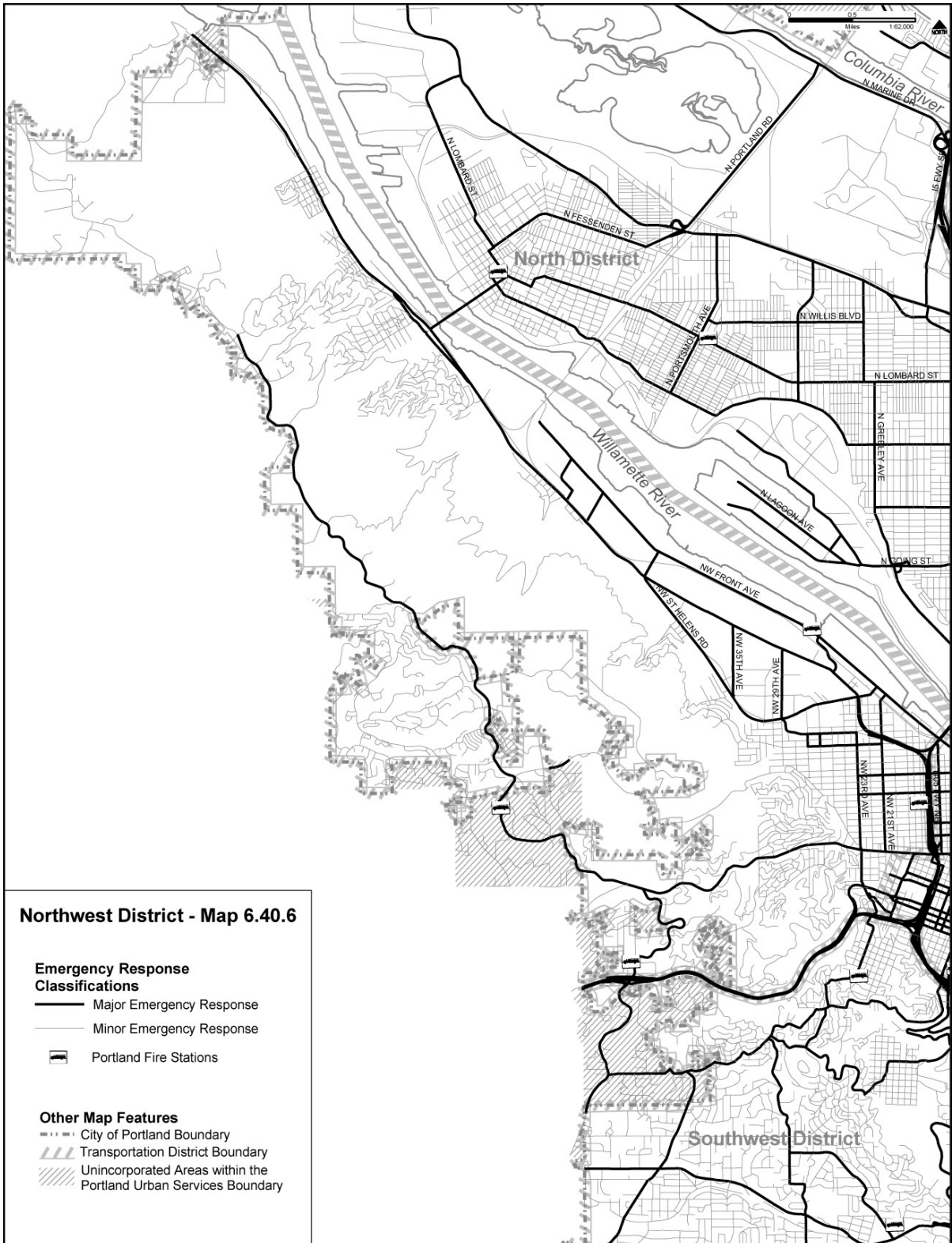


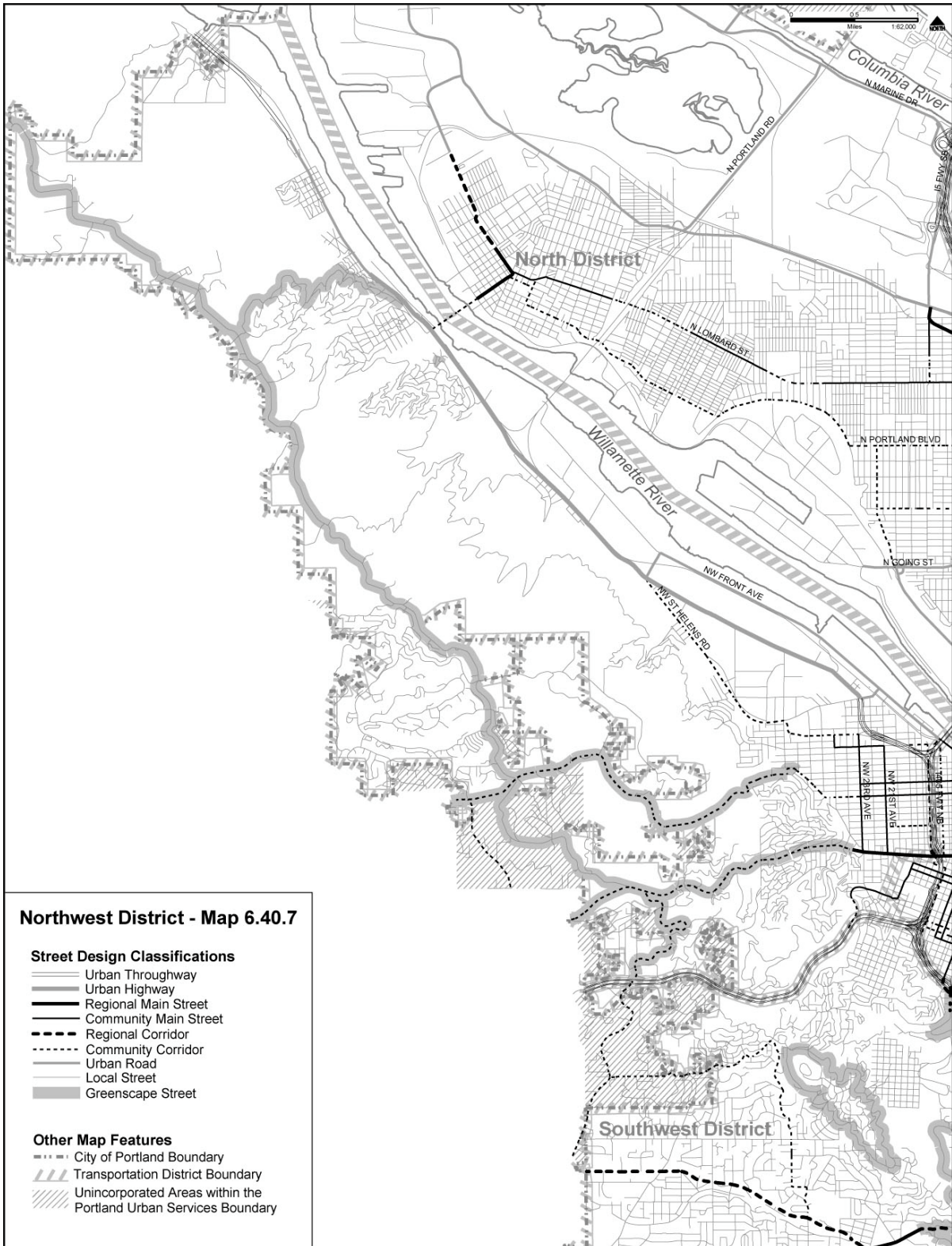












Policy 6.41 Southwest Transportation District

Address outstanding transportation issues in the Southwest District through studies and multimodal improvements, and use the transportation policy and objectives in the Southwest Community Plan to evaluate potential changes to the street system.

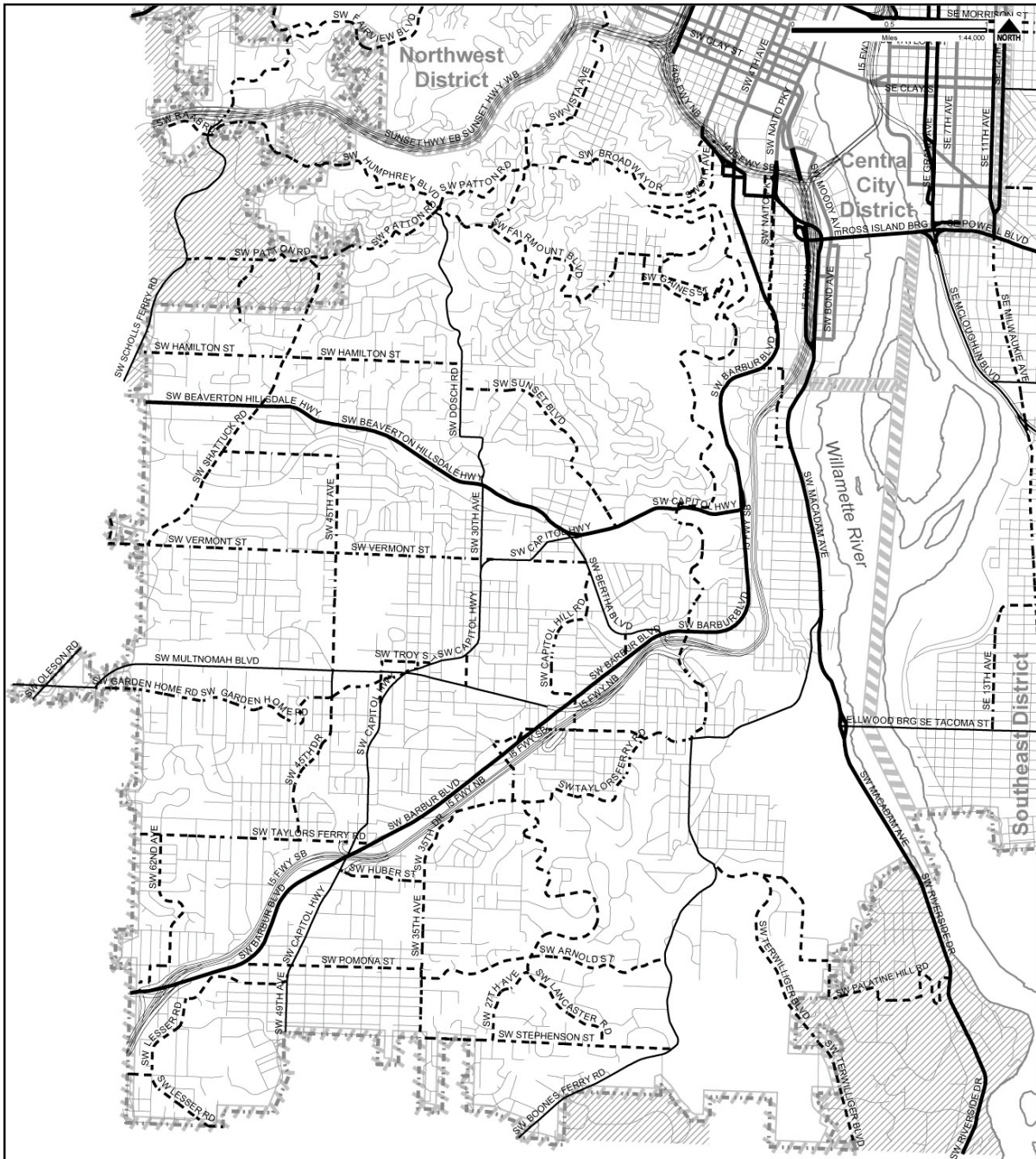
Explanation: As part of the Southwest Community Plan (SWCP), City Council adopted a new transportation policy and objectives that address most of the issues covered by the previous Southwest District policies of the Transportation Element. The policy and objectives here reflect the remaining issues not covered by the SWCP. Both sets of policies and objectives will be used to evaluate potential changes to the transportation system in Southwest. (The SWCP policy and objectives are included in Appendix C.)

Objectives:

- A. Use the Willamette Shore Line right-of-way, the corridor identified in the Macadam Corridor Improvement Plan, or other alignment as appropriate to provide future streetcar commuter service or light rail in the Macadam corridor.

Explanation: The alignment chosen for this corridor may be influenced by the type of vehicle that is selected – streetcar or light rail – and the type of service that will be provided. City Council adopted the Macadam Corridor Improvement Plan on February 23, 1978.

- B. Improve the primary transportation functions of SW Broadway Drive, SW Patton Road, SW Vista, SW Humphrey, and SW Dosch Road as Neighborhood Collectors by supporting pedestrian, bicycle, and transit use; calming traffic; and discouraging heavy volumes of non-local commuter traffic.
- C. Consider designation of a 'Red Electric Line' alignment for pedestrians and bicyclists, as identified in the Southwest Urban Trails Plan, upon completion of a feasibility study.
- D. Evaluate the transportation impacts on adjacent neighborhoods when considering increases in development potential of large new or redeveloping areas, and include mitigation measures in development plans.
- E. Use the Southwest Urban Trail Plan as a guide to dedicating and developing trail segments in Southwest.



Southwest District - Map 6.41.1

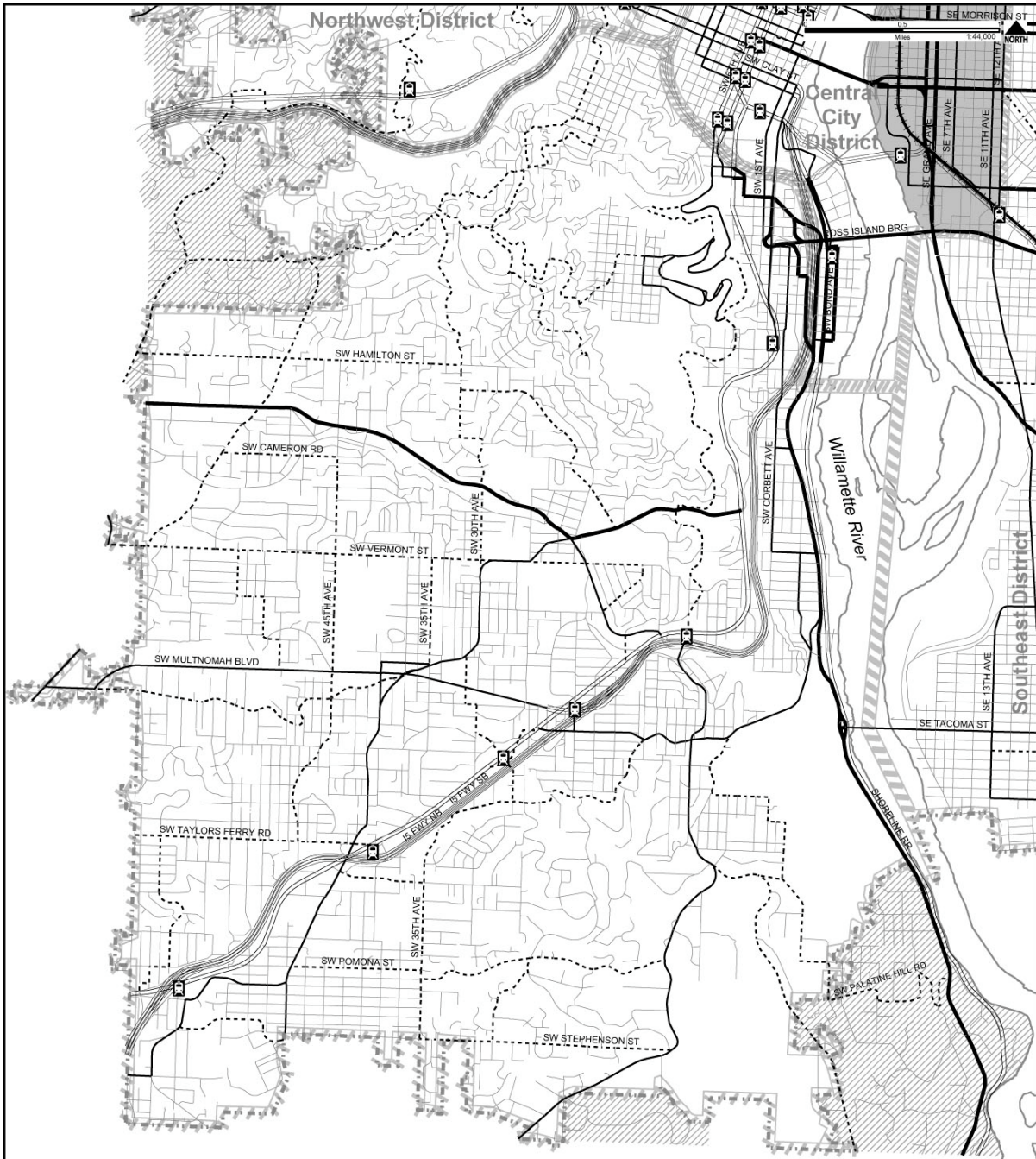
Traffic Classifications

- Regional Trafficway
- Regional/Major City Traffic
- Major City Traffic Street

- Traffic Access Street
- District Collector
- - - Neighborhood Collector
- Local Service Traffic Street

Other Map Features

- - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Southwest District - Map 6.41.2

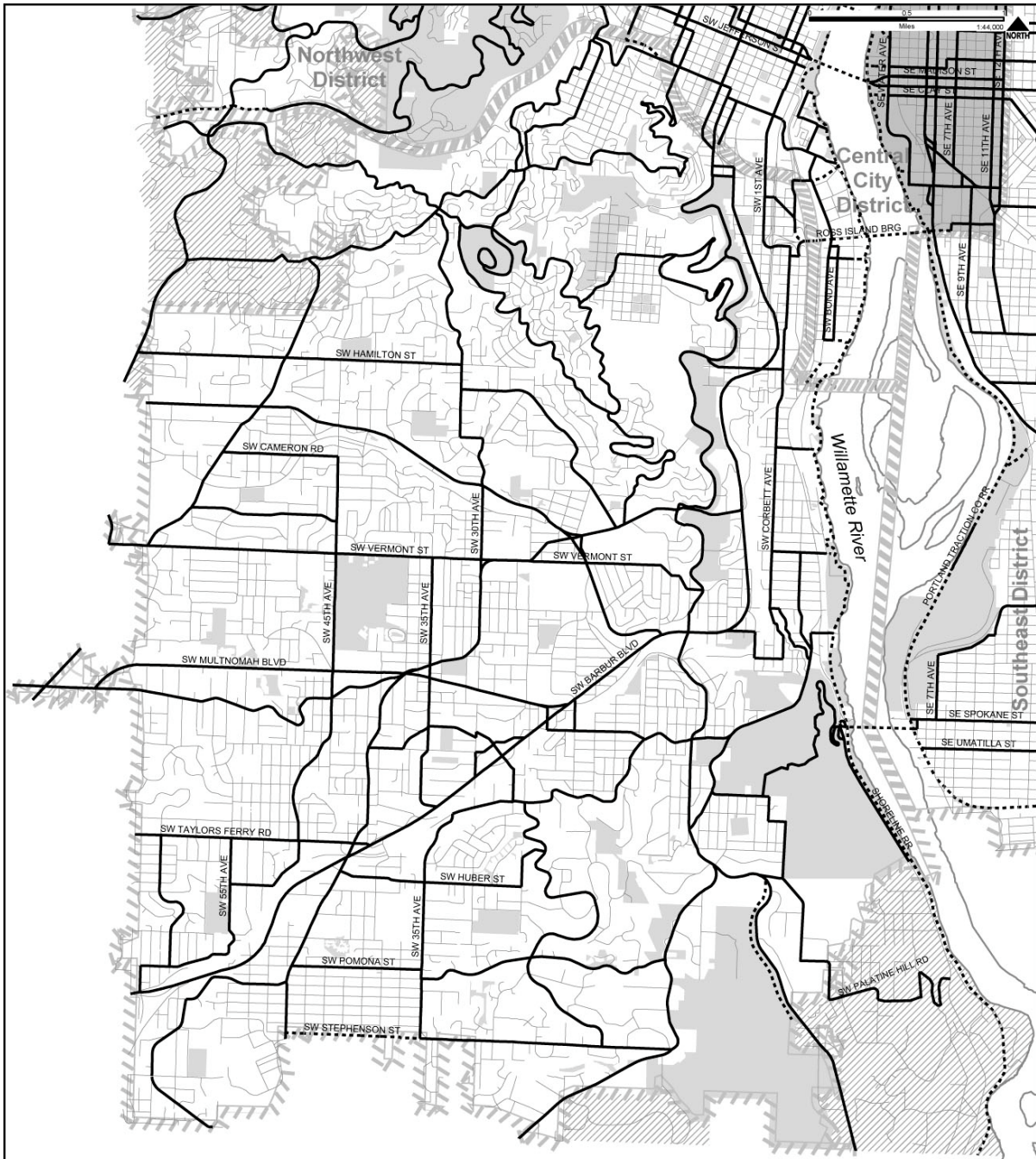
Transit Classifications

- Regional Transitway
- Regional Transitway & Major Transit Priority Street
- Major Transit Priority Street
- Transit Access Street

- Community Transit Street
- Local Service Transit Street
- Intercity Passenger Rail
- Passenger Intermodal Facility
- Transit Stops

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary



Southwest District - Map 6.41.3

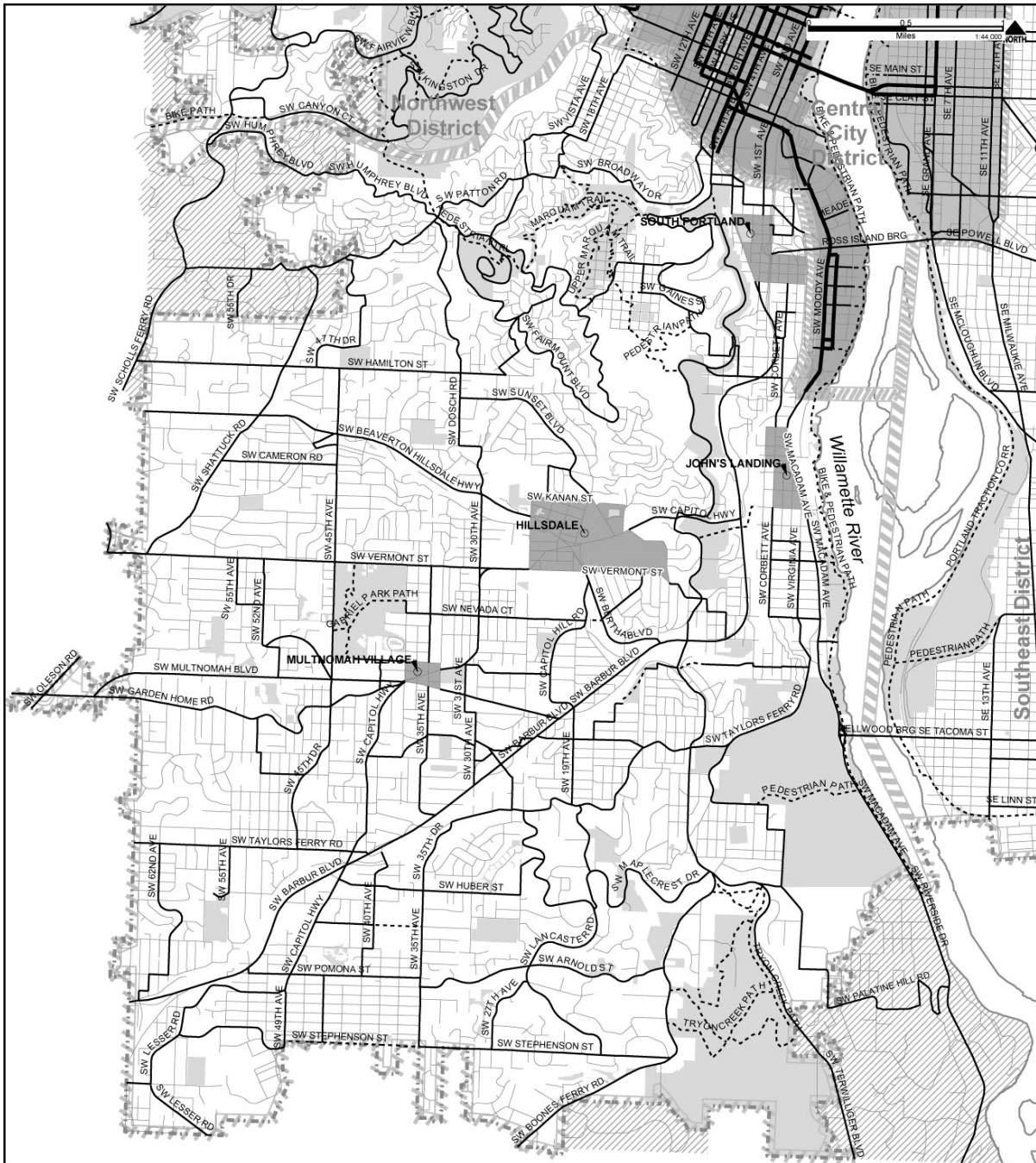
Bicycle Classifications

- City Bikeway
- Off-Street Path
- Local Service Bikeway

█ Parks & Open Spaces

Other Map Features

- - - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Southwest District - Map 6.41.4

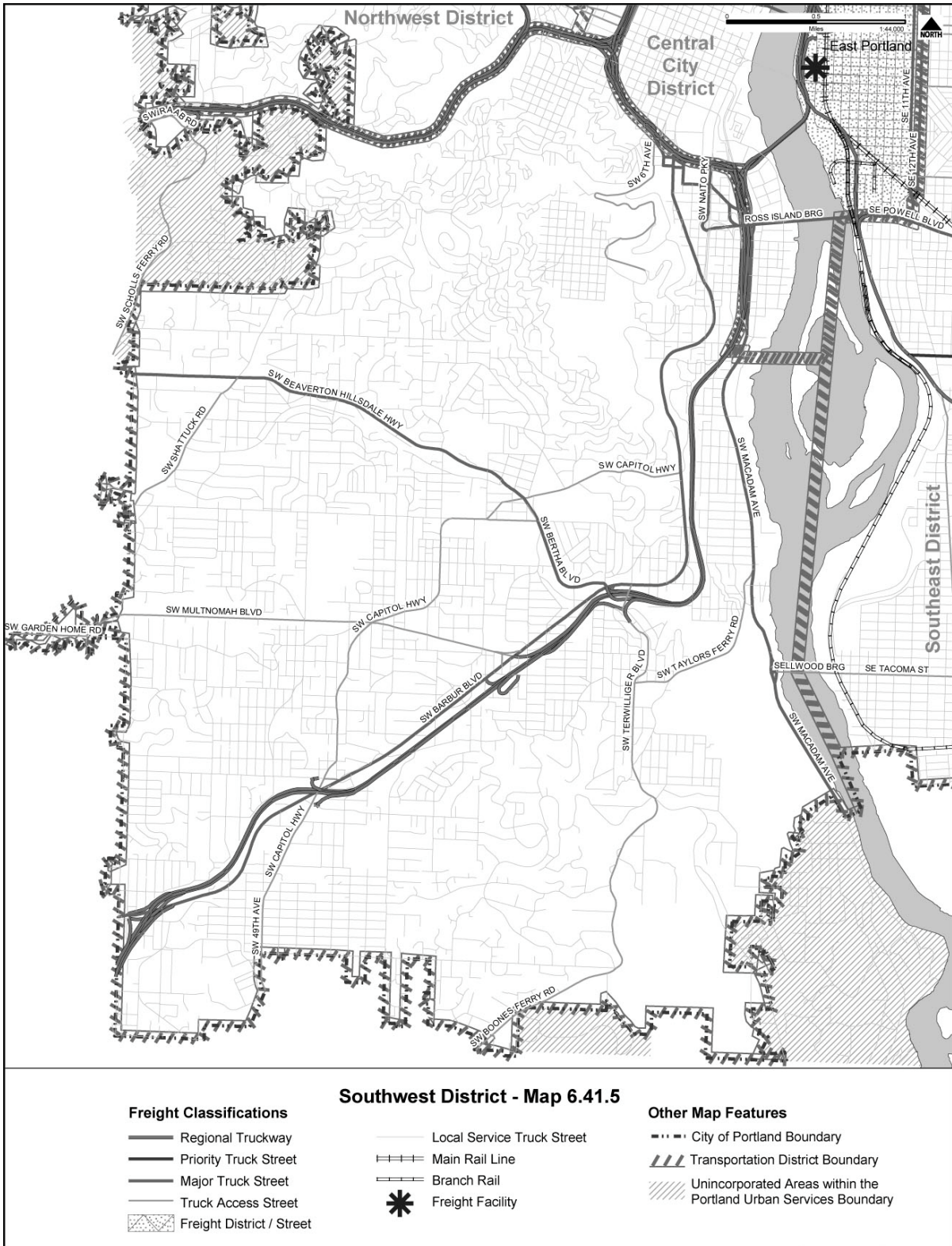
Pedestrian Classifications

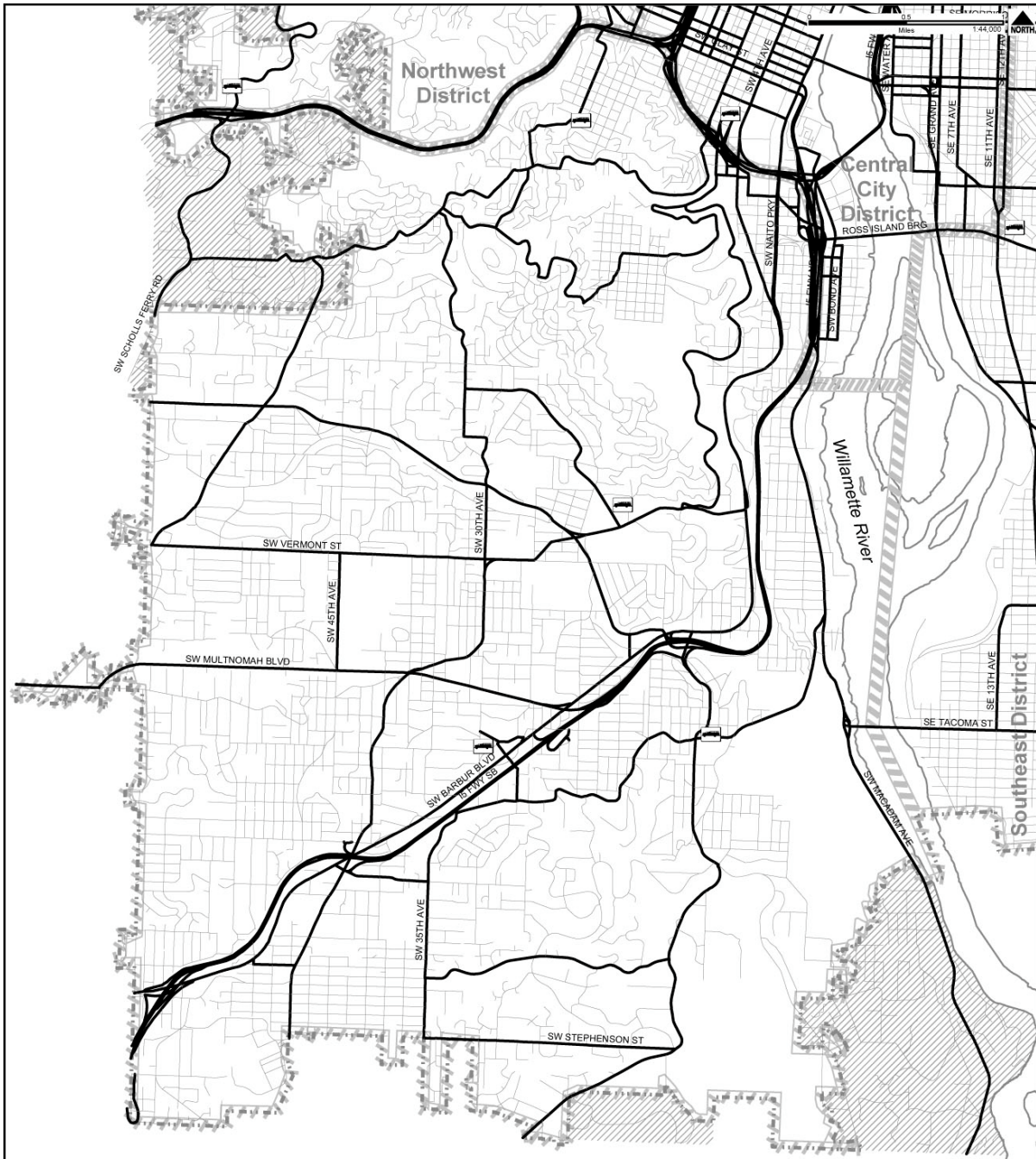
- Central City Transit/Pedestrian Street
- City Walkway
- Off-Street Path
- Local Service Walkway

- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary





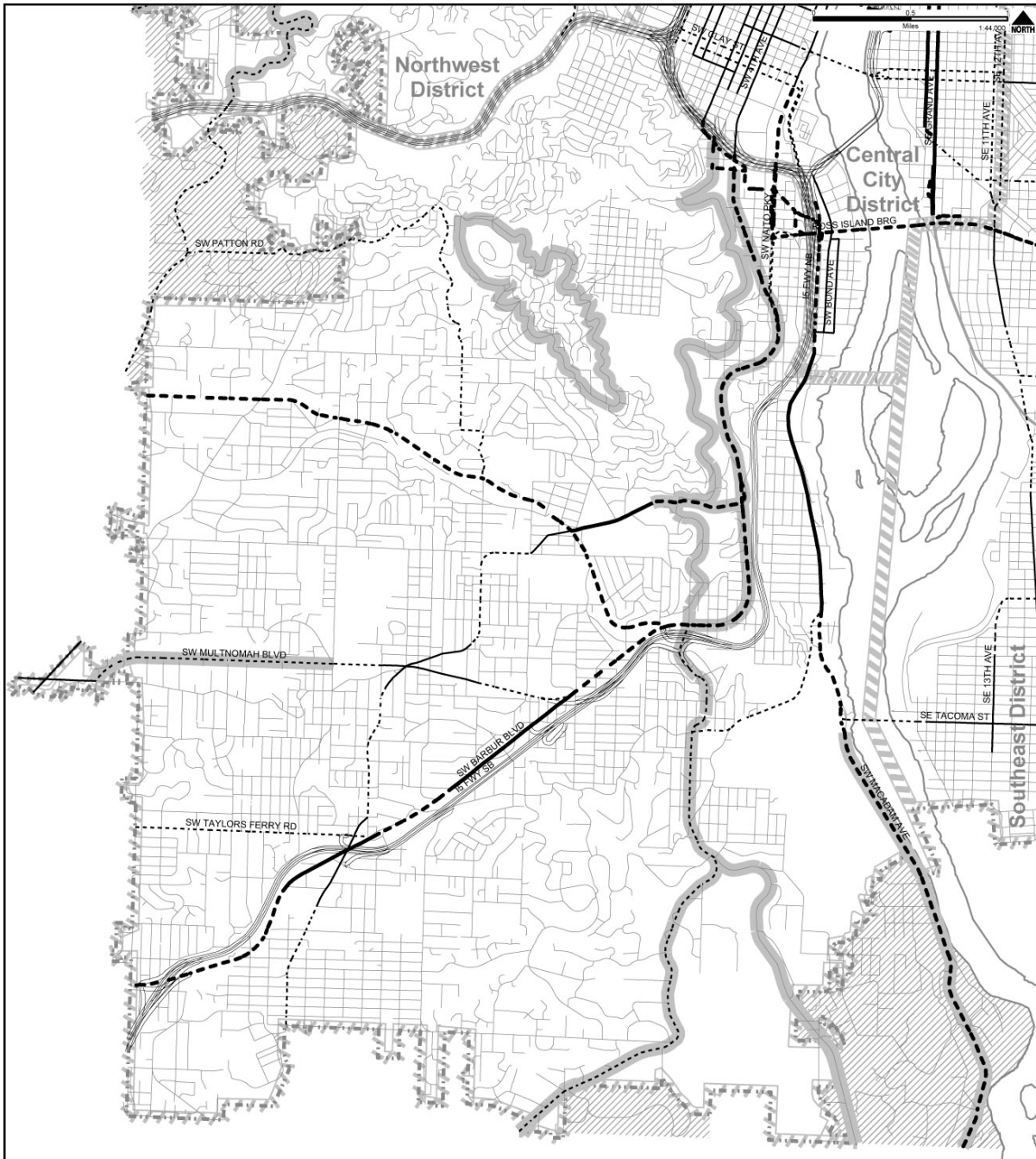
Southwest District - Map 6.41.6

Emergency Response Classifications

- Major Emergency Response
- Minor Emergency Response
- 🚒 Fire Stations

Other Map Features

- - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary



Southwest District - Map 6.41.7

Street Design Classifications

- Urban Throughway
- Urban Highway
- Regional Main Street
- Community Main Street

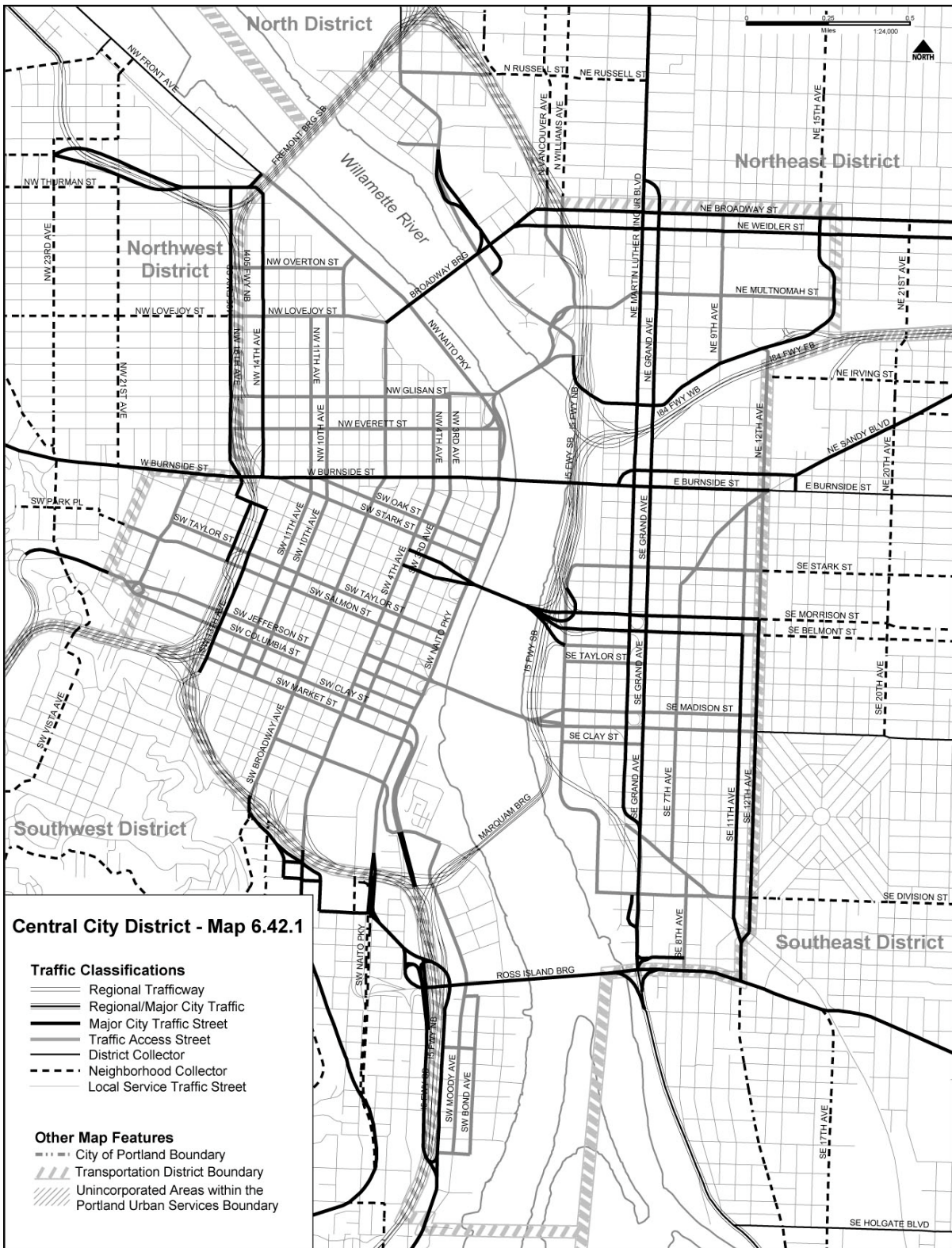
- Regional Corridor
- Community Corridor
- Urban Road
- Local Street
- Greenscape Street

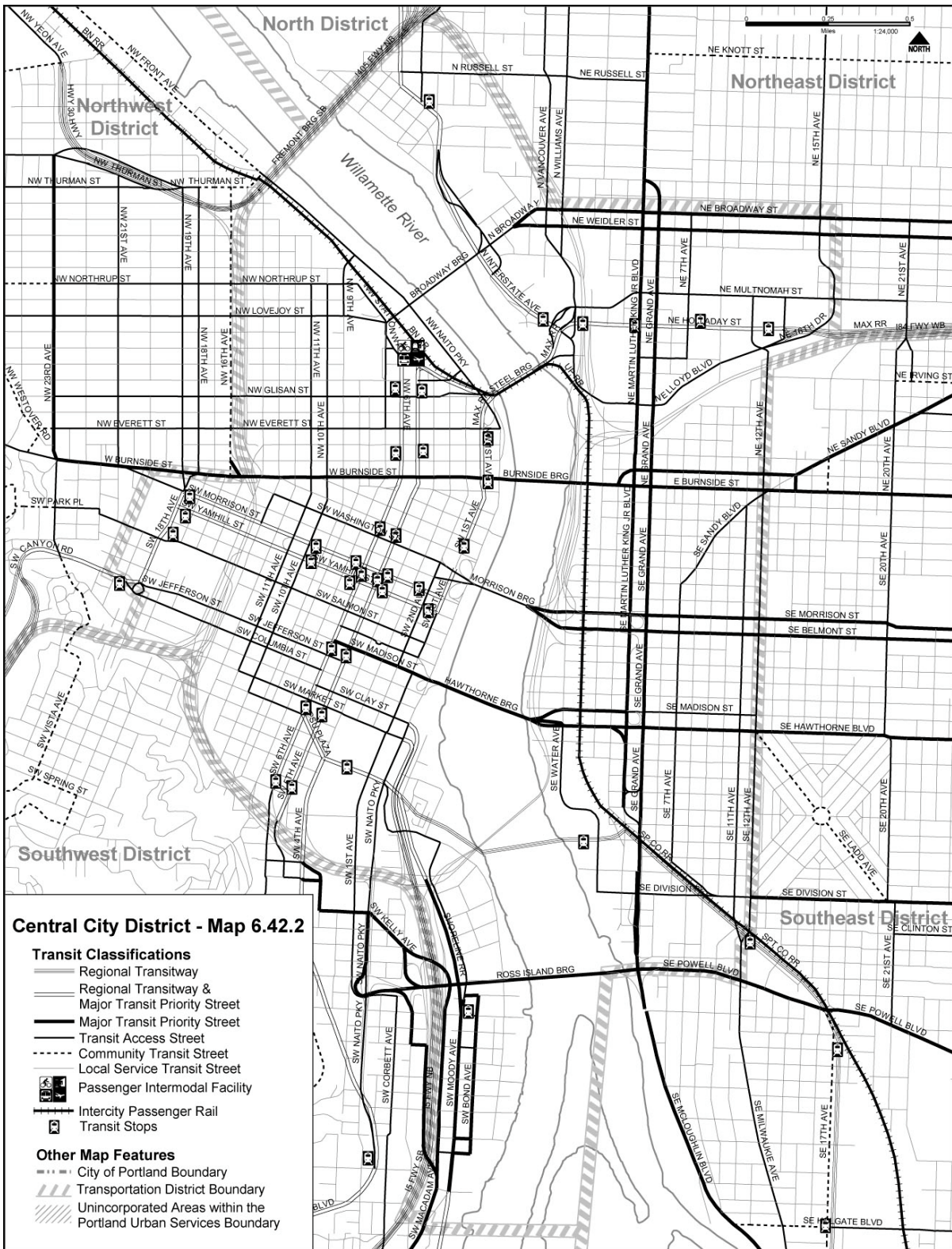
Other Map Features

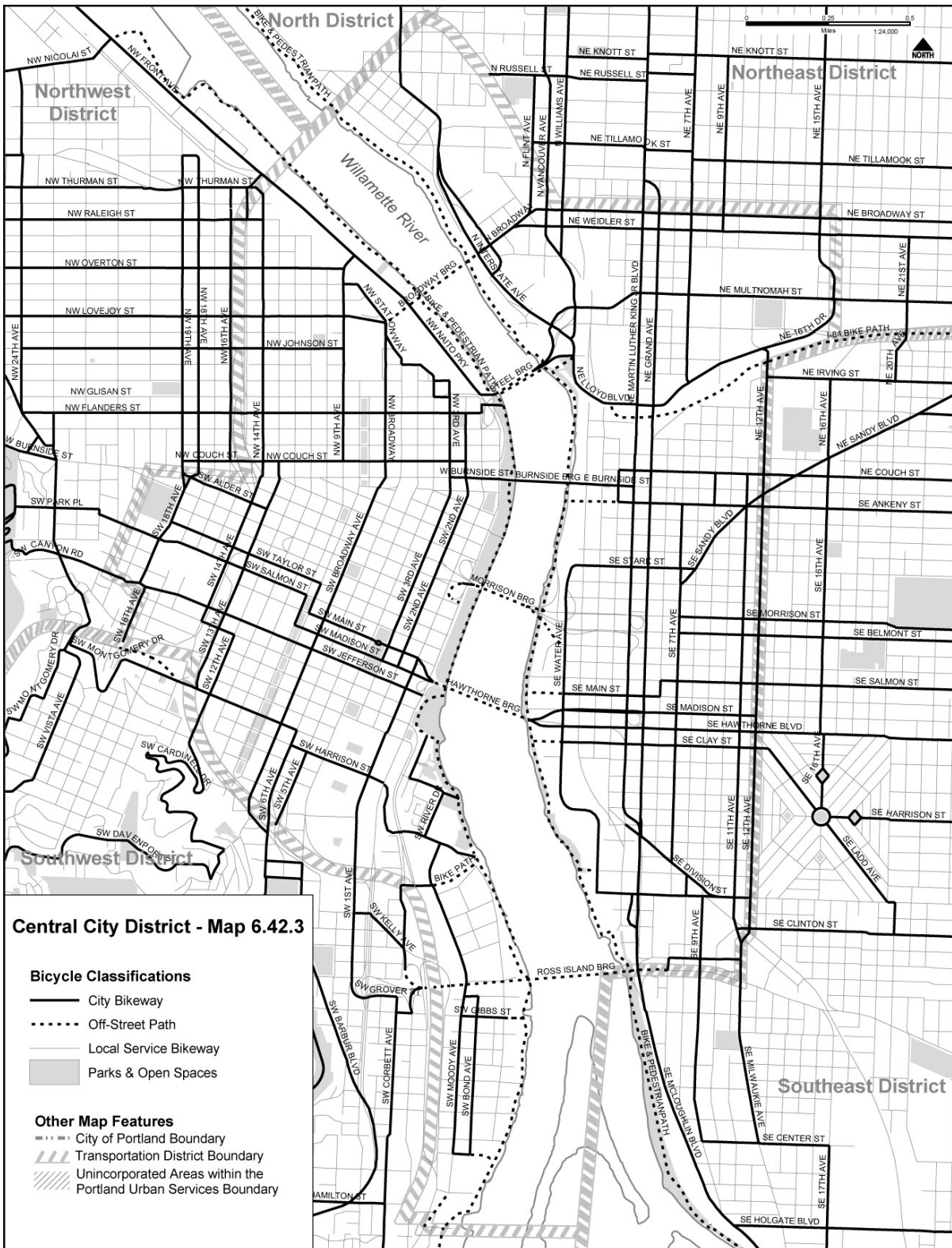
- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary

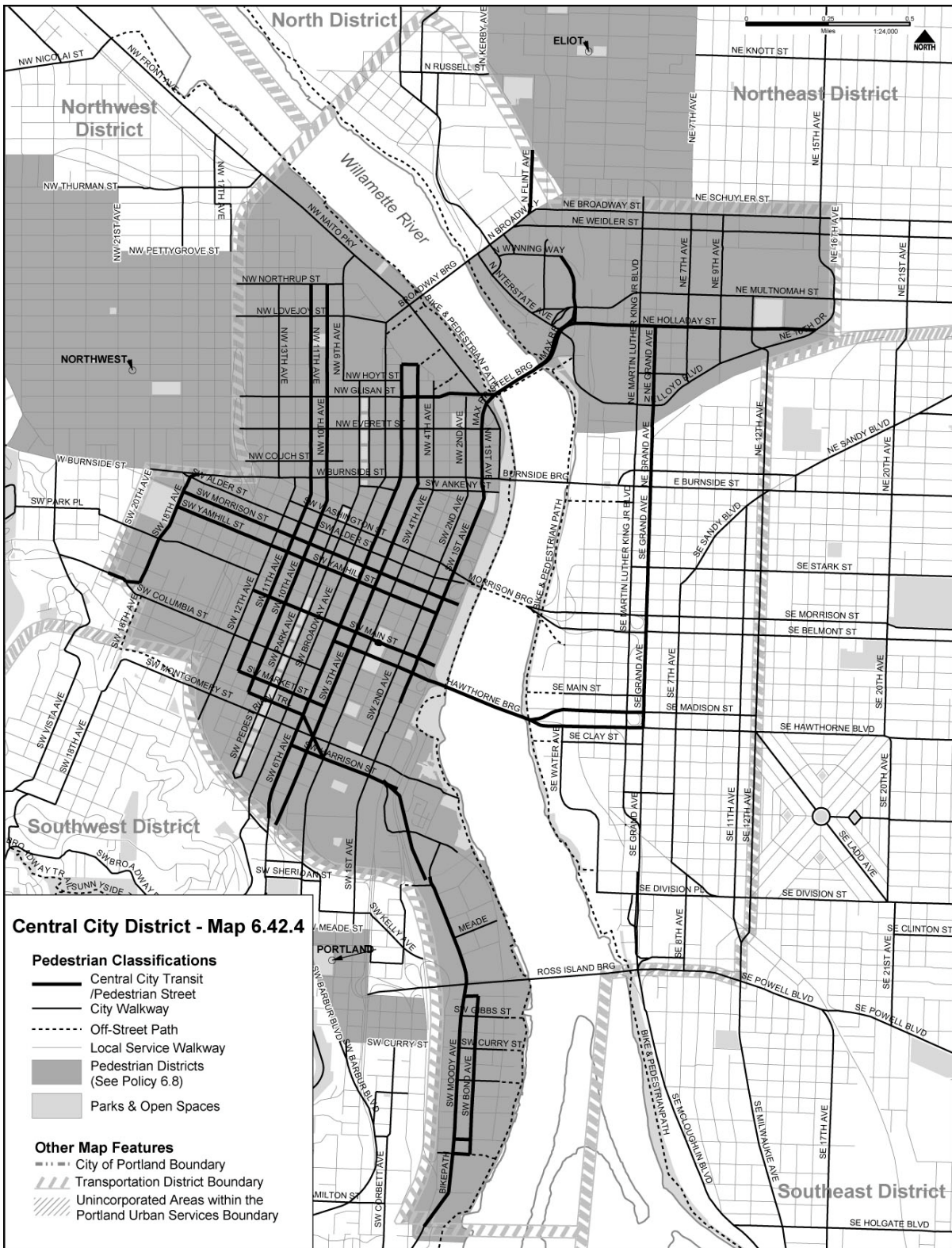
Policy 6.42 Central City Transportation District

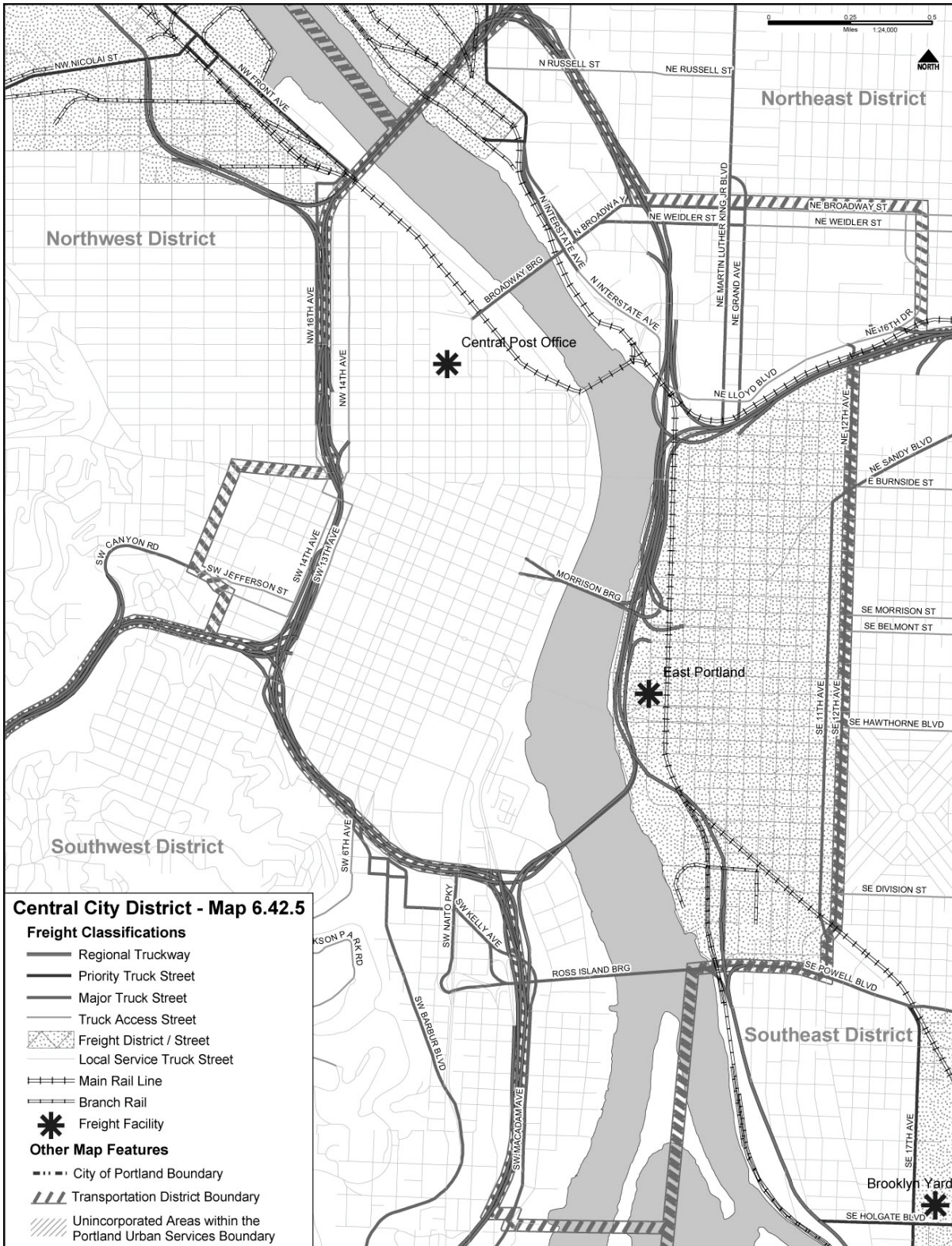
Include as part of the Transportation Element of the Comprehensive Plan, the Central City Transportation Management Plan Goal, policies, and objectives and classification maps.

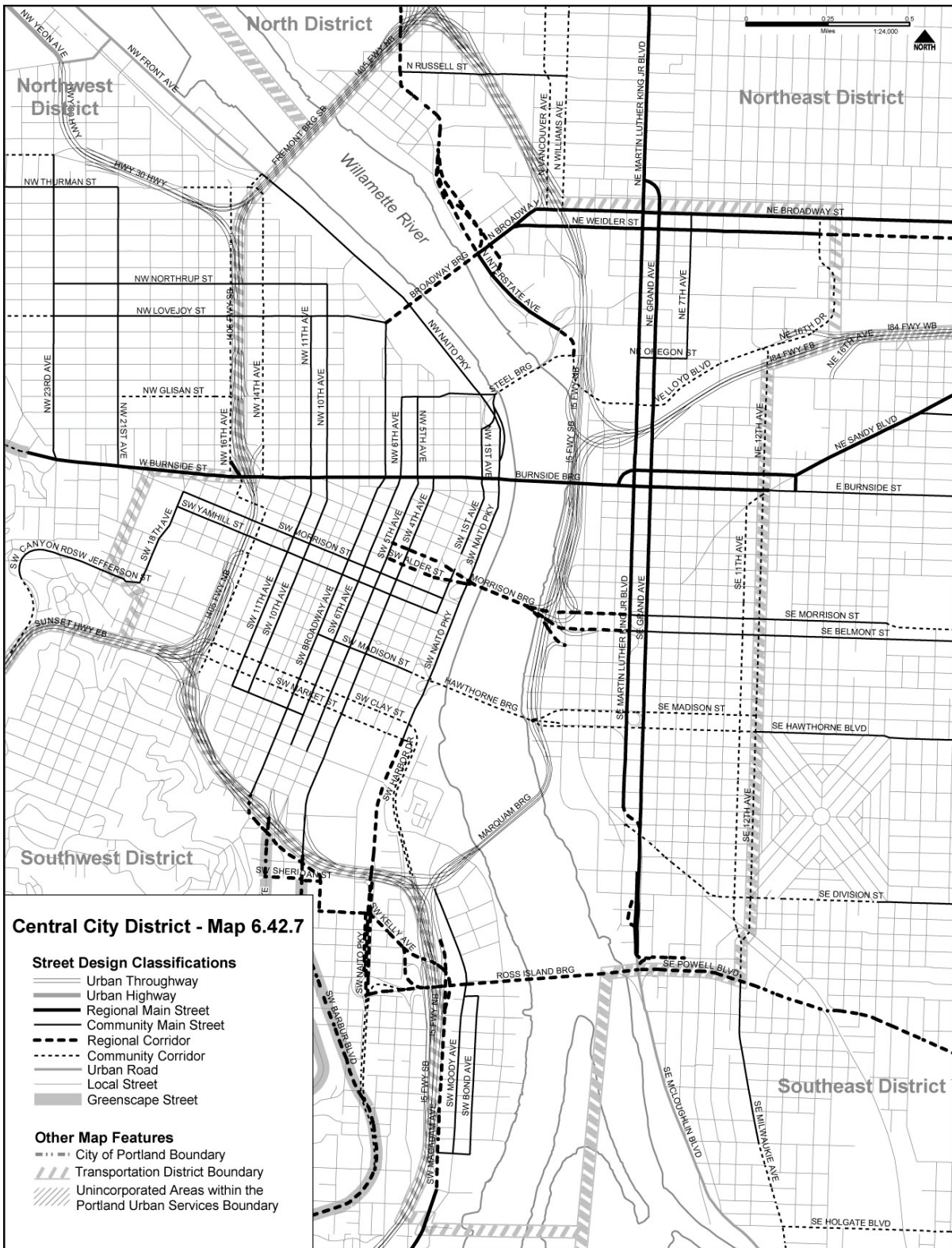












INTRODUCTION

Goal 11B, Public Rights-Of-Way, is the public facility goal for transportation. The State requires jurisdictions to have public facilities plans that consist of policy language and a list of projects to be undertaken over the life of the Comprehensive Plan. The policies describe how transportation improvements are selected; how transportation facilities are designed, built, and maintained; and how the transportation system performs. Within Goal 11B, policies address:

- Environmental Sustainability
- Project Selection
- Street Design and Right-of-Way Improvements
- Street Plans
- Maintenance
- Performance Measures

GOAL 11B PUBLIC RIGHTS-OF-WAY

Improve the quality of Portland's transportation system by carrying out projects to implement the 2040 Growth Concept, preserving public rights-of-way, implementing street plans, continuing high-quality maintenance and improvement programs, and allocating limited resources to identified needs of neighborhoods, commerce, and industry.

Explanation: Goal 11B is the public facility goal for transportation. The state requires jurisdictions to have public facility plans. This goal and its policies and the TSP project list comprise the public facility plan for transportation. The numbering for Goal 11B policies starts with 11.8 because Policies 11.1 through 11.7 are general public facilities policies that precede the specific policies associated with specific service provided by the City or other agencies. Policies 11.1 through 11.7 are not being changed through the TSP.

Policy 11.8 Environmental Sustainability in Transportation

Participate in meeting the City's sustainability goals by designing, constructing, installing, using, and maintaining the transportation system in efficient, innovative, and environmentally responsible ways.

Objectives:

- A. Integrate best management practices into all aspects of the Portland Office of Transportation activities.
- B. Continue to reuse and recycle office and construction materials and equipment, compost leaves, and separate street debris.
- C. Maintain equipment and facilities to minimize air, water, and noise pollution.
- D. Use environmentally safe products.
- E. Minimize runoff and erosion in all ground-disturbing activities, including construction, excavation, landscaping, and trench work.

- F. Use alternative energy sources to power equipment whenever feasible.
- G. Incorporate sustainable and Green Street design solutions for streets and other transportation projects.

Policy 11.9 Project Selection

Through the capital improvement program process, give priority consideration to transportation projects that will contribute to a reduction in vehicle miles traveled per capita, while supporting economic vitality and sustainability.

Explanation: This policy reflects a requirement of the Transportation Planning Rule (OAR 660-012). The intent is to use the capital improvement program process to select projects that will best implement the TRP and achieve the goals and benchmarks identified in it and in the TSP.

Objectives:

- A. Promote a compact urban form by supporting development in high-priority 2040 Growth Concept areas, including facilities and improvements that support mixed-use, pedestrian-friendly development and increase walking, bicycling, and transit use.
- B. Address existing deficiencies or hazards by improving pedestrian, bicycle, and vehicular safety.
- C. Use good resource management and minimize or reduce negative impacts to the natural environment.
- D. Provide and improve access to and within activity centers and develop safe routes to schools.
- E. Improve access to existing and emerging employment and industrial areas.
- F. Promote street connectivity for all modes, especially in areas where identified deficiencies exist, to support desired urban form and travel patterns.
- G. Address area-wide needs, including access and mobility, environmental protection, Green Street design and quality urban design, in a comprehensive approach to project selection.
- H. Increase the efficiency and effectiveness of the system by wise application of available financial, capital, and human resources.
- I. Develop the transportation system consistent with and supportive of community values.

Explanation: These objectives are derived from community input during development of the TSP and refined by the Citizen Advisory Committee. These objectives were used to evaluate projects for inclusion in the TSP.

Policy 11.10 Street Design and Right-of-Way Improvements

Design improvements to existing and new transportation facilities to implement transportation and land use goals and objectives.

Explanation: This is a new policy that combines with previous policies relating to the design of streets to incorporate requirements of Metro's 2000 Regional Transportation Plan.

Objectives:

- A. Make changes to public rights-of-way that are consistent with their street classifications and descriptions in the Transportation Element of the Comprehensive Plan.
- B. Consider the needs and safety of all users of a planned facility in its design and during the construction process.
- C. When changes to a right-of-way are proposed, consider the overall capacity impacts to the immediately affected street, as well as potential areawide capacity impacts.

Explanation: Changes to a street to accommodate one mode can affect how that street functions for other modes. Changing capacity, including reducing capacity for autos, can adversely affect how an area functions and can have wider-ranging impacts than just on the immediately affected street. Transportation projects need to look at all of the classifications for a street when making decisions that affect the capacity for any mode.

- D. Use Metro street design guidelines (Creating Livable Streets: Street Design for 2040, November 1997 and Green Streets, July 2002) as a resource in developing and designing projects for streets on the regional system.

Explanation: The Creating Livable Streets and Green Streets handbooks were developed by Metro with cooperation from local jurisdictions. Green Streets: Innovative Solutions for Stormwater and Street Crossings establishes a set of 'best practices' for reducing the amount of stormwater runoff from the public right-of-way. The handbook builds on the street designs developed for the Creating Livable Streets handbook, but modifies them to incorporate the 'best practices' identified in Green Streets. In November 2001, the National Marine Fisheries Service (NMFS) completed their review of the final draft of the Green Streets handbook and endorsed it as a series of 'safe harbor' practices that are consistent with NMFS goals for fish habitat protection.

- E. Use a variety of transportation resources in developing and designing projects for all City streets, such as the City of Portland's Pedestrian Design Guide, Bicycle Master Plan-Appendix A, Design Guide for Truck Streets, and City of Portland Green Street Policy and Design Guide for Public Street Improvements.

Explanation: Other documents used in designing streets are Titles 16 (Vehicles and Traffic) and 17 (Public Improvements) and the Standard

Construction Specifications. Manuals and 'toolboxes' have also been developed to address specific design elements, including the Transit Preferential Streets Program Sourcebook and the Traffic Manual, Chapter 11 – Speed Bumps. The Design Guide for Truck Streets is in draft form and will be completed under the direction of the City Engineer.

- F. Provide planned bicycle facilities in conjunction with street improvements, or develop equally safe and convenient alternative access for bicycles on parallel streets when the appropriate bikeway facility cannot be provided on the designated street because of severe environmental or topographical constraints, unacceptable levels of traffic congestion, or the need to retain on-street parking.
- G. Include sidewalks on both sides of all new street improvement projects, except where there are severe topographic or natural resource constraints or when consistent with the Pedestrian Design Guide.
- H. Include improvements that enhance transit operations, safety, and travel times in projects on existing or planned transit routes.
- I. Improve streets within Freight Districts and on truck-designated streets to facilitate truck movements.
- J. Construct local residential streets to minimize pavement width and total right-of-way width, consistent with the operational needs of the facility and taking into account the needs of both pedestrians and vehicles.
- K. Ensure that transportation facilities are accessible to all people and that all improvements to the transportation system (traffic, transit, bicycle, and pedestrian) in the public right-of-way comply with the Americans with Disabilities Act of 1990.
- L. Encourage the beautification of the City by incorporating appropriate streetscape elements along regionally designated streets and along other City-designated arterials, in conjunction with the Urban Forestry Program.

Explanation: The Beautification Policy from the 1996 Transportation Element is incorporated here and in the new Street Design Classification Descriptions, particularly the new Greenscape Street design. The Beautification Policy is partially implemented through the Urban Forestry Program of the Bureau of Parks and Recreation.

- M. Encourage the formation of local improvement districts (LIDs) for the construction of transportation infrastructure, which may include streets, curbs, or other structures; pedestrian or bicycle facilities; drainage; and street trees.
- N. Continue to explore cost-effective methods to finance local street improvements, including green streets projects.
- O. Consider and minimize impacts on the natural environment and watershed health, consistent with the City and regional response to the Endangered Species Act, the

- City's Green Streets Policy and stream crossing design guidelines in the Green Streets handbook, in the planning, design, and development of transportation projects.
- P. Consider the desired character of the area, including neighborhood livability, in the design and development of transportation projects.
- Q. Develop standards and incentives to encourage Green Streets projects in private development, redevelopment and enhancement projects wherever technically and economically feasible.

Explanation: Portland City Council established a Green Streets inter-bureau team and adopted a green streets policy in 2006 that stressed the need for encouraging use of green street techniques. The policy called for enhanced education, creation of technical standards and incentives that would allow private development and neighborhoods to finance new and retrofit green streets projects.

Policy 11.11 Street Plans

Promote a logical, direct, and connected street system through the development of street plans.

Explanation: Metro's Regional Transportation Plan requires master street plans for local jurisdictions covered by Metro. This policy and its objectives, along with maps that will be adopted for areas of the City, fulfill this requirement. Additional plans will be prepared as refinement plans in the TSP.

Objectives:

- A. Develop conceptual master street plans for areas of the City that have significant amounts of vacant or underdeveloped land and where the street network does not meet City and Metro connectivity guidelines.
- B. Ensure that new residential development and development in zones that allow a mix of uses include street plans that are consistent with master street plans, extend and connect to adjacent areas, and meet connectivity objectives.
- C. Identify opportunities to extend and connect streets, provide direct public right-of-way routes, and limit the use of cul-de-sac and other closed-end street designs.
- D. Provide full street connections with spacing of no more than 530 feet between connections, except where prevented by barriers such as topography, railroads, freeways, or environmental constraints. Where streets must cross over protected water features, provide crossings at an average spacing of 800 to 1,200 feet, unless exceptional habitat quality or length of crossing prevents a full street connection.

Explanation: Metro defines protected water features as those identified in Title 3 of the Urban Growth Management Functional Plan. The City's environmental zones are applied to significant water features to protect these resources.

- E. Provide bike and pedestrian connections at approximately 330-foot intervals on public easements or rights-of-way when full street connections are not possible, except where prevented by barriers such as topography, railroads, freeways, or environmental constraints. Bike and pedestrian connections that cross protected water features should have an average spacing of no more than 530 feet, unless exceptional habitat quality or length of crossing prevents a connection.
- F. As the South Waterfront District develops, provide connectivity for all modes of travel by developing the streets and accessways as shown on Map 11.11.1.
- G. As the western half of the Bridgeton neighborhood develops, provide connectivity for all modes of travel by developing the streets as shown on Map 11.11.2.

Explanation: The Bridgeton Neighborhood Plan, adopted by Ordinances 171238 and 171239, required development of a Transportation Network Concept Plan for Bridgeton. The Transportation Network Concept Plan was completed but not adopted. It is adopted with adoption of the TSP and is shown on Map 11.11.2.

- H. As the Gateway regional center redevelops, provide additional connectivity for all modes of travel as shown on Map 11.11.3.
- I. As the Airport Way vicinity continues to develop, use the Airport Way Secondary Infrastructure Plan as a guide to provide connectivity for all modes of travel by developing streets as shown on Map 11.11.4.

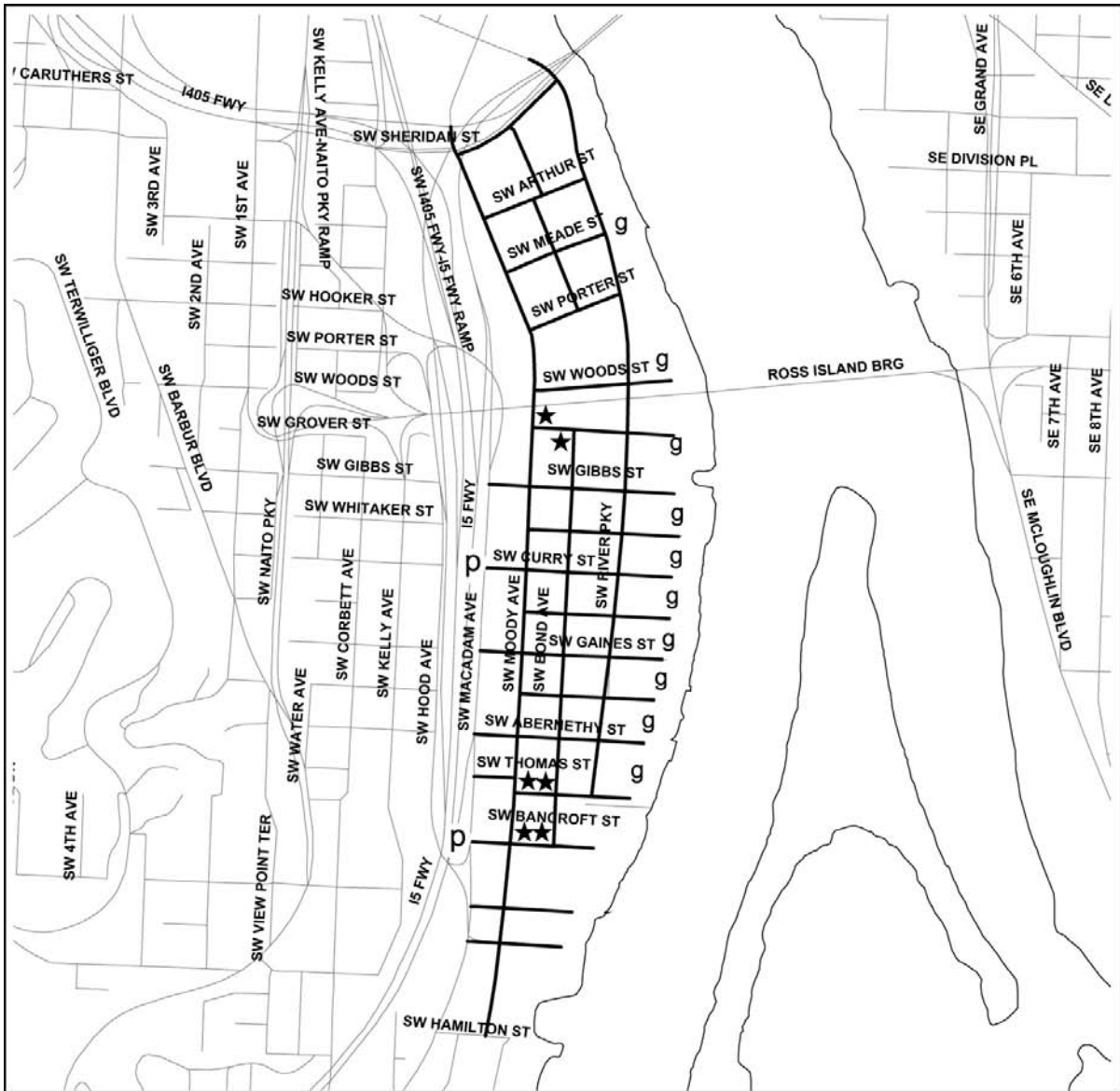
Explanation: The Airport Secondary Infrastructure Plan was adopted by City Council Resolution 35405 in 1995 as an administrative guide to extending infrastructure, including streets, in Columbia South Shore east of NE 138th and north of Sandy Boulevard.

- J. Continue to provide connectivity in the River District for all modes of travel by developing public and private streets as shown on Map 11.11.5.
- K. As the Southwest District develops, provide connectivity for all modes of travel by developing streets as shown on Map 11.11.6.
- L. As the Far Southeast District develops, provide connectivity for all modes of travel by developing streets as shown on Map 11.11.7.
- M. As the street system is modified around the west end of the Ross Island Bridge, provide enhanced connectivity for all modes as shown on Map 11.11.8.
- N. Preserve street connectivity in areas of the City that meet the standards of this policy and its objectives as shown on Maps 11.11.9 through 11.11.16.

Explanation: As street master plans are completed, they will be incorporated into the Comprehensive Plan by adding a new objective to this policy and adopting an accompanying map. Many of the older areas of

Portland already meet the connectivity standards. Connectivity should be preserved in those areas. Maps 11.11.1 through 11.11.8 show areas of the City where new street and pedestrian/bicycle connections have been identified. Maps 11.11.9 through 11.11.16 show areas of the City where street connectivity standards are met and areas that are exempt from street connectivity standards. Maps should be used together with the applicable City codes that address connectivity. Street and pedestrian/bicycle connections should be considered for any site, regardless of whether it falls within an area that meets street connectivity standards. Additional connections may be warranted by its location within a 2040 land use type such as a center, or because of prevailing block size in an area.

- O. Improve connectivity in the St. Johns town center by implementing the St. Johns Master Street Plan as shown on Map 11.11.17.
- P. Improve and preserve connectivity in the Northwest District by implementing the Northwest District Master Street Plan as shown on Map 11.11.18.
- Q. Establish a network of streets in Multnomah County Unincorporated Urban Pockets to provide connectivity for all modes of travel as shown on Maps 11.11-19 A through C.



Portland Master Street Plan

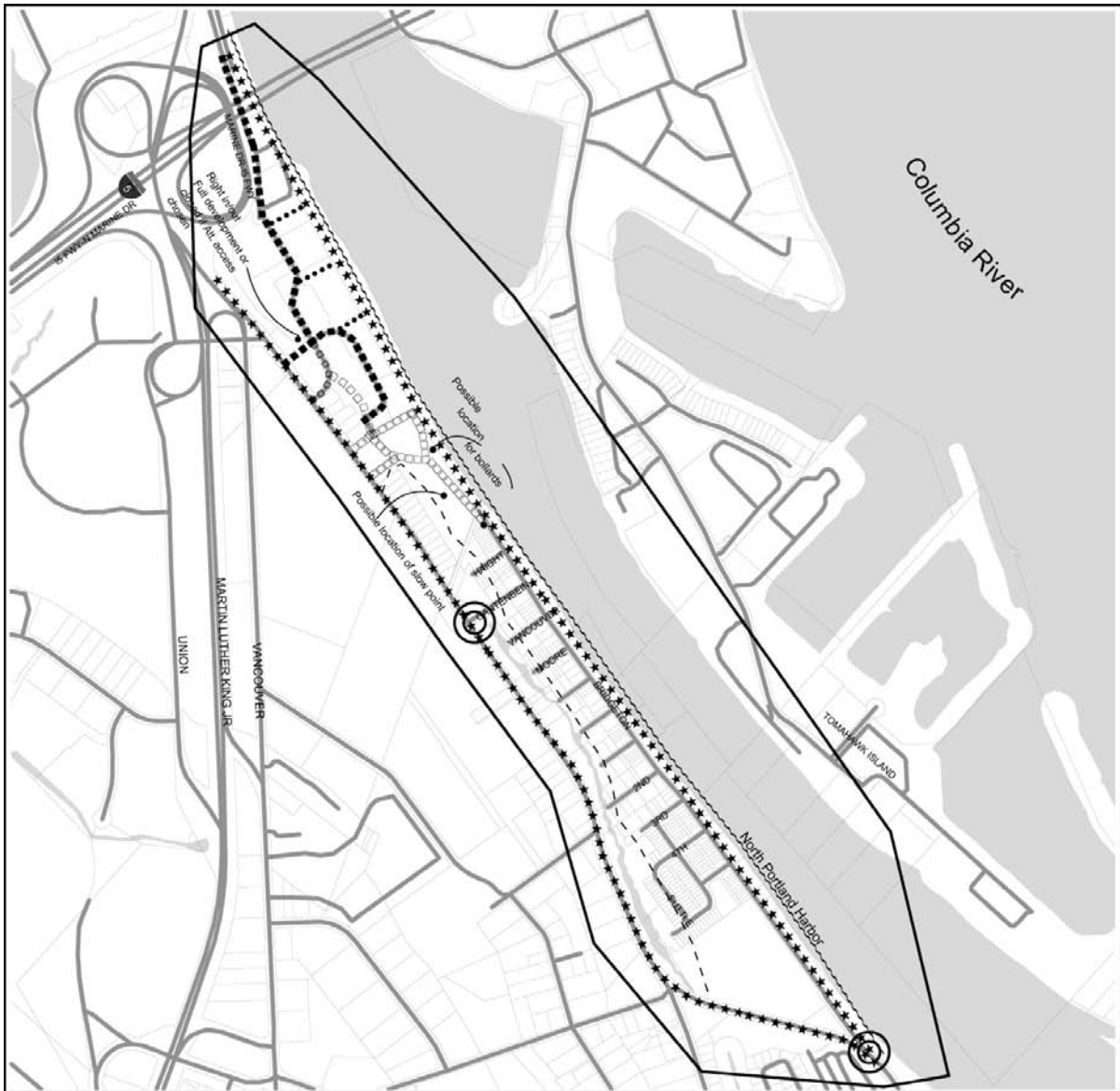
Map 11.11.1

*South Waterfront District
(Replaces North Macadam District)*

Legend

- New Or Realigned Streets
- g Green Accessway
- p District Portal
- ★ Additional Right-of-Way for Streetcar





Portland Master Street Plan

Map 11.11.2

***Bridgeton
Transportation
Network Concept Plan***

Legend

- ■ ■ ■ Approximate Alternative Locations for New Streets
- □ □ □ Approximate Alternative Locations for New Streets
- ★ ★ ★ ★ 40 Mile Loop Recreational Trail
- ● ● ● Approximate Alternative Locations for New Pedestrian Pathways
- ~~~~~ Scenic Corridors
- - - - Bridgeton Slough
- ⊙ Intersection Improvements by City
- ⊙ Designated Neighborhood Gateways





Portland Master Street Plan

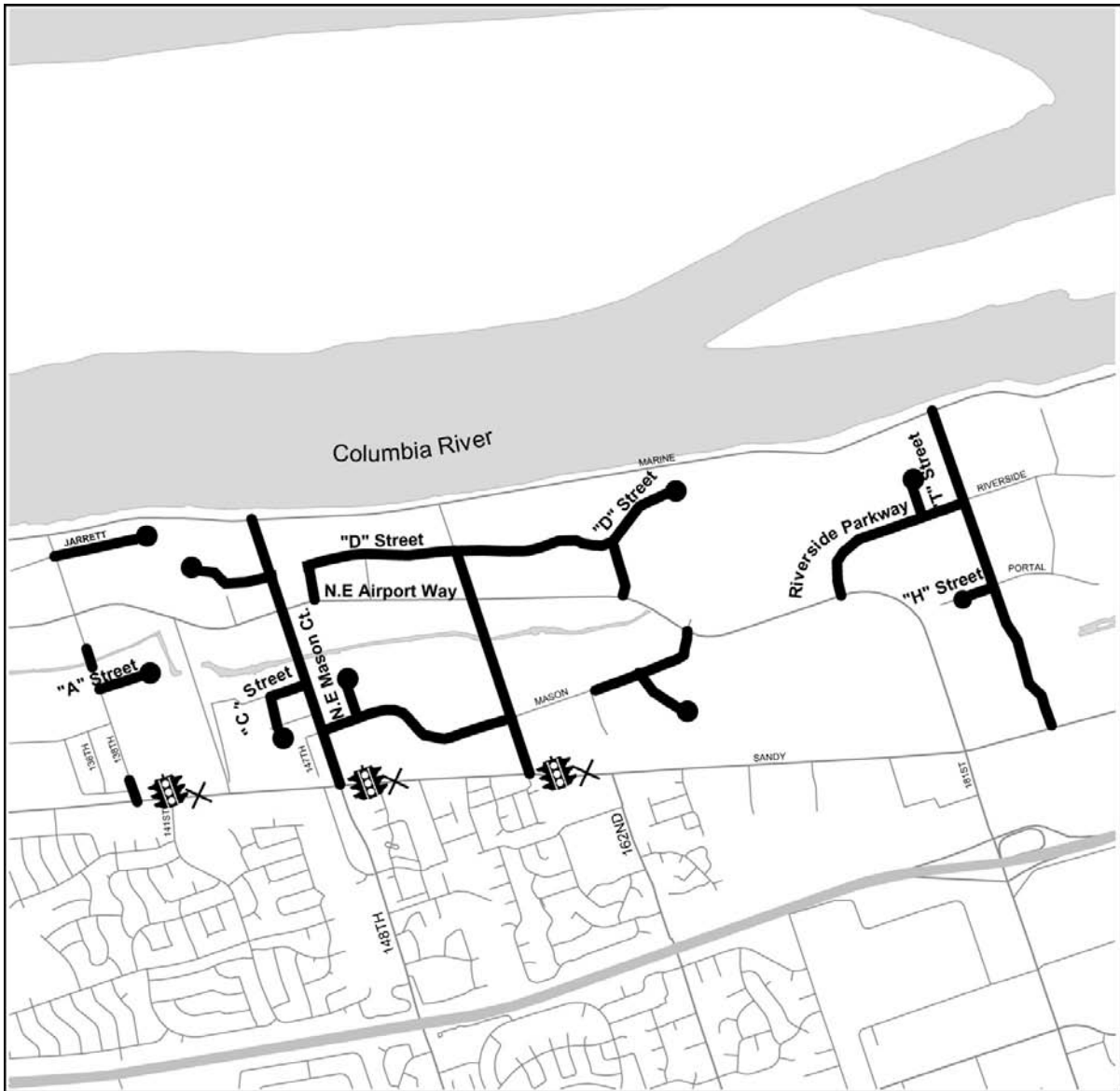
Map 11.11.3

Gateway District

Legend

-  Existing Streets
-  Proposed New Streets
-  Pedestrian Connection
-  Gateway Regional Center








Portland Master Street Plan

Map 11.11.4

Airport Way

Legend

-  Proposed New Road or Existing Road Improvements
-  New Traffic Signal
-  New Railroad Crossing





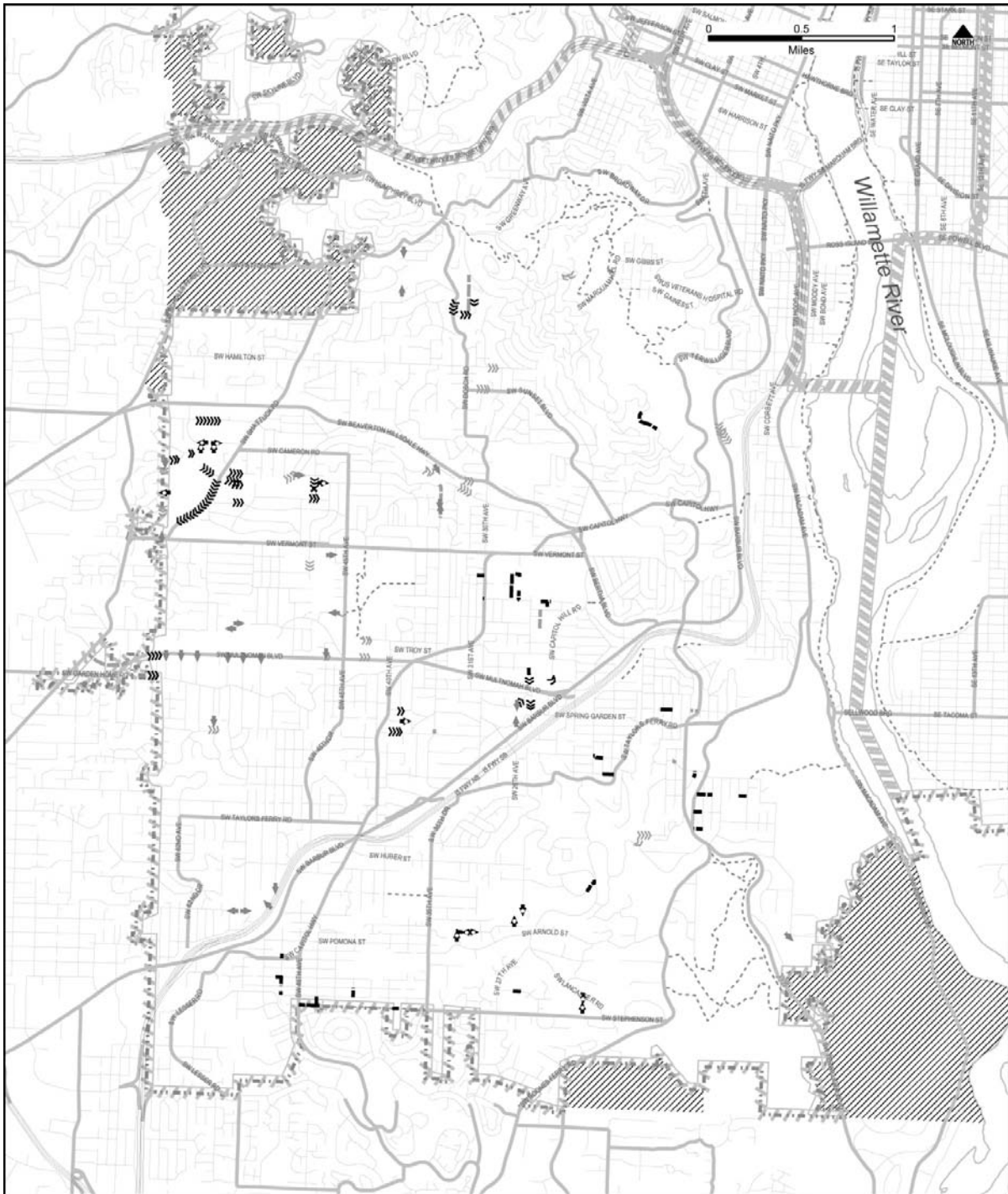
Portland Master Street Plan

Map 11.11-5

River District

Legend

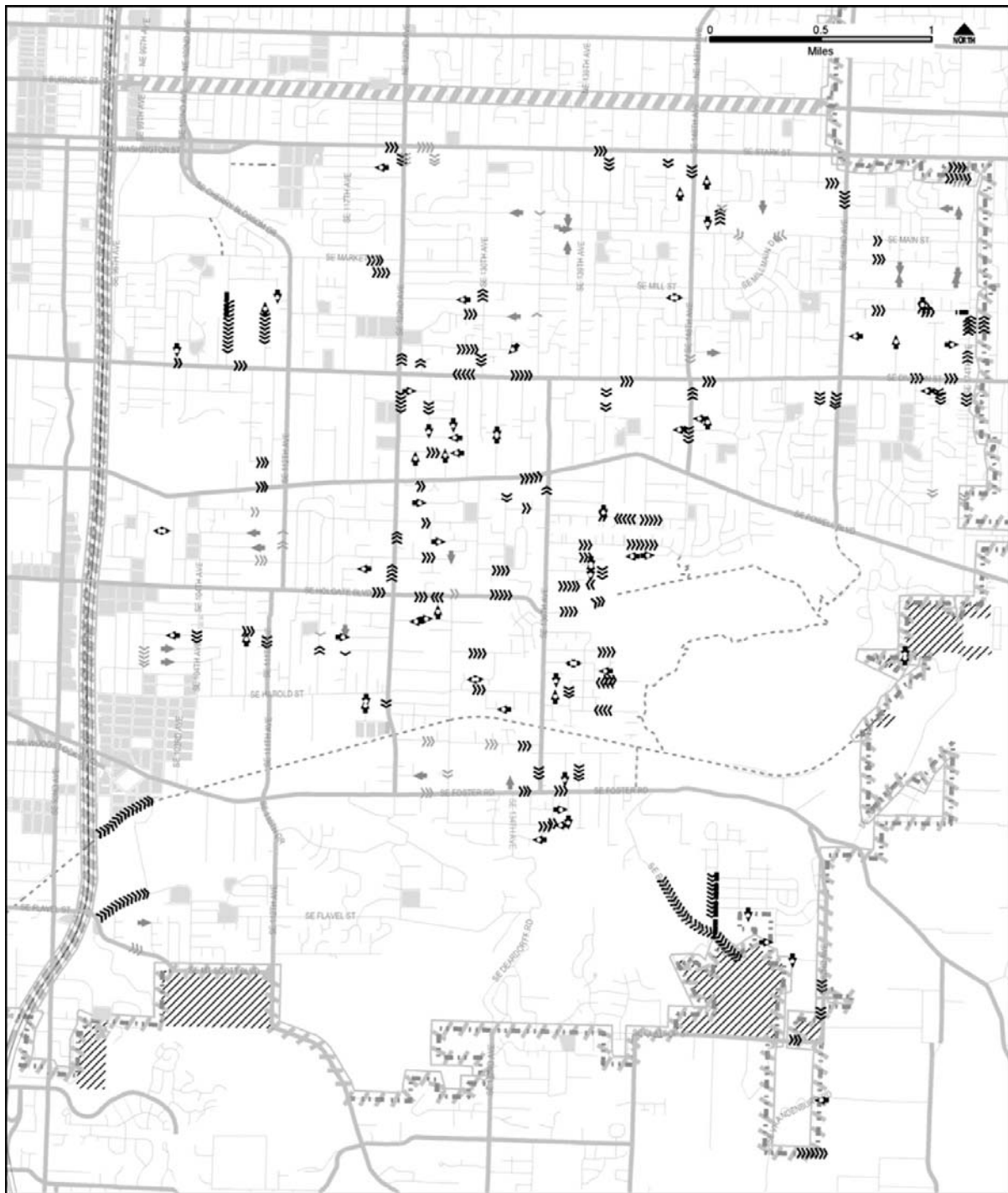
-  New Streets
-  Pedestrian Ways
-  Pedestrian Bridge



**Portland Master Street Plan - Map 11.11.6
Southwest District**

- | | |
|--|--|
| <ul style="list-style-type: none"> »»»»» Pedestrian/Bicycle Connection Points & Alignment Uncertain »»»»» Street Connection Points & Alignment Uncertain — — — — Pedestrian/Bicycle Connection Points & Alignment Certain — — — — Street Connection Points & Alignment Certain ⚡ Pedestrian/Bicycle Connection Points Certain & Alignment Uncertain ⚡ Street Connection Points Certain & Alignment Uncertain ----- Existing Pedestrian Trails | <ul style="list-style-type: none"> ■ Meets Street Spacing Standard --- City of Portland Boundary /// Transportation District Boundary /// Unincorporated Areas within the Portland Urban Services Boundary |
|--|--|

Note: I-5/Barbur Corridor and Marquam Hill are excluded.



**Portland Master Street Plan - Map 11.11.7
Far Southeast District**



- | | |
|---|---|
| <p> >>>>> Pedestrian/Bicycle Connection Points & Alignment Uncertain
 >>>>>> Street Connection Points & Alignment Uncertain
 - - - - - Pedestrian/Bicycle Connection Points & Alignment Certain
 ■ ■ ■ ■ Street Connection Points & Alignment Certain
 ◆ Pedestrian/Bicycle Connection Points Certain & Alignment Uncertain
 ♦ Street Connection Points Certain & Alignment Uncertain
 - - - - Existing Pedestrian Trails </p> | <p> [Solid Grey Box] Meets Street Spacing Standard
 [Dashed Line] City of Portland Boundary
 [Hatched Box] Transportation District Boundary
 [Diagonal Hatched Box] Unincorporated Areas within the Portland Urban Services Boundary </p> |
|---|---|
- Note: Gateway Regional Center and Light Rail Corridor are excluded. Effective November 12, 2004



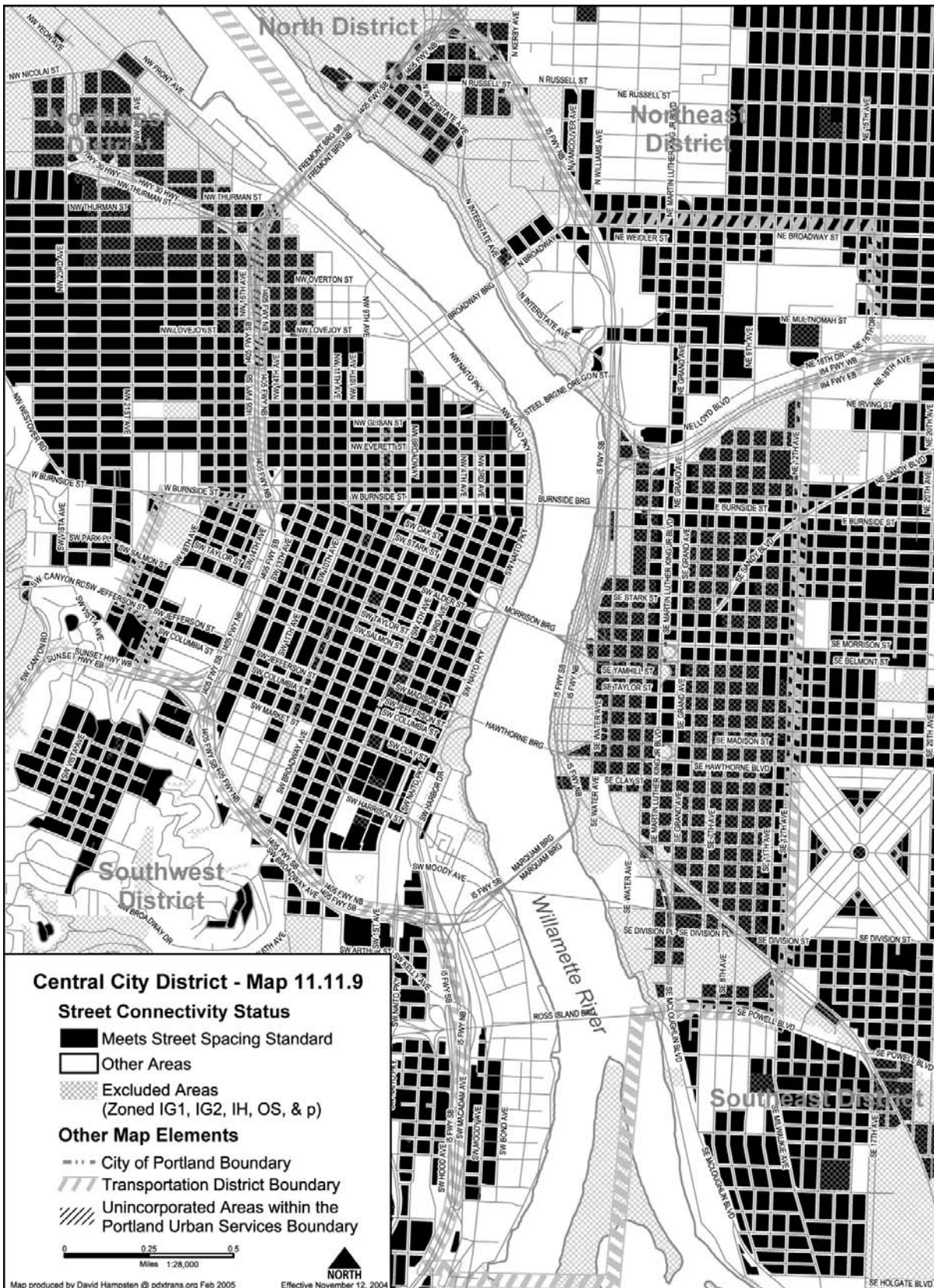
Portland Master Street Plan
South Portland

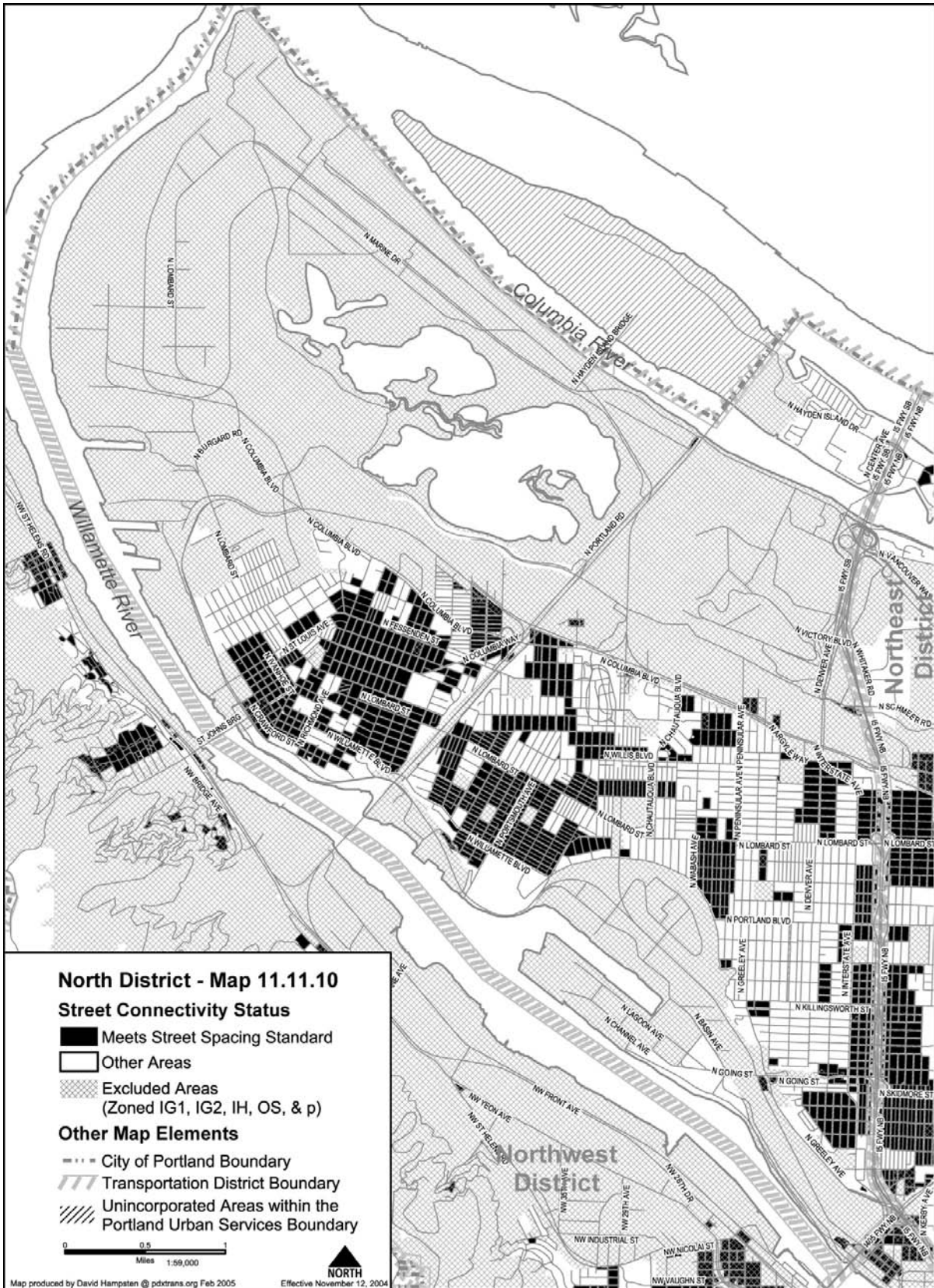
Map 11.11.8

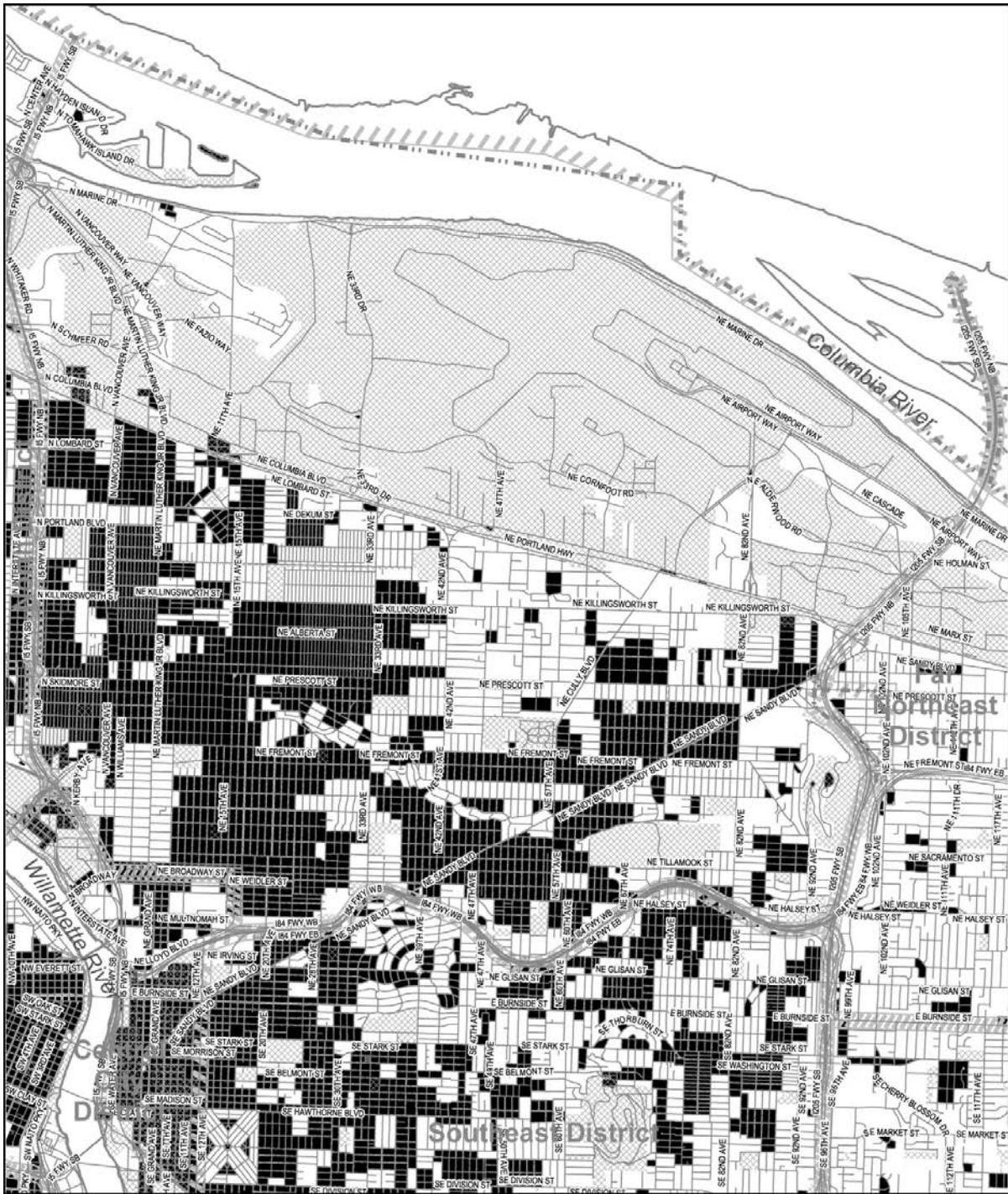
Legend

-  Proposed New Streets or Existing Street Improvements
-  Discontinued Connection



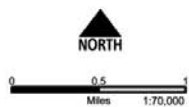






Northeast District - Map 11.11.11

- Street Connectivity Status**
- Meets Street Spacing Standard
 - Other Areas
 - Excluded Areas (Zoned IG1, IG2, IH, OS, & p)



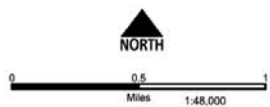
- Other Map Elements**
- City of Portland Boundary
 - Transportation District Boundary
 - Unincorporated Areas within the Portland Urban Services Boundary

Map produced by David Hampsten @ pdxtrans.org Feb 2005 Effective November 12, 2004

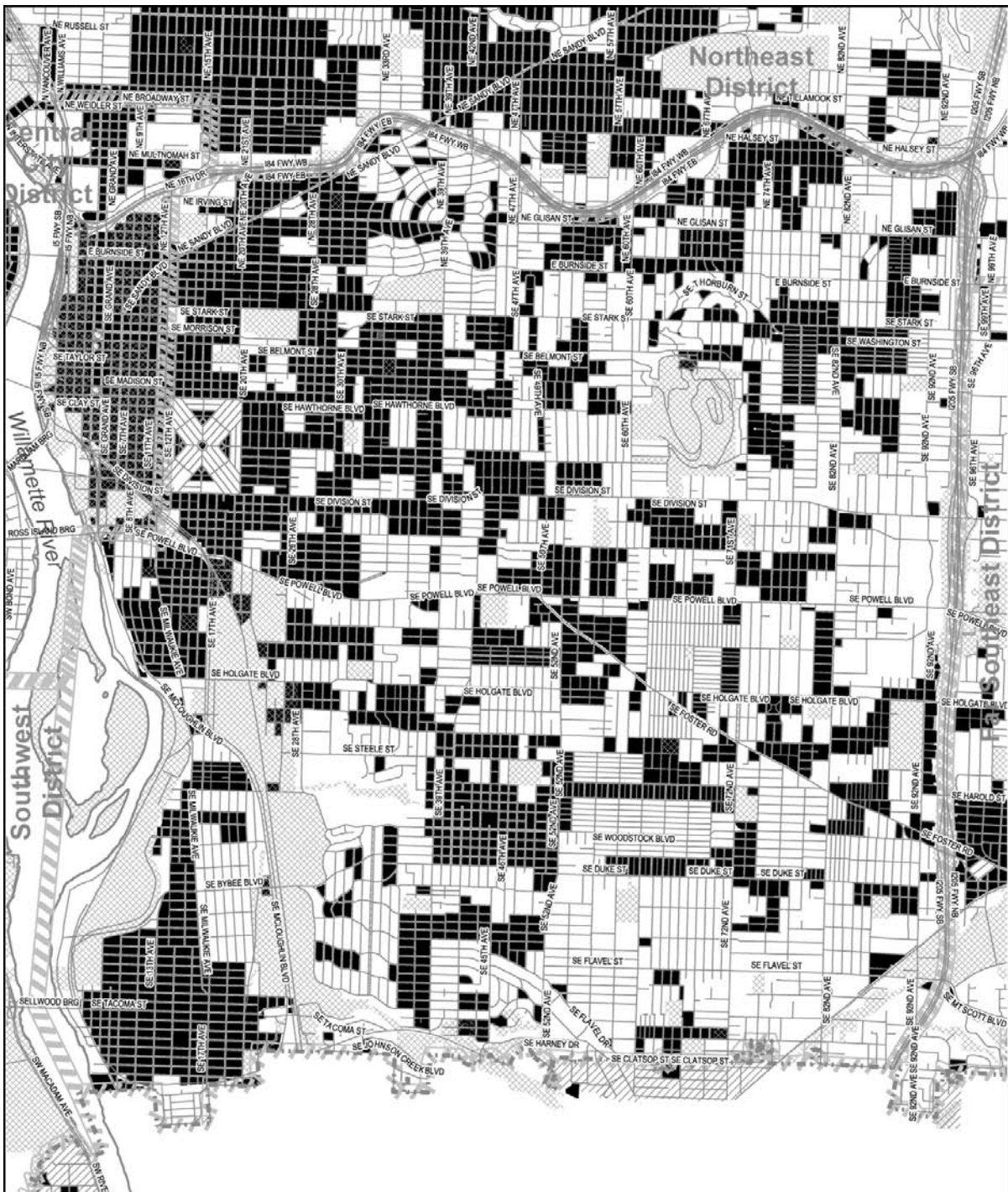


Far Northeast District - Map 11.11.12

Street Connectivity Status		Other Map Elements	
	Meets Street Spacing Standard		City of Portland Boundary
	Other Areas		Transportation District Boundary
	Excluded Areas (Zoned IG1, IG2, IH, OS, & p)		Unincorporated Areas within the Portland Urban Services Boundary



Map produced by David Hampsten @ pdxtrans.org Feb 2005 Effective November 12, 2004



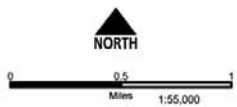
Southeast District - Map 11.11.13

Street Connectivity Status

- Meets Street Spacing Standard
- Other Areas
- Excluded Areas
(Zoned IG1, IG2, IH, OS, & p)

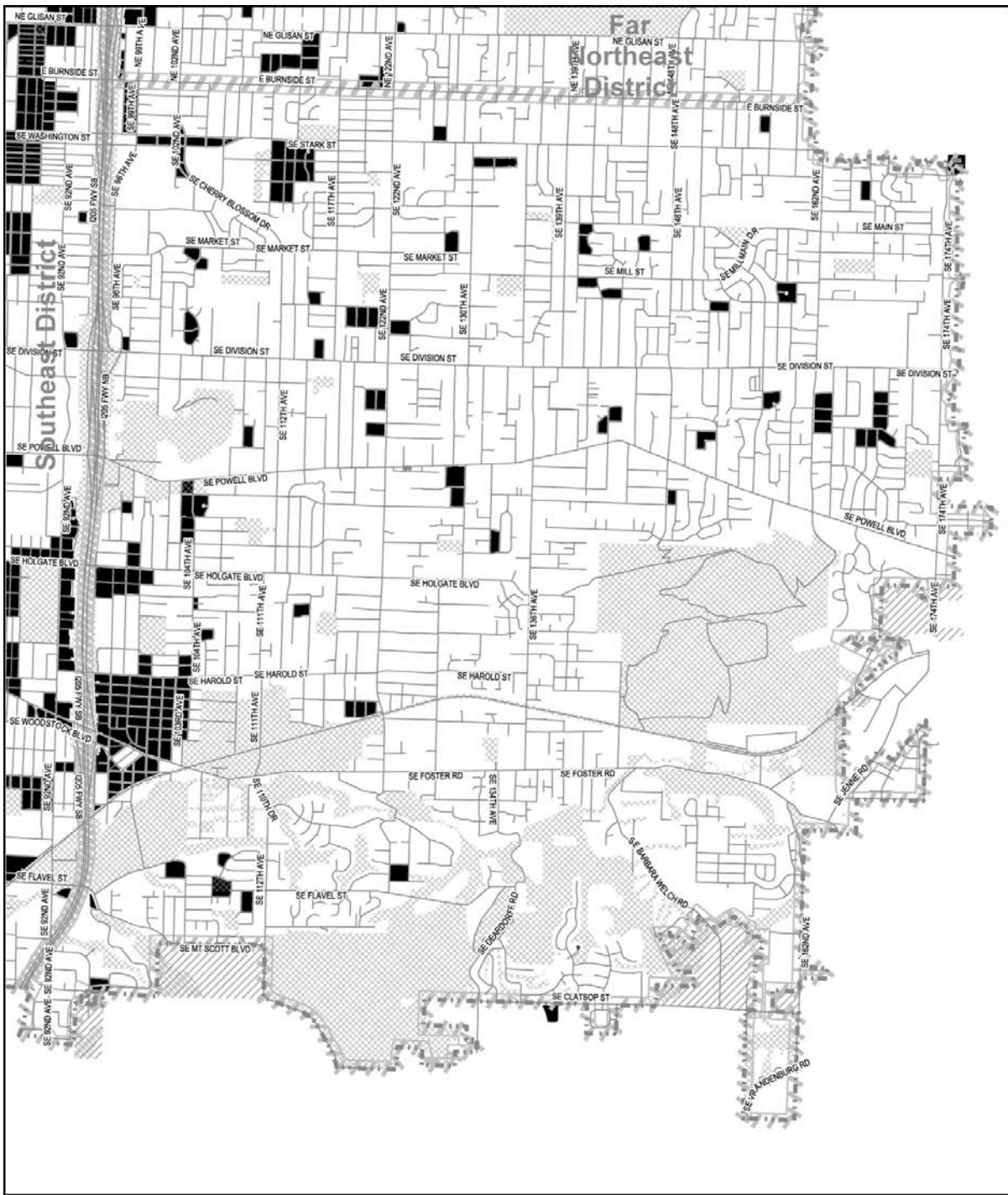
Other Map Elements

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Areas within the Portland Urban Services Boundary



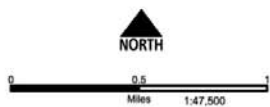
Map produced by David Hampsten @ pdxtrans.org Feb 2005

Effective November 12, 2004



Far Southeast District - Map 11.11.14

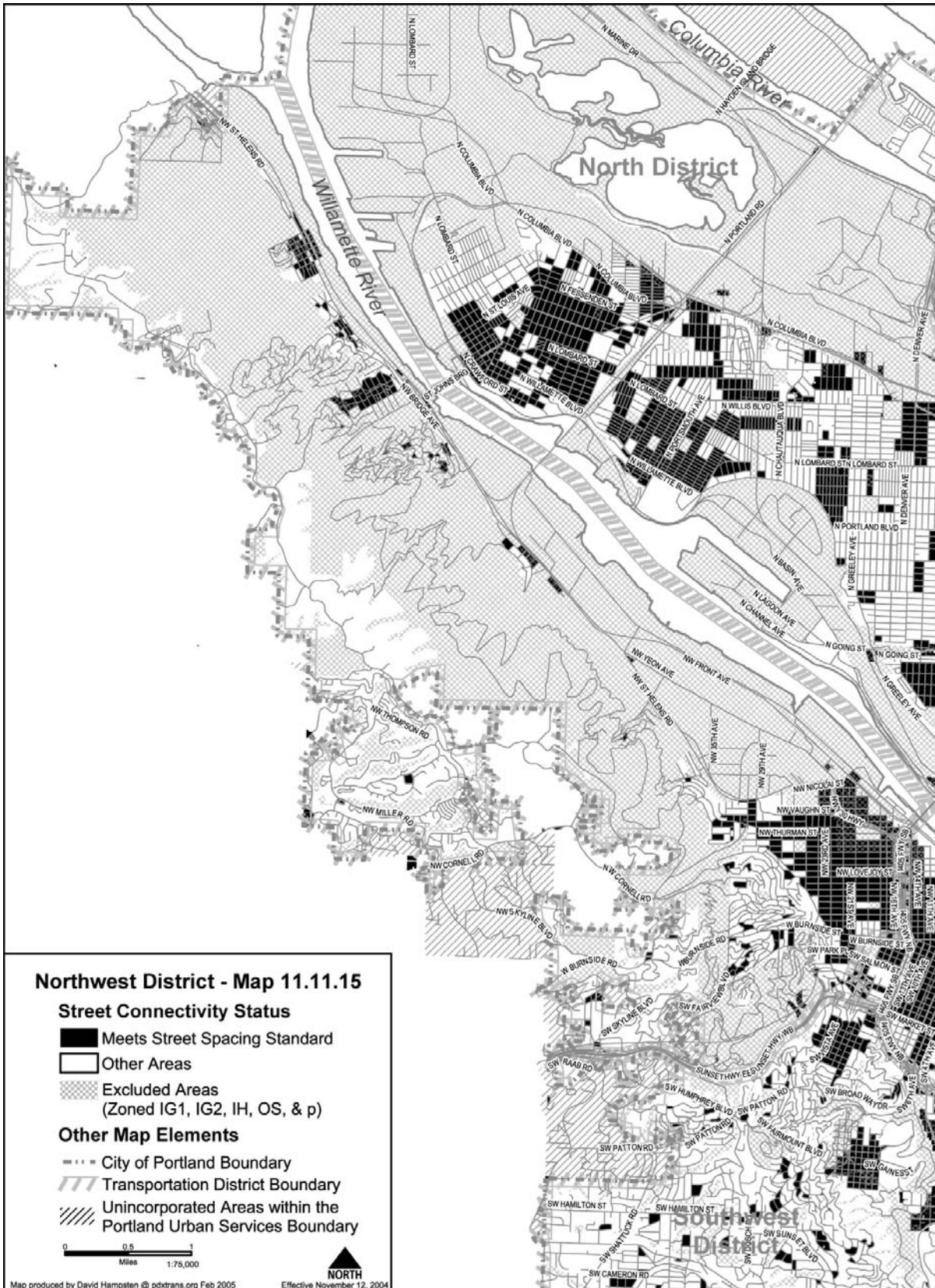
- Street Connectivity Status**
- Meets Street Spacing Standard
 - Other Areas
 - Excluded Areas (Zoned IG1, IG2, IH, OS, & p)

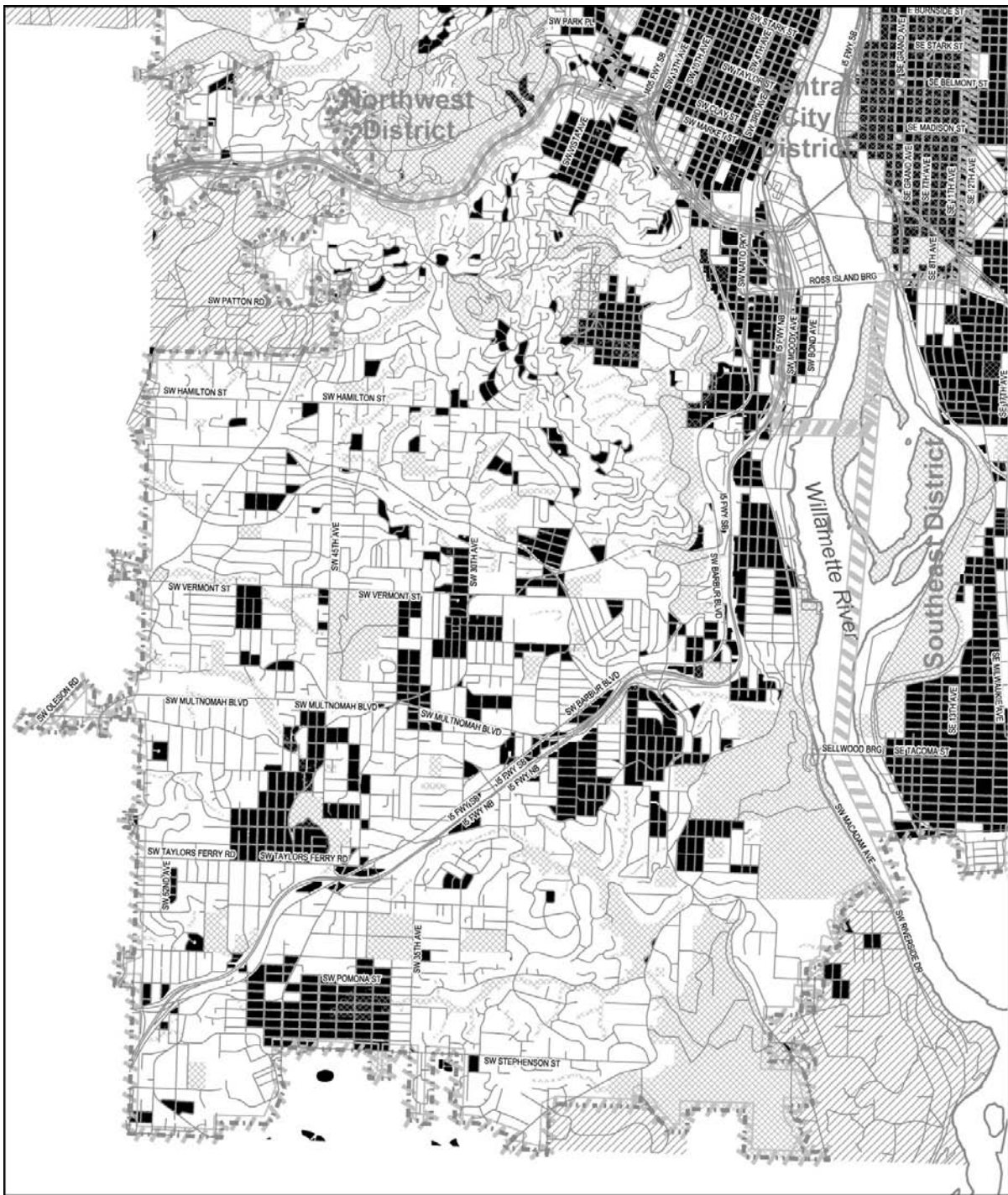


- Other Map Elements**
- City of Portland Boundary
 - Transportation District Boundary
 - Unincorporated Areas within the Portland Urban Services Boundary

Map produced by David Hampsten @ pdxtrans.org Feb 2005

Effective November 12, 2004

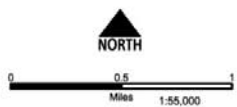







Southwest District - Map 11.11.16

Street Connectivity Status

-  Meets Street Spacing Standard
-  Other Areas
-  Excluded Areas
(Zoned IG1, IG2, IH, OS, & p)

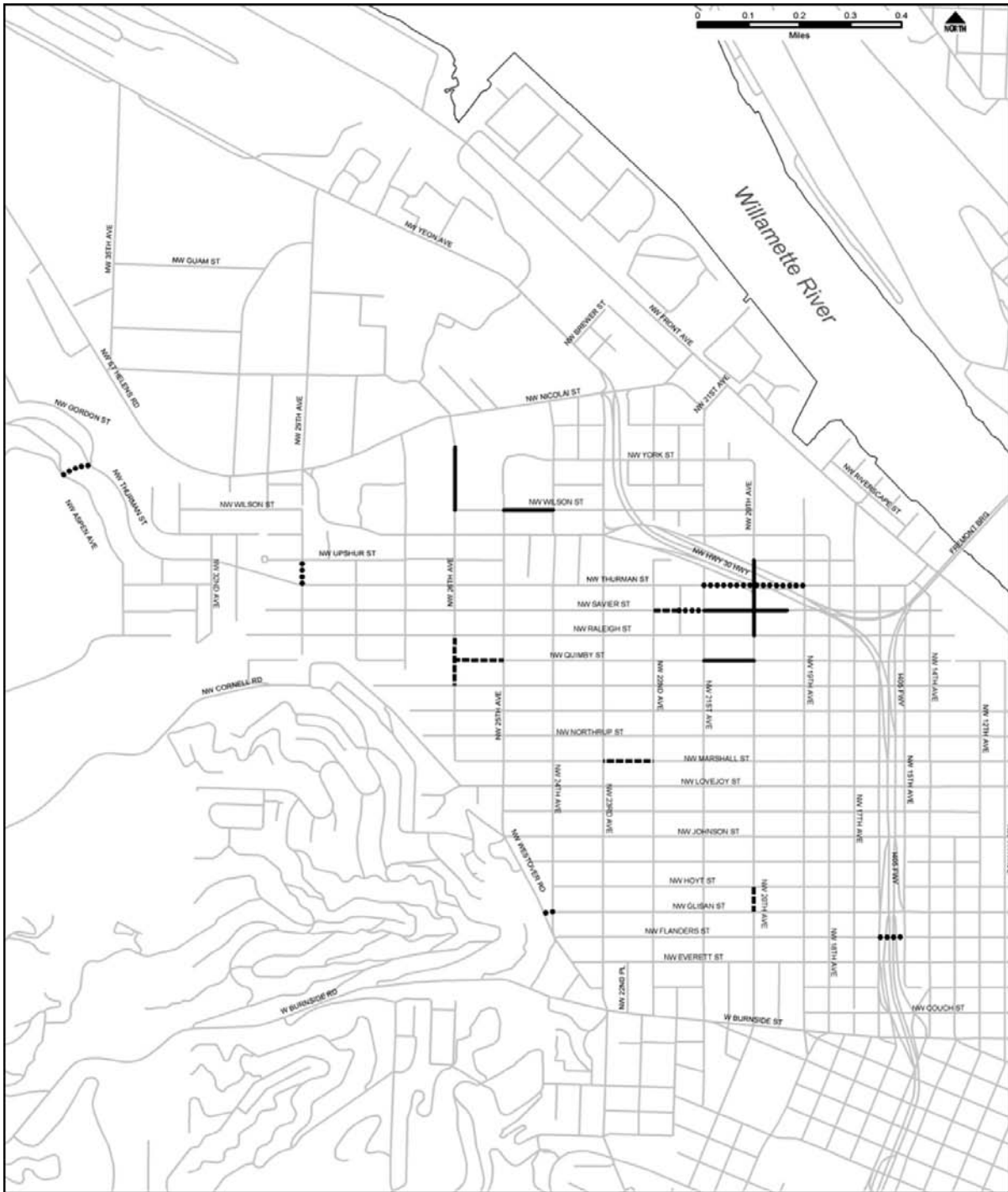


Other Map Elements

-  City of Portland Boundary
-  Transportation District Boundary
-  Unincorporated Areas within the Portland Urban Services Boundary

Map produced by David Hampsten @ pdxtrans.org Feb 2005

Effective November 12, 2004

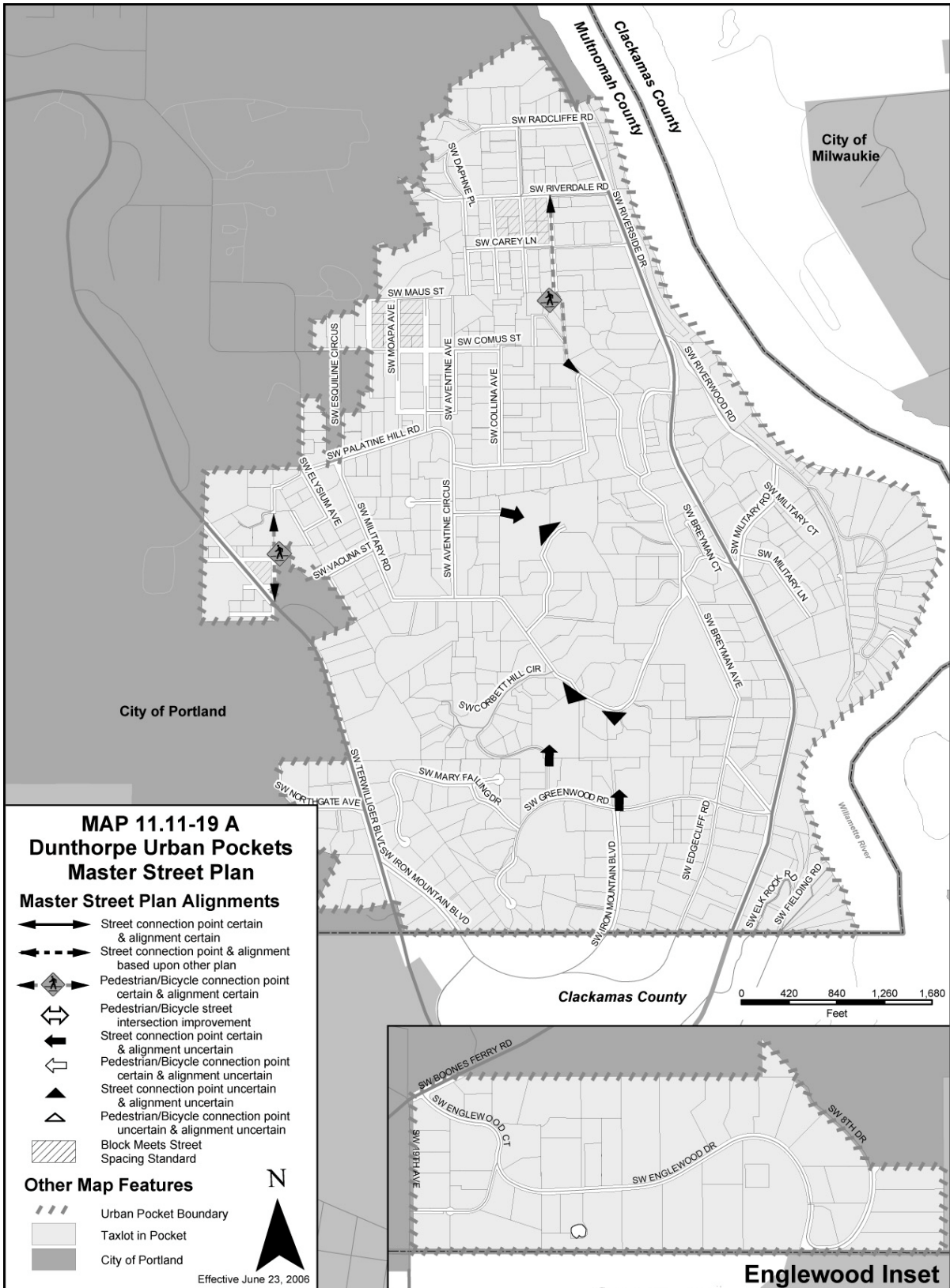


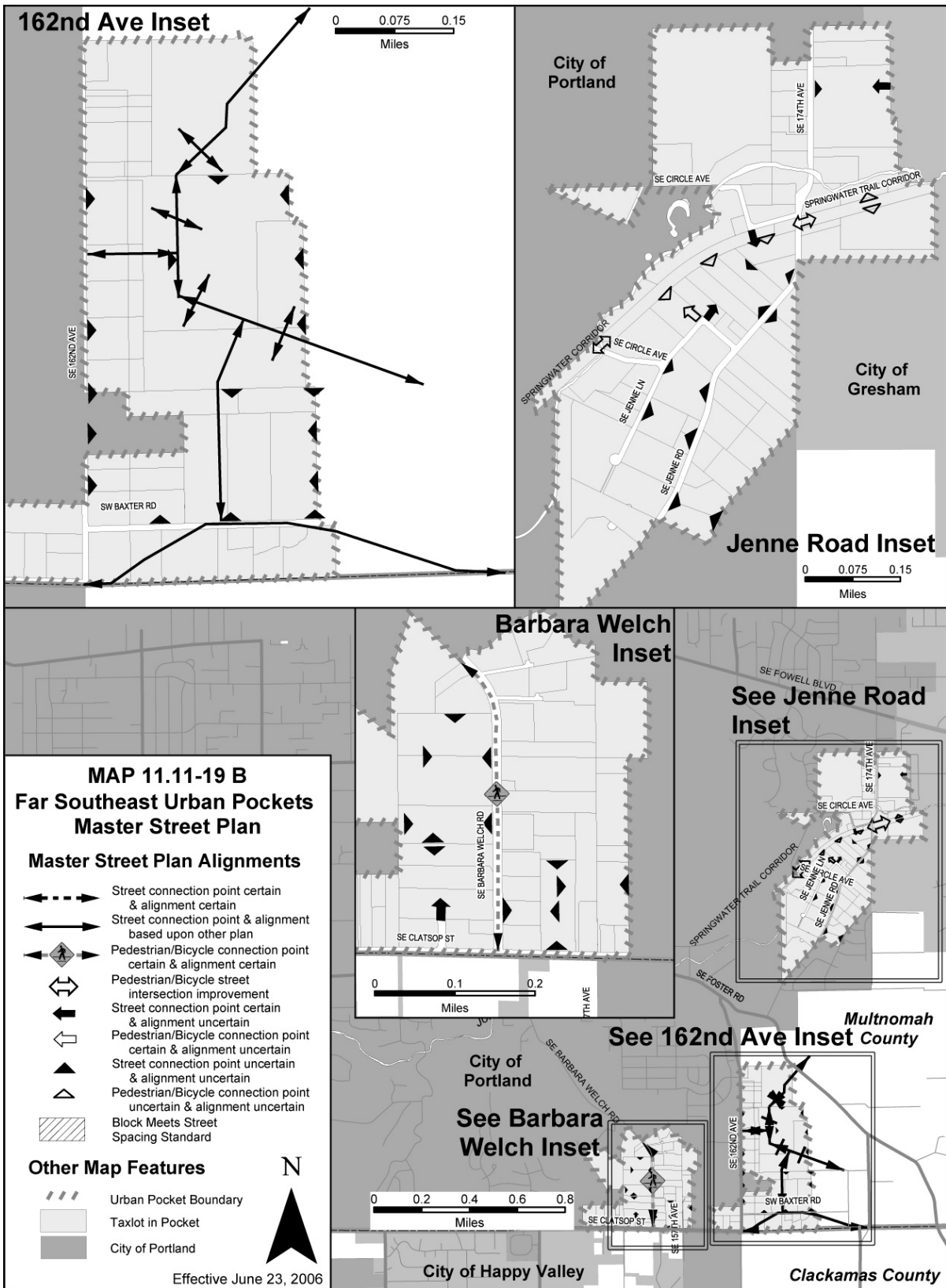
**Portland Master Street Plan - Map 11.11-18
Northwest District**

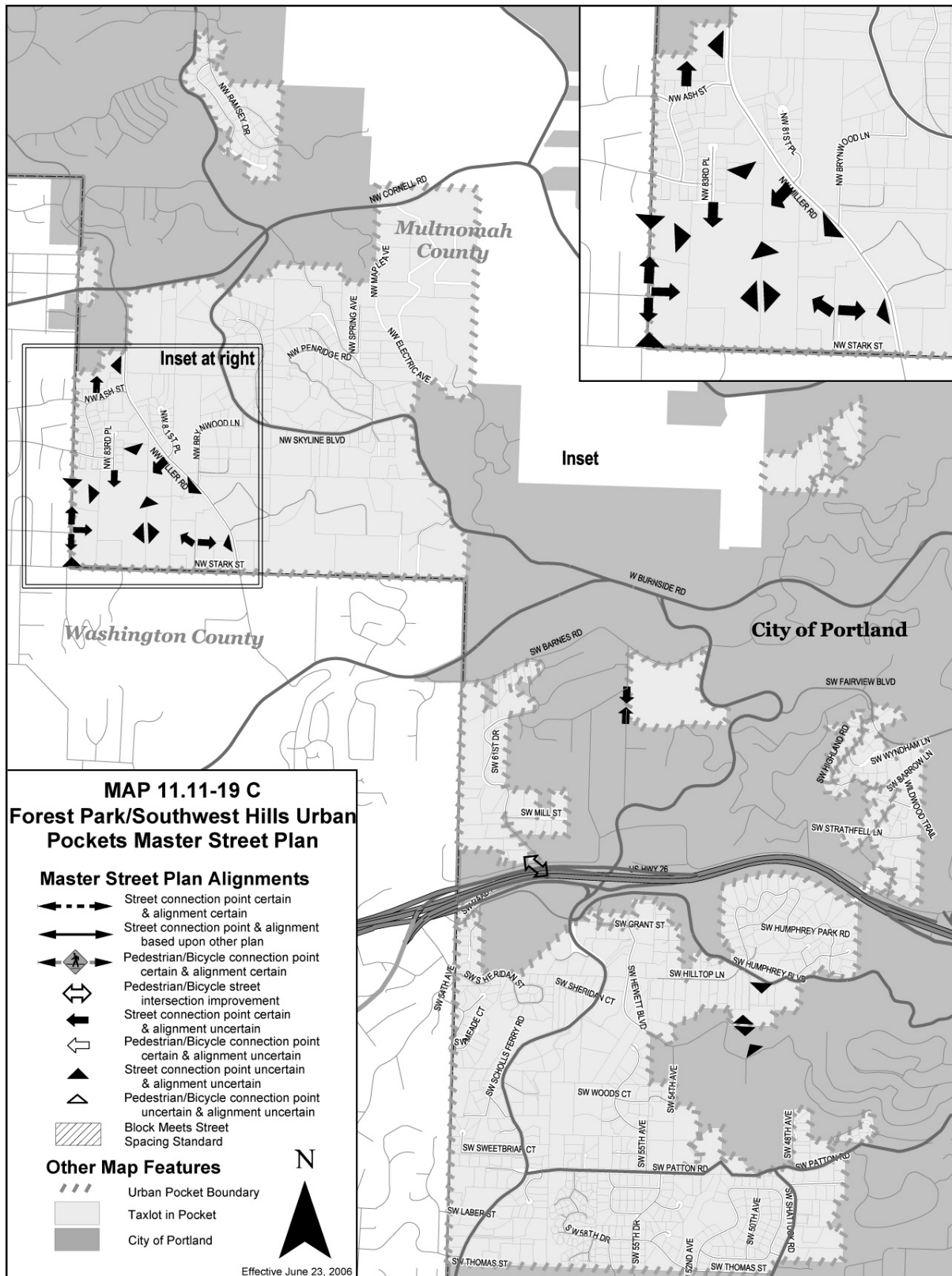
Legend

- Proposed New Street
- - - Existing Pedestrian/Bike Connection to be Maintained
- Proposed Pedestrian/Bike Connection

Effective November 12, 2004







Policy 11.12 Maintenance

Support activities and programs that preserve, maintain, and prevent deterioration of the existing transportation system.

Objectives:

- A. Consider the potential impacts of maintenance obligations and life-cycle costs in the development of transportation projects and programs.
- B. Incorporate retrofitting or removing impervious surfaces and culverts identified in the region's fish passage and watershed management programs into maintenance activities for the transportation system.
- C. Use best management practices to address environmental impacts of maintenance activities.
- D. Pursue strategies for new sources of revenues for maintenance of the transportation system.
- E. Coordinate capital improvement program development with ongoing maintenance needs in addition to preservation and rehabilitation projects.

Explanation: Ongoing maintenance of streets and structures is not part of the City's capital improvement plan, but it can affect the amount of money available for capital projects, including preservation and rehabilitation of streets. Preservation and rehabilitation are the terms used to describe activities such as street reconstruction, replacing existing traffic signals that have exceeded their design life, rehabilitating structures such as bridges and stairways, and building or remodeling maintenance facilities.

Policy 11.13 Performance Measures

Evaluate the performance of the transportation system at five-year intervals, using a set of benchmarks that measure progress toward achieving transportation goals and objectives.

Explanation: The Transportation Planning Rule and Metro's 2000 Regional Transportation Plan require adoption of performance measures and benchmarks for evaluating the transportation system and achieving the goals of reducing vehicle miles traveled per capita and parking spaces per capita. Performance measures are adopted as part of the Comprehensive Plan for regionally significant streets and for other City streets. Benchmarks are a part of the TSP, but are not adopted as part of the Comprehensive Plan.

Objectives:

- A. Maintain acceptable levels of performance on the regional transportation system, consistent with Table 11.1, in the development and adoption of, and amendments to, the Transportation System Plan and in legislative amendments to the Comprehensive Plan Map.

Explanation: Metro's RTP requires local jurisdictions to adopt its motor vehicle level-of-service table into their comprehensive plans and implementing ordinances. Local jurisdictions may adopt alternative standards as long as those standards do not exceed the minimum level-of-service established by Metro, result in major motor vehicle capacity improvements, or increase single-occupant vehicle travel to the degree of affecting local consistency with regional mode split targets.

- B. Use level-of-service as one measure to evaluate the adequacy of transportation facilities in the vicinity of sites subject to land use review.

Explanation: The Portland Office of Transportation typically uses level-of-service D to evaluate whether streets and intersections in the vicinity of a site will operate adequately when new development or zoning is proposed through land use reviews such as Comprehensive Plan Map amendments, zone changes, parking reviews, conditional uses, master plans, and impact mitigation plans. In addition to these reviews, level-of-service is used to evaluate transportation impacts associated with new development so appropriate mitigation can be included as conditions of approval, if needed.

- C. Use alternatives to the level-of-service measure to determine the adequacy of the transportation system in areas that exhibit the following characteristics:

- A mix of land uses, including residential
- A mode split consistent with targets established for the area
- Maximum parking ratios
- Adequate existing street connectivity

Explanation: Mode split compares the percentage of non- single occupant vehicle trips (walking, bicycling, transit, carpool, etc.) compared to drive-alone trips. The amount and quality of transit service along with adequate pedestrian and bicycle facilities help to determine whether mode split goals can be met. Mode split goals for 2040 Growth Concept areas are contained in Chapter 15 of the TSP.

- D. In areas identified by Metro that exceed the level-of-service in Table 11.1 and are planned to, but do not currently, meet the alternative performance criteria, establish an action plan that does the following:

- Anticipates growth and future impacts of motor vehicle traffic on multimodal travel in the area
- Establishes strategies for mitigating the future impacts of motor vehicles
- Establishes performance standards for monitoring and implementing the action plan

Explanation: The Metro 2000 Regional Transportation Plan identifies two 'areas of special concern' within Portland: the Central City and Gateway. Because the Central City has an existing Central City Transportation Management Plan (CCTMP), with an update due to start upon completion of

the TSP, a separate action plan is not required. The CCTMP is incorporated into the TSP. Planning for Gateway is nearing completion, including a street connectivity plan and other transportation changes.

- E. Develop performance measures to track progress in creating and maintaining the transportation system.
- F. Establish mode split targets in 2040 Growth Concept areas within the City, consistent with Metro's targets for these areas.

**Table 11.1
Performance Measures for Regionally Significant Streets
Deficiency Thresholds and Operating Standards**

Location	Mid-Day One-Hour Peak			A.M./P.M. Two-Hour Peak					
	Preferred Operating Standard	Acceptable Operating Standard	Exceeds Deficiency Threshold	Preferred Operating Standard		Acceptable Operating Standards		Exceeds Deficiency Threshold	
				1 st hour	2 nd hour	1 st hour	2 nd hour	1 st hour	2 nd hour
Central City, Gateway regional center, town centers, main streets, station communities	C	E	F	E	E	F	E	F	F
Corridors, industrial areas, intermodal facilities, employment areas, neighborhoods	C	D	E	E	D	E	E	F	E
Banfield Freeway (from I-5 to I-205) [Note 1]	E	E	F	E	E	F	E	F	F
I-5 North (from Marquam Bridge to Interstate Bridge) [Note 1]	C	E	F	E	E	F	E	F	F
Highway 99E (from the Central City to Highway 224 interchange) [Note 1]	C	E	F	E	E	F	E	F	F
Stadium Freeway (from I-5 South to I-5 North) [Note 1]	C	E	F	E	E	F	E	F	F
Sunset Highway (from I-405 to Sylvan interchange) [Note 1]	C	E	F	E	E	F	E	F	F
Other principal arterial routes [Note 2]	C	D	E	E	D	E	E	F	E
Areas of special concern [Note 3]	Areas with this Metro designation are planned for mixed-use development, but are also characterized by physical, environmental, or other constraints that limit the range of acceptable transportation solutions for addressing a level-of-service need and have other streets that are available for circulation and access.								

Note 1: Thresholds shown are interim; Metro will undertake refinement plans for these corridors, in conjunction with affected jurisdictions. The refinement plans will include performance measures for each corridor.

Note 2: Principal arterials are identified in the Metro RTP. This is not a City of Portland designation.

Note 3: Areas of Special Concern are shown in the Metro RTP. This is not a City of Portland designation.

Explanation: This chart is taken from the Metro 2000 Regional Transportation Plan. Motor vehicle level-of-service (LOS) is a measurement of congestion as a share of designed motor vehicle capacity of a street. Level-of-service is determined by a through volume to capacity ratio equivalency as follows: LOS C = .8 or better; LOS D = .8 to .9; LOS E = .9 to 1.0; and LOS F = 1.0 to 1.1.

INTRODUCTION

The Central City Transportation Management Plan (CCTMP) was adopted in 1995, with an effective date of January 8, 1996 (Ordinance 169535). The explanations that follow the policies and objectives were originally written in 1995 and, in most cases, have not been modified except to delete statements that no longer apply. The CCTMP is the adopted transportation system plan for the Central City. The following goal, policies, and objectives are part of the Portland Comprehensive Plan. The CCTMP is reviewed and updated separately from the TSP. (Note: CCTMP Classification Maps now start at Page 2-110, after Policy 6.42 Central City Transportation District.)

CCTMP GOAL

Provide for and protect the public's interest and investment in the public right-of-way and in the transportation system consistent with the Transportation Element of the Comprehensive Plan and support the Central City by:

- Improving air quality
- Increasing the use of mass transit, biking, walking, and carpooling as alternatives to single-occupant vehicles
- Improving access and circulation within the capacity of the street system with consideration for all modes of transportation
- Preserving pedestrian and urban design elements of the Central City Plan and improving pedestrian and bicycle accessibility through the Central City
- Supporting existing and new development in accordance with the policies of the Central City Plan by emphasizing the importance of developing housing and attracting key businesses that will benefit each district of the Central City
- Coordinating air quality, mass transit, and traffic management projects with county, regional, state, and federal agencies
- Minimizing the demand for parking without negatively impacting development opportunities by managing long- and short-term parking and providing incentives to encourage the use of alternative modes
- Minimizing and mitigating the effects of high-density development on adjacent neighborhoods

POLICY 1 GROWTH WITH LIVABILITY

Support the vitality of existing residences and businesses and the development of new housing in, and attract new jobs to, the Central City, while also improving its livability, by maintaining and improving the transportation system for all modes.

Explanation: This is a key premise of the Central City Plan and of the Central City Management Plan (CCTMP). The CCTMP policies are intended to support economic development in the Central City. The transportation

policies support high-density development with a transportation system that will accommodate growth.

Policy 1.1 Concentrated Central City Growth

Support the addition of 75,000 jobs and 15,000 new housing units to the Central City by 2010.

Explanation: The City of Portland has set a goal of attracting one-fifth of the region's expected population growth. In order to achieve this goal without impacting livability in neighborhoods, new jobs and housing must occur in the Central City.

Policy 1.2 Employment Opportunities

Expand employment opportunities in the Central City through the retention of existing businesses and the creation of new jobs, taking into consideration the existing and planned densities, land uses, levels of congestion, and transit service in each district.

Explanation: Opportunities for growth in employment are directly linked to the vitality of existing businesses and the availability of transit and more efficient use of streets and parking. If new jobs locate in the Central City without new policies and programs in place, the result will be increased traffic congestion and growing parking demand. Existing or new jobs may locate elsewhere if such problems are not anticipated and addressed.

Policy 1.3 Housing Opportunities

Support the development of housing as a way to maximize the efficiency of the existing and planned transportation system and to also create a more livable community.

Explanation: Increased Central City housing will have a positive effect on transportation patterns. People living near their work places are more likely to walk, ride bicycles, or use public transit to get to work.

Policy 1.4 Residential Livability

Enhance the livability of the Central City for residents, workers, and visitors by managing the effects of growth and ensuring a high level of comfort, safety, and vitality.

POLICY 2 CIRCULATION AND ACCESS

Maintain and enhance the economic vitality and livability of Portland's Central City for residents, goods and service providers, businesses and their employees, and visitors through balanced transportation management programs, which enhance mobility and access.

Policy 2.1 System Investments

Focus investments in the transportation system on facilities that provide access to emerging districts, maintain existing capacity, and on measures that enhance the efficiency and safety of existing facilities, including:

- Transportation demand management
- Transportation system management
- Transit preferential treatments at congested locations

- Capital improvements improving pedestrian and bicycle access and safety

Explanation: This policy recognizes that the roadway system for automobiles in the Central City is essentially complete. Adding new traffic corridors to or within the Central City would have adverse impacts by displacing businesses and homes and would not support State and City goals to reduce per capita vehicle miles traveled. The exceptions are in emerging districts – North Macadam and the River District – which will need new streets to serve development and in the lower Central Eastside to connect development to existing transportation infrastructure.

The Central City must use the existing transportation system more efficiently for all travel modes – the automobile, trucks, transit, bicycles, and pedestrians. The street classification system identifies the expected modal functions for each street.

Policy 2.2 Modal Choice

Support transportation programs and provide facilities that encourage individuals to choose the most appropriate travel modes for each type of trip to, from, and within the Central City to achieve the goals of the CCTMP and maintain reasonable levels of access and circulation.

Explanation: In order to obtain maximum utility from the transportation system, individuals will need to choose the most efficient mode of travel for their trip purposes. The most efficient mode for any particular trip depends on its nature, taking into account distance and the availability of infrastructure to support alternatives to the automobile. It is critical that mode choices be made available in quantity, location, and cost that result in overall efficiency of the transportation system.

Policy 2.3 Priority for Transit

Support transit as the preferred mode of moving people to increase transportation access to the Central City, with light rail and express bus routes providing the link to urban and suburban centers and urban transit routes connecting close-in City neighborhoods.

Explanation: The Comprehensive Plan designates transit as the preferred form of person trips to and from the Central City. Transit is not to be viewed simply as a method for reducing peak hour, work trip congestion on the motor vehicle network, but must serve all trip purposes. A reduction in transit travel times on the regional system, and in the Central City area, to levels approaching automobile travel times, is also required to make transit more appealing.

There is a need to operate the street system in a manner that benefits transit. Transit preference in lane utilization, traffic signal operations, etc. is appropriate at key access points, in congested corridors, and in districts or areas that have adopted a 'transit/pedestrian first' strategy that provides transit incentives, service commitments, and development that supports transit and pedestrian travel.

Policy 2.4 Congestion Management

During the off-peak travel periods, manage the roadway system within the Central City to maintain stable traffic flow on freeways and major arterial routes and acceptable delays at intersections. During peak travel periods, greater levels of traffic congestion are acceptable, except where such congestion would result in significant additional delays to transit vehicles or contribute substantially to carbon monoxide problems. In congested areas, give priority to street improvements for modes other than single-occupant vehicles, where possible, to accommodate travel demand.

Explanation: This policy establishes a service level standard of 'stable traffic flow' and 'acceptable delay' for the Central City area. The policy recognizes that it is impractical, and may even be undesirable, to provide a roadway system capable of providing a constant level of service throughout the day. During peak travel periods, including the morning and evening rush hours, the roadway system will be more congested. The policy recognizes that desirable service level may not be maintained during peak hours, that increased congestion during peak hours is acceptable, and that construction programs to relieve peak-hour congestion would only encourage higher traffic volumes.

Policy 2.5 Accommodate Density

The solution to congestion problems on the local roadway system within the Central City must accommodate the existing and planned high-density land use pattern. Consider the following measures as of higher priority than the reduction of vehicular congestion:

- Supporting pedestrian access and enhancing the pedestrian environment
- Maintaining on-street parking to support existing and planned land uses in the area (unless maintaining air quality standards is threatened)
- Accommodating transit access
- Accommodating bicycle access

Explanation: The movement of vehicles, particularly through-vehicles, is of secondary importance on local streets. The primary function of the local street system is to provide access and otherwise serve the needs of adjacent land uses.

Policy 2.6 Access Management to Increase Safety and Efficiency

To enhance the street system's overall efficiency and safety for motor vehicles, transit, bicycles, and pedestrians, access to newly developed parking shall be restricted by limiting the number and locations of curb cuts.

Explanation: To enhance development opportunities in the Central City, the street system must be managed to ensure efficient operations and safety for all modes. Driveways, in particular, if in the wrong location or too many in number, can adversely impact this system by decreasing street capacity or increasing safety conflicts between other vehicles and pedestrians and bicycles, and reduce operating speeds of buses. Streets with restricted access are shown on the Parking Access Restricted Streets map in the Zoning Code. Exceptions to these Parking Access Restricted Streets are based on a

demonstration that there are no significant adverse traffic, transit, pedestrian and bicycle impacts, on balance, including on adjacent streets.

Policy 2.7 Maintain Access to Industrial Activities

Maintain and/or enhance commercial and vehicle access and circulation to and within the Central City to serve industrial activities.

Explanation: Mobility for commercial vehicles should be maintained in the Central City by minimizing congestion caused by single-occupant automobiles, particularly during peak-hour periods, through increased use of transit and other alternative modes, for example, carpooling, walking, and bicycling.

Policy 2.8 Industrial Sanctuaries

Protect industrial sanctuaries in the Central City from commercial development, especially from being used as a parking resource by commercial development in adjacent districts. Support the development of commercial parking in industrial districts only if it serves uses within the industrial district.

Explanation: As controls on parking are implemented for commercial development, the industrial areas will become more attractive and desirable as locations for parking for nearby commercial uses. Controls need to be developed to ensure that industrial land is preserved for industrial uses.

Policy 2.9 Central City Edges

Protect residential neighborhoods adjacent to the Central City from adverse transportation or parking impacts caused by economic or other activities in the Central City and mitigate their impacts.

Explanation: The livability of neighborhoods adjacent to the Central City can be impacted by Central City activities. The City of Portland currently operates several programs to reduce the impacts of traffic and parking in neighborhoods. These include the Area Parking Permit Program.

Policy 2.10 Broadway-Weidler Corridor

Enhance the multimodal transportation role of the Broadway-Weidler Corridor with transportation improvements that reduce the overall vehicle miles traveled per capita by increasing opportunities for transit, pedestrians, and bicycles, and by reducing vehicle speeds.

Explanation: The Broadway-Weidler Corridor serves a multimodal transportation role and is a major gateway to the Central City.

Policy 2.11 Grand/Martin Luther King, Jr. Corridor

Enhance the multimodal transportation role of the Grand/Martin Luther King, Jr. corridor with transportation improvements that reduce congestion by increasing opportunities for transit (bus and streetcar), pedestrians, bicycles, freight movement, and traffic management.

Objective:

2.11.1 When the East Bank Alternative Access Task Force Study, the South Willamette River Crossing Study, and the Regional Transportation Plan update determine alternative routes for regional and local traffic through the Central Eastside, then the City would implement policy and street projects that will enhance the role of SE Grand and MLK as the principal commercial spine in the Central Eastside District.

Explanation: The Grand/MLK, Jr. corridor is identified in the Comprehensive Plan as the primary north-south artery through the inner eastside. The majority of the corridor is in or adjacent to a National Historic District. The corridor provides an important location for commercial, housing, and light industrial uses within the surrounding industrial sanctuary. The corridor is expected to accommodate bus routes, pedestrian connections, on-street parking, the Portland Streetcar, and automobile and truck traffic.

POLICY 3 MODE SPLIT

Reduce the mode split of single-occupant vehicles by commuters in order to reduce vehicle miles traveled per capita and lessen congestion during the peak hour.

Explanation: Mode split is the percentage of trips taken by each of the possible modes of travel. Within the total number of trips, the percentage of trips by a particular mode may be reduced but, if there is growth in the total number of trips, the number of trips by that mode may actually increase. The CCTMP emphasizes the need to manage peak-hour commuting trips in order to ensure opportunities for growth in the Central City.

Policy 3.1 Transit

Support achieving the following transit share goals for commuter trips in 2010:

Downtown	60%
North of Burnside	40%
Lloyd-Coliseum	40%
Northwest Triangle	20%
North Macadam	20%
Goose Hollow	20%
Central Eastside	15%
Lower Albina	10%

Explanation: Commuter trips are those trips classified as ‘home-based work trip attractions’ in Metro’s transportation forecasting model. The transit goals for 2010 are based upon an analysis of expanded transit service and potential for development in the districts. The Downtown goal is based upon high-growth projections; the North of Burnside and Lloyd-Coliseum goals are equal to transit mode split in 1990. The mixed-use districts of Northwest Triangle, North Macadam, and Goose Hollow have 20 percent goals to reflect lesser levels of transit service. The Central Eastside and Lower Albina goals are lower to reflect industrial employment and lower-density development patterns.

Policy 3.2 Walk/Bike

Promote a combined mode split goal of 10 percent for walking and bicycling for home-based work trip attractions to each district by the year 2010.

Explanation: Currently, data for bicycles and walking are combined. The combined mode share is approximately four percent for all commute trips.

Policy 3.3 Rideshare

Establish a rideshare goal for average auto occupancy of 1.3 persons per vehicle for home-based work trip attractions to all Central City districts by the year 2010.

Explanation: This is an overall Central City goal, but each district should attempt to meet or exceed this goal. Currently, auto occupancy is approximately 1.2 persons per vehicle.

POLICY 4 PARKING

Manage the supply of off- and on-street parking to improve mobility, support economic development, promote the use of alternative modes, and minimize impacts on adjacent neighborhoods.

Explanation: The Central City Plan established the overall framework to create a high-density, pedestrian-friendly, walkable Central City area. Managing parking is one method to encourage the use of alternatives to the single-occupant vehicle. The intent of the Parking policy is to minimize congestion, support existing uses and activities, encourage economic development, and enhance livability. Parking management is a major policy theme of the CCTMP. Stricter requirements apply where there are high levels of pedestrian and transit activity or where such activity is planned for in the future.

Policy 4.1 On-Street Parking

Support on-street parking as a valuable resource in Central City districts where it can support the land uses of the area.

Explanation: On-street parking is principally intended to be used to support the land uses in that area. On-street parking supports economic development and enhances the viability, safety, and activity of a commercial district. Parking is a key contributor to the economic health and vitality of a commercial district.

Objectives:

- 4.1.1 In managing the supply of on-street parking, the priority is first for short-term, followed by carpool, and finally long-term parking.
- 4.1.2 Encourage on-street parking in locations where it provides a buffer for pedestrians.

- 4.1.3 Implement on-street parking controls, such as posted limitations, parking permits, or parking meters, as appropriate for the area where managing commuter parking spaces is necessary to encourage the use of alternative modes and to support economic uses in the district. Parking meters are recognized in most cases as the most efficient and effective technique to manage on-street parking use.

Explanation: The implementation of parking controls for any area will involve extensive public review, block-by-block, property-by-property. The process will determine the best techniques and assess the benefits and negative impacts of each technique. It can not be predetermined which alternative is less restrictive versus which option will yield the best parking management for an area.

- 4.1.4 Give priority consideration to the designation of loading zone areas on-street in order to support nearby business activity.

Explanation: Designation of loading zone areas on the street should be based on the need to support nearby businesses.

Policy 4.2 Off-Street Parking

Manage the supply of off-street parking to improve mobility, promote the use of alternative transportation, support existing and new economic development, and enhance the urban form of the Central City.

Explanation: A combination of maximum ratios, policies on surface parking lots, and parking structure strategies will be used to manage the future supply of parking in the Central City. Off-street parking is regulated by the Zoning Code through maximum parking ratios and through the Central City Parking Review and Design Review processes.

Objectives:

- 4.2.1 Encourage carpooling as the second priority after short-term parking for off-street. For off-street parking facilities, 15 percent is the goal for the number of spaces available for carpooling use.
- 4.2.2 Encourage multiple-use parking (i.e., a mixture of older/historic building parking, short-term parking, and/or carpool parking) as a way to fully utilize parking structures.

Policy 4.3 Parking Ratios for New Development

Allocate parking for new development through the use of maximum parking ratios. Support the development of parking in conjunction with new development up to the allowed ratios. Parking approved under maximum parking ratios is allowed to be managed in a manner to maximize the effective utilization of spaces, as long as it is paid parking.

Explanation: The Zoning Code establishes distinctions between parking accessory to a designated use and commercial parking that is available to the general public. The Central City is a unique area where considerable commercial parking exists. The policies of the CCTMP substantially limit the

creation of new parking through ratios or needs analysis. This policy allows 'accessory' parking to be operated in a more flexible manner than the Zoning Code typically allows.

Objectives:

- 4.3.1 Establish maximum parking ratios for office developments in all districts of the Central City to limit long-term commuter parking while encouraging and supporting the economic viability of new development. Establish parking ratios for other uses in the Core areas to support the use of alternative modes and to ensure that federal air quality standards are met.

Explanation: Ratios were developed based upon existing levels and capacity of transit service for each district and sector. Future updates to the assigned ratios (outside the DT sectors 1-5 and UD 1) will recognize improvements in transit service both in increased capacity and in coverage within a district or sector and take into account the results of the DEQ process for establishing regional ratios.

- 4.3.2 Establish maximum parking ratios based on transit service, as measured in passenger capacity in the evening peak hour, and on the density of existing and planned land uses.
- 4.3.3 Upon completion of the DEQ rulemaking effort to establish regional parking ratios, reexamine the Central City ratios for all uses outside Downtown Sectors 1-6.
- 4.3.4 Review and update the maximum parking ratios for new development outside the Downtown Sectors 1-6 during the next five-year periodic review process. At that time, adopt new ratios based on transit service capacity and coverage improvements within the district and apply previously established ratios.
- 4.3.5 Retain existing maximum parking ratios in Downtown Sectors 1-5 and UD 1 for uses other than office in order to provide parking that meets the needs of development while minimizing impacts on congestion and air quality and encouraging the use of alternative transportation modes.

Explanation: The maximum parking ratios are intended to provide employee parking and/or some parking for visitors or patrons. Lower ratios are established for some uses, such as theaters, because the peak hours of use are weekends or evenings when more on-street and structured parking is available.

- 4.3.6 Establish parking ratios for uses other than offices in the Downtown and River District sectors based upon the maximum office ratio for the sector or on the demand for customer parking. Parking ratios for some uses with low parking demand are based on providing parking that meets the needs of development and minimizing impacts on congestion and air quality and encouraging the use of alternative transportation modes.

Explanation: Ratios are established based on either the ratios of the Downtown Sectors 1-5 and UD 1 (theaters, religious institutions, community service, hotels, industrial uses, etc.) or on the office ratio of the district (other retail, medical centers, educational institutions).

- 4.3.7 Adjustments are allowed for certain uses in the Core which have higher than normal parking needs and which are a desirable addition to the Core or which have a parking ratio based solely on employee parking. For supermarkets the maximum ratio shall not exceed 2.0 spaces per 1,000 square feet of floor area, and for anchor retail uses the maximum ratio shall not exceed 1.5 spaces per 1,000 square feet of floor area. Adjustments can be granted only when adequate short-term parking is not available in the area to serve the proposed use.

Explanation: Adjustments may be requested from parking ratios in order to provide visitor parking where greater than typical numbers of visitors will come to a development at times when adequate parking is not available in the area and the use is desirable because of its contribution to a lively, diverse community. These exceptions will be limited to theaters, religious institutions, community services, supermarkets, anchor retail sales uses, or uses that have a .25 maximum ratio. Supermarkets are defined as being at least 20,000 square feet in area and anchor retail sales are defined as being at least 50,000 square feet in area and in one structure.

The .25 ratio for Community Service, Religious Institutions, and Theater uses is based on employee parking. Parking for daytime use by patrons is adjustable and will be determined on a case by case basis and based on an analysis of demand and availability of parking in the area. Parking for evening use by patrons will only be approved if existing daytime parking in the area is unavailable or insufficient for the need. Daytime parking spaces approved for evening patrons' use will be reviewed and considered during the land use review process.

Supermarkets and anchor retail uses are key contributors to commercial vitality and to attract residential uses in the core. Their peak-hour use frequently conflicts with other peak-hour retail uses and generates a high level of users per square foot of development. Supermarkets may be located in areas with little or no public parking. Adjustments for anchor retail can only be granted if adequate short-term parking is not available in the area to serve the proposed use. Adjustments up to 2.0 per 1,000 square feet for supermarkets can be granted based upon demand analysis and providing access and facilities for pedestrians and bicycles.

- 4.3.8 Encourage the joint use of parking for the purpose of reducing the total number of parking spaces.

Explanation: Where hours of use do not overlap, two uses may share parking. Each use is subject to the maximum ratios. New parking accessory to uses not under parking maximums will not be allowed to rent parking to office uses. The intent is not to allow uses to exceed the maximum parking ratios of the Zoning Code through joint use situations.

Policy 4.4 Management of Parking Associated with Existing Buildings

Allow structured parking approved for buildings developed prior to the CCTMP and under maximum parking ratios to be managed to maximize the effective utilization of spaces as long as it is paid parking.

Explanation: This policy allows existing structured parking associated with development to be operated in a more flexible manner than the Zoning Code typically allows if it was built under the maximum ratio system and if it is paid parking.

Policy 4.5 Parking for Buildings with Less than the Allowed Ratios

Objectives:

- 4.5.1 Support the development of parking facilities to provide parking for existing buildings that have less parking than is allowed by the maximum ratios.

Explanation: Older and historic buildings generally lack dedicated parking and usually rely on commercial surface parking lots. Future development projects are likely to result in surface parking lots being replaced by new buildings, thereby reducing the supply of parking for older and historic buildings. Parking that meets this policy may be in a single-purpose facility or in a facility with multiple parking functions. Parking provided under this policy on surface parking lots must also meet the policy and objectives under Policy 4.7.

Proposed parking that is not created within or under an existing building, and that is not created through internal conversion of a building, by excavating under the building, or by adding gross building area to the building will be subject to this policy. Parking created within or under the building will be subject to the parking policies under Policy 4.3.

- 4.5.2 In the Core, based upon a principle of equalizing parking opportunities, apply a maximum parking ratio of 0.7 spaces per 1,000 square feet of floor area for existing buildings.

Explanation: The high-growth scenario anticipated a loss of 5,200 surface parking spaces due to projected development. This loss of parking would impact existing buildings because of the gradual loss of surface parking spaces. Due to the competitive office market in Downtown, replacing surface parking for buildings dependent on this dwindling supply requires a new approach and policies to address this need.

Existing buildings may participate in the development of accessory parking to the extent that the maximum ratio of .7 spaces is not exceeded. A 'parking reserve' is established at an initial level of 750 spaces for the creation of parking for existing buildings. As surface parking spaces are removed from the core, the number of these spaces is added to the reserve. As structured

parking for existing buildings is developed, the number of these spaces is subtracted from the reserve.

Parking that meets this policy in the core must be in parking garages and may be in a single-purpose garage or in a garage with multiple parking functions.

- 4.5.3 In the Lloyd District, based upon a principle of equalizing parking opportunities, apply a maximum parking ratio of 2.0 spaces per 1,000 square feet of floor area for existing office buildings. For other uses in the Lloyd District, treat the development of parking for existing buildings the same as for new development.

Explanation: In the Lloyd District, a parking reserve is established initially at 300 spaces. It is anticipated that installation of meters in the district will result in the reduction of approximately 250 additional parking spaces, and an undetermined amount (100-200) of unregulated spaces converted to short-term parking. This parking reduction in long-term on-street parking and the 250 spaces will constitute the parking reserve. Additional spaces will be added as surface parking spaces are replaced with parking developed in conjunction with office development. New parking spaces meeting this policy can be provided in either garages or surface parking lots. Surface parking lots must also meet the requirements under the policies and objectives for 4.7, Surface Parking.

- 4.5.4 For the rest of the Central City, not including the Core and Lloyd District, the parking needs of existing buildings will be treated the same as for new development, including the application of maximum ratios for office for those Districts/Sectors with such ratios.

Explanation: New parking spaces meeting this policy can be provided in either garages or surface parking lots. Surface parking lots must also meet the requirements under the policies and objectives for 4.7, Surface Parking.

Policy 4.6 Parking Not in Conjunction with Specific Development

Support the development of parking structures which address short-term parking needs, such as for retail shoppers, tourists, clients, and visitors, and the need for parking for special attractors.

Explanation: The need for short-term parking varies, depending on the amount, type, and proximity of retail and other attractors. It is important that there is sufficient short-term parking to ensure the economic vitality and development of the Central City. In the past, most short-term parking has been provided by the City in a number of garages. Now the need for short-term parking will be determined by a demand analysis. The analysis considers the parking demand in the area, availability of on-street parking, and proximity to the generator of short-term parking demand. A transportation analysis is also required, and should indicate there are no significant adverse traffic, transit, bicycle, and pedestrian impacts.

Parking not meeting the requirements of Policy 4.3 for new development and Policy 4.5 for existing buildings below the parking ratios and not meeting short-term parking needs of Policy 4.6 is prohibited. Parking for the general commuter, or commercial long-term parking, will increase traffic congestion and decrease the use of alternative transportation modes and will not meet the goals of the CCTMP and the Central City Plan.

Policy 4.7 Surface Parking

Discourage the development of new surface parking in the Central City.

Explanation: Surface parking is generally inconsistent with the goal of creating a high-density, pedestrian-friendly environment because it interrupts retail and office continuity, thereby reducing the human scale and character of the Central City. Surface parking also tends to cause a dispersion of activities, which reduces the vitality of the pedestrian and shopping environment. To promote urban density, parking structures are preferred over surface parking lots.

'New' lots are those that did not exist prior to the adoption of the CCTMP. There are two types of 'existing' parking lots. First, parking lots that existed prior to the requirement for conditional use approval are considered 'grandfathered' and, as such, are not subject to the renewal process. Second, there are 'existing' lots that were approved prior to adoption of the CCTMP and have received conditional use approval from the City. For regulation of 'existing' lots, see Objective 4.7.7.

Objectives (New Surface Lots):

- 4.7.1 Use the Central City Plan Fundamental Design Guidelines, district design guidelines, and Zoning Code requirements when reviewing new surface parking lots to ensure that the pedestrian environment is enhanced by the location and design of surface parking.
- 4.7.2 Ensure that buildings will not be demolished in order to provide surface parking in commercial and residential areas. New surface parking lots should be allowed only in conjunction with new development.
- 4.7.3 Allow surface lots where structured parking may be prohibitive or impossible due to scale or phasing of development.

Explanation: Structured parking may not be economical for small developments, such as small convenience stores. Small surface lots of less than 21 spaces are allowed outright to serve uses that have only a small parking need. When multiblock projects (in excess of 40,000 square feet of site area) occur, some surface lots may be provided as an interim use until later phases of the development occur. Surface parking for residential developments is addressed in Objective 4.8.4.

- 4.7.4 When surface parking is developed as part of a phased development plan, a primary use must be constructed at the same time as the parking.

Explanation: It is not the intent of this objective to allow surface parking by itself to be the first phase of a development project.

- 4.7.5 In the Core, allow a maximum of 20 spaces of accessory surface parking per 40,000 square feet of site area. Where more than 20 surface parking spaces are developed, parking should be physically separated to break up large areas of surface parking. Twenty surface parking spaces are allowed on any site of less than 40,000 square feet in size.

Explanation: Each development site is entitled to a maximum of 20 surface spaces (if allowed within maximum parking ratios). For example, two or more developments on a 40,000-square-foot block would each be entitled to a maximum of 20 surface spaces (depending on allowed ratios). Each lot should be treated as a separate lot rather than aggregated into one. Design guidelines ensure that areas of surface parking are visually separated.

- 4.7.6 Prohibit surface lots of greater than 40,000 square feet in area in the Core, but consider allowing them elsewhere in the Central City, generally as part of a phased development plan or in areas that are predominantly industrial in character.

Explanation: Outside the Core, the areas subject to office ratios are generally characterized by a street grid pattern. In these areas, the amount of surface parking area is limited to 40,000 square feet, except as an interim use as part of a phased development plan. In contrast, the areas that are not subject to ratios are characterized by larger, irregularly shaped parcels or are industrially zoned. In these areas, the amount of surface parking area is limited to 40,000 square feet or to not more than 30% of the area of the site, whichever is greater. Larger amounts of surface parking may be allowed in any of the following situations:

- 1) As an interim use as part of a phased development plan if the surface parking is visually separated into parking areas of no larger than 40,000 square feet at the end of the phasing;*
- 2) In industrial zones,*
- 3) For regional attractors.*

Objectives (Existing Conditional Use Surface Lots):

- 4.7.7 Standardize the conditions that apply to existing surface lots subject to periodic review, focusing on promoting carpool use, short-term parking, and improved landscaping. Require perimeter landscape treatment of these lots to ensure that pedestrians have an adequate separation from vehicles and to contribute to an attractive pedestrian environment. Encourage existing surface lots to add landscaping.

Explanation: In the area of the Central City formerly covered by the Downtown Parking and Circulation Plan, some existing conditional use approved surface parking lots had a reapplication requirement every three years. The lots were considered as 'new' each time the reapplication

occurred. These lots are now subject to a five-year renewal requirement and are not treated as 'new' lots.

Lots that went through periodic reapplication processes were subject to a variety of conditions of approval. Many of those conditions are no longer applicable or are not in compliance with CCTMP policies. The conditions that apply to these lots have been clarified and standardized. Conditions focus on encouraging carpool use, short-term parking, and improved landscaping. A Type III land use review process was used to streamline and clarify the conditions that apply to these lots and to 'switch over' to the new CCTMP regulations.

Existing surface lots that were never subject to the three-year reapplication requirement are not subject to the five-year renewal requirement and are intended to remain without review unless changes are proposed that would be subject to review under the CCTMP regulations.

- 4.7.8 Allow existing and new surface lots, where appropriate, to be managed to maximize the utilization of spaces, as long as it is paid parking.

Explanation: This objective allows existing and new surface parking lots for paid parking to be operated in a flexible manner.

Policy 4.8 Residential Parking

Support the provision of adequate parking that meets the needs of the development while minimizing impacts on congestion and air quality and encouraging the use of alternative transportation modes for residential uses throughout the Central City.

Objectives:

- 4.8.1 Establish minimum parking ratios for residential uses in the Downtown District, Sectors 1-6, to ensure that an adequate amount of off-street parking is being provided for new residential development.

Explanation: The regulations that enforced this objective were deleted in 2000 as a part of changes to minimum and maximum parking ratios citywide.

- 4.8.2 In the RX zone in the Core, parking shall reinforce the residential uses and non-residential uses in the neighborhood and shall not support commercial activities from the adjacent non-residential zones.

Explanation: The regulations that enforced this objective were modified in 2000 as a part of changes to minimum and maximum parking ratios citywide. In some instances, residential parking can be used as accessory to commercial uses if in a mixed-use building.

- 4.8.3 Establish maximum residential parking ratios to support a diverse range of downtown housing.

- 4.8.4 Residential buildings are encouraged to share parking with other residential buildings which are under the maximum ratio.

Explanation: The intent is to maximize the use of parking for residential uses, especially older buildings without dedicated parking, and to support the stability of downtown housing. Residential parking should not be used for commuter parking. Shared parking should not exceed the ratios established in objectives 4.3.5 and 4.3.6.

- 4.8.5 Support higher-density residential projects within the Core by allowing surface parking lots where structured parking may be prohibitive or impossible due to scale, high cost, design concerns, or environmental constraints. Where possible, surface lots should be visually separated to reduce impacts of the large surface lot.

Explanation: The Zoning Code contains provisions to address parking for residential projects within the Core generally as follows:

- a. Allow up to 40 spaces of surface parking per 40,000 square feet of site area if the project creates more than 50 dwelling units per acre.*
- b. Adopt design guidelines to ensure that areas of surface parking are visually separated.*
- c. For mixed-use projects where one of the uses is residential, allow 40 spaces of surface parking per 40,000 square feet of site area.*

- 4.8.6 Recognize the parking needs of residents living in the Central City.

Explanation: Many residential buildings in the Central City were constructed prior to the automobile era and lack sufficient parking to meet the needs of their residents. Demand management strategies will be evaluated to address these needs.

Policy 4.9 Area Permit Parking Programs

Implement area permit parking programs in neighborhood and industrial sanctuary areas impacted by spillover parking impacts due to high-intensity Central City activities if approved by the area.

Explanation: Area permit parking programs can ensure that on-street parking in residential areas and industrial sanctuaries will not be used by non-neighborhood parkers. Area parking permits may be instituted in accordance with Title 16 of the City codes in neighborhood and industrial areas (with industrial sanctuary zoning) experiencing parking problems from adjacent areas. Implementation is based on an investigation of need, a review of alternatives and their effectiveness, and support of the neighborhood.

Policy 4.10 Compatibility of Parking Structures with Central City Character

Ensure that the location, size, and ground floor activities of parking structures contribute to a lively and attractive pedestrian environment.

Objectives:

- 4.10.1 Limit the size of new parking structures in historic districts to ensure compatibility in scale with nearby historic buildings. The building coverage for new parking structures within a historic district may not be larger than 20,000 square feet.
- 4.10.2 Ensure that parking structures contribute to a lively pedestrian environment by including retail or other uses on the ground floor of the structure.

Explanation: Areas have been added to the Required Building Line map in the Central City Plan District along streets with a strong pedestrian and transit orientation. In the Central Eastside, when full block development occurs between Grand and MLK, Jr., Grand should have the higher priority in meeting this policy because it is intended to have a more important pedestrian environment appropriate to its historic character.

- 4.10.3 Locate free-standing parking structures near the uses they serve.
- 4.10.4 Restrict the location of parking structures along the Transit Mall between NW Glisan and SW Mill to support high-density development as established by adopted floor area ratios.
- 4.10.5 Restrict parking access on light rail transit streets.

POLICY 5 TRANSIT

Ensure that the transit system will be a key component in stimulating economic development in the Central City, supporting the density and diversity of activities that lead to high levels of pedestrian and bicycle trips, minimizing automobile congestion, and improving air quality.

Policy 5.1 Transit Access

Improve transit access to the Central City to support its full development potential as envisioned in the Central City Plan.

Objectives:

- 5.1.1 Expand transit capacity and service to the Central City as the highest-priority means of increasing access to the Central City.
- 5.1.2 Give preference for transit/rideshare improvements to districts with adopted transportation demand management plans which reduce reliance on single-occupant auto trips and encourage transit/rideshare use.
- 5.1.3 Protect existing and adopted transit priority corridors (light rail and the Fifth and Sixth Avenues Transit Mall) rights-of-way to maximize public investments by ensuring their primary transit function, support a healthy pedestrian environment, and minimize adverse traffic impacts. Priority corridors will be designated following completion of the Draft Environmental Impact Statement (DEIS) and adoption of the Locally Preferred Alternative.

- 5.1.4 Improve the frequency, coverage, and hours of bus service to the Central City.
- 5.1.5 Establish an urban and regional network of 10-minute corridor bus service (Tri-Met's proposed FastLink service).
- 5.1.6 Establish local and regional partnerships (both public and private) to plan, implement, and finance transit improvements.

Policy 5.2 Transit Operations

Increase the speed and reliability of transit service in the Central City.

Objectives:

- 5.2.1 Provide transit-preferential treatments at congested locations and segments.
- 5.2.2 Establish street designations for transit priority streets within the Central City.
- 5.2.3 Identify transitways in each Central City district to accommodate high-frequency transit.

Policy 5.3 Physical Image of Transit

Improve the understandability, predictability, and visibility of transit in the Central City.

Objectives:

- 5.3.1 Improve the clarity and convenience of transit by consolidating fragmented route patterns onto transit streets and by providing public information signs.
- 5.3.2 Expand the high quality of transit-related streetscape improvements to include new transit priority streets and to support adjacent commercial development and enhance the pedestrian environment.
- 5.3.3 Improve the attractiveness, comfort, and safety of transit stops.
- 5.3.4 Improve the transit vehicle fleet to include vehicles that are quieter, less polluting, easier to board, more comfortable, and more visually appealing.

Policy 5.4 Central City Transit Circulation

Improve transit service to provide better circulation and distribution within and between districts of the Central City.

Objectives:

- 5.4.1 Increase the frequency of service and the connectivity between major bus routes and light rail to improve their function as Central City shuttles so that users would not need a system schedule.
- 5.4.2 Integrate Tri-Met services with those of other transportation modes.

- 5.4.3 Integrate Tri-Met services with those of other transportation providers.
- 5.4.4 Establish a network of transit streets, terminals, and transit centers in the Central City.
- 5.4.5 Identify a strategy for developing the Central City streetcar system and integrating it with other transit services.

Policy 5.5 Transit-Supportive Density

Use transit to foster high-density, transit-supportive development.

Objectives:

- 5.5.1 Include planning for transit and ridesharing as an integral part of the development process.
- 5.5.2 Plan and provide transit services prior to construction of new development where early provision will encourage transit-supportive development.
- 5.5.3 Give preference to transit improvements in districts with adopted urban design standards which encourage pedestrian-oriented environments.
- 5.5.4 Discourage the development of new park-and-ride facilities in the Central City to minimize congestion.

Policy 5.6 Funding Transit

Participate in regional efforts to secure funding for improved transit services, facilities, and demand management programs.

Objectives:

- 5.6.1 In partnership with Tri-Met and the City and with other regional partners, secure funding for transit operations and capital to implement the Tri-Met Strategic Plan, including funding and construction and operation of the regional light rail transit system.
- 5.6.2 Identify a strategy for securing funding for construction and operation of the Central City streetcar system.
- 5.6.3 Establish public-private partnerships to fund and enhance transit and ridesharing projects and programs related to specific developments.

POLICY 6 DEMAND MANAGEMENT

Increase the demand and availability of transit and ridesharing, and support walking and bicycling and other alternatives to the single-occupant vehicle in every district of the Central City.

Policy 6.1 Regional Efforts

Support regional demand management efforts to reduce vehicle miles traveled per capita and thereby limit increases in traffic congestion and enhance air quality.

Policy 6.2 Future Amendments

Amend the demand management policies, if necessary, upon completion of the Department of Environmental Quality's Employer Commute Option (ECO) rule-making process to comply with requirements of the ECO Rule.

Policy 6.3 Demand Management Programs

Encourage new demand management programs and expansion of existing programs for employers. Support the formation of transportation management associations or similar private-sector organizations to support trip-reduction programs. Encourage businesses, or groups of business, to participate in trip-reduction measures.

Policy 6.4 Coordination

Coordinate with Tri-Met and other public and private organizations to jointly plan, implement, and promote transit, rideshare, and other transportation demand management (TDM) programs.

Policy 6.5 Marketing

Work with Tri-Met to enhance marketing and outreach efforts to make transit, ridesharing, and other alternatives to the single-occupant vehicle easier to use for potential new customers.

Policy 6.6 Expand Existing Programs

Work with selected market segments to expand transit fare and carpool parking fee programs, such as group passes or special event passes.

Policy 6.7 Off-Peak Transit Usage

Work with Tri-Met to increase off-peak transit usage.

POLICY 7 PEDESTRIAN NETWORK

Support the Central City as a pedestrian-friendly environment with good pedestrian connections to adjacent neighborhoods and a high level of pedestrian activity due to the availability, accessibility, convenience, safety, and attractiveness of the pedestrian network. The network should be:

- Available and accessible to all users
- Convenient and easily negotiable, with all routes and surfaces having ample capacity and being relatively free of obstruction
- Safe, with pedestrians being able to use the system with minimal concerns about traffic and personal safety
- Comfortable and attractive, with streets, sidewalks, and adjacent development having a high degree of amenities and appeal for pedestrians

Policy 7.1 Pedestrian Mode Split

Improve the pedestrian network to support the CCTMP mode split goals for home-based work (HBW) trips, reinforce walking as an important mode of transportation, and promote walking for all types of trip purposes.

Policy 7.2 Pedestrian Environment

Provide the maximum practicable consideration to walking in the Central City by:

- Minimizing air and noise pollution and pedestrian-vehicle conflicts to provide a healthy and pleasant atmosphere for walking
- Calming vehicular traffic commensurate with the needs of the Central City and to a degree that reinforces the viability of mass transit
- Recognizing Portland's rainy weather by encouraging the provision of awnings and other pedestrian amenities
- Providing safe pedestrian access to and across bridges
- Providing landscaping or other perimeter treatment around surface parking lots subject to land use review to make them more pedestrian friendly, and exploring the possibility of providing other uses along frontages and at corners of new surface parking lots
- Encouraging the redevelopment of surface parking lots to promote growth in the Central City and to remove gaps in the pedestrian system

Policy 7.3 Pedestrian Access and Availability

Create a comprehensive pedestrian network throughout the Central City that provides easy access to all uses and encourages pedestrian movement. In industrial areas, however, recognize that the pedestrian network will have limitations due to industrial-related activities, such as loading and truck movements.

- Maintain needed pedestrian connections as part of any street vacation process.
- Improve the quality of pedestrian crossings as part of transportation projects.

Policy 7.4 Pedestrian Convenience and Negotiability

Create a pedestrian network in the Central City area that will be direct, have adequate capacity, have minimal delays, and be relatively free of obstructions and obstacles for all groups.

Policy 7.5 Pedestrian Safety

Create a pedestrian network in the Central City where pedestrians have a relatively good prospect of being free from concerns about traffic and personal security, and that is at all times visible from the street.

Policy 7.6 Pedestrian Comfort

Make every reasonable effort in the planning, design, construction, and management of the pedestrian network to ensure that a pleasant and enjoyable pedestrian environment is created.

Policy 7.7 Pedestrian Crossings

Provide for safe pedestrian crossings in the roadway system.

POLICY 8 BICYCLE MOVEMENT

Develop a bicycle plan for the Central City that establishes a bicycle route network, and develop strategies, including setting priorities, for implementation of programs and projects.

Policy 8.1 Bicycle Mode Split

Improve the bicycle network to support the CCTMP mode split goals for home-based work (HBW) trips, recognize bicycling as an important mode of transportation, and encourage greater use of bicycles for all types of utilitarian and recreational trips.

Policy 8.2 Bicycle Trip-End Facilities

Support the provision of bicycle parking, locker, and shower facilities by the private and public sector to aid in achieving the bicycle mode share goal. Incorporate incentive programs as a preferred means of providing for these facilities as a part of implementation of the Transportation Planning Rule.

Policy 8.3 Bicycle Access

Ensure that all public streets and public ways within the Central City, except freeways, expressways, and exclusive transitways, are accessible to bicycles. Accommodate the needs of bicyclists as appropriate on each street, based on the Traffic, Transit, Bicycle, Pedestrian, and Truck designations of the right-of-way in the Street Classifications and Descriptions of the CCTMP.

Policy 8.4 Bicycle Network

Provide a network of bicycle routes where the needs of bicyclists receive due consideration based on the mode split goals in the CCTMP. The bicycle network should, at a minimum, provide for bicycle access to the Central City from all areas of the City and also provide for connections between major attractions, such as those identified on the Central City Plan map. Central City Bicycle Routes should:

- Be direct. The network should connect areas and sites in as direct a line as possible.
- Minimize conflicts between bicycles and motorized vehicles. When turning movement or other conflict points are unavoidable, traffic designs should accommodate the safety needs of bicyclists.
- Be relatively obstruction free. Obstructions, such as stairs, surface hazards, lack of adequate shoulders, etc. should not exist on the bicycle network routes. Where they do, they should be eliminated.
- Be complete. The City will support completion of regional bicycle route segments that connect to the Central City.

Policy 8.5 Bicycle Connections

The bicycle network should be integrated with other transportation systems to accommodate commuting and other trips by bicycle. Safe, direct, and continuous bikeways free of unnecessary delays should be provided along all urban arterial and major collector routes. The bicycle network should connect new residential development districts to existing residential areas and commercial districts.

POLICY 9 AIR QUALITY

Implement an air quality plan that will ensure compliance with federal clean air standards.

Policy 9.1 Regional Policy

Support the implementation of regional air quality policies for ozone and carbon monoxide that encourage per capita motor vehicle trip reduction and concentrated development served by transit rather than geographically restrictive measures. Consider measures to address vehicle particulate emissions. Support implementation of bicycle and pedestrian facilities to encourage higher bicycle and pedestrian travel.

Policy 9.2 Air Quality Plan

Adopt a plan to assure attainment and maintenance of National Ambient Air Quality Standards (NAAQS) for carbon monoxide sufficient to replace the maximum parking inventory (the lid) as defined in the Downtown Parking and Circulation Policy. The strategies shall include a Basic Plan and a Contingency Plan.

- Develop a 'Basic Plan' for air quality maintenance that includes circulation and parking policies sufficient to meet Federal Clean Air Act requirements for carbon monoxide.
- Develop a 'Contingency Plan' for air quality maintenance that is designed to prevent non-attainment from occurring or to correct a non-attainment problem.

Policy 9.3 Interim Plan

Retain the maximum parking inventory established in the Downtown Parking and Circulation Policy until the City of Portland has received notification from the Oregon Department of Environmental Quality (DEQ) that the CO Maintenance Plan has been approved. This approval will allow the replacement of the DPCP with the CCTMP. The base inventory was set in 1991 at 43,914 existing and approved spaces and shall be applied to the following districts: Downtown, North of Burnside, and Northwest Triangle 3.

- Under an Offset Rule proposed and accepted by the State Department of Environmental Quality (OAR 340-20-400 through 440) and approved by the federal Environmental Protection Agency, the revised parking ceiling of 43,914 spaces can be increased by up to 1,370 spaces, provided that emission offset measures are implemented.
- If further increases are needed over the allowed 1,370 spaces, the City of Portland shall make a request to the Department of Environmental Quality for an expansion of the air quality offset and State Implementation Plan revision, preferably six months prior to the needed increase.

GLOSSARY OF TRANSPORTATION TERMS

Access Management

Measures regulating access to streets, roads, and highways from public roads and private driveways. Measures may include, but are not limited to, restrictions on the siting of interchanges, restrictions on the type and amount of access to roadways, and use of physical controls (such as signals and channelization, including raised medians) to reduce impacts of approach road traffic on the main facility.

Accessibility

The ability to move easily from one mode of transportation to another mode or to a destination. Accessibility increases when the number and quality of travel choices increases. Accessibility is affected by the mix of land uses and the travel alternatives available.

Accessway

A type of right-of-way, either public or private, that is primarily to provide pedestrian and bicycle linkages consistent with connectivity needs, but may be used for vehicle access to parking or for emergency vehicles. Accessways are typically short in length and are used where full street connections are not needed and/or are not physically feasible.

Activity Center

A cluster of uses that collectively generates many trips (e.g., school and park, neighborhood commercial district). An activity center can be a single use that generates many trips (e.g., stadium, large commercial outlet, large institution).

Americans with Disabilities Act (ADA) of 1990

Civil rights legislation enacted by Congress that mandates the development of a plan to address discrimination and equal opportunity for disabled persons in employment, transportation, public accommodation, public services, and telecommunications.

Area of Special Concern

An area designated in the 2000 Regional Transportation Plan that is planned for mixed-use development, but is also characterized by physical, environmental, or other constraints that limit the range of acceptable transportation solutions for addressing a level-of-service need, but where alternative routes for regional through-traffic are provided.

Area Permit Parking Program

An Office of Transportation program to ensure that on-street parking associated with commercial, industrial, institutional development or large events will not spill over into adjacent residential neighborhoods. The program allows residents and firms a limited supply of permits for on-street parking and restricts on-street parking for other potential users.

Arterial

Any street that is not a Local Service Traffic Street according to the traffic classification maps in the Transportation Element of the Comprehensive Plan. Arterials include Regional Trafficways, Major City Traffic Streets, District Collectors, Neighborhood Collectors, and Traffic Access Streets.

Attractor

A use that, by its nature, draws large numbers of people to it for special events or regular activities. Regional attractors include uses such as sports arenas and convention centers.

Auto-Oriented Development

Development that is either: 1) auto-related (such as gas stations and auto repair shops) or 2) auto-accommodating (by its design attracts primarily customers and employees arriving by automobile, such as drive-in restaurants).

Benchmark

A specific target or goal to be achieved in a specific timeframe. Benchmarks are used to determine the attainment of performance indicators and performance measures (defined below).

Bicycle Boulevard

A street with low traffic volumes where the through movement of bicycles is given priority over motor vehicle travel. *(Source: Portland Bicycle Master Plan)*

Bike Central

A public or private facility that provides a variety of bicycle services, such as bicycle parking, bicycle repair, sale of bicycles and equipment, showers, and changing rooms.

Carpool

A motor vehicle carrying two or three (depending on the context) or more people, usually commuting on a regular or semi-regular basis.

Car Sharing

An organization consisting of a group of individuals who share a fleet of cars. The purchase or lease of vehicles, fuel costs, maintenance and repair costs is borne by the organization.

Central City

A design type designated in Metro's 2040 Growth Concept. The 2040 Growth Concept designation and Portland's Central City boundaries are co-terminus. The Central City has the highest density development of all the design types, with the most diverse mix of land uses and the greatest concentration of commerce, offices, and cultural amenities.

(Source: 2000 RTP)

Central City Bus Circulator

Bus route(s) that operates as a shuttle to provide local access to destinations within a defined geographic area, such as the Central City.

Central City Transportation Management Plan (CCTMP)

The adopted transportation system plan for the Central City. The CCTMP is reviewed and updated separately from the Transportation System Plan.

Collector of Regional Significance

As designated in the 2000 Regional Transportation Plan, a route that connects the regional arterial system and the local system by collecting and distributing neighborhood traffic to arterial streets. Collectors of regional significance have three purposes: 1) They ensure adequate access to the primary and secondary land use components of the 2040 Growth

Concept; 2) They allow dispersion of arterial traffic over a number of lesser facilities where an adequate local network exists; 3) They help define appropriate collector level movement between jurisdictions. (Source: 2000 RTP)

Corridor

A 2040 Growth Concept design type that emphasizes a high-quality bicycle and pedestrian environment and convenient access to public transportation, but will not be as intensively planned as station communities. (Source: 2000 RTP)

Early Bird Parking

Parking that is provided to encourage its use primarily by commuters. Typically, the pricing strategy is to offer a lower all-day rate if the parker arrives before a certain time in the morning.

Emergency Response Vehicles

Vehicles employed in responding to emergencies. Examples of emergency response vehicles include fire apparatus, ambulances, and police cars.

Employee Commute Options (ECO) Rule

Part of House Bill 2214, which was adopted by the 1992 Oregon Legislature. The rule directs the Environmental Quality Commission to institute an employee trip reduction program. The rule is designed to reduce 10 to 20 percent of commuter trips for all businesses employing 50 or more persons.

Environmental Impact Statement

An environmental assessment required by the National Environmental Protection Act for “any major Federal action that may significantly affect the environment.”

Exceptional Habitat Quality

For transportation planning purposes,

- 1) Riparian-associated wetlands protected with environmental zones;
 - 2) Locally or regionally rare or sensitive plant communities;
 - 3) Important forest stands contributing multiple functions and values to the adjacent water feature habitats of sensitive, threatened or endangered wildlife species; or
- Habitats that provide unusually important wildlife functions, such as (but not limited to) a major wildlife crossing/runway or a key migratory pathway.

FastLink

Replaced by the term ‘Streamline’. A program in Tri-Met’s Strategic Plan to increase bus frequency, speed, and comfort on approximately two dozen major transit corridors.

Freight

Raw and bulk materials and products that require value-adding or warehousing.

Freight Intermodal Facility

An intercity facility where freight is transferred between two or more modes (e.g., truck to rail, rail to ship, truck to air, etc.).

Functional Plan

A limited-purpose, multijurisdictional plan for an area or activity having significant districtwide impact on the orderly and responsible development of the metropolitan area. A Functional Plan serves as a guideline for local comprehensive plans consistent, with ORS 268.390.

Goods

Finished products, commodities, and wares ready for the final consumer.

Green Street

A street that:

- Handles stormwater on site through use of vegetated facilities;
- Creates attractive streetscapes that enhance neighborhood livability by helping to calm traffic by introducing park-like elements into neighborhoods; and
- Serves as an urban greenway segment that connects neighborhoods, parks, recreation facilities, schools, and main streets.

High-Occupancy Vehicle (HOV)

Any vehicle carrying two or more persons, including the driver. An HOV could be a transit bus, vanpool, carpool, or any other vehicle that meets the minimum occupancy requirements. Consistent with federal regulations, motorcycles (with or without passengers) are considered HOVs.

Home-Based Work Trip Attractions

The trips made by commuters from their homes to their places of work.

Local Improvement District (LID)

A method that allows a group of property owners to share the cost and benefits of public improvements.

Locally Preferred Alternative

The option selected by local jurisdiction(s) following completion of a Draft Environmental Impact Statement (DEIS).

Main Street

A 2040 Growth Concept design type that usually features mixed-use storefront-type development. Two or more main streets in a relatively small area serve the same urban function as town centers, but are located in a linear pattern along a limited number of bus or light rail transit corridors. Main streets feature street designs that emphasize pedestrian, public transportation, and bicycle travel. *(Source: 2000 RTP)*

Metro

The regional government and designated metropolitan planning organization (MPO) of the Portland region. It is governed by a seven-member elected Metro Council and is responsible for regional transportation planning activities, such as the preparation of the 2000 Regional Transportation Plan and the planning of regional transportation projects, including light rail.

Minimize

Usually defined to mean reduce to the least possible amount; the word is used in the Central City Transportation Management Plan (CCTMP) to mean manage or control, taking into consideration any other concerns.

Mixed-Use Areas

Compact areas of development that include a mix of uses, either within buildings or among buildings, and include residential development as one of the potential components.

Mobility

The ability to move people and goods from place to place, or the potential for movement. Mobility improves when the transportation network is refined or expanded to improve capacity of one or more modes, allowing people and goods to move more quickly toward a destination.

Mode Split

The percentage of trips taken by each of the possible modes of travel (motor vehicle, transit, bicycle, walk). Mode split does not refer to the number of trips. For example, the number of trips by a particular mode may increase, but the percentage of trips by that mode may stay the same or be reduced if there is also growth in the overall number of trips for other modes.

Motor Vehicle Level-of-Service (LOS)

A qualitative measure describing operational conditions within a traffic stream. A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. LOS ratings of ‘A’ through ‘F’ describe the traffic flow characteristics on streets and highways and at intersections, as shown on the following table:

LOS	Traffic Flow Characteristics
A	Virtually free flow; completely unimpeded
B	Stable flow with slight delays; reasonably unimpeded
C	Stable flow with delays; less freedom to maneuver
D	High density, but stable flow
E	Operating conditions at or near capacity; unstable flow
F	Forced flow; breakdown conditions
Greater than F	Demand exceeds roadway capacity, limiting volume that can be carried and forcing excess demand onto parallel routes and extending the peak period

(Sources: 1985 Highway Capacity Manual [A through F]; Metro [greater than F])

Multimodal

Having a variety of modes available for any given trip, such as being able to walk, ride a bicycle, take a bus, or drive to a certain destination. In a transportation system, multimodal means providing for many modes within a single transportation corridor.

National Ambient Air Quality Standards (NAAQs)

Air quality standards for a variety of pollutants.

Neighborhood

For the TSP classification system, a neighborhood is an area bounded by Major City Traffic Streets, District Collectors, and/or Neighborhood Collectors.

Obstruction

Something that hinders from passage, action, or operation.

Offset Rule

Rule adopted by the Oregon Department of Environmental Quality and approved by the federal Environmental Protection Agency in 1990. The rule allows the parking lot of 43,914 spaces to be increased by up to 1,370 spaces, provided that emission offset measures are implemented and an approved contingency plan is in place. Offsets may include alternative work hours, carpooling, and transit subsidies.

Opticom

A signal preemption system for emergency response vehicles or transit vehicles.

Oregon Department of Transportation (ODOT)

State agency that oversees and maintains the State highway system, under the guidance of the Oregon Transportation Commission.

Oregon's Statewide Planning Goals

The 19 goals that provide a foundation for the State's land use planning program. The 19 goals can be grouped into four broad categories: land use, resource management, economic development, and citizen involvement. Locally adopted comprehensive plans and regional transportation plans must be consistent with the statewide planning goals.

Owl Service

Transit service provided during the late evening and early morning hours (12:30 a.m. to 5 a.m.).

Paratransit

Non-fixed route service that serves special transit markets, including disabled populations unable to use regular transit service. Other examples include demand-responsive (e.g., dial-a-ride) and contracted fixed-route service.

Park-and-Ride Facility

A parking lot or structure in association with a light rail station, transit stop, or transit transfer point. Generally, park-and-rides should provide access to regional route service for areas not directly served by transit. Bicycle and pedestrian access, as well as parking and storage for bicycles, should be considered in locating new park-and-ride facilities.

Peak-Hour

Either of the two weekday rush-hour time periods: 7 a.m. to 9 a.m. and 3:30 p.m. to 5:30 p.m.

Peak Period Pricing

A transportation management tool that applies market pricing principles to roadway use. Peak-period pricing imposes user surcharges or tolls on congested facilities during peak traffic periods and may allow a reduced price for high-occupancy vehicle (HOV) use.

Performance Indicator

A term that describes a characteristic of the transportation system in order to measure progress towards a specific goal.

Performance Measure

A method used to assign a value to a performance indicator. Performance indicators measure change over time, and the performance measure is a specific activity or physical change that can be measured.

Port of Portland

A public agency that owns and maintains five marine terminals, four airports, and seven business parks in the three-county area. The Port is governed by a nine-member commission appointed by the governor.

Refinement Plans

Amendments to the Transportation System Plan. Refinement Plans resolve, at a systems level, determinations on function, mode, or general location that were deferred during the transportation system planning process because the detailed information needed to make those determinations was not available during that process. *(Source: TPR)*

Regional Center

A design type designated in Metro's 2040 Growth Concept. After the Central City, regional centers have the region's highest development densities, the most diverse mix of land uses, and the greatest concentration of commerce, offices, and cultural amenities. They are very accessible by both automobile and public transportation, and have streets that are oriented to pedestrians. Gateway is the only regional center in Portland. *(Source: 2000 RTP)*

Rideshare

A motor vehicle carrying two or more people for any trip purpose, including work, shopping, etc., but not on a regular schedule.

Right-of-Way (ROW)

A public or private area that allows for the passage of people or goods. Right-of-way includes passageways such as freeways, streets, bicycle and pedestrian off-street paths, and alleys. A public right-of-way is one that is dedicated or deeded to the public for public use and is under the control of a public agency.

State Implementation Plan (SIP)

State plan for achieving air quality goals to ensure compliance with the requirements of the federal Clean Air Act.

Station Community

A 2040 Growth Concept design type located along light rail corridors and featuring a high-quality pedestrian and bicycle environment. Station communities are designed around the transportation system to best benefit from the public infrastructure. They include some local services and employment, but are primarily residential developments oriented toward the Central City, regional centers, and other areas that can be accessed by rail for most services and employment. *(Source: 2000 RTP)*

Street Tree

A tree growing within the public right-of-way between the travel lanes and the property line.

Sustainable

Methods, systems, or materials that will not deplete nonrenewable resources or harm natural cycles.

Town Center

A 2040 Growth Concept design type that functions as a local activity area and provides close access to a full range of local retail and services within a few miles of most residents. Town centers do not compete with regional centers in scale or economic diversity, but they will offer some specialty attractions of regional interest. Town centers have excellent multimodal access and connections to regional centers and other major destinations. *(Source: 2000 RTP)*

Traffic Calming

Roadway design strategies to reduce vehicle speeds and volumes, aimed at improving traffic safety and neighborhood livability. Traffic calming measures include, but are not limited to, traffic-slowing devices. Examples of other traffic calming measures are traffic diverters, curb extensions, and medians.

Traffic-Slowing Devices

Devices that slow emergency response vehicles as well as general traffic. Speed bumps and traffic circles are the only traffic-slowing devices currently used.

Transit Center

A location where a number of bus and/or high-capacity transit vehicles stop. Generally, transit centers contain waiting areas, transit information, and timed transfer opportunities.

Transit-Oriented Development

A mix of residential, retail, office, and other uses and a supporting network of streets, bikeways, and pedestrianways oriented to a light rail station or transit service and the pedestrian network. Transit-oriented development should include high-density residential development near transit service to support the neighborhood commercial uses and have a lower demand for parking than auto-oriented land uses.

Transportation Demand Management (TDM)

Actions taken to change travel behavior in order to improve the performance of transportation facilities, reduce the need for additional road capacity, and reduce impacts on residential neighborhoods. Examples include encouraging the use of alternatives to single-occupant vehicles (SOVs), ridesharing and vanpools, parking management, and trip-reduction ordinances.

Transportation Disadvantaged

Individuals who have difficulty obtaining transportation because of their age, income, disability, or who are transit dependent for other reasons.

Transportation District

For TSP purposes, one of the eight Transportation Districts identified: Central City, North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest.

Transportation Facilities

Any physical facility that moves or assists in the movement of people or goods, but excluding electricity, sewage, and water systems. (Source: TPR)

Transportation Management Association (TMA)

Groups of businesses or institutions that develop TDM measures in order to reduce the need for commuter and visitor parking. Measures may include carpool-matching services, transit subsidies, shuttle vans, or encouraging alternatives to the automobile.

Transportation Planning Rule (TPR)

The implementing rule of Statewide Planning Goal 12 dealing with transportation, as adopted by the State Land Conservation and Development Commission (LCDC). Among its provisions, the TPR requires reducing vehicle miles traveled (VMT) per capita by 15 percent in the next 30 years, reducing parking spaces per capita by 10 percent in the next 20 years, and improving opportunities for alternatives to the automobile.

Transportation System Management (TSM)

Strategies and techniques for increasing the efficiency, safety, or level-of-service of a transportation facility without increasing its size. Examples include, but are not limited to, traffic signal improvements, traffic control devices (including installing medians, channelization, access management, and ramp metering), incident response, targeted traffic enforcement, preferential transit measures, and restriping for high-occupancy vehicle lanes.

Transportation System Plan (TSP)

A plan for one or more transportation facilities that are planned, developed, operated, and maintained in a coordinated manner to supply continuity of movement between modes and within and between geographical and jurisdictional areas.

Tri-Met

Tri-County Metropolitan Transportation District, the transit agency for most of Clackamas, Multnomah, and Washington Counties.

Trip

A journey made by any mode between an origin and a destination. Trips can be categorized as follows:

- Regional trip – A trip that has neither trip origin nor destination within the Portland metro area.
- Interregional trip – A trip that has one trip end within the Portland region and the other trip end outside the Portland region.
- Interdistrict trip – A trip that starts in one Transportation District and ends in another Transportation District.
- Intradistrict trip – A trip that starts and ends within the same Transportation District.
- Non-local trip – A trip that extends beyond the length of the functional purpose described in a street's classification description.

Trip End

The origin or destination point of a journey.

2040 Growth Concept

A concept for the long-term growth management of our region, developed by Metro. It describes the preferred form of regional growth, including where growth should be clustered, what the appropriate densities are for various land use design types, and which areas should be protected as open space. The 2040 Growth Concept was adopted as part of the Regional Urban Growth Goals and Objectives (RUGGOs) in 1995. *(Source: 2000 RTP)*

2000 Regional Transportation Plan (RTP)

The 20-year transportation plan developed by Metro to guide transportation in the region. The RTP is the region's transportation system plan that is required by the Transportation Planning Rule.

Urban Growth Management Functional Plan (UGMFP)

A regional functional plan with requirements binding on cities and counties in the Metro region, as mandated by Metro's Regional Framework Plan. The plan addresses accommodation of projected regional population and job growth, regional parking management, water quality conservation, and limits on retail uses in employment and industrial areas.

Vehicle Miles Traveled (VMT) per Capita

Miles driven in automobiles per person on average. The Transportation Planning Rule requires a 10 percent reduction of VMT per capita within 20 years of adoption of a Transportation System Plan, and an additional 5 percent reduction within 30 years of adoption of the TSP. The VMT per capita reductions mean that individuals will, on average, travel less by automobile than previously but, because the population will continue to grow, it does not mean an overall reduction in the amount of miles driven.

Woonerf

A type of street design where multiple modes of travel mix in a shared space. Typically, the street carries relatively low volumes of auto traffic and travel speeds are very low. In concentrated shopping areas, woonerf design would focus on pedestrian movement.

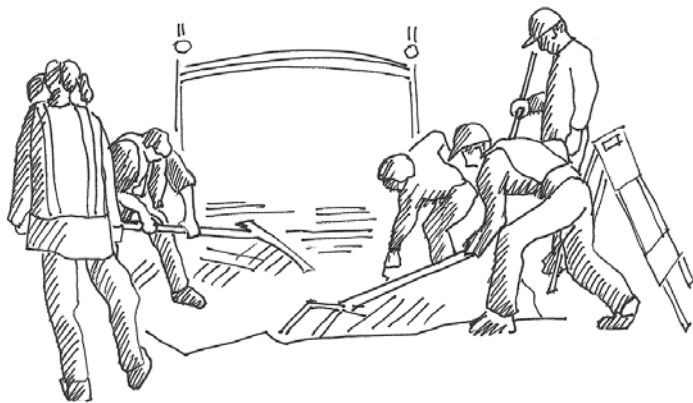
TRANSPORTATION SYSTEM IMPROVEMENTS

3

INTRODUCTION

Portland's Transportation System Plan (TSP) guides and coordinates investment in the transportation network over the next 20 years. The plan carries out this responsibility through policy directives (Chapter 2: Transportation Element of the Comprehensive Plan), regulation of development activity (Chapter 6: Implementation Strategies and Regulations), and public investment in transportation facilities and services.

This chapter focuses on public investment in transportation facilities and services: how identified needs will be met over the life of the TSP. It summarizes the project identification process and lists recommended transportation system improvements by Transportation District.



REQUIREMENTS

TSP/PFP Relationship

In accordance with the State Transportation Planning Rule (TPR), TSP must include a list of planned transportation facilities and major improvements, including a rough cost estimate, a general timing estimate, and the anticipated service provider for the facilities. The TSP must also provide a discussion of existing and potential funding mechanisms to support these facilities. (See Chapter 14: Financial Plan.)

TSPs adopted pursuant to the TPR fulfill the requirements of OAR 660-011-0000 through 0065, which require cities to develop and adopt a public facility plan (PFP), and implements State Goal 11 [ORS 197.712(2)(e)] as it relates to transportation facilities.

The PFP describes the various facilities (water, sewer, transportation, etc.) necessary to support urban development. It identifies the types and levels of urban facilities and services necessary to accommodate urbanization and helps ensure that those facilities are provided in a timely, orderly, and efficient arrangement.

Transportation System Alternatives

As required by the TRP, Portland's TSP relies upon and incorporates the needs analysis and findings of the 2000 Regional Transportation Plan (RTP) as a starting point for determining future improvements to the City's transportation system. The RTP relies on output from a detailed transportation modeling effort and public involvement process to define regional transportation needs. Chapter 10: Needs Assessment, of this document summarizes RTP findings for the regional system within the City of Portland.

The TSP identified local transportation needs through an inventory of existing conditions, technical review of previous planning efforts and needs assessments, and an extensive public workshop process. Chapter 10: Needs Assessment, includes a detailed analysis of needs, both citywide and by Transportation District. While each Transportation District demonstrates a unique mix of characteristics and needs, an overall picture of the City's local transportation needs emerges:

- Reduce traffic impacts, including speeding and traffic volumes, on neighborhoods.
- Manage auto congestion.
- Provide good transportation choices.
- Improve transit service levels and access to routes.
- Expand opportunities to walk and bike safely.
- Increase local street connectivity.
- Improve safety and livability on local streets.
- Protect the natural environment.
- Provide better access to jobs.
- Ensure safe and efficient movement of goods.

Portland's TSP applies a three-pronged approach to meet identified regional and local needs within its boundaries:

1. The major transportation improvements list comprises the RTP projects in Portland, plus the significant transportation improvements identified through local needs assessment sources. This list of projects complies with the TPR's mandate that TSPs include a "list of planned transportation facilities and major improvements."
2. The reference project list is a collection of funded program categories that flexibly responds to needs that are localized, maintenance oriented, or operations based.
3. The modal plans (Chapter 5) identify non-capital programs and strategies for meeting needs identified for each mode of transportation.

PROJECT IDENTIFICATION PROCESS

Transportation System Alternatives

The TPR mandates that regional and local jurisdictions develop transportation system alternatives to meet identified transportation needs over the 20-year life of the TSP. The TPR also requires metropolitan planning areas with a population larger than 1,000,000 to evaluate alternative land use patterns that help meet transportation needs. The aim of this mandate is to promote changes in land use and transportation systems, which in turn improve transportation choices and contribute to overall community livability.

Regionally, the Regional Framework Plan (based on the 2040 Growth Concept) and the RTP serve as the recommended land use and transportation alternative. Led by Metro, the region completed an extensive study of alternative land use and transportation patterns and arrived at a recommended strategy for growth. The 2040 Growth Concept directs the region to emphasize higher density, mixed use, infill and redevelopment in key centers and corridors; locate jobs and shopping closer to where people live; expand transportation choices; and protect environmentally sensitive lands. (See Chapter 13: Transportation and Land Use Alternatives, for more detail.)

Portland's recommended land use and transportation alternative derives from and supports the regional alternative. Since the 2040 Growth Concept was adopted in 1995, Portland has completed and adopted many area plans (such as the Southeast Community Plan and the Hollywood and Sandy Plan) as part of its Comprehensive Plan. Each of these plans includes a recommended land use and transportation alternative for its plan area that implements the 2040 Growth Concept. The evaluation and selection of a transportation system alternative in each plan produces a list of necessary improvements to meet identified needs. Each plan's findings and recommendations for the transportation system are folded into the TSP.

Major Transportation Improvements List

The major transportation improvements list helps Portland implement the recommended transportation alternative by identifying significant capital improvements that will address identified needs over the next 20 years. Portland's TSP also complies with the state TPR mandate to list major planned facilities and system improvements.



The list is the result of a citywide public outreach process and detailed technical review of previous planning efforts. Over 2,000 project, program, and policy ideas were compiled from the following sources:

- Eight public workshops
- Adopted neighborhood and community plans

- Area studies, such as Opportunity Gateway and North Macadam Framework Plan
- Pedestrian Master Plan
- Bicycle Master Plan
- Transportation Element district actions
- Central City Transportation Management Plan
- Portland Office of Transportation (PDOT) five-year Capital Improvement Program (CIP)
- Portland Development Commission (PDC) five-year Business Plan
- Regional Transportation Plan
- Port of Portland Transportation Improvement Plan
- Oregon Department of Transportation (ODOT) corridor plans
- Portland's Public Facility Plan

These ideas were assessed and sorted into three categories: policies, programs, and projects. Ideas sorted into the policies or programs categories were evaluated and considered for inclusion in the TSP under a separate process. Ideas that were primarily physical improvements to the transportation system were categorized as projects.

The initial collection of project ideas was screened, and some ideas were removed from the list. Many good project ideas, such as improving transit service, did not fall within PDOT's responsibilities. In other cases, the idea had already been addressed through a project. Some ideas involved minor improvements to transportation facilities or were non-capital (such as operational changes) and were incorporated into one of the reference list program categories discussed later in this chapter. Finally, some project ideas conflicted with existing State, regional, and local transportation policies and goals and were not carried forward.

The remaining ideas emerged as the initial major transportation improvements list. Removing duplications and combining projects that occur in the same general location further refined the list. For example, rather than listing a bike lane and a sidewalk improvement in the same street segment as separate projects, the project description includes both improvements. Combining projects also promotes multimodal solutions and encourages efficiency and coordination in project implementation. Finally, each project was defined with a specific location, project description, and rough cost estimate.

TSP Evaluation Criteria

Evaluation criteria were derived from the TSP Citizen Advisory Committee (CAC) vision statement, TPR requirements, 2040 Growth Concept goals, PDOT's charter, existing CIP criteria, and the community transportation values (see Chapter 8: Public Involvement) identified through the TSP public workshops. Together, the ten criteria are 'cross-modal'; they evaluate various policy concerns and support a balance among modes. The evaluation criteria were applied to the TSP project list to provide a relative ranking of how well each project meets State, regional, and local transportation goals. The higher the total score, the more the project supports the overall transportation goals. The evaluation criteria are briefly described below:

- Support 2040 Areas
Supports a compact urban form by supporting development of high-priority 2040 Growth Concept areas.

- Reduce Vehicles Miles Traveled (VMT) per Capita
Helps reduce VMT per capita.
- Safety
Addresses an existing deficiency or hazard by improving pedestrian, bicycle, and/or vehicular safety.
- Natural Environment
Minimizes or reduces impacts to the natural environment, and/or utilizes good resource management.
- Local Area Access
Provides or improves access to and within activity centers.
- Economic Development
Provides or increases access (for employees and freight) to existing or emerging employment areas.
- Community Support
Has a high level of community support within the district.
- Efficient Use of Resources
Increases both the efficiency and effectiveness of the system by wise application of available financial, capital, and human resources.
- Connectivity/Built Environment
Supports a high level of street connectivity for all modes and improvement of the built environment, especially in areas where deficiencies exist.
- Multimodal/Balance
Addresses an area wide need with a multimodal approach.

Estimated Implementation Timeframes

The TPR requires TSPs to include “a general estimate of timing for planned transportation facilities and major improvements.” The estimated timeframe provides a general idea of when the project may be constructed within the 20-year life of the TSP, but does not preclude earlier implementation if needed or if funding allows. Portland’s major transportation projects are assigned to three estimated construction timeframes: 1 to 5 years, 6 to 10 years, or 11 to 20 years.

The assigned timeframes are based on a combination of existing project schedules, project evaluation scores, and funding. Some capital improvement programs, such as the Port of Portland’s and PDC’s, have their own estimated construction schedules. In these cases, projects retain their original schedule. The evaluation scores help place those projects that do not have predetermined timeframes. The projects are ranked by score and assigned to the three timeframes, based on available funding for each period. The funding was calculated using the estimated revenue for the 20-year ‘plan level funding’ scenario (described in Chapter 14: Financial Plan).

TSP Project List Updates

After the TSP is adopted, the major transportation improvements list will be updated periodically, at a minimum of five-year intervals, and a new citywide assessment of needs will be conducted. Between major updates, City Council may amend the TSP project list in response to the adoption of new plans that recommend transportation projects essential to plan implementation. The evaluation criteria will guide the evaluation of proposed new projects as future planning projects are completed over the 20-year life of the TSP.

TSP Projects and the Capital Improvement Program

The TSP's 20-year major transportation improvements list is directly related to the development of PDOT's CIP for each two-year budget cycle. The CIP is the two-year list of priority capital replacement and enhancement projects for Portland's transportation system. After adoption, the TSP becomes the primary source of new large-scale projects for the CIP.

A set of criteria will guide the selection of TSP projects for inclusion in the CIP. The criteria will be based partly on the general timeframes identified for the projects and on the projects' ability to help achieve the TSP benchmarks. Other criteria will be based on how well projects respond to issues and opportunities that may arise between periodic TSP updates. These include the ability to address a critical safety hazard, respond to a specific preservation need or significant development opportunity, or leverage external funding.

Environmental Review of TSP Projects

TSP projects advanced into the CIP and under project development are assessed for potential impacts to sensitive environmental areas. If a project occurs in an Environmental Protection zone (p) or an Environmental Conservation zone (c) it may be subject to an Environmental Review to ensure that the project complies with development standards that protect environmental resources.

Transportation projects occurring in a greenway overlay zone are subject to Greenway Review when the impact area occurs within or riverward of the greenway setback, or occurs in the River Natural overlay zone (n). The Greenway Review ensures projects adjacent to the Willamette River will not harm the resource but instead conserve, enhance, and maintain the natural habitat and scenic qualities along the river.

TSP Reference List

The TSP reference list comprises program categories that respond to needs, without identifying all potential minor projects. Many of the projects identified through the needs assessment described above do not qualify as 'significant planned improvements' under the TSP, but are still important to Portland's livability and a safe, efficient transportation network.

It is difficult to compare and prioritize small-scale or nontraditional capital improvements with the projects contained on the major transportation improvements list. For example, a traffic calming project or a pavement rehabilitation project may not individually provide the same level of transportation services as a more traditional multimodal street improvement

project, and may not score well under the TSP evaluation criteria. The reference list provides a way to incorporate diverse yet important programs such as traffic calming and pavement preservation needs into the TSP. It also helps balance financial support for major projects with support for miscellaneous programs and preservation activities when developing the TSP financial plan.

Reference List Criteria

During the project assessment phase, a qualitative analysis of each project idea determined whether the project should be assigned to the major transportation improvements list or to the reference list. A project was assigned to the reference list if one or more of the following criteria applied:

- Primarily implemented by programs rather than capital improvements
- Little or no impact on vehicle miles traveled per capita
- Design options do not create substantial tradeoffs between modes of transportation
- Prioritized by special or unique criteria
- Primarily local or unlikely to be funded by regional sources
- Relatively low cost as an individual improvement
- Scopes of work and costs are not yet known

Projects listed on the RTP projects list were placed on the major transportation improvements list even if the above criteria also qualify them as reference list projects. Examples include some small-scale bike projects and some Transportation Management Associations (TMAs).

Reference List Categories

The reference list is so named because it refers to other sources for identifying and selecting projects. For example, an existing traffic calming list identifies hundreds of potential traffic calming projects, and an existing scoring system helps determine traffic calming priorities. Rather than list all potential projects and attempt to score them based on generalized TSP evaluation criteria, the reference list refers to these other sources for traffic calming needs.

Following is a description of the six categories and the primary sources for projects included within each category. Current source documents include CIP funding programs, management/implementation plans, and project lists. Updated or replacement sources may be identified over time. Appendix E includes a complete set of the primary source project lists.

Some of these sources also provide projects for the major transportation improvements list. For example, the larger or more expensive projects from the Pedestrian Master Plan are included on the major transportation improvements list. However, other smaller pedestrian projects, such as a stairway project, that do not qualify for the major improvements list may be identified as a TSP project through the neighborhood livability category of the reference list.

- **Preservation and Rehabilitation**
Includes projects such as capital maintenance and rehabilitation, seismic retrofit, street lighting upgrades, and signal upgrades.
Sources: Pavement Management Plan, Structures Management Plan, Signal Management Plan, Seismic Retrofit project list, 4-R project list
- **Neighborhood Livability**
Includes projects and activities such as traffic calming, school access and safety, and pedestrian/bicycle spot and link improvements.
Sources: Bicycle Master Plan, Pedestrian Master Plan, Evaluated Traffic Calming project list, Bikeway Network Completion Program, Pedestrian Crossings Program, neighborhood plans
- **Safety and Congestion Management**
Includes projects such as intersection improvements, signal timing and operations, and phased safety/congestion improvements not related to capacity increases.
Sources: Intelligent Transportation System Plan, Signal Management Plan, Hazard Elimination Program, TSP Transportation System Management Plan, neighborhood plans
- **Local Street Development**
Includes projects and activities such as permit projects, local improvement districts (LID), and local connectivity projects.
Sources: LID Program, Subdivision Streets Program, Substandard Streets Program, Deficiency Corrections Program
- **Transportation Demand Management**
Includes projects and activities such as TMA formation and support, education programs, and Transportation Options programs.
Sources: TSP Transportation Demand Management and Parking Plan, neighborhood plans
- **Endangered Species Act (ESA) Projects**
Includes projects and activities to meet ESA requirements, such as culvert replacement and other projects to be determined.
Source: Culvert Replacement project list

Reference List and the Capital Improvements Program

The CIP contains numerous programs and divisions for categorizing and budgeting projects. Some CIP programs are oriented to the traditional capital improvements typically found on the major transportation improvements list. These are the Centers and Main Street Program, Freight Program, and Special Area Program. Some CIP programs are more oriented to the types of projects on the reference list, such as the Preservation and Rehabilitation Program and Local Streets and Neighborhood Program.

In developing each CIP, reference list projects will be identified and submitted along with major projects for funding consideration. These reference list projects will be derived from the source documents identified under each reference list category. The inclusion of

reference list projects in the CIP process enables PDOT to be flexible and responsive in meeting needs best addressed by small-scale or preservation projects.

Some reference list categories are not capital projects, such as the education and modal promotion activities found in the Transportation Demand Management and Parking Plan. These projects are advanced through the City's operating budget.

SYSTEM IMPROVEMENTS AND THE FINANCIAL PLAN

The state TPR mandates that TSPs include a transportation financing program that has the following elements:

- A planned list of transportation facilities and major improvements
- A general estimate of the timing for the planned list of improvements
- A determination of rough cost estimates for planned major improvements

The major transportation improvements list includes both an estimate of timing and project cost estimates (in current year dollars) and complies with the state TPR requirement. Chapter 14: Financial Plan, describes Portland's approach to financing transportation improvements over the 20-year life of the TSP.

RECOMMENDED MAJOR TRANSPORTATION IMPROVEMENTS LIST

The following pages present the recommended major transportation improvements list. The projects are organized by their geographic location in one or more of the Portland's eight Transportation Districts. Each Transportation District section includes a project location map as well as a project list. The few citywide projects are listed and mapped separately.

Project identification numbers link projects to a specific Transportation District, as follows:

10000 series	=	Citywide projects
20000 series	=	Central City
30000 series	=	North
40000 series	=	Northeast
50000 series	=	Far Northeast
60000 series	=	Northwest
70000 series	=	Southeast
80000 series	=	Far Southeast
90000 series	=	Southwest

When a project extends across Transportation District boundaries, the project identification number is assigned to the Transportation District that contains the largest portion of the project.

The project location map identifies the geographic location of each project within the Transportation District. The project identification numbers link the map to the project list. All projects are shown on the location maps, except transit system improvements and

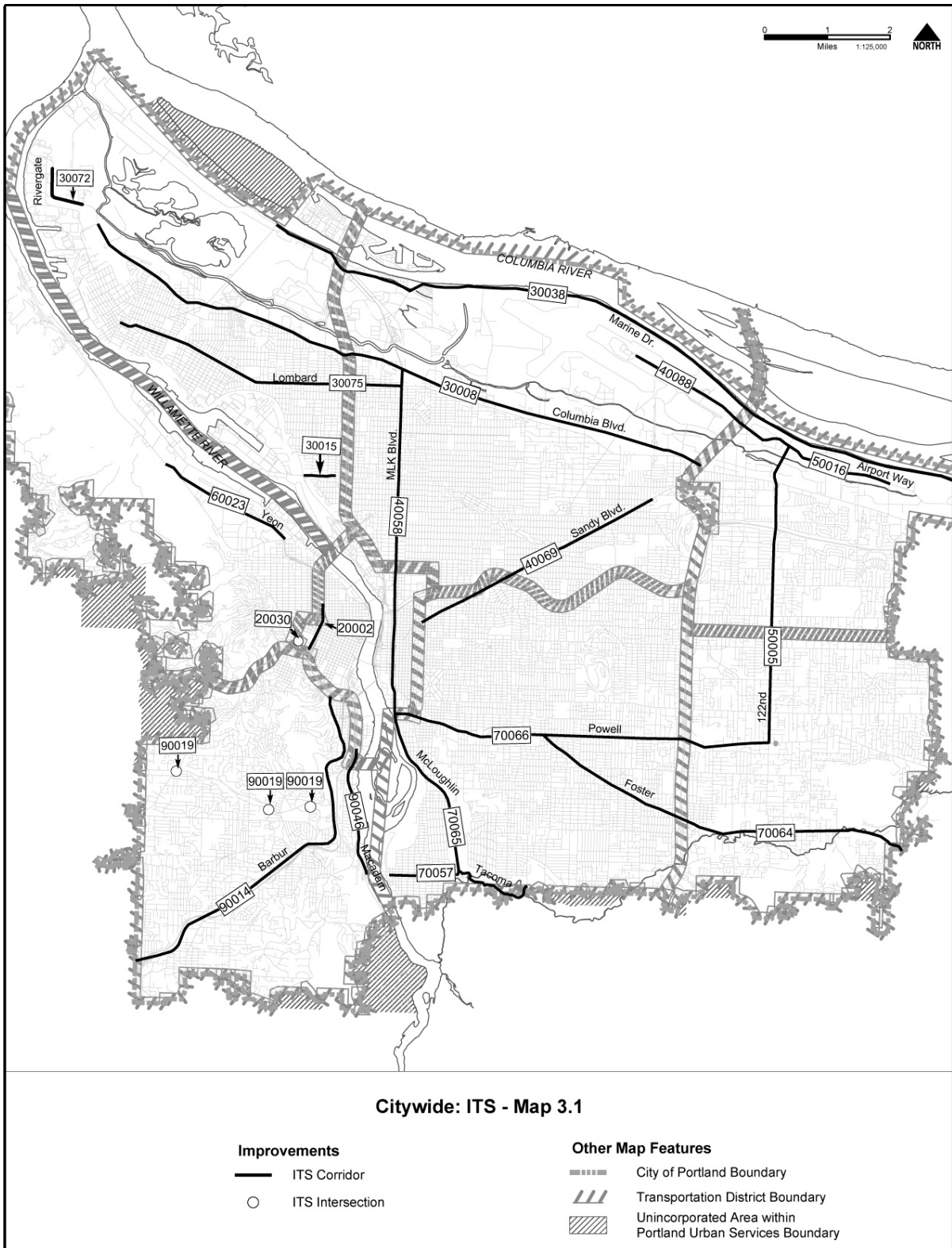
intelligent transportation system (ITS) improvements. The project lists note the unmapped projects. ITS projects are mapped separately on page 3-13.

Within each Transportation District section, projects are listed in numerical order and include the following basic information:

- Name and location
- Brief description
- Lead agency
This is the public agency that owns the transportation facility or has primary management responsibilities for the project. It does not indicate financial commitment to the project.
- Estimated cost (in current dollars)
(SN/A indicates the estimated cost was not available)
- Estimated timing of construction

If a project is located in more than one Transportation District, it is mapped and listed under each district.

[Note: The projects on this list have been updated as part of the Transportation System Plan: 2004 Technical Update (adopted by City Council October 13, 2004, effective November 12, 2004). The Transportation System Plan: 2006 Update (adopted by City Council April 5, 2007, effective May 5, 2007) updates the projects on this list.





CITYWIDE: MAJOR TRANSPORTATION IMPROVEMENTS

10001**Banfield LRT Stations, NE/SE:
Pedestrian Improvements**

Retrofit existing streets along eastside MAX and at intersecting streets to include better sidewalks and crossings, curb extensions, bus shelters, and benches at 82nd, 148th, and 162nd stations.

Portland

\$2,598,000 (Years 6 – 10)

10002**Columbia River Channel Deepening –
Regional Share, N/NE**

Deepen the Columbia River channel to 43 feet from Astoria and Portland to better serve the new class of larger container ships.

Port

SN/A (Years 6 – 10)

10003**Transit Signal Priority, Citywide:
Transit Improvements**

Test & refine technological options to provide priority for buses at traffic signals and implement low cost bus solutions such as re-striping at intersections where buses currently experience long delays.

Portland

\$100,000 (Years 1 – 5)

CENTRAL CITY: MAJOR TRANSPORTATION IMPROVEMENTS

*Improvements not mapped include: 20003, 20016, and 20031, 20095
ITS improvements mapped separately include: 20002 and 20030*

20001

11th/12th Ave, SE (Burnside – Gideon): Multi-modal Street Improvements

Provide pedestrian, bicycle, and transit access improvements along 11th and 12th to enhance neighborhood livability.

Portland

\$300,000 (Years 11 – 20)

20002

14th/16th, NW/SW & 13th/14th, SE (Glisan – Clay): ITS

Closed-circuit TV (CCTV) camera at Everett. Changeable message signs at Glisan, Everett, Burnside, Taylor, Jefferson, and Clay intersections.

Portland

\$175,000 (Years 11 – 20)

20003

23rd/Mt Tabor Frequent Bus, NW/SE: Improvements

Provide improvements that enhance new frequent bus service along Belmont connecting to NW 23rd.

Tri-Met

\$2,490,000 (Years 1 – 5)

20004

7th/8th Ave, SE: New Street Connection

Construct new street connection from SE 7th to 8th Ave at Division Street to improve local connectivity for industrial properties.

Portland

\$500,000 (Years 1 – 5)

20005

10th, NW (Overton – Naito Parkway): Pedestrian Bridge

Construct pedestrian bridge along 10th alignment to connect over railroad tracks.

Portland

\$2,500,000 (Years 1 – 5)

20006

Bancroft St, SW (River Parkway – Macadam): Street Improvements

Widen SW Bancroft in conformance with district street standards.

Portland

\$600,000 (Years 1 – 5)

20007

Bancroft/Hood/Macadam, SW Intersection Improvements

The Bancroft/Hood/Macadam intersection is the southern portal of the South Waterfront district. Intersection work includes widening, realignment and signal improvements.

Portland

\$400,000 (Years 1 – 5)

20008

Belmont Ramp, SE (Eastside of Morrison Bridge): Ramp Reconstruction

Reconstruct ramp to provide better access to the Central Eastside.

Portland

\$1,732,500 (Years 6 – 10)

20009

Bond Ave, SW (River Parkway – Bancroft): Street Improvements

Improve SW Bond to serve as the primary north-south mobility street in the new North Macadam neighborhood.

Portland

\$5,000, 000 (Years 1 – 5)

20010

Broadway NE/NW: Bridge Improvements

Broadway Bridge improvements include painting, phase 1 seismic retrofit, sidewalk replacements, and resurface of bridge deck/approaches.

Multnomah County

\$42,668,000 (Years 1 – 5)

20011

Burnside Bridge, W/E: Bridge Improvements

Improvements include deck rehabilitation, mechanical improvements, painting, and phase 1 seismic retrofit.

Multnomah County

\$42,668,000 (Years 1 – 5)

20012

Burnside Bridge, SE/SW: Pedestrian and Bike Access

Improve bicycle and pedestrian access from the Burnside Bridge to Waterfront Park and Eastbank Esplanade.

Multnomah County

\$2,140,000 (Years 6 – 10)

20013

Burnside/Sandy/12th, E: Intersection Improvements

Redesign intersection to improve safety for all modes of travel. Relocate north-south crosswalk on east side of NE/SE 12th to eliminate safety hazards.

Portland

\$4,620,000 (Years 6 – 10)

20014

Burnside, W (NW 15th – NW 23rd): Boulevard Improvements

Boulevard design improvements including pavement reconstruction, wider sidewalks, curb extensions, safer crossings, traffic signals at 20th and 22nd, and traffic management to limit motorist delays.

Portland

\$10,000,000 (Years 1 – 5)

20015

Central City Streetcar II, SW (PSU – Riverplace)

Extend streetcar between PSU and Riverplace.

Portland/Tri-Met

\$15,350,000 (Years 1 – 5)

20016

Central City Traffic Management, N, NW, NE, SE, SW: Transportation System Management Improvements

Implement Central City TSM improvements to arterials.

Portland/ODOT

\$2,310,000 (Years 11 – 20)

20017

Clay/2nd, SW: Pedestrian/Vehicle Signal

New signal installation.

Portland

\$115,500 (Years 11 – 20)

20018

Clay/MLK Jr, SE: Intersection Improvements

Geometric, signalization and channelization improvements to allow transit and general traffic access to westbound Clay from southbound MLK.

Portland/ODOT

\$924,000 (Years 11 – 20)

20019

Columbia Street, SW (Naito Parkway – 18th): Street Reconstruction

Rebuild street.

Portland

\$800,000 (Years 6 – 10)

20020

9th & Park, SW (Burnside – Salmon): Midtown Blocks Streetscape Improvements

Completion of design guidelines and preliminary capital improvements for Midtown Park Blocks.

Portland

\$141,543 (Years 6 – 10)

20021

Curry, SW (River Parkway – Bond): Widen Street

Widen Curry from Bond to River Parkway to a 70' ROW with bike lanes and on-street parking.

Portland

\$1,400,000 (Years 1 – 5)

20022

Division Place/9th, SE (7th – Center): Bikeway

Retrofit bike lanes to existing street.

Portland

\$19,635 (Years 11 – 20)

20023

11th/12th/Railroad Crossing, SE (West of Division): Intersection Improvements

Reconstruct intersection to upgrade traffic signalization and establish bike and pedestrian routes to improve safety and reduce delay at intersection.

Portland

\$400,000 (Years 6 - 10)

20024

Grand Ave, SE: Bridgehead Improvements

Reconstruct west edge of SE Grand at bridgehead to provide sidewalks and urban standard turn lanes for vehicles. Improves truck safety and access.

Portland

\$4,100,000 (Years 1 – 5)

20027

I-405/US 26/Ross Island Bridge, SW: Access Improvements

Construct new freeway access from Ross Island Bridge to I-405 and US 26 to improve connections between regional facilities and separate traffic from neighborhood streets..

ODOT

\$50,000,000 (Years 1 – 5)

20028

North Macadam Acces Improvements, SW

Construct new off-ramp at NB I-5 to NB Macadam Ave and provide safety to add capacity and improve safety.

ODOT

\$60,000,000 (Years 1 – 5)

20029

I-5 & Mc Loughlin, SE: Construct Access Ramps

Construct new ramps from McLoughlin to I-5 NB near Division to improve connections.

ODOT

\$20,000,000 (Years 11 – 20)

20030

18th/Jefferson St, SW: ITS

Communications infrastructure including closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow at SW 18th/Jefferson intersection.

Portland

\$69,300 (Years 11 – 20)

20031

Light Rail Extension 3, SW/SE (Rose Quarter – Milwaukie TC)

Construct LRT from Rose Quarter to Milwaukie TC.

Tri-Met

\$515,000,000 (Years 6 – 10)

20033

Lloyd District/Rose Quarter, N/NE: Access Improvements

Construction of collector-distributor roads serving the freeway to freeway connections and the Broadway/Weidler interchange. Implement TSM project to correct capacity and safety problems. Evaluate Broadway/Flint intersection realignment.

Portland/ODOT

\$358,050 (Years 1 – 5)

20034

Macadam/Curry, SW: Intersection Improvements

Design and construct improvements to the Macadam/Curry intersection.

Portland/ODOT

\$900,000 (Years 1 – 5)

20035

**Grand/MLK Jr, SE/NE:
CEID/Lloyd District Streetscape
Improvements**

Complete boulevard design improvements including street trees, tree grates, ornamental lighting, and curb extensions.

Portland/ODOT

\$3,465,000 (years 6 – 10)

20036

**Grand/MLK Jr Viaduct, SE:
Reconstruct Viaduct**

Reconstruct viaduct between Stephens & McLoughlin Blvd. Existing structure is deficient and requires capacity and structural design improvements.

ODOT

\$22,000,000 (Years 1 – 5)

20037

**Morrison Bridge, SE/SW:
Pedestrian and Bicycle Improvements**

Improve bicycle and pedestrian access on the Morrison Bridge.

Multnomah County

\$1,466,850 (Years 11 – 20)

20038

**Naito Parkway, NW/SW (Davis –
Market): Street Improvements**

Boulevard design improvements including bike lanes, pedestrian crossings, and pavement reconstruction.

Portland

\$7,400,000 (Years 1 – 5)

20039

**South Waterfront District, SW: Bicycle
and Pedestrian Improvements**

Implement pedestrian and bicycle district access improvements identified in the North Macadam Framework Plan and retrofit bike lanes to SW Moody from Bancroft to Gibbs, including overcrossings of I-5, improvements to Sheridan-Corbett.

Portland/ODOT

\$2,316,500 (Years 1 – 5)

20040

**Arthur, Gibbs & Lowell, SW (River
Parkway – Moody): Street
Improvements**

Arthur, Gibbs, and Lowell are the primary connectors between Moody-Bond and River Parkway, and will be constructed in phases as development occurs in the North Macadam district.

Portland

\$3,750,000 (Years 1 – 5)

20041

South Waterfront District, SW: TMA

Implement transportation management area improvements identified in the North Macadam Framework Plan.

Tri-Met

\$200,000 (Years 6 – 10)

20042

**South Waterfront Transit
Improvements, SW**

Implement transit improvements identified in the North Macadam Framework Plan, including central city transit hub and local bus service improvements.

Portland

\$2,000,000 (Years 6 – 10)

20043

**Old Town/China Town District, NW:
Streetscape Improvements**

Design and construction public improvements in Old Town/Chinatown to enhance cultural identity, following the Chinatown Development Plan. Includes sidewalks, street trees, and redevelopment assistance to private properties.

Portland

\$6,247,646 (Years 1 – 5)

20044

**Oregon Historical Society Area, SW:
Streetscape Improvements**

Pedestrian improvements related to future redevelopment of Oregon Historical Society area into mixed use facility.

Portland

\$549,684 (years 6 – 10)

20045

**5th/6th, NW/SW (Irving – Jefferson):
Portland Transit Mall Restoration and
Reconstruction for Light Rail Transit**

Extend mall and reconfigure to accommodate light rail tracks and stations. Repairs to Transit Mall including sidewalk brick work, reconstruction, curbs, gutters, and other pedestrian improvements.

Portland

\$160,000,000 (Years 6 – 10)

20047

Ross Island Bridge Interchange, SW

US 26 Interchange improvement on east approach to Ross Island Bridge.

ODOT

\$4,400,000 (Years 11 – 20)

20048

**Salmon/Taylor/Madison/Main, SW
(Hawthorne Bridge – Vista): Bikeway**

Retrofit bike lanes to existing streets.

Portland

\$20,000 (Years 6 – 10)

20049

**Corbett/Hood/Sheridan, SW:
Pedestrian and Bike Improvements**

Construct bike and pedestrian improvements under I-5 to the Corbett-Terwilliger-Lair Hill neighborhood at SW Sheridan St.

Portland

\$150,000 (Years 1 – 5)

20050

**Southern Triangle Circulation
Improvements, SE**

Improve local street network and regional access routes in the area between the Powell/12th, Willamette River, railroad mainline and Hawthorne Bridge. Improve freeway access route from CEID to I-5 SB via the Ross Island Bridge.

Portland

\$2,887,500 (Years 11 – 20)

20051

**Steel Bridge, NE (East Ramps): Seismic
Retrofit**

Seismic retrofit.

Portland

\$831,600 (Years 11 – 20)

20054

Water Ave, SE (Caruthers – Division Pl): Street Extension Phase II

Provide new roadway connection with sidewalks, bike lanes, landscaping, access to Willamette Greenway, and reconstruction of existing roadway.

Portland

\$288,750 (Years 11 – 20)

20057

Willamette Greenway, SW: Trail Extension

Develop Willamette Greenway Trail through North Macadam district.

Portland

\$2,650,000 (Years 6 – 10)

20058

Willamette River Bridges, NE/NW/SE/SW: Rehabilitation

Provide for long-term rehabilitation and structural needs of the Broadway, Burnside, Morrison, and Sauvie Island bridges.

Multnomah County

\$113,000,000 (Years 1 – 5)

20061

I-5 at Gibbs, SW: Pedestrian/Bike Overcrossing

Construct a bike and pedestrian bridge of I-5 at SW Gibbs to connect the Corbett-Terwilliger-Lair Hill neighborhood to North Macadam.

ODOT/Portland

\$1,500,000 (Years 1 – 5)

20062

River Parkway, SW: New Street

New north-south local access street in the emerging North Macadam district. This street will have an enhanced pedestrian environment and will be built to accommodate future streetcar. It will be constructed in four phases beginning FY 00/01.

Portland

\$3,500,000 (Years 1 – 5)

20063

Belmont/Morrison, SE (east of Morrison Bridge – 12th): Bikeway

Retrofit bike lanes to existing street.

Portland

\$8,000 (Years 1 – 5)

20064

14th/16th Connections, NW

Improve or create connections to W. Burnside, Yeon, and Vaughn, and provide directional signage to route non-local traffic to the 14th/16th couplet.

Portland

\$200,000 (Years 11 – 20)

20065

Interstate, N, Bridge at Larrabee: Bridge Rehabilitation

Rehabilitate Interstate overcrossing of Larrabee to remove weight restriction.

Portland

\$1,200,000 (Years 11 – 20)

20066

Cherry St, N (Vancouver – Williams): Street Reconstruction

Reconstruct Cherry St from Vancouver to Williams including sidewalks on Williams, remodeled traffic signal at Vancouver/Weidler, and install landscaping & lighting to improve safety and streetscape environment.

Portland

\$340,000 (Years 11 – 20)

20067

I-5, N (Lloyd District/Rose Quarter): Reconstruction and Widening

Modernize freeway and ramps to improve access to the Lloyd District and Rose Quarter. Project improves safety, access to the Lloyd District and Rose Quarter, and reduces delay.

Portland

\$106,260,000 (Years 1 – 5)

20068

12th, NE (Bridge at Lloyd Blvd): Seismic Retrofit

Seismic retrofit.

Portland

\$415,800 (Years 11 – 20)

20069

Marshall, NW (9th – Naito Parkway): Pedestrian Bridge

Construct pedestrian bridge along Marshall alignment to connect over railroad tracks.

Portland

\$3,000,000 (Years 1 – 5)

20070

Naito Parkway (Broadway Bridge – north of Terminal One): Street and Pedestrian Improvements

Construct streetscape improvements including pedestrian amenities.

Portland

\$3,250,000 (Years 1 – 5)

20071

Morrison Bridge at Water Ave Ramp, SE: Ramp Realignment

Realign and separate the Morrison Bridge off-ramp to Water Avenue from the I-5 off-ramp by moving it north approximately 100' from the Yamhill/Water intersection. Construct a sidewalk and bike lane along the south side of the realigned ramp.

Portland

\$1,732,500 (Years 6 – 10)

20072

1st Ave, SE (Stark – Clay): Railroad Mainline Access Improvements

Construct limited roadway access improvements, such as one-way vehicle circulation loops or loading zones, along the east side of the ROW adjacent to, but protected from, the railroad mainline.

Portland

\$750,000 (Years 11 – 20)

20073

Stark St, SE (2nd – Grand): Safety & Capacity Improvements

Improve safety and capacity at the Stark/Grand intersection by restriping street to add eastbound lane, revising Stark to one-way eastbound between King – Grand, or implement a Stark – Oak one way couplet between 2nd and Grand.

Portland

\$50,000 (Years 6 – 10)

20074

4th Ave, SE (Caruthers – Ivon): Multi-modal Street Improvements

Improve geometrically constrained 4th and Caruthers intersection to facilitate truck turning movements. Construct urban standard street improvements for traffic. Add pedestrian and bike facilities connecting the Springwater Corridor to Caruthers.

Portland

\$250,000 (Years 1 – 5)

20075

Water Ave, SE (Stark – Clay): Reconstruction

Reconstruct street and provide pedestrian enhancements.

Portland

\$900,000 (Years 6 – 10)

20076

Broadway and Weidler, NE (Larabee – MLK Jr): Multi-modal Improvements, Phase IV

Construct multi-modal improvements including sidewalks, bike lanes, lighting, trees, and signals.

Portland

\$4,200,000 (Years 11 – 20)

20077

7th/I-84 and 9th/I-84, NE: Pedestrian and Bike Bridges

Construct pedestrian/bike bridges at 7th and/or 9th along I-84.

Portland

\$1,200,000 (Years 11 – 20)

20078

7th and 9th, NE (Broadway – Lloyd Blvd): Pedestrian Improvements

Construct an enhanced pedestrian street.

Portland

\$5,500,000 (Years 6 – 10)

20080

Union Station, NW: Facility Renovation

Renovate Union Station to meet seismic and functional requirements.

Portland

\$300,000,000 (Years 11 – 20)

20082

Aerial Tram, SW

Develop and implement an aerial tram between Marquam Hill and South Waterfront. Project implementers include Oregon Health & Science University, Portland Aerial Tram Inc, and others.

Portland

\$57,000,000 (Years 1 – 5)

20083

Russell Street Improvements, N

Construct improvements to Russell (Interstate – Williams); Albina and Mississippi (Russell – Interstate) to enhance pedestrian connections from the Eliot neighborhood and the Lower Albina district to the light rail station on Interstate. Improve the N Williams and N Stanton intersection.

Portland

\$3,300,000 (Years 6 – 10)

20084

Eastside Streetcar Phase 1, NE

Construct streetcar from NW Lovejoy/10th to NE 7th/Oregon.

Portland

\$36,900,000 (Years 6 – 10)

20085

Eastside Streetcar Phase 2, NE/SE

Construct streetcar from NE Oregon to SE Water.

Portland

\$44,000,000 (Years 6 – 10)

20086

Central City Streetcar Phase 3b, SW (Riverplace to Gibbs)

Extend streetcar from Riverplace to Gibbs, into the emerging South Waterfront district.

Portland/TriMet

\$20,000,000 (Years 1 – 5)

20087

Central City Streetcar Phase 3c, SW (Gibbs to Bancroft)

Extend streetcar from Gibbs to Bancroft.

Portland/TriMet

\$12,000,000 (Years 1 – 5)

20088

Burnside, E/NE Couch (E 12th – Burnside Bridge): Couplet and Street Improvements, Phase I

Implements a one-way couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes, on-street parking and street trees.

Portland

\$7,500,000 (Years 1 – 5)

20089

Burnside, W/NW Couch (Burnside Bridge – W 15th): Couplet and Street Improvements, Phase I

Implements a one-way couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes, on-street parking and street trees.

Portland

\$7,500,000 (Years 1 – 5)

20090

Burnside, E/NE Couch (E 14th - Burnside Bridge): Couplet and Street Improvements, Phase II

Implements a one-way couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes, on-street parking and street trees.

Portland

\$7,500,000 (Years 6 – 10)

20091

Burnside, W/NW Couch (Burnside Bridge – W 15th): Couplet and Street Improvements, Phase II

Implements a one-way couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes, on-street parking and street trees.

Portland

\$7,500,000 (Years 6 – 10)

20092

Steel Bridge, N/NE: Rehabilitation

Major bridge maintenance.

Railroad

\$30,000,000 (Years 6 – 10)

20093

UP Line Connection, SE (Brooklyn line – Graham line)

Add rail connection between the Brooklyn and Graham lines in SE Portland to increase rail capacity.

Railroad

\$11,000,000 (Years 1 - 5)

20094

UP Line Upgrade, N (Albina Yard – East Portland Junction)

Upgrade existing track to second main track to increase track speeds in this section of the north/south main line.

Railroad

\$8,800,000 (Years 1 - 5)

20095

Graham Line Siding, N: Graham rail line

Add controlled siding on the UP Graham line.

Railroad

\$12,000,000 (Years 6 – 10)

20096

Morrison Bridge at Water Ave Ramp, SE: Ramp Realignment

Realign and separate the Morrison Bridge off-ramp to Water Avenue from the I-5 off-ramp by moving it north approximately 100' from the Yamhill/Water intersection. Construct a sidewalk and bike lane along the south side of the realigned ramp.

ODOT/Portland

\$1,750,000 (Years 1 – 5)

20097

Flanders, NW (1st to Westover): Bike Facility

Develop bike boulevard on NW Flanders between NW Westover Rd and 1st Ave, including crossing treatments, modification of stop patterns, contra-flow bike lanes, and a bicycle/pedestrian crossing of I-405.

Portland

\$2,520,000 (Years 1 – 5)

30045

River Ave, N (Port Center Way – River Ave): Street Extension

Secondary access road from Swan Island connecting to the Lower Albina Overcrossing at River Ave. Improvements include roadway, drainage, pedestrian path, and bike routes.

Portland

\$165,697 (Years 6 – 10)

40030

Broadway/Weidler, NE (15th – 28th): Multi-modal Improvements, Phases II & III

Boulevard retrofit of street including street trees, traffic signals, curb extensions, and wider sidewalks (15th – 24th) and bike lanes (24th – 28th).

Portland

5,590,000 (Years 1 – 5)

60010

Everett/Glisan, NW (14th – 23rd): Decouple

Analysis of design options, engineering and construction of Everett/Glisan decoupling or other appropriate alternative.

Portland

\$680,000 (Years 11 – 20)

60021

West Bikeways, NW

Construct curb extensions on Johnson at 21st and 23rd; Contraflow lane on 24th (Glisan – Flanders); Bike lanes on Couch (Broadway – 10th).

Portland

\$10,000 (Years 6 – 10)

70013

Division St, SE (Grand - 60th): Multimodal Improvements, Phase I

Construct improvements that enhance access to transit, improve safety and enhance streetscape such as traffic signals, lighting, bus shelters, benches, and crossings. Consider alternative travel lane and on-street parking configurations and innovative stormwater management facilities. Add bike lanes (52nd – 60th).

Portland

\$2,786,000 (Years 1 – 5)

70041

Milwaukie, SE (Gideon – Mall): Bicycle & Pedestrian Improvements

Plan and develop streetscape and pedestrian/bike improvements.

Portland

\$350,000 (Years 6 – 10)

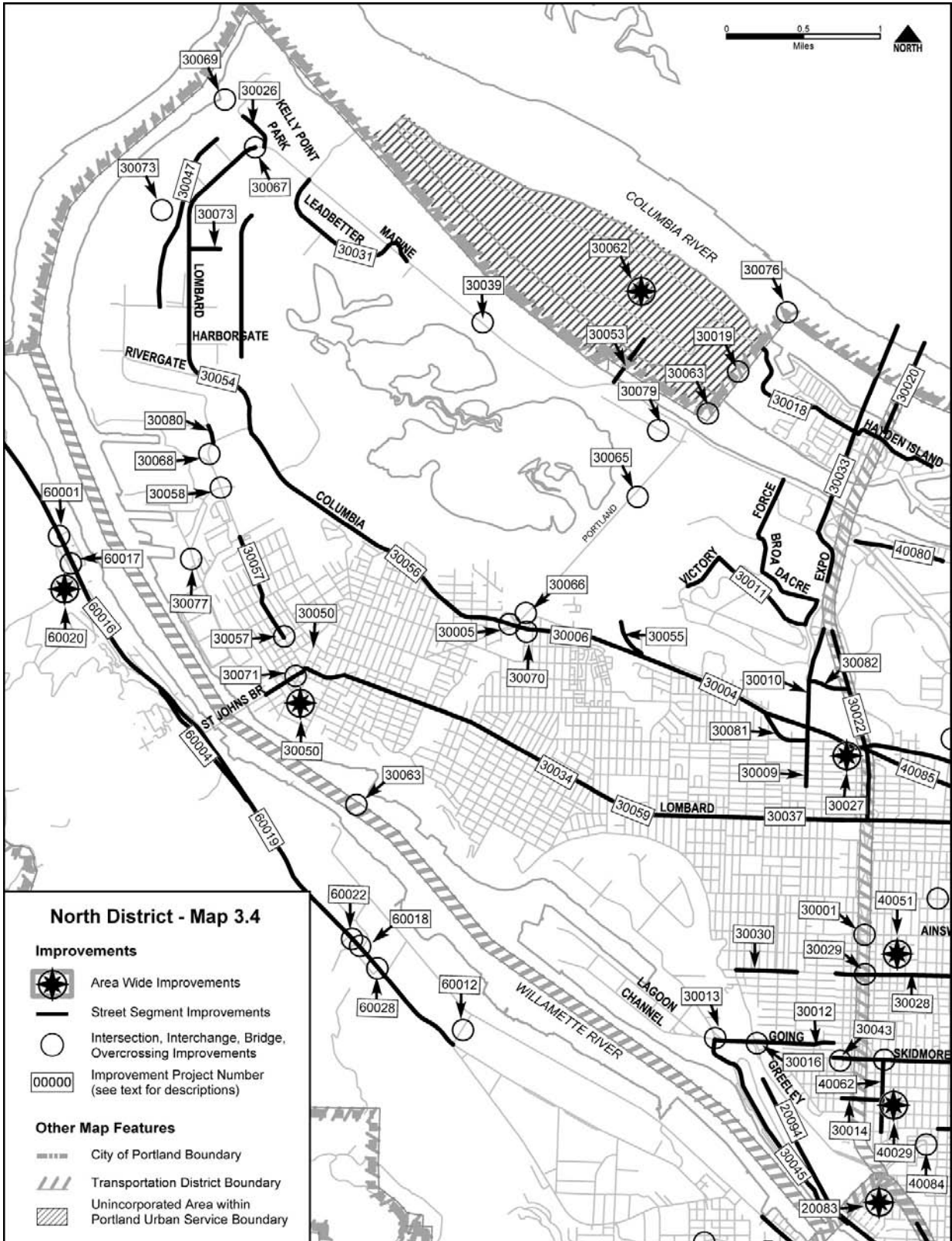
90047

Macadam, SW: Multimodal Improvements

Complete bikeway connection in the North Macadam corridor and improve pedestrian crossings (Bancroft, Boundary, Hamilton, Nebraska and Nevada) and address circulation at west approach to Sellwood Bridge.

Portland/ODOT

\$1,200,000 (Years 6 – 10)



NORTH: MAJOR TRANSPORTATION IMPROVEMENTS

ITS improvements mapped separately include: 30008, 30015, 30035, and 30038,30072, 30075

30001

Ainsworth Bridge, N (at I-5): Bridge Improvements

Construct improvements to the bridge to provide a safe and pleasant crossing for pedestrians and bicyclists, linking the MAX station to the Humboldt and Piedmont neighborhoods.

Portland

\$1,500,000 (Years 11 – 20)

30004

Columbia Blvd, N (Swift – Portland Rd & Argyle Way – Albina): Pedestrian Improvements, Phase I & II

Construct sidewalk and crossing improvements.

Portland

\$3,003,000 (Years 11 – 20)

30005

Columbia Blvd, N (Bridge at Taft): Seismic Retrofit

Seismic retrofit of bridge.

Portland

\$415,800 (Years 11 – 20)

30006

Columbia Blvd, N (Oswego – Denver): Noise Reduction

Install noise walls on the south side of Columbia Blvd.

Portland

\$1,000,000 (Years 11 – 20)

30008

Columbia Blvd, N/NE (I-205 – Burgard): ITS

CCTV at I-205 ramps, NE 82nd, 47th, NE 33rd ramps, MLK, Jr. I-5 SB ramps, N Portland Rd, and N Burgard Rd. Changeable message signs at NE 82nd, MLK, Jr., and I-5 SB ramps, N Portland Rd. Monitoring at I-205, NE 33rd, MLK, Jr., and I-5 SB ramps.

Portland

\$310,000 (Years 1 – 5)

30009

Denver, N (Argyle – Winchell): Streetscape Improvements

Construct streetscape improvements to revitalize historic downtown Kenton.

Portland

\$1,800,000 (Years 6 – 10)

30010

Denver Viaduct and Connections, N (Argyle – Victory): Roadway Improvements

Replace and modernize the Denver Viaduct and roadway connections to freeway and add pedestrian walkway and bikeway as recommended by the I-5 North, Victory to Lombard project.

ODOT/Portland

\$10,000,000 (Years 6 – 10)

30011

Force/Broadacre/Victory, N: Bikeway

Signed bikeway connection to I-5 river crossing.

Portland

\$20,000 (Years 11 – 20)

30012

Going, N (Interstate – Basin): Bikeway

Design and implement bike lanes.

Portland

\$90,000 (Years 11 – 20)

30013

Going St Bridge, N: Overcrossing Improvements

Replace bridge over UPRR . Bridge is currently weight restricted.

Portland

\$3,000,000 (Years 1 – 5)

30014

Failing St & Bridge, N (Interstate – Mississippi): Street Improvements

Construct street improvements to provide a safe and pleasant connection between the MAX station and the Mississippi Target Area.

Portland

\$800,000 (Years 6 – 10)

30015

Going, N (Interstate – Greeley): ITS

CCTV at Greeley/Interstate intersections. Variable message sign for EB traffic at Greeley. Changeable message sign for EB traffic at Interstate. Monitoring station at Greeley.

Portland

\$255,000 (Years 1 - 5)

30016

Going/Greeley, N: Climbing Lane and Interchange Improvements

Redesign Going/Greeley interchange including climbing lane on Going to improve truck movement between Swan Island, Lower Albina, and I-5.

Portland

\$2,000,000 (Years 1 – 5)

30018

Hayden Island, N/NE: Street Network Improvements

Provide a street network plan for improvements that implement the Region 2040 connectivity standards and improve multi-modal access for Hayden Island.

Portland

\$2,000,000 (Years 11 – 20)

30019

Hayden Island/Rivergate, N: Rail Access

Rail access from Rivergate to Hayden Island development to support development.

Port

\$3,000,000 (Years 11 – 20)

30020

I-5, N (Columbia River – Columbia Blvd): Bridge Widening

Improve I-5/Columbia River bridge (local share of joint project) based on recommendations in I-5 Trade Corridor Study. Project addresses a high congestion location.

ODOT

\$200,000,000 (Years 1 – 5)

30022

I-5, N (Victory – Lombard): Freeway and Interchange Improvements

Widen I-5 to three lanes plus shoulders in each direction to improve safety and repair a system bottleneck and realign and improve the Columbia Boulevard interchange ramps.

ODOT

\$69,287,000 (Years 1 – 5)

30026

Kelly Point Park Access Trail/40 Mile Loop Trail, N

Construct multi-use trail for bicycle and pedestrian along the north bank of the Columbia Slough.

Portland/METRO

\$115,000 (Years 1 – 5)

30027

Kenton Pedestrian District, N: Pedestrian Improvements

Plan and develop improvements to the pedestrian environment to emphasize district identify and make walking the mode of choice for trips within the district.

Portland

\$500,000 (Years 6 – 10)

30028

Killingsworth, N (Interstate – MLK Jr Blvd): Street Improvements

Construct street improvements to improve pedestrian connections to Interstate MAX LRT and to establish a main street character promoting pedestrian-oriented activities.

Portland

\$ 4,900,000 (Years 1 - 5)

30029

Killingsworth Bridge, N (at I-5): Bridge Improvements

Construct improvements to the bridge to provide a safe and pleasant crossing for pedestrians and bicyclists, linking the MAX station to the Humboldt neighborhood.

Portland

\$ 2,700,000 (Years 11 - 20)

30030

Killingsworth, N (Denver – Greeley): Pedestrian Improvements

Plan and develop streetscape and transportation improvements.

Portland

\$1,320,000 (Years 11 – 20)

30031

Leadbetter, N (Marine Dr Loop): Street Extension/Overcrossing

Extend Leadbetter to Terminal 6/Marine Dr via a new rail overcrossing to provide access to developing Port property and address delay from at –grade rail crossing.

Port

\$10,800,000 (Years 1 – 5)

30033

Light Rail Extension - Phase 2, N

Extend light rail service from Expo Center to Vancouver WA.

Portland

\$300,000,000 (Years 6 – 10)

30034

Lombard, N/NE (St Johns Bridge – MLK Jr): Bikeway

Stripe bike lanes on existing roadway.

ODOT

\$1,155,000 (Years 6 – 10)

30035

Lombard, N/NE (MLK Jr – Philadelphia): ITS

Communications infrastructure including closed circuit TV cameras, variable message signs for remote monitoring, and control of traffic flow at the intersections with MLK Jr, Interstate, Greeley, Portsmouth, Philadelphia/Ivanhoe.

Portland

\$242,550 (Years 6 – 10)

30036

Lombard, N (Rivergate – T6): Multi-modal Improvements

Widen N Lombard to include two travel lanes, a non-continuous center turn lane, medians, bike lanes, and sidewalks to improve safety and access to industrial properties.

Portland/ODOT

\$3,600,000 (Years 1 – 5)

30037

Lombard, N (I-5 - Denver): Street Improvements

Establish a landscaped boulevard to promote pedestrian-oriented uses and create a safe, pleasant pedestrian link over I-5 with sidewalks, a new traffic light and road access to nearby development.

Portland

\$2,800,000 (Years 1 – 5)

30038

Marine Dr, N/NE (Portland Rd – 185th): ITS

CCTV at N Portland Rd. Changeable message signs at Portland Rd, Vancouver and 185th.

Portland

\$750,000 (Years 6 - 10)

30039

Marine Dr, N (at Rivergate West): Rail Crossing, Phase II

Reroute rail tracks and construct an above-grade rail crossing at Rivergate West entrance to improve safety and reduce vehicle and rail traffic conflicts.

Port

\$20,900,000 (Years 11 – 20)

30043

Prescott Station Area Street Improvements, N

Improve Prescott and Skidmore (Interstate – Maryland) and Maryland (Prescott – Interstate) to provide the focal point for a new light rail neighborhood center.

Portland

\$3,400,000 (Years 6 – 10)

30045

River Ave, N (Port Center Way – River Ave): Street Extension

Evaluate secondary access road from Swan Island connecting to the Lower Albina Overcrossing at River Ave. Improvements include roadway, drainage, pedestrian path and bike routes. Project improves street connectivity for industrial properties

Portland

\$165,697 [study cost] (Years 6 – 10)

30047

Rivergate Rail Yard Expansion, N

Expand railroad capacity in the Rivergate industrial area to increase bulk capacity for mineral and agricultural products and improve train flows within the industrial area.

Port

\$6,000,000 (Years 1 – 5)

30050

St. Johns Pedestrian District, N

Enhance pedestrian access to transit, improve safety, and enhance the streetscape such as better lighting and crossings. Improvements include realigning the “ivy” island, curb extensions, a new traffic signal at Richmond/Lombard, and pedestrian connections between St. Johns and the riverfront based on the St. Johns/Lombard Plan.

Portland/ODOT

\$1,000,000 (Years 1 – 5)

30053

West Hayden Crossing, N

New four-lane bridge from Marine Dr to Hayden Island to serve as the primary access to marine terminals on the island.

Portland/Port

\$49,800,000 (Years 11 – 20)

30054

Barnes Rail Yard – Bonneville Rail Yard, N: Track Expansion

Construct additional unit train trackage between Bonneville and Barnes Yards to support unit train movement between South Rivergate and the Columbia Corridor. Addresses limited Rivergate staging area for unit trains approaching the marine terminals. Solves switching bottlenecks, terminal access limitations, and other operational conflicts.

Port

\$11,900,000 (Years 6 – 10)

30055

Penn Junction, N (UP/BNSF Main Line): Track Realignment

Realign track configuration, double track, and upgrade signaling to improve mainline capacity over the Columbia River and allow greater train turnaround speed.

Port

\$3,500,000 (Years 6 – 10)

30056

Columbia Blvd, N/NE (MLK Jr – Lombard): Bikeway

Retrofit bike lanes to existing street.

Portland

\$109,725 (Years 6 – 10)

30057

Lombard/St. Louis/Ivanhoe: Multi-modal Improvements

Restripe, construct curb extensions, realign, and signalize as needed to improve pedestrian-bicyclist amenities while not impeding truck movements. Project maintains truck movement and minimizes conflicts with bicycles and pedestrians in town center.

Portland

\$109,725 (Years 6 – 10)

30058

Lombard, N (at Terminal 4): Driveway Consolidation

Consolidate driveways at Terminal 4 and Schnitzer Steel to improve industrial property access.

Portland/Port

\$1,000,000 (Years 1 – 5)

30059

Lombard, N (N Tyler to N Woolsey): Multimodal Improvements

Implement main street improvements along N Lombard consistent with the St. Johns/Lombard Plan, including curb extensions, street lighting and bicycle improvements.

Portland

\$1,002,000 (Years 1 – 5)

30062

West Hayden Island Rail Yard Expansion, West Hayden Island

Construct seven track rail yard connected to facility trackage to advance rail-dependent development.

Port/Railroad

\$9,500,000 (Years 11 – 20)

30063

BNSF Line at Columbia Bridge, N: Improvements

Improve rail track conditions on approaches to movable spans over the Columbia River to increase track speeds in this section of the north/south main line.

Region

\$8,000,000 (Years 6 – 10)

30064

Ramsey Rail Complex, N (south of Columbia Slough Bridge): Capacity Improvements

Construct six tracks and one mainline track and lead into complex. Adds 46,000 linear feet of rail storage separate from the main line tracks. Improves regional heavy rail system efficiency. Solves storage capacity issues, bottlenecks, terminal access limitations, and other multimodal inefficiencies.

Port/Railroad

\$13,200,000 (Years 1 – 5)

30065

North Portland Junction, N: Rail Improvements

Upgrade rail track with revised crossovers, centralized traffic control tie-in and increased turning radius to accommodate higher rail speeds and capacity.

Region

\$5,000,000 (Years 6 – 10)

30066

N Portland Rail Grade Separation, N

Grade separation rail/highway traffic on N Columbia Blvd at Penn Junction at BNSF Rail Bridge and Columbia Slough and N Portland junction.

Region

\$75,000,000 (Years 11 – 20)

30067

Lombard at Columbia Slough Overcrossing (Rivergate), N: Bridge Rehabilitation

Strengthen the Columbia Slough Bridge and add sidewalks and bike lanes.

Portland

\$4,900,000 (Years 1 – 5)

30068

Lombard St (Burgard), N: Bridge Replacement

Upgrade structure at entrance to Terminal 4 and Schnitzer Steel to eliminate load restrictions on the bridge.

Portland

\$1,500,000 (Years 1 – 5)

30069

Slough Rail Bridge, N

Potential for future rail bridge across Columbia Slough to provide rail connection to south Rivergate from Terminal 6.

Region

\$4,500,000 (Years 11 – 20)

30070

Columbia Bl/Portland Rd, N: Intersection Improvements

Redesign of intersection could include realignment of travel lanes, channelization, signalization, signage, and new sidewalks and curbs. Project reinforces through-truck movements on truck streets and minimizes neighborhood cut-through traffic.

Portland

\$700,000 (Years 1 – 5)

30071

Ivanhoe/Philadelphia, N: Intersection Improvements

Redesign intersection to improve traffic and pedestrian circulation.

Portland

\$107,000 (Years 11 – 20)

30072

Rivergate ITS, N

Connect real-time information about the Rivergate road system to ODOT's Highway ITC systems.

Portland

\$200,000 (Years 1 – 5)

30073

Heineman, N: Road Connection

Construct new street to provide access to developing Port of Portland industrial property.

Port

\$570,000 (Years 1 – 5)

30074

Vancouver Bridge, N (at Columbia Slough): Bridge Replacement

Replace deteriorating bridge to improve safety and remove weight restriction.

Portland

\$8,500,000 (Years 1 – 5)

30075

Lombard, N/NE (Philadelphia – MLK, Jr): ITS

CCTV cameras at intersections with MLK Jr, Interstate, Greeley, Portsmouth, Philadelphia/Ivanhoe. Changeable message signs at Interstate, Portsmouth and Lombard.

Portland
\$210,000 (Years 11 – 20)

30076

Vancouver BNSF Rail Bridge Project (Columbia River)

Replace existing swing span with lift span and relocate position to mid-river channel. Project creates wider and quicker opening, reduces I-5 Fwy lifts, eases river navigation, and could accommodate a third rail track.

Region
\$42,000,000 (Years 1 - 5)

30077

Barnes to Terminal 4, N: Track Expansion

Provide a dedicated track for Terminal 4 through Barnes Yard and add a new track from Barnes Yard to Terminal 4.

Port
\$1,000,000 (Years 1 - 5)

30078

T-5 Unit Rail Loops # 3 & #4

Construct two additional loop tracks to increase rail storage and rail handling capability of existing bulk terminal.

Port
\$2,800,000 (Years 1 - 5)

30079

T-6 Intermodal Third Lead

Construct a dedicated lead for the T-6 intermodal yard. Removes bottleneck at T-6 for unit trains, auto carriers, box cars, and tank cars.

Port
\$4,500,000 (Years 1 - 5)

30080

Burgard/Lombard St, N (N Columbia Blvd to UPRR Bridge): Multimodal Improvements

Upgrade existing two-lane facility to include two 12-foot travel lanes and center turn lane, bicycle lanes, sidewalk facilities, and intersection improvements. Replace existing UPRR Bridge.

Portland
\$17,200,000 (Years 1 - 5)

30081

Argyle, N (Columbia – Denver): Roadway Improvements

Construct a new arterial roadway north of existing street alignment and reconstruct existing street as a local street in a Pedestrian District as recommended by the I-5 North, Victory to Lombard project.

ODOT/Portland
\$4,000,000 (Years 6 – 10)

30082

Schmeer, N (Denver - Whitaker): Roadway Improvements

Realign and reconstruct roadway as an arterial street and add full-service signalized intersection at Denver as recommended by the I-5 North, Victory to Lombard project.

ODOT/Portland
\$2,000,000 (Years 6 – 10)

40071

**Skidmore, N/NE (Interstate – Cully):
Bikeway**

*Design and implement bike boulevard
including traffic calming techniques and
intersection improvements.*

Portland

\$65,000 (Years 6 – 10)

NORTHEAST: MAJOR TRANSPORTATION IMPROVEMENTS

Improvements not mapped include: 40017

ITS improvements mapped separately include: 30075, 40058, 40069, 40088, 50005

20035

Grand/MLK Jr, SE/NE: CEID/Lloyd District Streetscape Improvements

Complete boulevard design improvements including street trees, tree grates, ornamental lighting, and curb extensions.

Portland/ODOT

\$3,000,000 (years 6 – 10)

30001

Ainsworth Bridge, N (at I-5): Bridge Improvements

Construct improvements to the bridge to provide a safe and pleasant crossing for pedestrians and bicyclists, linking the MAX station to the Humboldt and Piedmont neighborhoods.

Portland

\$1,500,000 (Years 11 – 20)

30014

Failing St & Bridge, N (Interstate – Mississippi): Street Improvements

Construct street improvements to provide a safe and pleasant connection between the MAX station and the Mississippi Target Area.

Portland

\$800,000 (Years 6 – 10)

30018

West Hayden Island, N/NE: Street Network Improvements

Provide a street network plan for improvements that implement connectivity standards and improves multi-modal access for Hayden Island.

Portland

\$2,000,000 (Years 11 – 20)

30020

I-5, N (Columbia River – Columbia Bl): Bridge Widening

Improve I-5/Columbia River bridge (local share of joint project) based on recommendations in I-5 Trade Corridor Study. Project addresses a high congestion location.

ODOT

\$252,000,000 (Years 1 – 5)

30022

I-5, N (Expo Center – Lombard): Widening Freeway

Widen I-5 to three lanes in each direction from Lombard to the Expo Center exit to improve safety and repair a system bottleneck.

ODOT

\$80,600,000 (Years 1 – 5)

30023

I-5 , N (at Columbia Blvd): Interchange Improvements

Construct full direction access interchange based on recommendations from I-5: Delta Park to Lombard Environmental Assessment to improve conditions between the Columbia Corridor industrial area and I-5.

ODOT

\$56,000,000 (Years 1 – 5)

30028

Killingsworth, N (Denver – Williams): Street Improvements

Construct improvements to establish a main street character promoting pedestrian-oriented activities.

Portland

\$ 2,100,000 (Years 1 - 5)

30029

Killingsworth Bridge, N (at I-5): Bridge Improvements

Construct improvements to the bridge to provide a safe and pleasant crossing for pedestrians and bicyclists, linking the MAX station to the Humboldt neighborhood.

Portland

\$ 2,700,000 (Years 11 - 20)

30034

Lombard, N/NE (St Johns Bridge – MLK Jr): Bikeway

Stripe bike lanes on existing roadway.

ODOT

\$1,250,000 (Years 6 – 10)

30056

Columbia Bl, N/NE (MLK Jr – Lombard): Bikeway

Retrofit bike lanes to existing street.

Portland

\$95,000 (Years 6 – 10)

30060

39th/Lombard Frequent Bus, N/NE

Provide capital improvements that enhance new frequent bus service along Lombard and 39th.

TriMet

\$2,700,000 (Years 1 – 5)

40001

11th/13th, NE (at Columbia Bl): Roadway Connector

New three lane roadway and bridge over rail line to connect Lombard and Columbia. Provides space for double tracking of rail line. Improvements freight mobility through additional rail capacity, new street connection, and grade separation.

Portland

\$8,000,000 (Years 1 – 5)

40003

26th/Regents, NE: Intersection Improvements

Reconstruct intersection including pedestrian refuge to improve traffic flow and safety.

Portland

\$115,000 (Years 11 – 20)

40006

33rd/Marine Drive, NE: Intersection Improvements

Signalize 33rd/Marine Drive intersection for safety, pedestrian and bicycle improvements.

Portland

\$288,750 (Years 6 – 10)

40007

42nd Bridge, NE (at Lombard): Bridge Replacement

Seismic retrofit of 42nd bridge over Lombard.

Portland/ODOT

\$3,000,000 (Years 11 – 20)

40008

47th/42nd, NE (Cornfoot – Holman): Bike Lanes

Provide bike lanes. Involves shoulder paving and drainage work.

Portland

\$160,000 (Years 11 – 20)

40009

47th, NE (Columbia - Cornfoot: Roadway & Intersection Improvements

Widen and reconfigure intersections to better facilitate truck turning movements to the cargo area located within the airport area. Project includes sidewalks and bikeway improvements.

Portland

\$4,100,000 (Years 1 – 5)

40010

60th Ave, NE (Killingsworth – Going/Cully): Pedestrian Improvements

Construct walkway.

Portland

\$400,000 (Years 11 – 20)

40011

60th MAX Station, NE: Pedestrian Access to Transit

Improve sidewalks, pedestrian crossing, and install curb extensions at transit stops.

Portland

\$500,000 (Years 6 – 10)

40012

72nd, NE (Killingsworth – Prescott): Pedestrian Improvements

Construct sidewalk, curb, storm drainage improvements along 72nd and improve pedestrian crossings at 72nd/Prescott and 72nd /Killingsworth.

Portland

\$750,000 (Years 11 – 20)

40013

82nd Ave, NE/SE (Killingsworth – Clatsop): Pedestrian to Transit Improvements

Improve sidewalks, lighting, crossings, street trees, bus shelters, and benches.

ODOT/Tri-Met

\$1,732,500 (Years 1 – 5)

40014

82nd Ave/Alderwood Rd, NE: Intersection Improvements

Construct right turn lane on SB 82nd Ave; modify traffic signal and construct second right turn lane on Alderwood westbound. Project improves access to industrial properties.

Port/ODOT

\$200,000 (Years 1 – 5)

40015

82nd, NE/SE: ITS

Implement ITS infrastructure to allow monitoring and control of traffic flow including closed circuit TV cameras and variable message signs to improve safety, reduce neighborhood intrusion, and help buses.

Portland/ODOT

\$350,000 (Years 1 – 5)

40016

82nd, NE (Airport Way – Columbia Blvd): Bike & Pedestrian Improvements

Retrofit bike lanes to existing street (Airport Way – Columbia Blvd) and construct sidewalks (Airport Way – Alderwood Rd).

Port

\$510,000 (Years 1 – 5)

40017

Killingsworth Frequent Bus, NE/SE

Provide capital improvements that enhance new frequent bus service along Killingsworth from Swan Island to the Clackamas regional center.

Tri-Met

\$ 4,540,000 (Years 6 – 10)

40018

Columbia to Lombard Connector, NE

Construct an at-grade intersection connection from Columbia Blvd at 82nd to US 30 Bypass/I-205 interchange and widen I-205 SB on-ramp at Columbia Blvd. Project resolves an existing safety and capacity problem at terminus of Columbia Bl at 92nd. Adds capacity to Lombard. With completion of project, Killingsworth replaces Columbia Bl as NHS intermodal connector east of new connection.

Portland/Port

\$26,500,000 (Years 1 – 5)

40019

92nd Ave, NE (Alderwood – Columbia Blvd): Street Improvements

Extend 92nd to Alderwood to better facilitate circulation in the Portland International Center development. Scope of project not fully defined.

Portland

\$1,5,00,000 (Years 11 – 20)

40020

92nd Ave, NE (Fremont – Halsey): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing street. Construct sidewalk to provide access to transit and schools.

Portland

\$360,000 (Years 6 – 10)

40021

Airport Way, NE (82nd – PDX Terminal): Street Widening

Widen to three lanes in both directions to improve traffic flow.

Port

\$10,000,000 (Years 6 – 10)

40022

Airport Way, NE: Access Road

Construct Airport Way East Terminal access road to improve access to properties.

Port

\$8,000,000 (Years 6 – 10)

40023

Airport Way, NE: Return and Exit Roads

Relocate Airport Way exit road and construct new return road.

Port

\$16,170,000 (Years 6 – 10)

40024

Airport Way, NE: Terminal Entrance Road Relocation

Relocate and widen Airport Way at the terminal entrance to maintain access and circulation in the terminal area.

Port

\$4,620,000 (Years 1 – 5)

40025

82nd/Airport Way, NE: Overcrossing

Construct grade-separated overcrossing.

Port

\$11,000,000 (Years 6 – 10)

40027

Alderwood St, NE (Alderwood Trail – Columbia Blvd): Bikeway

Provide bike lanes. Project includes some shoulder widening.

Portland/Port

\$462,000 (Years 6 – 10)

40028

Argyle, NE (14th – MLK Jr): Street Extension

Extend NE Argyle to provide better grid. Will serve as a collector/distributor for industrial businesses and reduce traffic congestion at MLK Jr/Columbia intersection.

\$480,000 (Years 11 – 20)

40029

Boise Pedestrian District, N

Plan & develop improvements to the pedestrian environment to emphasize district identity and make walking the mode of choice for trips within the district.

Portland

\$600,000 (Years 11 - 20)

40030

Broadway/Weidler, NE (15th - 28th): Multi-modal Improvements, Phases II & III

Boulevard retrofit of street including street trees, traffic signals, curb extensions, and wider sidewalks (15th - 24th) and stripe bike lanes (24th-28th).

Portland

\$6,456,450 (Years 1 - 5)

40031

Cascades Parkway, NE (Cascades Parkway - Alderwood Rd): Street Extension

Construct two-lane road extension.

Portland/Port

\$1,732,500 (Years 1 - 5)

40032

Alderwood/Columbia Blvd/Cully, NE: Intersection Improvements

Reconstruct intersection to provide left turn pockets, enhancing turning radii and improving circulation for trucks serving expanding air cargo facilities south of Portland.

Portland

\$350,000 (Years 1 - 5)

40035

**Alderwood/Cornfoot Road, NE:
Intersection Improvement**

Add signal and improve turn lanes at Alderwood Road/Cornfoot Road to improve safety, circulation, and access to PDX and Portland International Center properties.

Port

\$350,000 (Years 1 - 5)

40036

**Cornfoot, NE (47th -Alderwood): Road
Widening & Intersection Improvements**

Road widening project including lighting and landscaping, left turn lanes, and bike lanes (47th – Airtrans Way). Signalize Cornfoot/Airtrans intersection and reconfigure traffic flow. Stripe bike lanes (Airtrans – Alderwood). Project improves traffic flow to air cargo facilities in airport area.

Portland

\$2,000,000 (Years 1 – 5)

40037

**Cully, NE (Columbia Blvd – Fremont):
Multi-modal Improvements**

Road reconstruction (Prescott-Killingsworth) including Intersection improvements at Prescott. Bike lanes (Prescott-Columbia). Sidewalks and crossing improvements (Killingsworth -Fremont).

Portland

\$3,780,000 (Years 6 - 10)

40038

Eliot Pedestrian District: NE

Construct improvements to the pedestrian environment within the pedestrian district including ornamental lighting, gateways and signs to reinforce identity.

Portland

\$1,700,000 (Years 6 - 10)

40039

**Fremont St, NE (42nd -52nd): Pedestrian
and Safety Improvements**

Construct streetscape and transportation improvements (42nd to 52nd).

Portland

\$288,750 (Years 6 - 10)

40040

**Fremont, NE, (Vancouver - 7th):
Bikeway**

Retrofit bike lanes to existing street.

Portland

\$5,000 (Years 11 - 20)

40041

**60th/Going/Cully, NE:
Intersection Improvements**

Realign intersection.

Portland

\$250,000 (Years 11 - 20)

40042

**Halsey, NE (Bridge at I-84):
Seismic Retrofit**

Seismic retrofit bridge.

Portland/ODOT

\$92,400 (Years 11 - 20)

40045

Hollywood Pedestrian District, NE: Multi-modal Improvements

Multi-modal street improvements including traffic signals, restriping, improved pedestrian crossings and connections to transit center.

Portland/ODOT

\$7,680,750 (Years 6 - 10)

40046

I-84/I-205, NE: Auxiliary Lane

New auxiliary lane from I-84 to I-205 NB before Columbia Blvd to reduce slowdowns and help improve safety for merging vehicles.

ODOT

\$5,000,000 (Years 11 - 20)

40048

I-205, NE (I-205/Airport Way): Interchange Improvement at SB Off-ramp

Widen I-205 SB off-ramp at Airport Way interchange to provide additional capacity for anticipated growth at interchange.

ODOT

\$550,000 (Years 6 - 10)

40049

I-84 Off-ramp, NE (at 68th): Traffic Improvements

Improve lane merge & turning radius of off-ramp.

ODOT

\$500,000 (Years 11 - 20)

40051

Killingsworth Pedestrian District, NE

Plan and develop improvements to the pedestrian environment including sidewalks, lighting, crossings, bus shelters & benches.

Portland

\$773,850 (Years 6 - 10)

40052

Killingsworth, NE (42nd - 72nd): Pedestrian Improvements

Construct sidewalks and crossing improvements for pedestrian travel and access to transit.

Portland

\$420,000 (Years 11 - 20)

40053

Killingsworth, NE (33rd - Williams): Pedestrian Improvements

Develop streetscape and transportation improvements to increase opportunities to walk and enhance the main street character of this corridor.

Portland

\$900,000 (Years 6 - 10)

40054

Klickitat/Siskiyou, NE (7th - Rocky Butte Rd): Bikeway

Design & implement bike boulevard on Klickitat (7th- 67th) and Siskiyou (67th- Rocky Butte) including traffic calming and intersection improvements.

Portland

\$75,075 (Years 6 - 10)

40057

MLK Jr, NE (Ainsworth - Tillamook): Street Improvements

Street improvement project including on-street parking, new sidewalks, curb extensions, and small medians. Stripe bike lanes between Broadway and Lombard.

Portland/ODOT

\$5,000,000 (Years 1 - 5)

40058

MLK Jr, N (Columbia Bl - CEID): ITS

CCTV at Hawthorne ramp, Clay, Belmont, Morrison, Burnside, Lloyd, Broadway, Fremont, Killingsworth, Lombard, Columbia, I-5 and Marine Dr. Traffic monitoring stations at Clay and Burnside.

Portland/ODOT

\$550,000 (Years 6 – 10)

40059

MLK Jr, NE (Columbia - Lombard): Widen Street

Expand roadway to provide better connection between streets for improved freight movement in and through the area.

ODOT/Portland

\$16,835,000 (Years 1 - 5)

40060

Marx Dr, NE (82nd -87th): Street Extension

Extend NE Marx Dr west from 87th and signalize at 82nd Ave to provide better street connectivity for industrial purposes.

Port/ODOT

\$315,000 (Years 6 - 10)

40061

Columbia Blvd/MLK Jr & Lombard/MLK Jr, NE: Intersection Improvements

Widen turn lanes at MLK Jr intersections with Columbia and Lombard to facilitate truck turning movements.

Port/ODOT

\$700,000 (Years 1 - 5)

40062

Mississippi, N: (Fremont – Skidmore): Street Improvements

Construct street improvements to enhance the area as a pedestrian district.

Portland

\$2,500,000 (Years 6 - 10)

40063

Portland Bl/Vancouver, NE: Intersection improvements

Revise intersection for safer merging.

Portland

\$200,000 (Years 11 - 20)

40065

Prescott, NE (47th - I-205): Pedestrian and Bicycle Improvements

Construct bike lanes, sidewalks, and crossing improvements for pedestrian and bike safety and to improve access to transit.

Portland

\$630,000 (Years 6 - 10)

40067

57th/Sacramento, NE: Intersection Improvements

Add left turn lane from 57th to Sacramento.

Portland

\$350,000 (Years 11 - 20)

40068

Sandy Bl, NE (47th – 99th): Multi-modal Improvements, Phase II

Retrofit existing street with multi-modal street improvements including bike lanes, redesign of selected intersections to improve pedestrian crossings, streetscape, and safety improvements.

Portland/ODOT

\$4,620,000 (Years 6 - 10)

40069

Sandy Blvd, NE (82nd - Burnside): ITS

Communications infrastructure including closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow. CCTV at 12th, 37th, 39th, 57th, 72nd, 82nd, I-205 NB ramp, and 122nd intersections. Variable signs at 37th, 102nd intersections. Changeable signs at 12th, 82nd, and 102nd. Monitoring stations at 12th, 57th, 82nd, I-205, 122nd and 162nd.

Portland/ODOT

\$340,000 (Years 11 - 20)

40070

Sandy Blvd, NE (13th - 47th): Multi-modal Improvements

Retrofit existing street with multi-modal boulevard improvements including redesign of selected intersections to add turn lanes and improve pedestrian crossings, bike lanes, on-street parking, and safety improvements.

Portland/ODOT

\$17,325,000 (Years 1 - 5)

40071

Skidmore, N/NE, (Interstate - Cully): Bikeway

Design & implement bike boulevard including traffic calming techniques and intersection improvements.

Portland

\$75,075 (Years 6 - 10)

40073

Southwest Quad, NE (at 33rd): Access to PDX Properties

Provide street access from 33rd into the SW Quad property to provide access to developing Port properties.

Port

\$1,500,000 (Years 6 – 10)

40074

Twenties Bikeway, NE/SE (Lombard - Clinton)

Design and implement bikeway from NE Lombard to SE Clinton using bike boulevards and bike lanes.

Portland

\$760,000 (Years 11 - 20)

40076

Woodlawn Pedestrian District, NE

Plan and develop improvements to the pedestrian environment.

Portland

\$200,000 (Years 11 - 20)

40077

Fremont/MLK Jr, NE: Intersection Improvement

Add right-of-way on east leg of intersection and left turn lane to facilitate safe left-turn access from Fremont to MLK Jr.

Portland

\$310,000 (Years 1 - 5)

40079

Marine Dr, NE: Intersection Improvements

Intersection improvements at NE Bridgeton Rd and NE Faloma/6th.

Portland

\$2,035,000 (Years 6 - 10)

40080

Marine Dr, NE (6th - 33rd & Gantenbein - Vancouver Way): Bikeway

Retrofit bike lanes to existing street and complete off-street paths in missing locations.

Portland

\$519,750 (Years 1 - 5)

40081

Airport MAX, NE: Light Rail Track Realignment

Realign light rail track into airport terminal building to accommodate terminal expansion plans.

Port

\$14,000,000 (Years 11 - 20)

40082

Seventies Greenstreet and Bikeway, NE (Killingsworth - I-84)

Develop a combined pedestrian greenway and bike boulevard including crossing improvements at arterials, street lighting, and public art from Killingsworth to Clatsop (Also see 70052).

Portland

\$244,500 (Years 6 - 10)

40083

Albina/Skidmore, NE: Intersection Improvement

Straighten intersection.

Portland

\$150,000 (Years 11 - 20)

40084

I-405/Kerby, N: Interchange Improvement

Construct an additional off-ramp up to the intersection to improve emergency response access to Emanuel Hospital.

Portland/ODOT

\$603,000 (Years 6 - 10)

40085

Kenton Rail Line, NE: Additional RR Tracks

Upgrade single track sections to double tracks built to mainline standards with new sidings from Peninsula Junction to I-205. Provides additional rail tracks for staging of Pacific Northwest unit trains. Expands capacity and reduces delay.

Port

\$25,400,000 (Years 11 - 20)

40086

Halsey, NE (39th - I-205): Bikeway

Retrofit bike lanes to existing street.

Portland

\$115,000 (Years 6 - 10)

40088

Portland Airport, NE: ITS

Communications infrastructure; closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow, commercial vehicle system upgrades, and traveler information system.

Port

\$11,895,000 (Years 1 - 5)

40089

82nd Ave/Columbia Blvd, NE: Intersection Improvement

Widen to four lanes, including an EB left-turn lane, and reconfigure intersection; signalize SB ramp intersection and add a lane on the ramp to create separate SB right and left-turn lanes. Add bicycle lanes from 80th Ave to the terminus of the East Columbia-Lombard St Connector. Extend sidewalk from the terminus of the East Columbia-Lombards Street Connector to 80th.

Port/Portland

\$3,409,000 (Years 1 – 5)

40091

Portland International Center, NE: Pedestrian and Bicycle Improvements

Provide bicycle and pedestrian connection between NE Alderwood Rd and Mt. Hood light rail station.

Port

\$140,000 (Years 1 – 5)

40092

East Airport, NE (Mt. Hood Ave to NE Marine Dr): Pedestrian and Bicycle Improvements

Provide bicycle and pedestrian connection between Mt. Hood Avenue and Marine Drive.

Port

\$550,000 (Years 1 – 5)

40093

Airtrans/Cornfoot Rd, NE: Intersection Improvement

Provide channelization, construct new traffic signal.

Port

\$250,000 (Years 1 – 5)

40094

I-205, NE (I-205/Airport Way): Interchange Improvement at NB On-ramp

New I-205 NB on-ramp at Airport Way Interchange to provide additional capacity for anticipated growth at interchange.

ODOT

\$23,000,000 (Years 1 – 5)

40095

I-205 NB/Airport Way: I-205 Interchange Improvement

Provide a second SB turn lane onto I-205 and reconstruct and restripe lanes to provide two receiving NB lanes.

ODOT

\$650,000 (Years 1 – 5)

40096

I-205, NE (Columbia Bl – Airport Way): Auxiliary Lane

New auxiliary lane from Airport Way to Columbia Blvd and Airport Way ramps to reduce slowdowns and help improve safety for merging vehicles.

ODOT

\$20,000,000 (Years 11 – 20)

40097

Airport Way, NE: Braided Ramps

Construct braided ramps between the I-205 interchange and Cascade interchange to maintain capacity and improve safety on Airport Way and freeway interchanges.

ODOT

\$30,000,000 (Years 11 – 20)

40098

Mt St Helens Ave, NE (Cascades Parkway – Alderwood Rd): Street Extension

Construct two-lane road extension to provide traffic access for developing properties.

Portland/Port

\$1,500,000 (Years 1 – 5)

40099

21st, NE (at Columbia Slough)

Replace weight-restricted bridge.

Portland

\$5,000,000 (Years 6 - 10)

40100

33rd Ramps, NE, (at Columbia Bl/Lombard): New Ramps

New ramp system connecting Columbia and Lombard at 33rd Ave to facilitate truck movement.

Portland

\$12,000,000 (Years 11 – 20)

40101

87th/Columbia, NE: Intersection Improvement

Widen intersection to accommodate large truck turning movements (53' trailer). Project includes ROW acquisition, retaining walls, bike lanes and sidewalks, and stormwater facilities. Project improves access to industrial properties.

Portland

\$454,000 (Years 1 – 5)

40102

Columbia Bl, NE (60th – 82nd): Road Widening

Widen Columbia Bl to five lanes in this segment to address a system bottleneck and improve access to properties.

Portland

\$15,000,000 (Years 6 – 10)

40103

82nd Ave/Columbia, NE: Intersection Improvements

Widen and reconfigure intersection to improve access to airport cargo areas.

ODOT/Portland/Port

\$454,000 (Years 1 – 5)

50017

105th/Clark/Holman, NE: Street Improvements

Upgrade Clark Rd (between Glass Plant Rd and 105th/Holman) and the intersection of Clark/105th/Holman to city standards. Curbs, drainage, walkways, and bikeways will be installed.

Portland
\$1,300,000 (Years 11 - 20)

70005

39th Ave, NE/SE (Sandy - Woodstock): Safety & Pedestrian Improvements

Construct sidewalks and crossing improvements (Stark - Schiller). Upgrade three pedestrian signals to full signals, remodel two full signals, and provide channelization improvements to three other signals to improve safety at high accident locations.

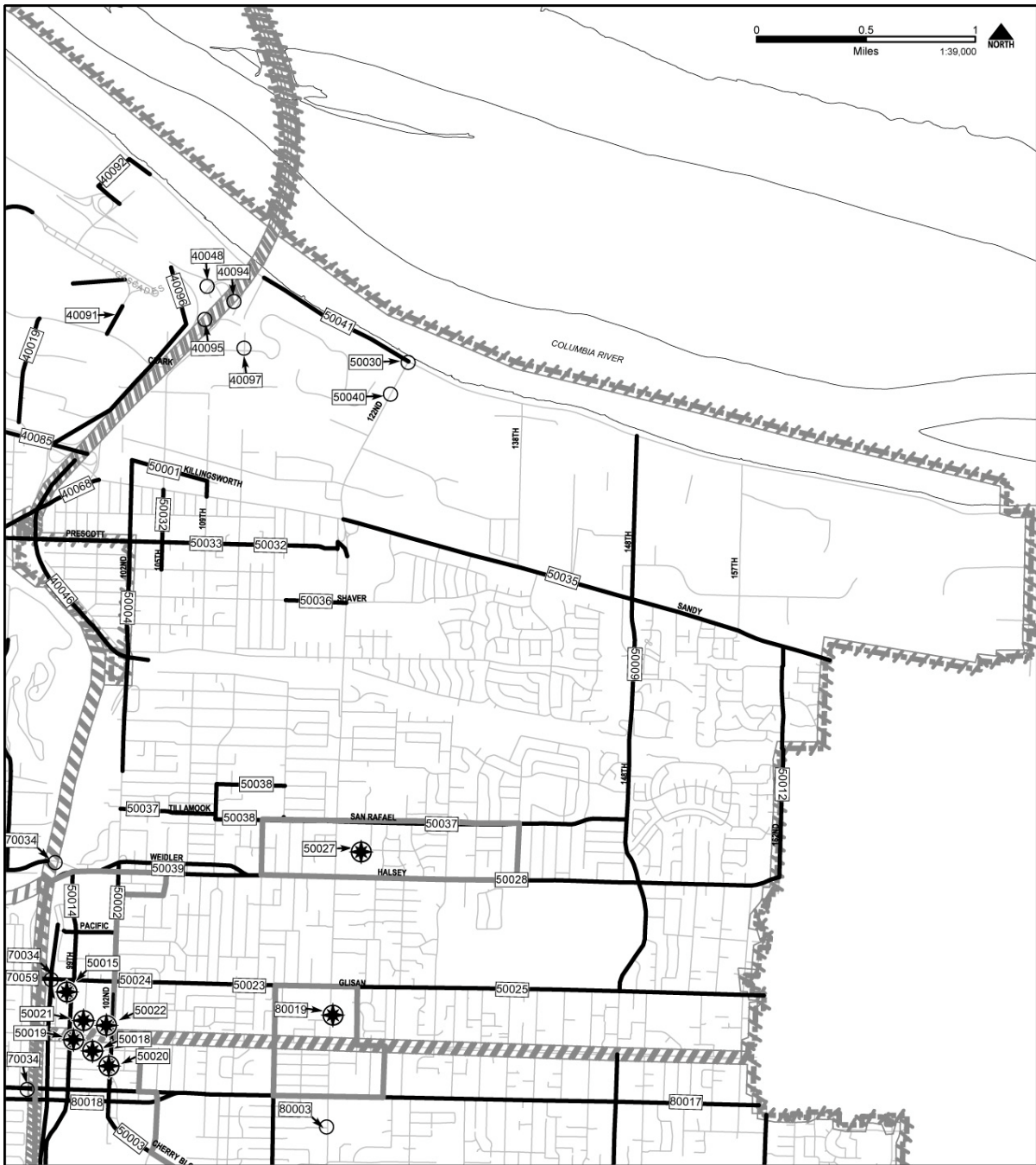
Portland
\$2,200,000 (Years 6 - 10)

70018

Fifties Bikeway, NE/SE (Tillamook to Woodstock)

Identify & implement small-scale bikeway improvements such as grating replacement, street surface repairs, modify signals, signage upgrade, re-stripe streets, curb ramps, and sweep bike lanes.

Portland
\$500,000 (Years 11 - 20)



Far Northeast District - Map 3.6

Improvements

- Area Wide Improvements
- Street Segment Improvements
- Intersection, Interchange, Bridge, Overcrossing Improvements

Improvement Project Number (see text for descriptions)

Other Map Features

- City of Portland Boundary
- Transportation District Boundary
- Unincorporated Area within Portland Urban Service Boundary

FAR NORTHEAST: MAJOR TRANSPORTATION IMPROVEMENTS

ITS improvements mapped separately include: 50005 and 50016

40046

I-84/I-205, NE: Auxiliary Lane

New auxiliary lane from I-84 to I-205 NB before Columbia Blvd.

ODOT

\$5,000,000 (Years 11 - 20)

40068

Sandy Bl, NE (47th - 101st): Multi-modal Improvements, Phase II

Retrofit existing street with multi-modal street improvements including bike lanes, redesign of selected intersections to improve pedestrian crossings, streetscape, and safety improvements.

Portland/ODOT

\$4,000,000 (Years 6 - 10)

40085

Kenton Rail Line, NE: Additional RR Tracks

Construct additional rail tracks for staging of Pacific Northwest unit trains.

Port

\$9,000,000 (Years 11 - 20)

40094

I-205 SB/Airport Way: I-205 Interchange Improvement

New I-205 NB on-ramp at I-205/Airport Way Interchange. Phase I – modify signing, striping, channelization and signal timing for NB ramp.

ODOT

\$23,100,000 (Years 1 – 5)

40095

I-205 NB/Airport Way: I-205 Interchange Improvement

Provide a second SB turn lane onto I-205 and reconstruct and restripe lanes to provide two receiving NB lanes.

ODOT

\$650,000 (Years 1 – 5)

40096

I-205 Auxiliary Lane (Airport Way – Columbia Blvd)

New auxiliary lane from Airport Way to Columbia Boulevard.

ODOT

\$23,100,000 (Years 11 – 20)

50001

Parkrose Connectivity Improvements, NE

Supplement access route for commercial properties in Parkrose by creating a loop road connection (102nd and 109th: Killingsworth – Sandy; Killingsworth: 109nd – 102nd) serving truck access functions, pedestrian, and bike connections.

Portland

\$578,524 (Years 11 – 20)

50002

102nd, NE (Weidler – Glisan): Gateway Plan District Multimodal Improvements, Phase I

Implement Gateway Regional Center plan with boulevard design retrofit, new traffic signals, improved pedestrian facilities and crossings, street lighting, bicycle lanes, and safety improvements.

Portland

\$3,234,000 (Years 1 – 5)

50003

102nd Blvd & Cherry Blossom, NE/SE (Glisan - Market): Gateway Plan District Multi-modal Improvements, Phase II

Implement Gateway regional center plan with boulevard design retrofit, new traffic signals, improved pedestrian facilities and crossings, street lighting and new bicycle facilities on NE 102nd/Cherry Blossom between Glisan & Market.

Portland

\$7,091,700 (Years 1 - 5)

50004

102nd, N (Sandy - Brazee): Pedestrian Improvements

Construct a sidewalk to provide access to transit & schools.

Portland

\$720,000 (Years 11 - 20)

50005

122nd, NE/SE (Airport Way - Powell): ITS

CCTV at Powell, Division, Stark, I-84 EB ramp, Halsey, Sandy and Airport Way intersections. Changeable message signs at I-84 ramp, Sandy and Airport Way. Traffic monitoring stations at Powell, Division, I-84 and Airport Way.

Portland

\$200,000 (Years 6 – 10)

50009

148th, NE (Marine Dr - Glisan): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing street (Marine Dr - I-84) and construct sidewalk and safety improvements including signal/ intersection improvements at 148th/Sandy (Airport Way-Glisan).

Portland

\$1,831,000 (Years 6 - 10)

50012

162nd Ave, NE (Sandy - Halsey): Bikeway

Retrofit bike lanes to existing street.

Portland

\$20,000 (Years 11 - 20)

50014

99th Ave & Pacific Ave, NE: Gateway Plan District Street Improvements, Phase I

Reconstruct primary local main street network in Gateway Regional Center on NE 99th from Weidler to 300' south of Glisan and NE Pacific from 97th to 102nd.

Portland

\$4,042,000 (Years 1 - 5)

50015

99th & 96th, NE/SE (Glisan-Market: Gateway Plan District Street Improvements, Phase II & III

Reconstruct primary local main street in Gateway Regional Center. Phase II - 99th (Glisan - Washington). Phase III - 96th (Washington to Market).

Portland

\$4,042,500 (Years 6 - 10)

50016

Airport Way, NE (I-205 - 158th): ITS

CCTV at I-205 and 122nd intersections. Variable sign at I-205. Monitoring stations at 122nd and 158th.

Port/Portland

\$220,000 (Years 1 - 5)

50018

Gateway Regional Center, NE/SE: Local Street Improvements, Phase I

High priority local street and pedestrian improvements in regional center

Portland

\$3,465,000 (Years 6 - 10)

50019

Gateway Regional Center, NE/SE: Local Street Improvements, Phase II

High priority local street and pedestrian improvements in regional center.

Portland

\$6,930,000 (Years 6 - 10)

50020

Gateway Regional Center, NE/SE: Local Street Improvements, Phase III

High priority local street and pedestrian improvements in regional center.

Portland

\$6,930,000 (Years 11 - 20)

50021

Gateway Plan District, NE/SE: TMA

Implement a transportation management association program with employers in the regional center.

Tri Met

\$200,000 (Years 11 - 20)

50022

Gateway Plan District, NE/SE: Traffic Management

Implement a comprehensive traffic management plan throughout the regional center to reduce cut-through traffic on residential streets and improve traffic flow on regional streets. Project includes utility improvements.

Portland

\$1,386,000 (Years 1 - 5)

50023

Glisan St, NE (106th - 122nd): Bikeway

Retrofit bike lanes to existing street.

Portland

\$57,750 (Years 6 - 10)

50024

Glisan St, NE (I-205 - 106th): Gateway Plan District Multi-modal Improvements

Implement Gateway regional center plan with boulevard design retrofit, new traffic signals, bike facilities, improved pedestrian facilities and crossings, and street lighting.

Portland

\$2,310,000 (Years 11 - 20)

50025

Glisan St, NE (122nd - City Limits): Multi-modal Improvements

Construct bike lanes, sidewalks, crossing improvements, and install street trees (122nd-162nd) Add new signal at Glisan/131st to improve pedestrian and vehicular access to Glisan St.

Portland

\$2,140,000 (Years 6 - 10)

50027

Halsey to San Rafael & 118th to 132nd, NE: Pedestrian Improvements

Improve pedestrian access to San Rafael Shopping Center including street trees.

Portland

\$250,000 (Years 11 - 20)

50028

Halsey St, NE (122nd-162nd): Pedestrian Improvements

Construct sidewalks, crossing improvements for pedestrian travel and access to transit.

Portland

\$1,100,000 (Years 6 - 10)

50030

Marine Drive/122nd, NE: Intersection Improvements

Signalize and widen dike to install left turn lane on Marine Drive.

Portland

\$1,943,865 (Years 1 - 5)

50032

105th & Prescott, NE: Parkrose Pedestrian Enhancements

Construct sidewalk and crossing improvements to provide access to transit and schools on NE Prescott (92nd-122nd) & NE 105th (Sandy-Skidmore).

Portland

\$1,200,000 (Years 6 - 10)

50033

Prescott St, NE (122nd - I-205): Bikeway

Retrofit bike lanes to existing street.

Portland

\$1,000,000 (Years 11 - 20)

50035

Sandy Blvd, NE (122nd - City Limits): Multi-modal Improvements

Widen street to three or five lanes with sidewalks and bike lanes.

ODOT

\$5,750,000 (Years 11 - 20)

50036

Shaver St, NE (116th to 122nd): Pedestrian Improvements

Construct sidewalks and crossing improvements for pedestrian travel and access to transit and schools.

Portland

\$210,000 (Years 11 - 20)

50037

San Rafael/Tillamook, NE (102nd - 148th): Bikeway

Retrofit bike lanes and/or bicycle boulevard on Tillamook/San Rafael from Gateway regional center to 148th.

Portland

\$1,300,000 (Years 6 - 10)

50038

Woodland Park, NE: Pedestrian Improvements

Construct sidewalks and crossing improvements on San Rafael (111th-122nd), Sacramento (111th-117th), & 111th (San Rafael-Sacramento) to provide access to transit & schools.

Portland

\$500,000 (Years 11 - 20)

50039

Halsey/Weidler, NE (I-205 - 114th): Multi-modal Improvements

Implement Gateway Regional Center Plan boulevard design including new traffic signals, improved pedestrian facilities and crossings and street lighting.

Portland

\$12,127,500 (Years 11 - 20)

50040

Airport Way/122nd, NE: Intersection Improvement

Add northbound left turn lane, modify traffic signal, and reconstruct island.

Portland

\$490,000 (Years 1 - 5)

50041

Marine Drive, NE (I-205 – 122nd): Multi-use Path

Add multi-use path along Marine Drive.

Portland

\$1,100,000 (Years 1 - 5)

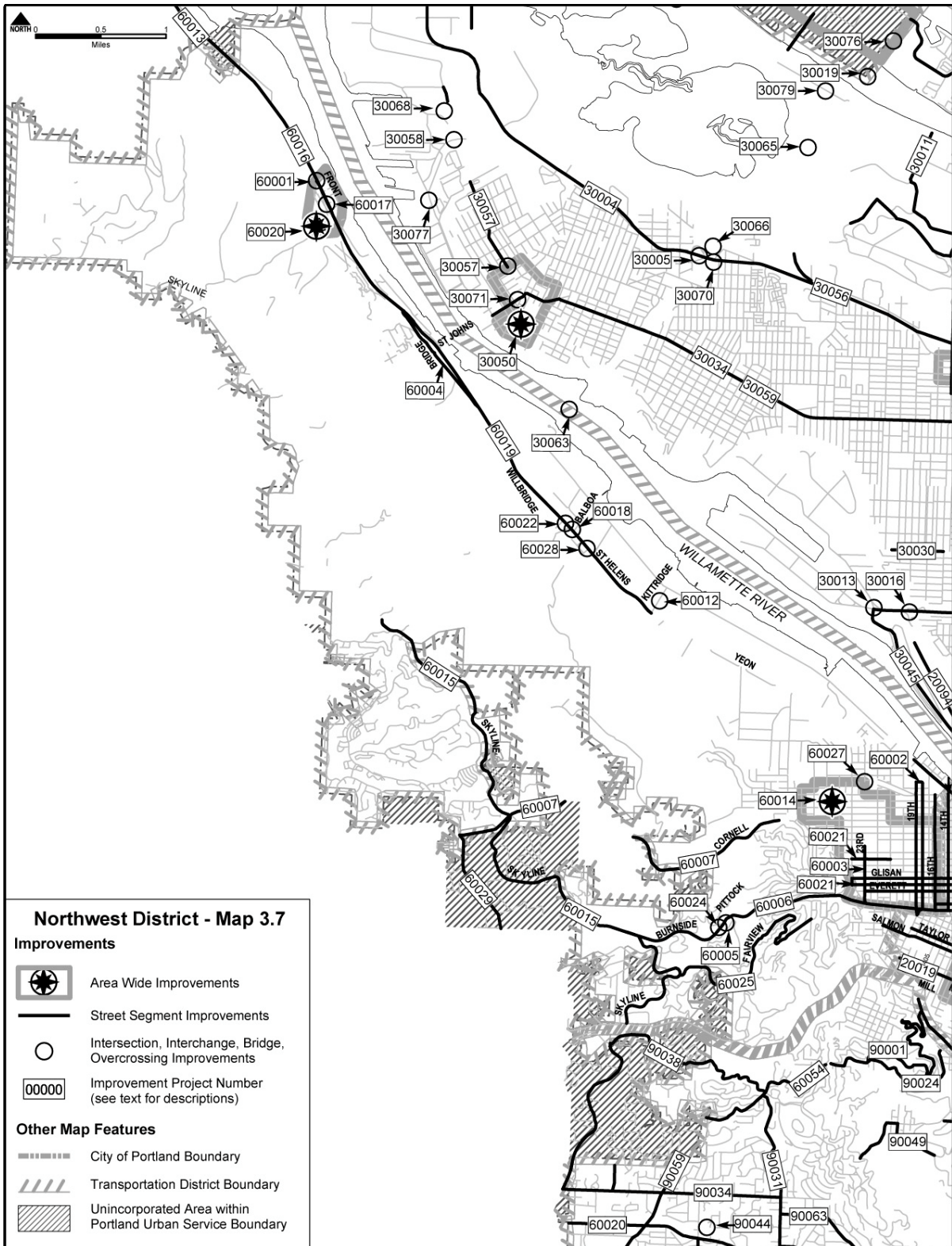
80019

Ventura Park Pedestrian District, NE/SE

Improve sidewalks, lighting, crossings, bus shelters & benches to improve ease of crossing and install curb extensions at transit stops.

Portland

\$600,600 (Years 6 - 10)



NORTHWEST: MAJOR TRANSPORTATION IMPROVEMENTS

ITS improvements mapped separately include: 60023

20014

Burnside, W (NW 15th to NW 23rd): Boulevard Improvements

Boulevard design improvements including pavement reconstruction, wider sidewalks, curb extensions, safer crossings, signals at 20th and 22nd and traffic management to limit motorist delays.

Portland

\$10,000,000 (Years 1 – 5)

20048

Salmon/Taylor/Madison/Main, SW (Hawthorne Bridge - Vista): Bikeway

Retrofit bike lanes to existing streets.

Portland

\$20,000 (Years 6 - 10)

20052

10th, 11th, Lovejoy & Northrup, NW/SW: Streetcar Streetscape Improvements

Architectural, engineering, planning, and construction for Central City streetcar and related streetscape improvements.

Portland

\$3,405,568 (Years 1 - 5)

20064

14/16th Connections, NW

Improve or create connections to W. Burnside, Yeon, and Vaughn and provide directional signage to route non-local traffic to 14th/16th couplet.

Portland

\$200,000 (Years 11 - 20)

20097

Flanders, NW (1st to Westover): Bike Facility

Develop bike boulevard on NW Flanders between NW Westover Rd and 1st Ave, including crossing treatments, modification of stop patterns, contra-flow bike lanes, and a bicycle/pedestrian crossing of I-405.

Portland

\$2,520,000 (Years 1 – 5)

60001

112th Ave/US 30, NW: Intersection Improvements

Add traffic signal to improve safety and access to property.

ODOT

\$135,000 (Years 6 - 10)

60002

18th/19th Ave, NW: Decouple Streets

Analysis of design options, engineering and construction of 18th/19th decoupling.

Portland

\$180,000 (Years 11 - 20)

60003

23rd Ave, NW (Lovejoy - Burnside): Road Reconstruction

Rebuild street.

Portland

\$1,870,000 (Years 1 - 5)

60004

Bridge Ave, NW (St Helens Rd – St Helens Rd): Pedestrian/Bicycle trail at St. Johns Bridge

Construct asphalt trail along east side of Bridge Avenue between both St. Helens Rd intersections.

ODOT

\$346,500 (Years 11 - 20)

60005

Barnes/Burnside, NW: Intersection/Access Improvements

Install signal or 4-way stop near Wildwood Trail and entrance to Pittock.

Portland

\$500,000 (Years 11 - 20)

60006

Burnside, W (23rd - Skyline): Multi-modal Improvements

Retrofit bikeway to existing street, improve sidewalks, lighting, crossings and provide traffic signal & left-turn lane at Burnside/Skyline.

Portland

\$1,500,000 (Years 11 - 20)

60007

Cornell, NW (30th - City Limits): Bikeway

Retrofit bike lanes to existing street.

Portland

\$1,000,000 (Years 11 - 20)

60008

Everett St, NW, (Broadway - 23rd): Corridor Safety Improvements

Install flashing beacon & additional signing at NW Park Ave, remodel traffic signal and improve overhead signing at 16th Ave and provide additional minor improvements along corridor to improve safety at high accident locations.

Portland

\$175,000 (Years 11 - 20)

60010

Everett/Glisan, NW, (14th - 23rd): Decouple

Analysis of design options, engineering and construction of Everett/Glisan decoupling or other appropriate alternative.

Portland

\$680,000 (Years 11 - 20)

60012

Kittridge, NW (Bridge at Yeon): Seismic Retrofit

Seismic retrofit.

Portland

\$623,700 (Years 11 - 20)

60013

US 30, NW: Linnton Transit Service Improvements

Develop transit amenities within Linnton area and construct ADA pads at bus stops between NW 29th/Yeon and Sauvie Island Bridge.

Tri-Met

\$900,000 (Years 11 - 20)

60014

Northwest Pedestrian District, NW

Plan & develop improvements to the pedestrian environment to emphasize district identity and make walking the mode of choice for trips within the district, including those identified in the Northwest District Plan.

Portland

\$500,000 (Years 11 - 20)

60015

Skyline, NW (Hwy 26 – City Limits): Bikeway

Retrofit bike lanes to existing street.

Portland

\$5,000,000 (Years 11 - 20)

60016

St. Helens Rd (US 30), NW (106th - 112th): Linnton Community Pedestrian & Bike Improvements

Replace 2 traffic signals at 105th, 107th, curb bulb outs, sidewalks, and possibly pedestrian crossings.

ODOT

\$550,000 (Years 11 - 20)

60017

St. Helens Rd (US 30), NW (at 108th): Pedestrian Overcrossing

Construct a pedestrian overcrossing at NW 108th Avenue.

ODOT

\$350,000 (Years 11 - 20)

60018

St. Helens Rd (US 30), NW (at Saltzman & Balboa): Intersection Realignment

Realign intersections to correct two offset intersections.

ODOT

\$600,000 (Years 11 - 20)

60019

St. Helens Rd (US 30), NW (105th - Kittridge): Bicycle & Pedestrian Improvements

Construct sidewalks and bicycle facilities.

ODOT

\$1,746,000 (Years 6 - 10)

60020

St Helens Rd (US 30), NW: Linnton Traffic Calming

Visually narrow roadway, including landscaping, pedestrian bulb outs, and median at various locations within Linnton.

ODOT

\$400,000 (Years 1 - 5)

60021

West Bikeways, NW

Construct curb extensions on Johnson at 21st and 23rd; Contraflow lane on 24th (Glisan - Flanders); Bike lanes on Couch (Broadway - 10th).

Portland

\$10,000 (Years 6 - 10)

60022
St Helens Rd (US 30), NW, (in Willbridge area): Traffic Improvements

Install center turn lane to NW Front Ave to improve safety and access to property.

ODOT
 \$300,000 (Years 11 - 20)

60023
Yeon/St. Helens, NW: ITS

CCTV at Nicolai, Kittridge, St Johns Bridge, I-405/Vaughn/23rd intersections. Changeable signs at Nicolai/I-405, Kittridge, and I-405/Vaughn/23rd. Monitoring at Nicolai and Kittridge.

Portland
 \$193,000 (Years 1 – 5)

60024
Wildwood Trail Bridge, NW/SW

Construct pedestrian overcrossing where Burnside intersects the Wildwood Trail to eliminate at-grade crossing.

Portland
 \$700,000 (Years 11 - 20)

60025
Fairview, SW (Kingston – City Limits): Bikeway

Retrofit bike lanes to existing street.

Portland
 \$2,000,000 (Years 11 - 20)

60027
23rd/Vaughn, NW: Intersection Improvements

Improve intersection to reduce congestion, improve pedestrian access, and provide a transition into the Northwest District.

Portland/ODOT
 \$540,000 (Years 6 – 10)

60028
US 30 at Lake Yard Hub Facility, NW: Access Improvements

Provide an access lane on US 30 for trucks entering and/or exiting the site, add a signal at the entrance, and if need, construct an On-site access road and realigning tracks to improve access to intermodal yard and improve corridor safety.

Portland/ODOT
 \$2,000,000 (Years 1 – 5)

60029
Miller, NW (Stark – Cornell): Multimodal Improvements




Add bicycle and pedestrian facilities.

Multnomah County/Portland
 \$216,000 (Years 11 – 20)



Southeast District - Map 3.8




Improvements

-  Area Wide Improvements
-  Street Segment Improvements
-  Intersection, Interchange, Bridge, Overcrossing Improvements

00000

Improvement Project Number (see text for descriptions)

Other Map Features

-  City of Portland Boundary
-  Transportation District Boundary
-  Unincorporated Area within Portland Urban Service Boundary

SOUTHEAST: MAJOR TRANSPORTATION IMPROVEMENTS

Improvements not mapped include: 70015, 70047, 70058, 70063

ITS improvements mapped separately include: 70057, 70064, 70065, and 70066

20022

Division Place/9th, SE (7th - Center): Bikeway

Retrofit bike lanes to existing street.

Portland

\$19,635 (Years 11 - 20)

40049

I-84 Off-ramp, NE (at 68th): Traffic Improvements

Improve lane merge & turning radius of off-ramp.

ODOT

\$500,000 (Years 11 - 20)

40070

Sandy Bl, NE (12th - 47th): Multi-modal Improvements

Retrofit existing street with multi-modal boulevard improvements including redesign of selected intersections to add turn lanes and improve pedestrian crossings, bike lanes, on-street parking, and safety improvements.

Portland/ODOT

\$15,000,000 (Years 1 - 5)

40074

Twenties Bikeway, NE/SE (Lombard - Clinton)

Design & implement bikeway from NE Lombard to SE Clinton using bike boulevards & bike lanes.

Portland

\$760,000 (Years 11 - 20)

70001

13th Ave, SE (Malden - Tacoma): Streetscape Improvements

Plan and develop streetscape and transportation improvements to increase opportunities to walk and enhance the main street character.

Portland

\$180,000 (Years 11 - 20)

70003

17th/Milwaukie Connector, SE

Transit preferential treatment of 17th to aid transit and pedestrian access.

Portland

\$500,000 (Years 11 - 20)

70004

26th/Holgate, SE: Intersection Improvements

Intersection improvement to facilitate traffic circulation.

Portland

\$82,000 (Years 11 - 20)

70005

39th Ave, NE/SE (Sandy - Woodstock): Safety & Pedestrian Improvements

Reconstruct street (Burnside – Holgate). Construct sidewalks and crossing improvements (Stark - Schiller). Upgrade three pedestrian signals to full signals, remodel two full signals, and provide channelization improvements to three other signals to improve safety at high accident locations.

Portland

\$2,200,000 (Years 1 - 5)

70006

60th Ave, NE/SE (Glisan - Belmont): Corridor Safety Improvements

Signal improvements, modifications, and realignment to improve safety at high accident locations. Includes the intersections with Belmont, Glisan, and Stark.

Portland

\$380,000 (Years 11 - 20)

70007

82nd Ave, SE (Schiller – City Limits), SE: Street Improvements

Expand into fully curbed, 4-lane, 60- foot wide roadway w/ continuous left-turn lane, sidewalks, street trees, storm drainage improvements, street lighting, and ROW acquisition.

ODOT/ Portland

\$1,445,000 (Years 6 - 10)

70008

92nd Ave, SE (Powell – City Limits): Bicycle & Pedestrian Improvements

Construct sidewalks, crossing improvements and bike lanes.

Portland

\$3,500,000 (Years 1 - 5)

70009

Belmont St, SE (25th - 43rd): Street and Pedestrian Improvements

Identify improvements along Belmont to enhance pedestrian access to transit, improve safety, and enhance streetscape such as traffic signals, lighting, bus shelters, benches, and crossings.

Portland

\$2,310,000 (Years 1 - 5)

70010

Burnside, E (28th - 82nd): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing street (28th - 74th), develop streetscape improvements (28th - 33rd) and improve pedestrian crossings to provide access to schools and transit (60th to 82nd).

Portland

\$1,010,000 (Years 1 - 5)

70013

Division St, SE (Grand – 60th): Multi-modal Improvements, Phase I

Construct improvements that enhance access to transit, improve safety and enhance the streetscape such as traffic signals, lighting, bus shelters, benches, and crossings. Consider alternative travel lane and on-street parking configurations and innovative stormwater management facilities. Add bike lanes (52nd – 60th).

Portland

\$2,786,000 (Years 1 - 5)

70014

Division St, SE (60th – I-205): Multi-modal Improvements, Phase II

Construct improvements that enhance access to transit, improve safety and enhance the streetscape such as traffic signals, lighting, bus shelters, benches, and crossings. Add bike lanes (60th - 73rd).

Portland

\$2,000,000 (Years 11 – 20)

70015

Division St, SE: Frequent Bus

Provide capital improvements that benefit frequent bus service along Division from downtown Portland to Gresham.

Tri-Met

\$3,525,000 (Years 1 - 5)

70017

Ellis St, SE (92nd - Foster): Bikeway

Retrofit bike lanes to existing street.

Portland

\$462,000 (Years 11 - 20)

70018

Fifties Bikeway, NE/SE (Tillamook to Woodstock)

Identify & implement small-scale bikeway improvements such as grating replacement, street surface repairs, modify signals, signage upgrade, restripe streets, curb ramps, and sweep bike lanes.

Portland

\$677,500 (Years 11 - 20)

70019

Flavel Dr, SE (45th - Clatsop): Pedestrian Improvements

Construct sidewalks.

Portland

\$630,000 (Years 11 - 20)

70020

Flavel St, SE (82nd - 92nd): Pedestrian Improvements

Construct sidewalks and crossing improvements.

Portland

\$340,000 (Years 11 - 20)

70021

Foster Rd, SE (Powell – 90th): Pedestrian/Bicycle/Safety Improvements

Improve sidewalks, lighting, crossings, bus shelters & benches on Foster and improve pedestrian crossing at Foster/82nd intersection to benefit pedestrian access to transit. Add bicycle improvements to a parallel route between 72nd and 87th along Raymond/Liebe/86th Court.

Portland

\$2,310,000 (Years 11 - 20)

70022

Foster Rd, SE (82nd - 87th): Lents Town Center Street Improvements

Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, street lighting, and on-street parking as appropriate.

Portland

\$2,000,000 (Years 1 - 5)

70024

Foster & Woodstock, SE (94th - 101st): Street Improvements, Phase II

Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, and street lighting.

Portland

\$5,775,000 (Years 1 - 5)

70025

Foster & Woodstock, SE (87th - 94th): Street Improvements, Phase I

Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, street lighting, increased on-street parking.

Portland

\$6,930,000 (Years 1 - 5)

70027

Harney Dr, SE (52nd - Flavel): Bikeway

Retrofit bike lanes to existing street.

Portland

\$1,252,000 (Years 11 - 20)

70028

Harold St, SE (52nd - Foster): Bikeway

Retrofit bike lanes to existing street.

Portland

\$200,000 (Years 11 - 20)

70029

Hawthorne Bl, SE (20th - 60th): Multi-modal Improvements

Improve pedestrian safety and access to transit with better lighting, safer crossings, bus shelters, and benches. Project also includes bike parking and bike facility upgrades on parallel streets.

Portland

\$1,999,797 (Years 1 - 5)

70030

McLoughlin (99E), SE (Ross Island Bridge - Clatsop): Multi-modal Improvements

Provide access management, reversible travel lane from Ross Island Bridge to Harold and widen to six lanes from Harold to I-205 and construct pedestrian and bike facilities. Project reduces vehicle delay and improves corridor access for pedestrians and bicycles.

ODOT

\$96,500,000 (Years 11 - 20)

70031

Holgate Bl, SE (52nd - I-205): Bikeway, Phase I

Retrofit bike lanes to existing street.

Portland

\$30,000 (Years 11 - 20)

70032

Holgate Bl, SE (39th - 52nd): Street Improvements

Reconstruct SE Holgate pavement structure, stormwater drainage facilities, corner curb ramps to ADA standards, improve pedestrian crossings, and add bike lanes.

Portland

\$797,000 (Years 1 - 5)

70033

Holgate Bl, SE (McLoughlin - 39th): Bikeway, Phase II

Retrofit bike lanes to existing street.

Portland

\$19,635 (Years 6 - 10)

70034

I-205 Multi-Use Path Crossings, SE

Improve crossings and access to I-205 multi-use path at arterials street intersections (Halsey, Glisan, Stark-Washington, Division, Powell, Foster-Woodstock).

ODOT

\$275,000 (Years 1 - 5)

70038

Lafayette St, SE (18th - 20th): Pedestrian Overpass

Construct new pedestrian overpass to replace existing decrepit structure.

Portland

\$580,000 (Years 11 - 20)

70039

Lents Pedestrian District, SE

Pedestrian facility improvements to key links accessing the Foster-Woodstock couplet.

Portland

\$861,600 (Years 6 - 10)

70040

McLoughlin Blvd, SE (at Ross Island Sand and Gravel signalized entrance): Brooklyn Neighborhood Access Improvements

Upgrade intersection at Ross Island Sand and Gravel entrance to accommodate safe pedestrian crossing of McLoughlin Blvd. Alternative crossing opportunities will be considered if location is found to be infeasible or unsafe.

Portland

\$330,000 (Years 11 -20)

70041

Milwaukie, SE (Gideon - Mall): Bicycle & Pedestrian Improvements

Plan and develop streetscape and pedestrian/bike improvements.

Portland

\$350,000 (Years 6 - 10)

70042

Milwaukie, SE (Yukon - Tacoma): Bicycle & Pedestrian Improvements

Plan and develop streetscape and pedestrian/bike improvements.

Portland

\$993,300 (Years 6 - 10)

70043

Montavilla Pedestrian District, SE

Plan & develop improvements to the pedestrian environment to emphasize district identity and make walking the mode of choice for trips within the district.

Portland

\$360,000 (Years 6 - 10)

70044

Mt. Scott Bl, SE (92nd - 112th): Pedestrian Improvements

Build a continuous walkway for pedestrian travel and access to transit with crossing improvements at transit stop locations.

Portland

\$1,900,000 (Years 11 - 20)

70045

Powell, SE (Ross Island Bridge - 50th): Multi-modal Improvements

Plan and develop streetscape and transportation improvements to increase opportunities to walk and enhance the pedestrian character of the corridor including intersection improvements at 8th, 26th, and Milwaukie.

ODOT/Portland

\$1,000,000 (Years 1 - 5)

70046

Powell, SE (71st - I-205): Bikeway

Retrofit bike lanes to existing street.

ODOT

\$5,197,500 (Years 11 - 20)

70047

Powell - Foster Rapid Bus, SE

Construct improvements that enhance Rapid Bus service along the Powell-Foster corridor between downtown Portland and Damascus.

Tri Met

SN/A (Years 11 - 20)

70048

River Access Transportation, SE: River Dock, Phase III

Construct recreational/commercial dock at Oaks Pk (Ph III). It will provide future river taxi stop.

Portland

\$814,663 (Years 11 - 20)

70049

Reedway St, SE (McLoughlin - 29th): Multi-Use Path

Construct pedestrian/bike path between McLoughlin and SE 26th Avenue.

Portland

\$250,000 (Years 11 - 20)

70050

Sellwood Bridge, SE/SW: Bridge Replacement

Replace weight-restricted bridge.

Multnomah County

\$75,000,000 (Years 1 - 5)

70052

Seventies Greenstreet and Bikeway, SE (I-84 - Clatsop)

Develop a combined pedestrian greenway and bike boulevard including crossing improvements at arterials, street lighting, and public art from Killingsworth to Clatsop (Also see 40082).

Portland

\$244,500 (Years 6 - 10)

70053

Springwater Corridor Trail, SE (Sellwood Bridge – Springwater Trailhead): Access Improvements

Construct multi-use path designed for bicycle and pedestrian use from trailhead to Sellwood Bridge including access connector over McLoughlin (99E) and undercrossing ramps at Sellwood Bridge.

Portland

\$7,010,000 (Years 1 - 5)

70055

Tacoma St, SE (Sellwood Bridge - McLoughlin): Multi-modal Improvements

Implement boulevard design based on Tacoma Main Street study recommendations and incorporate McLoughlin Neighborhoods Project recommendations.

Portland

\$1,400,000 (Years 6 - 10)

70056

70057

Tacoma, SE (Sellwood Bridge - 45th/Johnson Creek): ITS

Communications infrastructure; closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow for four signals.

Portland

\$115,000 (Years 6 - 10)

70058

Hawthorne Bl, SE: Frequent Bus

Provide improvements that enhance new frequent bus service.

Tri-Met

\$2,460,000 (Years 1 - 5)

70059

Glisan St, NE (47th - I-205): Bikeway

Retrofit bike lanes to existing street.

Portland

\$57,750 (Years 1 - 5)

70060

Spokane & Umatilla, SE Tacoma Main Street Plan Phase III (7th - Tacoma Overcrossing): Bike Boulevard

Project development and implementation of Spokane/Umatilla bike boulevard to complete Tacoma Main Street Plan.

Portland

\$250,000 (Years 1 – 5)

70060

92nd, SE (Stark - Lincoln): Bikeway

Retrofit bike lane to existing street.

Portland

\$21,000 (Years 11 - 20)

70061

Stark, SE (75th - I-205): Bikeway

Retrofit bike lanes to existing street.

Portland

\$173,250 (Years 1 - 5)

70062

I-205, NE/SE: Light Rail Extension

Add light rail tracks and stations along I-205 between Gateway and Clackamas Town Center.

TriMet

\$500,000,000 (Years 1 - 5)

70063

Albina to Willsburg Junction, SE: Improvements

Implement track and signal improvements.

Region

\$8,800,000 (Years 1 - 5)

70064

Foster Rd, SE: ITS

CCTV at 50th/Powell, 82nd, 92nd, I-205, 112th, 122nd and Jenne Rd intersections. Changeable signs at 50th/Powell, 92nd/Woodstock, 112th, 122nd, Jenne. Monitoring at 50th, 82nd, I-205.

Portland

\$145,000 (Years 11 - 20)

70065

McLoughlin Rd, SE: ITS

CCTV at Holgate, 17th, Bybee, Johnson Creek/Tacoma. Variable sign at Holgate. Monitoring at Holgate and Bybee.

ODOT

\$250,000 (Years 1 – 5)

70066

Powell Bl SE: ITS

CCTV at 39th, 50th, 82nd, I-205 ramp, 122nd. Variable signs at Milwaukie. Changeable signs at 39th, 50th, 82nd, I-205 ramps.

Portland

\$395,000 (Years 6 – 10)

80012

Holgate Bl, SE (92nd - 142nd): Pedestrian Improvements

Construct bike lanes, sidewalks and crossing improvements to facilitate pedestrian travel and access to transit.

Portland

\$1,260,000 (Years 6 - 10)

80018

Stark & Washington, SE (92nd - 111th): Gateway Plan District Street Improvements

Implement Gateway regional center plan with boulevard design retrofit including new traffic signals, improved pedestrian facilities and crossings, and street lighting.

Portland

\$3,800,000 (Years 11 - 20)

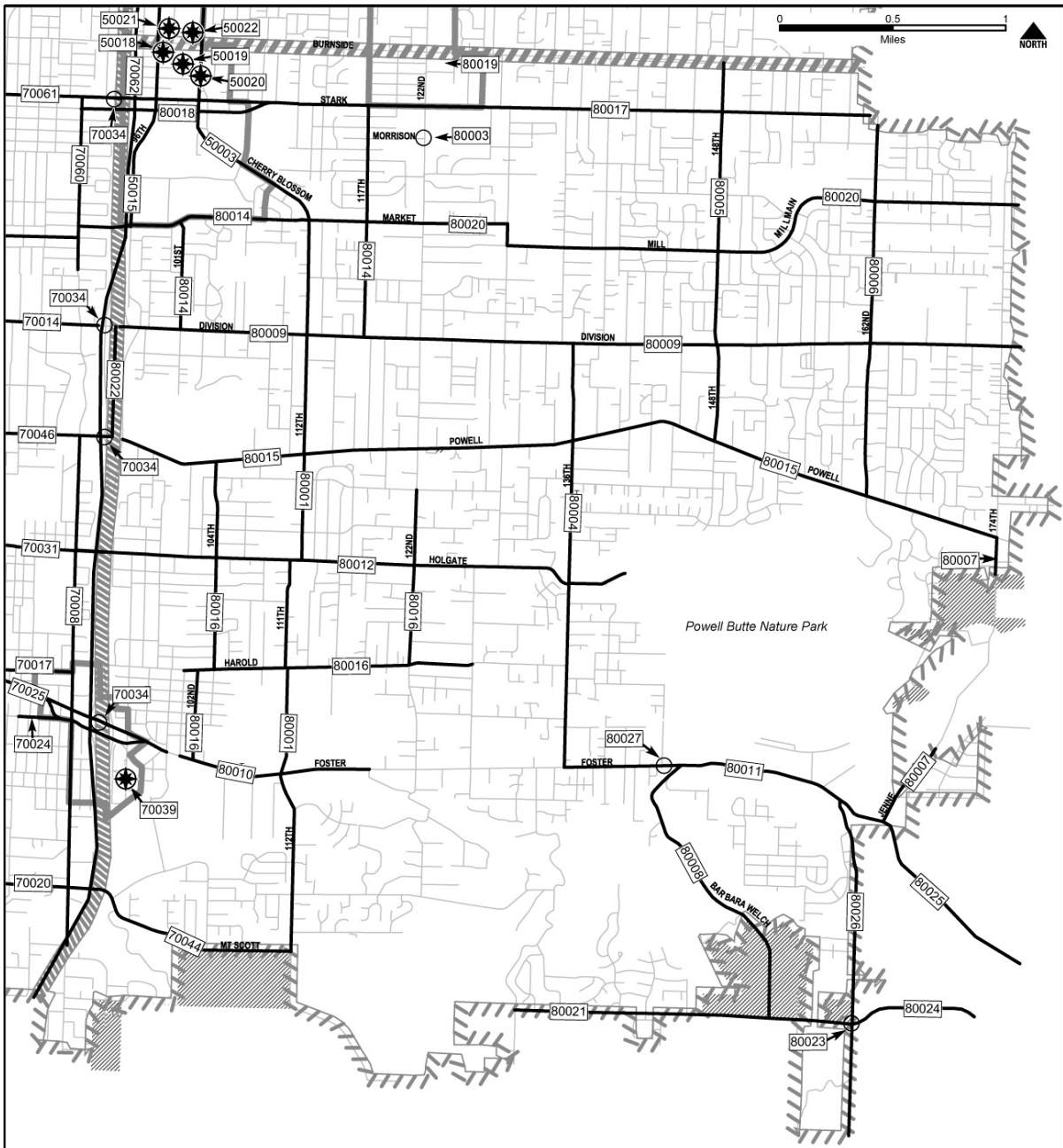
80020

Market/Mill/Main, SE (72nd - 175th): Bikeway

Retrofit bike lanes to existing street.




Portland


\$600,000 (Years 11 - 20)






Far Southeast District - Map 3.9

Improvements

-  Area Wide Improvements
-  Street Segment Improvements
-  Intersection, Interchange, Overcrossing Improvements

 Improvement Project Number (see text for descriptions)

Other Map Features

-  City of Portland Boundary
-  Far Southeast District
-  Unincorporated Area within Portland Urban Service Boundary

FAR SOUTHEAST: MAJOR TRANSPORTATION IMPROVEMENTS

50003

102nd Blvd & Cherry Blossom, NE/SE (Glisan - Market): Gateway Plan District Multi-modal Improvements, Phase II

Implement Gateway regional center plan with boulevard design retrofit, new traffic signals, improved pedestrian facilities and crossings, street lighting and new bicycle facilities on NE 102nd/Cherry Blossom between Glisan & Market.

Portland

\$6,140,000 (Years 1 - 5)

50015

99th & 96th, NE/SE (Glisan-Market: Gateway Plan District Street Improvements, Phase II & III

Reconstruct primary local main street in Gateway Regional Center. Phase II - 99th (Glisan - Washington). Phase III - 96th (Washington to Market).

Portland

\$3,500,000 (Years 6 - 10)

50018

Gateway Regional Center, NE/SE: Local Street Improvements, Phase I

High priority local street and pedestrian improvements in regional center.

Portland

\$3,000,000 (Years 6 - 10)

50019

Gateway Regional Center, NE/SE: Local Street Improvements, Phase II

High priority local street and pedestrian improvements in regional center.

Portland

\$6,000,000 (Years 6 - 10)

50020

Gateway Regional Center, NE/SE: Local Street Improvements, Phase III

High priority local street and pedestrian improvements in regional center.

Portland

\$6,000,000 (Years 11 - 20)

50021

Gateway Plan District, NE/SE: TMA

Implement a transportation management association program with employers in the regional center.

Tri Met

\$200,000 (Years 11 - 20)

50022

Gateway District Plan, NE/SE: Traffic Management

Implement a comprehensive traffic management plan throughout the regional center to reduce cut-through traffic on residential streets and improve traffic flow on regional streets. Project includes utility improvements.

Portland

\$1,386,000 (Years 1 - 5)

70008

92nd Ave, SE (Powell – City Limits): Bicycle & Pedestrian Improvements

Construct sidewalks, crossing improvements and bike lanes.

Portland

\$1,530,534 (Years 1 - 5)

70039

Lents Pedestrian District, SE

Pedestrian facility improvements to key links accessing the Foster-Woodstock couplet.

Portland

\$720,000 (Years 6 - 10)

70044

Mt. Scott Bl, SE (92nd - 112th): Pedestrian Improvements

Build a continuous walkway for pedestrian travel and access to transit with crossing improvements at transit stop locations.

Portland

\$1,900,000 (Years 11 - 20)

80001

111th/112th Ave, SE (Market - Mt. Scott Bl): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing street (Market - Mt. Scott Blvd) and construct sidewalks (Holgate - Mt. Scott Blvd).

Portland

\$1,475,500 (Years 11 - 20)

80003

122nd, SE (at Morrison): Pedestrian Overcrossing

Connect library and park with pedestrian overcrossing.

Portland

\$1,000,000 (Years 11 - 20)

80004

136th Ave, SE (Division - Foster): Bikeway

Provide bike lanes from Division to Foster. Project involves shoulder widening and drainage work.

Portland

\$1,500,000 (Years 11 - 20)

80005

148th Ave, SE (Burnside - Powell): Pedestrian Improvements

Construct sidewalks, curbs, ADA ramps.

Portland

\$980,000 (Years 6 - 10)

80006

162nd, SE (Stark - Powell): Multi-modal Improvements

Install bike lanes (Stark - Powell), sidewalks, curbs, ramps, and capacity improvements.

Portland

\$980,000 (Years 11 - 20)

80007

174th & Jenne Rd, SE (Foster - Powell): Multi-modal Improvements

Roadway improvements to increase safety and capacity to accommodate increased residential development. Widen roadway to 3 lanes and provide bike lanes, sidewalks to provide better transportation links in this vital north/south link.

Portland

\$5,100,000 (Years 6 - 10)

80008

Barbara Welch Rd, SE (Foster – County line): Multi-modal Improvements

Widen travel lanes; sidewalk improvements; intersection improvements at Foster. Retrofit bike lanes to existing roadway.

Portland

\$2,700,000 (Years 11 - 20)

80009

Division St, SE (I-205 - 174th): Multimodal Improvements, Phase III

Improve sidewalks, lighting, crossings, bus shelters & benches.

Portland

\$4,070,500 (Years 6 - 10)

80010

Foster Rd, SE (102nd - Foster Pl): Pedestrian Improvements

Construct walkway and crossing improvements to facilitate pedestrian travel and access to transit.

Portland

\$670,000 (Years 6 - 10)

80011

Foster Rd, SE (136th - Jenne): Multi-modal Improvements

Widen street to three lanes to provide two travel lanes, continuous turn lane, bike lanes, sidewalk, and drainage. Replace Foster Rd bridge over Johnson Creek. Reconstruct Foster/Barbara Welch & Foster/162nd intersections.

Portland

\$8,300,000 (Years 1 - 5)

80012

Holgate Bl, SE (92nd - 142nd): Pedestrian Improvements

Construct bike lanes, sidewalks and crossing improvements to facilitate pedestrian travel and access to transit.

Portland

\$1,260,000 (Years 6 - 10)

80014

Mill Park Pedestrian Improvements, SE

Construct sidewalks & crossing improvements to improve pedestrian travel and access to transit and schools on Market (96th - 112th), 101st (Market - Division), 117th (Stark - Division).

Portland

\$1,185,000 (Years 11 - 20)

80015

Powell, SE (I-205 – 174th): Multi-modal Improvements

Widen street to four lanes with sidewalks and bike lanes.

ODOT

\$48,000,000 (Years 6 - 10)

80016

Powellhurst/Gilbert Pedestrian Improvements, SE

Construct sidewalks & crossing improvements to enhance pedestrian travel and access to transit and schools on Harold (102nd-128th), 122nd (Bush-Harold), 110th (Harold-Foster); 103rd/104th (Powell-Foster).

Portland

\$1,200,000 (Years 11 - 20)

80017

Stark, SE (111th - City Limits): Bikeway

Retrofit bike lanes to existing street (excluding 92nd - 111th).

Portland

\$173,250 (Years 6 - 10)

80018

Stark & Washington, SE (92nd - 111th): Gateway Plan District Street Improvements

Implement Gateway regional center plan with boulevard design retrofit including new traffic signals, improved pedestrian facilities and crossings, and street lighting.

Portland

\$4,389,000 (Years 11 - 20)

80019

Ventura Park Pedestrian District, NE/SE

Improve sidewalks, lighting, crossings, bus shelters & benches to improve ease of crossing and install curb extensions at transit stops.

Portland

\$600,600 (Years 6 - 10)

80020

Market/Mill/Main, SE (72nd - 175th): Bikeway

Retrofit bike lanes to existing street.

Portland

\$600,000 (Years 11 - 20)

80021

Clatsop, SE (Deardorf/132nd – 162nd): Multimodal Improvements

Design and implement multimodal improvements based on Pleasant Valley Implementation Plan recommendations.

Portland/Clackamas County

\$2,000,000 (Years 6 - 10)

80022

I-205 (Division to Powell), SE: Turning Improvements

Modify the existing overpass at I-205 and Powell Blvd, including full access ramps to and from I-205. Address impacts to the interchange influence area along Powell Blvd, Division St and 92nd Ave.

ODOT

\$12,000,000 (Years 11 – 20)

80023

162nd/Clatsop, SE: Intersection Improvement

Install signal at intersection

Portland

\$250,000 (Years 1 – 5)

80024

Clatsop, SE (162nd to City limits): Street Extension

Extend existing street east into Pleasant Valley. Base street design on Pleasant Valley Implementation Plan recommendations.

Portland/Clackamas County

\$3,870,000 (Years 11 – 20)

80025

**Foster, SE (162nd – Giese Rd):
Multimodal Improvements**

Design and implement multimodal improvements based on Pleasant Valley Implementation Plan recommendations.

Portland/Gresham

\$1,800,000 (Years 11-20)

80026

**162nd, SE (Foster – County line):
Multimodal Improvements**

Design and implement multimodal improvements based on Pleasant Valley Implementation Plan recommendations.

Portland

\$7,000,000 (Years 1 – 5)

80027

**Foster Rd, Bridge at Johnson Creek:
Bridge Replacement**

Replace south bridge span. Bridge is currently weight restricted.

Portland

\$1,400,000 (Years 1 – 5)

SOUTHWEST: MAJOR TRANSPORTATION IMPROVEMENTS

Improvements not mapped include: 90018, 90021, and 90045

ITS improvements mapped separately include: 90019 and 90046

20028

I-5, SW (South of I-405): Access and Safety Improvements

Construct new off-ramp at NB I-5 to NB Macadam Ave and provide safety and modernization improvements to I-5 South.

ODOT

\$60,000,000 (Years 11 – 20)

20049

Corbett/Hood/Sheridan, SW: Pedestrian and Bike Improvements

Construct bike and pedestrian improvements under I-5 to the CTLH neighborhood at SW Sheridan St.

Portland

\$150,000 (Years 1 - 5)

20061

I-5 at Gibbs, SW: Pedestrian/Bike Overcrossing

Construct a bike and pedestrian bridge of I-5 at SW Gibbs to connect the Corbett-Terwilliger-Lair Hill neighborhood to South Waterfront.

ODOT/Portland

\$400,000,000 (Years 1 - 5)

20082

Aerial Tram, SW

Develop and implement an aerial tram between Marquam Hill and North Macadam. Project implementers include Oregon Health & Science University, Portland Aerial Tram Inc, and others.

Portland

\$15,000,000 (Years 1 –5)

90001

12th, Broadway, Cardinell & Davenport, SW (Montgomery - Vista): Bikeway

Retrofit bike lanes to existing street.

Portland

\$4,508,000 (Years 11 - 20)

90002

19th, SW (Barbur - Spring Garden): Bikeway

Retrofit bike lanes to existing street.

Portland

\$200,000 (Years 11 - 20)

90003

25th Ave & Kanan, SW (23rd - B-H Hwy): Pedestrian Improvements

Construct a walkway for pedestrian travel and access to transit.

Portland

\$450,000 (Years 11 - 20)

90004

26th Ave, SW (Spring Garden - Taylors Ferry): Pedestrian Improvements

Construct a walkway for pedestrian travel and access to transit and install street lighting.

Portland

\$350,000 (Years 6 - 10)

90005

**30th Ave, SW (Vermont to B-H Hwy):
Bicycle & Pedestrian Improvements**

Retrofit bike lanes to existing street, construct sidewalks, and improve pedestrian crossing at Beaverton-Hillsdale Hwy/30th.

Portland

\$1,311,000 (Years 6 - 10)

90006

**35th Ave, SW (Vermont - Barbur):
Bicycle & Pedestrian Improvements**

Add bike lanes (Vermont - Barbur), sidewalks, and crossing improvements (Multnomah to Barbur).

Portland

\$690,000 (Years 11 - 20)

90007

**35th Ave, SW (Taylors Ferry -
Stephenson): Bicycle & Pedestrian
Improvements**

Bike lanes (Taylors Ferry – Stephenson), sidewalks, crossing improvements, and median islands (Taylors Ferry - Dickinson) to improve safety for school children.

Portland

\$1,570,000 (Years 6 - 10)

90008

**45th Ave, SW (B-H Hwy to Taylors
Ferry): Bicycle & Pedestrian
Improvements**

Stripe bike lanes (Cameron – Taylors Ferry), provide sidewalk and crossing improvements (east side of Cullen - Iowa) and construct path/stairway (Cullen to B-H Hwy).

Portland

\$5,644,000 (Years 11 - 20)

90009

**48th/Alfred, SW (Taylors Ferry - 55th):
Bikeway**

Retrofit bike lanes to existing street.

Portland

\$500,000 (Years 6 - 10)

90011

**55th/Pasadena/ Pomona, SW (Taylors
Ferry - Barbur): Bikeway**

Retrofit bike lanes to existing street.

Portland

\$2,000,000 (Years 11 - 20)

90012

**61st/62nd, SW (Taylors Ferry - Pomona):
Bikeway**

Retrofit bike lanes to existing street.

Portland

\$1,000,000 (Years 11 - 20)

90013

**Arnold, SW (Boones Ferry - 35th):
Bicycle & Pedestrian Improvements**

Construct bikeway and pedestrian facilities.

Portland

\$3,479,000 (Years 11 - 20)

90016

Barbur Blvd, SW (3rd - Terwilliger): Multi-modal Improvements

Construct improvements for transit, bikes and pedestrians. Transit improvements include preferential signals, pullouts, shelters, left turn lanes and sidewalks. Crossing improvements as identified in the Portland Aerial Tram Final Recommendations and Report.

Portland/ODOT

\$4,000,000 (Years 6 - 10)

90017

Barbur Blvd, SW (Terwilliger - City Limits): Multi-modal Improvements

Complete boulevard design improvements including sidewalks and street trees, safe pedestrian crossings, enhance transit access and stop locations, traffic signal at Barbur/30th, and bike lanes (Bertha - City Limits).

Portland/ODOT

\$15,000,000 (Years 1 - 5)

90018

Barbur Blvd, SW: Rapid Bus

Construct improvements to enhance Rapid Bus.

Tri-Met

\$N/A (Years 1 - 5)

90019

Beaverton-Hillsdale Hwy, SW: ITS

CCTV at Terwilliger, Bertha Blvd and Shattuck intersections. Changeable signs at Bertha/Capitol Highway and 56th.

Portland/ODOT

\$90,000 (Years 1 - 5)

90020

Beaverton-Hillsdale Hwy, SW (Capitol Hwy - 65th): Multi-modal Improvements

Retrofit existing street to include better sidewalks and crossings, bike lanes and other improvements to enhance access to transit. Install median refuge to improve pedestrian crossing at SW 62nd.

Portland

\$2,541,000 (Years 11 - 20)

90021

Beaverton-Hillsdale Hwy, SW: Frequent Bus

Construct improvements to enhance Frequent Bus service.

Tri-Met

\$3,300,000 (Years 1 - 5)

90022

Bertha, SW (B-H Hwy - Barbur): Multi-modal Improvements

Design and implement bike lanes on missing piece of Bertha Blvd (Vermont-B-H Hwy), construct walkway for pedestrian travel and access to schools (Barbur-B-H Hwy); and improve street to City standards (Vermont-Capitol).

Portland

\$1,500,000 (Years 6 - 10)

90023

Boones Ferry Rd, SW (Terwilliger - City Limits): Bikeway

Retrofit bike lanes to existing street.

Portland

\$5,775,000 (Years 11 - 20)

90024

**Broadway Dr, SW (Sherwood - Grant):
Pedestrian Improvements**

Construct sidewalk and crossing improvements (at Hoffman and Sherman/830 Broadway).

Portland

\$1,100,000 (Years 11 - 20)

90025

**Cameron Rd, SW (45th - Shattuck):
Multi-modal Improvements**

Retrofit bike lanes to existing street, construct sidewalks, and provide safety improvements at Cameron/Shattuck intersection.

Portland

\$3,068,000 (Years 11 - 20)

90026

Capitol Hwy, SW (Multnomah Bl - Taylors Ferry): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing street, construct sidewalks, and improve crossings.

Portland

\$1,386,000 (Years 1 - 5)

90027

Capitol Hwy, SW (Huber to Stephenson): Pedestrian Improvements

Complete curb extensions and medians recommended in the Capitol Hwy Plan.

Portland

\$750,000 (Years 11 - 20)

90028

Beaverton-Hillsdale/Bertha/Capitol Hwy, SW: Intersection Improvements

Redesign intersection to improve safety.

Portland

\$975,975 (Years 1 - 5)

90029

**Capitol Hwy, SW (Terwilliger - Sunset):
Multi-modal Improvements**

Construct sidewalks, crossing improvements for access to transit and bike improvements and install left turn lane at the Capitol/Burlingame intersection.

Portland

\$910,000 (Years 6 - 10)

90031

**Dosch Rd, SW (Patton - B-H Hwy):
Bicycle & Pedestrian Improvements**

Construct bikeway, and walkway for pedestrian travel and access to transit.

Portland

\$5,745,000 (Years 6 - 10)

90033

Garden Home Rd, SW (Capitol Hwy - Multnomah): Multi-modal Improvements

Reconstruct road to three lanes with signal improvements at Multnomah intersection, drainage, bike lanes, sidewalks and curbs.

Portland

\$6,475,000 (Years 1 - 5)

90034

Hamilton St, SW (Dosch – Scholls Ferry): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing street and construct sidewalks to provide access to transit and schools.

Portland

\$6,000,000 (Years 6 - 10)

90035

Hillsdale Town Center Pedestrian Improvements, SW

Pedestrian improvements on town center streets including Capitol, Beaverton-Hillsdale Hwy, Bertha, and neighborhood street network improvements. Provide a Bike Central facility.

Portland

\$3,465,000 (Years 6 - 10)

90037

Huber St, SW (Barbur - 35th): Pedestrian Improvements

Construct a walkway for pedestrian travel and access to transit.

Portland

\$480,000 (Years 6 - 10)

90038

Humphrey Bl, SW (Patton - Scholls Ferry): Bicycle & Pedestrian Improvements

Construct bike facilities and sidewalks.

Portland

\$4,000,000 (Years 11 - 20)

90040

Illinois, SW (45th - Shattuck): Bikeway

Retrofit bike lanes to existing street.

Portland

\$1,000,000 (Years 11 - 20)

90041

Johns Landing Pedestrian District, SW

Plan & develop improvements to the pedestrian environment to emphasize district identity and make walking the mode of choice for trips within the district.

Portland

\$360,000 (Years 6 - 10)

90042

South Portland Pedestrian District, SW: Future Pedestrian Improvements

Plan & develop improvements to the pedestrian environment to emphasize identity and make walking the mode of choice for trips within the neighborhood.

Portland

\$400,000 (Years 11 - 20)

90043

Lancaster Rd, SW (Taylors Ferry - Stephenson): Pedestrian Improvements

Construct walkway.

Portland

\$1,000,000 (Years 11 - 20)

90044

43rd & Lee, SW: Pedestrian Bridge & Path

Construct a bridge and path to connect SW Lee to SW 43rd within the existing ROW.

Portland

\$90,000 (Years 11 - 20)

90045

Macadam Ave, SW: Frequent Bus

Construct improvements that enhance Frequent Bus service.

Tri Met

\$2,015,000 (Years 1 - 5)

90046

Macadam, SW (Bancroft - Sellwood Br): ITS

CCTV at Hood/Bancroft, Taylors Ferry and Sellwood Bridge. Variable sign at Hood/Bancroft. Changeable sign at Taylors Ferry. Monitoring at Bancroft and Sellwood Bridge.

Portland/ODOT

\$290,000 (Years 6 - 10)

90047

Macadam, SW (Bancroft to County line): Multi-modal Improvements

Complete bikeway connection in the N. Macadam corridor and improve pedestrian crossings (Bancroft, Boundary, Hamilton, Nebraska, and Nevada), and address circulation at west approach to Sellwood Bridge.

Portland/ODOT/Multnomah Co

\$2,530,000 (Years 6 - 10)

90048

Pedestrian Overpass near Markham School, SW

Construct pedestrian path and bridge over Barbur Bl and I-5 to connect SW Alfred and SW 52nd to the rear of Markham School.

Portland/ODOT

\$3,465,000 (Years 11 - 20)

90049

Marquam Hill, SW (Gibbs /Marquam Hill Rd/11th/Gaines to new 6th Ave): Pedestrian Improvements

Construct a walkway and crossing improvements.

Portland

\$2,800,000 (Years 11 - 20)

90050

Multnomah Bl, SW (Barbur - 45th): Street Improvements

Reconstruct street to urban standards including curbs, sidewalks, storm sewers and upgraded street lights.

Portland

\$2,120,000 (Years 11 - 20)

90051

Nevada St/Ct, SW: Path & Stair/Bridge

Construct a path and bridge over Stevens Creek to connect Nevada Ct to Capitol Hill Road & Bertha Blvd at Chestnut.

Portland

\$400,000 (Years 11 - 20)

90052

Palatine Hill Rd, SW (Boones Ferry - City Limits): Bikeway

Retrofit bike lanes to existing street.

Portland/Multnomah County

\$10,000,000 (Years 11 - 20)

90053

Palatine St, SW (27th -Lancaster): Street Extension

Complete neighborhood collector to provide multi-modal access to Lancaster Rd.

Portland

\$672,228 (Years 6 - 10)

90054

Patton Rd, SW (Vista – Scholls Ferry): Bicycle & Pedestrian Improvements

Construct bikeway (Vista – Scholls Ferry) and walkway (Homar to Shattuck).

Portland

\$1,220,000 (Years 6 - 10)

90055

Pomona St, SW (35th - Barbur): Bicycle & Pedestrian Improvements

Provide bike lanes (35th - Capitol) and sidewalks (35th - Barbur).

Portland

\$2,700,000 (Years 11 - 20)

90059

Shattuck Rd, SW (Patton - Vermont): Bicycle & Pedestrian Improvements

Provide bike lanes and sidewalks.

Portland

\$6,405,000 (Years 6 - 10)

90060

South Portland Improvements, SW

Implement South Portland Circulation Study recommendations to redesign Naito Parkway as a neighborhood collector and reconnect east-west local streets. Rebuild the Ross Island Bridge ramps to separate regional traffic from neighborhood streets and improve access to I-405 and I-5 southbound.

Portland/ODOT

\$28,293,000 (Years 6 - 10)

90061

Spring Garden, SW (Taylors Ferry - Capitol Hwy): Bikeway

Provide bike lanes on existing street.

Portland

\$4,165,000 (Years 6 - 10)

90062

Stephenson, SW (Boones Ferry - 35th): Multi-modal Improvements

Install bikeway, pedestrian facilities, and improve safety at Stephenson/Boones Ferry Road intersection.

Portland

\$3,479,000 (Years 11 - 20)

90063

Sunset Bl, SW (Dosch - Capitol): Bicycle & Pedestrian Improvements

Construct bike lanes, sidewalks and crossing improvements.

Portland

\$1,386,000 (Years 11 - 20)

90064

Taylor's Ferry, SW (Capitol Hwy - City Limits): Bicycle & Pedestrian Improvements

Provide bicycle lanes, including shoulder widening and drainage, and construct sidewalk for access to transit (40th - 60th).

Portland

\$3,000,000 (Years 6 - 10)

90065

Taylor's Ferry, SW (Macadam - 35th): Bicycle & Pedestrian Improvements

Widen shoulder in uphill direction on SW Taylor's Ferry Rd from Macadam to Terwilliger to provide bicycle climbing lane and stripe bike lanes from Terwilliger to 35th. Construct sidewalks for pedestrian travel and access to transit.

Portland

\$1,800,000 (Years 6 - 10)

90066

Terwilliger, SW, (SW Troy – County line): Pedestrian Improvements

Provide pedestrian improvements including missing sidewalks and improved pedestrian crossings at Lewis & Clark and Maplecrest, bicycle facilities.

Portland/Multnomah County

\$1,280,000 (Years 6 - 10)

90067

Vermont St, SW, (30th - Oleson): Bicycle and Pedestrian Improvements

Retrofit bike lanes to existing street (45th - Oleson) and construct sidewalk (30th - Shattuck), and redesign intersection at 25th.

Portland

\$6,600,000 (Years 6 - 10)

90068

West Portland Town Center, SW: Pedestrian Improvements

Improve sidewalks, lighting, crossings, bus shelters and benches on Barbur, Capitol Hwy & neighborhood streets.

Portland

\$5,775,000 (Years 11 - 20)

90069

Barbur/Capitol/Huber/Taylor's Ferry, SW: Intersection Improvements

Construct safety improvements, including traffic signals, at the intersection of Capitol Hwy, Taylor's Ferry, Huber, and Barbur. Provide better sidewalks and crossings.

Portland/ODOT

\$704,550 (Years 6 - 10)

90070

Capitol Hwy, SW (Capitol/Vermont/30th Ave): Intersection Improvements

Provide traffic safety and pedestrian and bicycle facility improvements at Capitol/Vermont/30th intersection and approaching streets.

Portland

\$450,000 (Years 11 - 20)

90071

Willamette Greenway, SW: Trail Extension

Extend Greenway Trail from Sellwood Bridge to the County line.

Portland/Multnomah County

\$500,000 (Years 11 - 20)

90072
Capitol Hwy & Lesser, SW (49th - Kruse Ridge): Bicycle & Pedestrian Improvements

Retrofit bike lanes to existing roadway and construct sidewalks.

Portland
 \$1,400,000 (Years 6 - 10)

90073
Dolph Ct, SW (26th – Capitol Hwy): Pedestrian Improvements

Construct a walkway.

Portland
 \$640,000 (Years 11 - 20)

90074
Spring Garden, SW (Taylors Ferry - 26th): Pedestrian Improvements

Construct a walkway to provide access to transit and schools.

Portland
 \$830,000 (Years 6 - 10)

90075
35th and Stephenson, SW: Pedestrian Improvements

Construct a walkway for pedestrian travel and access to schools on 35th (Stephenson – Dickenson) and on Stephenson (27th – 35th).

Portland
 \$850,000 (Years 1 – 5)

90076
Capitol Hwy/26th, SW: Intersection Signalization

Construct pedestrian crossing and traffic safety improvements with intersection signalization or alternative improvements if signal is not possible. Consider alternative crossing improvement locations in the immediate vicinity, such as at SW 25th/Vermont, as part of project development.

Portland
 \$120,000 (Years 1 – 5)

90077
Capitol Highway, SW (at Barbur): Seismic Retrofit

Seismic retrofit.

Portland
 \$1,039,000 (Years 11 - 20)

90078
Scholls Ferry, SW (Humphrey – County line): Multimodal Improvements

Add bicycle and pedestrian facilities, intersection improvements at Patton.

Multnomah County/Portland
 \$2,300,000 (Years 11 - 20)

90079
55th Dr, SW (South of Patton Road): Pedestrian Improvements

Add sidewalks to both sides of street.

Multnomah County/Portland
 \$211,000 (Years 11 - 20)

CONSISTENCY WITH RTP PROJECT LIST

While the TSP's recommended major transportation system improvements list is largely consistent with the list of transportation projects identified in the RTP, a limited number of differences exist between the two plans. Most of differences result from the elapse of time between the adoption of the RTP and the TSP's completion. During this time, a number of RTP projects were completed, changed names and/or scope, or have become obsolete. In addition, some significant new regional projects were added to the TSP, and a small number of projects were assigned a higher priority.

Table 3.1 lists the RTP projects that have been deleted or revised in the TSP major system improvements list. This list of project changes serves as the basis for the formal RTP amendment requests.

Table 3.1
RTP Project List Revisions

RTP ID	Project Name	Proposed Change	Explanation
1000	Light Rail Extension 1 – Rose Quarter to Expo Center	Delete	Under construction
1016	Rose Quarter Track Reconstruction	Delete	Under construction
1021	Peninsula Crossing Trail	Delete	Construction completed
1026	Water Ave Ramps on I-5	Delete	Project replaced by others; City Council directive does not support construction of ramps
1027	South Portland Improvements	Update	Update RTP project description and cost to match TSP
1034	Lower Albina RR Crossing	Delete	Under construction
1037	Bybee Blvd Overcrossing	Update	Update RTP project name and description to match TSP
1058	Moody Bikeway	Delete	Construction completed
1064	Interstate Bikeway	Delete	Project part of Interstate light rail construction
1074	Lovejoy Sidewalk	Delete	Construction completed
1076	Ross Island Bridge (west side)	Delete	Project incorporated into RTP 1027 – South Portland Improvements
1079	Steel Bridge Pedestrian Way	Delete	Construction completed
1081	Eastbank Esplanade	Delete	Construction completed
1088	South Portland Circulation Study	Delete	Study completed
1108	North Going Street Seismic Retrofit	Delete	Project duplicates RTP 1109
1109	Going Street Rail Overcrossing	Update	Update RTP project name, description, and cost to match TSP.
1144	N/NE Portland Rd Bikeway	Delete	Project located on Portland Blvd and will be constructed as part of Interstate light rail
1145	St Louis-Fessenden Bikeway	Delete	Construction completed
1217	Multnomah Pedestrian District	Delete	Construction completed
1229	Woodstock Main Street	Delete	Construction completed
1257	NE Russell Bikeway	Delete	Construction completed
2028	Powell Blvd Improvements	Update	Update RTP project description for segment within Portland to match TSP
2087	NE 158 th Improvements	Delete	Construction completed
4000	Airport Light Rail	Delete	Construction completed
4019	Light Rail Station/Track Realignment	Delete	Construction completed
4020	Airport Way Improvements, East	Delete	Construction completed

RTP ID	Project Name	Proposed Change	Explanation
4024	Alderwood Rd Extension	Delete	Under construction
4025	International Parkway Extension – Phase I	Delete	Construction completed
4027	Airport Way/Cascade Grade Separation	Delete	Construction completed
4052	Lombard Bikeway	Delete	Construction completed
1032	Southern Triangle Circulation Improvements	Update	Update RTP project name and description to match TSP
1039	SE Belmont Ramp	Update	Move to Financially Constrained RTP system from Preferred
1040	SE Clay/MLK Intersection Improvements	Update	Move to Priority RTP system from Preferred
1082	SE Grand Bridgeheads	Update	Update RTP project description to match TSP and add to RTP Financially Constrained system
1083	SE Powell/Milwaukie Intersection	Update	Move to Priority RTP system from Preferred
1085	E Burnside Pedestrian Improvements	Delete	Project incorporated into RTP 1119 – Sandy Blvd/Burnside/12 th Intersection Improvements
1157	92 nd Bicycle and Pedestrian Improvements	Update	Update RTP project description to match TSP
1219	Belmont Pedestrian Improvements	Update	Update project description to match TSP
1245	Capitol Hwy – Phase II	Update	Update project cost to match TSP
4011	Marine Dr Bikeway	Update	Update RTP project description to match TSP
4065	South Rivergate Entry Overpass	Update	Update name and description to match TSP
NEW	NW 23 rd Reconstruction (60003)	Add	Add project to the RTP financially constrained network, timeframe 1 – 5 years
NEW	NW Champlain Viaduct Reconstruction (60026)	Add	Add project to the RTP financially constrained network, timeframe 1 – 5 years
NEW	SE 39 th Reconstruction (70005)	Add	Add project to the RTP financially constrained network, timeframe 1 – 5 years
NEW	US 30 Corridor Projects (60001, 60004, 60013, 60016, 60017, 60018, 60019, 60020, 60022)	Add	Add ODOT's US 30 Corridor projects in Portland city boundaries
NEW	Prescott Station Area Improvements (30043)	Add	Add project to the RTP priority network, timeframe 6 – 10 years
NEW	Killingsworth Street Improvements (30028)	Add	Add project to the RTP financially constrained network, timeframe 1 – 5 years
NEW	Lower Albina Area Improvements (20083)	Add	Add project to the RTP priority network, timeframe 6 – 10 years
NEW	Denver Main Street Improvements (30009)	Add	Add project to the RTP priority network, timeframe 6 – 10 years
NEW	Killingsworth Street Bridge (30029)	Add	Add project to the RTP financially constrained network, timeframe 11 – 20 years
NEW	Lombard Street Improvements (30037)	Add	Add project to the RTP financially constrained network, timeframe 1 – 5 years

REFINEMENT PLANS And STUDIES

4

INTRODUCTION

The State Transportation Planning Rule (TPR) defines a refinement plan as an amendment to a transportation system plan (TSP) that resolves, at the system level, the function, mode, or general location of a transportation project that was deferred during development of the TSP. A refinement plan is necessary when the detailed information required to address a transportation need could not be determined during the TSP process.

In the context of Portland's TSP, studies are similar to refinement plans; however, they may not necessarily address a transportation capacity need or their feasibility may not yet be determined. Studies are intended to address issues that have a transportation component identified by the community or other entities.



Metro's 2000 Regional Transportation System Plan (RTP) describes a number of refinement plans and includes a number of studies on its preferred list of projects. The City has also identified refinement plans and studies through the TSP process. This chapter lists (not in order of priority) the refinement plans and studies that either Metro or the City will undertake over the life of the TSP. In some cases, the Oregon Department of Transportation (ODOT) will be the lead agency.

RTP PLANS AND STUDIES

Minor Refinement Plans

Minor refinement plans are necessary when the RTP determines both the need and mode for a transportation improvement, but a specific project has not been identified.

The purpose statement for each regional refinement plan and study is taken from the RTP.

Banfield Corridor

Purpose: *Develop transportation strategies to alleviate congestion in the Banfield corridor.*

Significant investments in transit and highway capacity were made in the Banfield corridor in the 1980s. Further improvements are needed to provide an adequate level of access to the Central City from eastside Portland and east Multnomah County. Additional highway capacity would result in unacceptable physical, environmental and social impacts. The plan should consider the following transportation approaches in this corridor:

- Use a coordinated system of traffic management measures to mitigate infiltration on to adjacent parallel corridors.
- Improve light rail headways to keep pace with travel demand in the corridor.
- Improve bus service along adjacent corridors to keep pace with travel demand, including the possible use of express and non-peak service.
- Consider additional feeder bus service and park-and-ride capacity along the eastern portion of the light rail corridor to address demand originating in east Multnomah and north Clackamas Counties.
- Develop transportation system management (TSM) strategies for the Gateway regional center to mitigate spillover effects on the regional center.

Northeast Portland Highway

Purpose: Refine long-term improvements to consider additional TSM and access management.

Freight movement in the future will rely more heavily on NE Portland Highway (US Highway 30 bypass). This route links the Rivergate marine terminals and Portland Airport terminals to industrial destinations throughout the region. It includes Killingsworth and Lombard Streets from I-205 to Martin Luther King (MLK), Jr. Boulevard, and Columbia Boulevard from MLK Jr. Boulevard to N Burgard.

Although NE Portland Highway appears to have adequate capacity to serve expected 2020 demand, a number of refinements are needed in the corridor. The plan should consider the following transportation approaches:

- Improve NE Portland Highway as a strategy to address Banfield corridor and east Marine Drive congestion.
- Develop a long-term strategy to serve freight movement between Highway 30 and Rivergate.
- Implement access management measures along NE Portland Highway.
- Implement and refine identified Columbia corridor changes to address corridor needs of NE Portland Highway from Rivergate to I-205.
- Consider grade separation at major intersections.
- Streamline the NE Portland Highway connection from the Lombard/Killingsworth section to Columbia Boulevard, with an improvement transition point at MLK, Jr. Boulevard.
- Improve the Columbia Boulevard interchange at I-5 to provide full access to NE Portland Highway.
- Construct capacity and intersection improvements between 82nd Avenue and I-205.

The additional work done through the refinement plan will be based on the Columbia Corridor Study, the St. Johns Truck Strategy, and the environmental assessment for the 'East End Connector' transportation project.

Macadam/Highway 43

Purpose: *Develop a long-term strategy for high-capacity transit, including phasing of future trolley commuter service between Lake Oswego and Portland, frequent bus service, and bicycle safety improvements.*

Although there is heavy travel demand along Macadam/Highway 43 between the Central City and Lake Oswego, physical and environmental constraints preclude major roadway expansion. A long-term strategy for high-capacity transit is needed to link the Central City to southwest neighborhoods and the Lake Oswego town center. As high-capacity transit is evaluated in the corridor, the following approaches should be considered:

- Interim repairs to maintain the Willamette Shore Trolley excursion service
- Frequent bus service from the Central City to Lake Oswego
- Streetcar commuter service or commuter or light rail to provide a high-capacity travel option during congested commute periods
- Transportation demand management
- Bicycle safety improvements south of the Sellwood Bridge

Major Refinement Plans

Major refinement plans are necessary when a transportation need exists, but the mode, function, and general location of a transportation improvement have not been determined, and a range of actions must be considered before identifying a specific project or projects.

Highway 99E (McLoughlin Boulevard)/224 Corridor

Purpose: *Develop a traffic management plan for SE McLoughlin Boulevard from the Ross Island Bridge to I-205.*

Long-term improvements are needed in this corridor to preserve access between the Central City and Clackamas County, provide access to the Clackamas regional center, and support downtown development in the Milwaukie town center. The recently completed South/North light rail study demonstrated a need for high-capacity transit service in this corridor. Both highway and high-capacity transit service are needed over the 20-year plan period to keep pace with expected growth in this part of the region. This refinement plan should include rapid bus transit service, or its equivalent, in the short term and light rail in the long term. Transportation improvements should address the following approaches:

- Implement access management measures throughout the corridor, including grade separations at intersections along Highway 224 between Harrison Street and I-205.

- Discourage spillover traffic from McLoughlin and Highway 224 onto Tacoma Street, 17th Avenue, Johnson Creek Boulevard, 34th Avenue, and Lake Road.
- Monitor and mitigate spillover traffic from McLoughlin and Highway 224 onto other local collectors.
- Consider a reversible high-occupant vehicle (HOV) lane or peak-period priced lane between Ross Island Bridge and the intersection with Harold Street.
- Expand highway capacity to a total of three general-purpose lanes from Harold Street to I-205, and consider reversible HOV or peak-period pricing for new capacity.
- Provide a more direct transition from McLoughlin to Highway 224 at Milwaukie in order to orient long trips and through-traffic onto Highway 224 and northbound McLoughlin.
- Provide improved transit access to the Milwaukie and Clackamas regional centers.

Interstate 205

Purpose: *Develop a traffic management plan from I-5 to Clark County.*

Improvements are needed in the I-205 corridor to address existing deficiencies and expected growth in travel demand in Clark, Multnomah, and Clackamas Counties. The refinement plan should address the following needs and opportunities:

- Provide for some peak-period mobility for longer trips.
- Preserve freight mobility from I-5 to Clark County, with an emphasis on connections to Highway 213, Highway 224, and the Sunrise corridor.
- Maintain an acceptable level of access to the Oregon City, Clackamas, and Gateway regional centers and the Sunrise industrial area.
- Maintain acceptable levels of access to Portland Airport, including air cargo access.
- Use the physical configuration of highway improvements to shape urban form in the City or urban reserve area.

The plan should consider the following potential transportation changes:

- Auxiliary lanes from Airport Way to I-84 east
- Express lanes, peak-period pricing, or HOV lanes as strategies for expanding capacity
- Relative value of specific ramp, overcrossing, and parallel route improvements
- An eastbound HOV lane from I-5 to the Oregon City Bridge
- A truck climbing lane south of Oregon City
- Rapid bus service from Oregon City to Gateway
- Extension of rapid bus service north from Gateway into Clark County
- Light rail

- Refinements to 2040 land use assumptions for this area to expand potential employment in the area and improve the jobs/housing imbalance
- Reevaluation of the suitability of Beavercreek as an urban reserve area, based on the ability to provide a transportation infrastructure that can adequately serve that area

Metro is dividing the I-205 refinement plan into two segments. The first segment stretches from Highway 224 north to Vancouver and includes the current work being done through the South Transit Corridor Study and the transit part of the I-5 Trade Corridor Study. The second segment is south from Highway 224 and is completely outside Portland's boundaries.

I-5 North from I-84 to Clark County

Purpose: *Develop improvements to address freight mobility and access needs.*

The I-5 corridor is a heavily traveled route that will experience additional traffic growth. Improvements are needed to facilitate freight movement and growing travel demand from Clark County. The RTP contains capacity projects that will have significant impacts on adjacent neighborhoods. As improvements are evaluated for this refinement plan, the following elements should be addressed:

- HOV lanes and peak-period pricing
- Transit alternatives from Vancouver to the Central City
- Maintaining acceptable level of access to the Central City from Portland neighborhoods and Clark County
- Maintaining off-peak freight mobility, especially to marine, rail, and truck terminals in the area
- Maintaining an acceptable level of access to freight intermodal facilities and to the NE Portland Highway
- Interchange improvements at Columbia Boulevard to provide freight access to NE Portland Highway
- Additional Interstate Bridge capacity
- Actions to reduce through-traffic on Martin Luther King, Jr. Boulevard and Interstate to facilitate main street redevelopment

The Portland/Vancouver I-5 Transportation and Trade Partnership completed its Strategic Plan in 2004. The details of that effort are summarized in Volume 2 under Chapter 12 Amendments. The next phase of the study will further refine recommendations identified in the Strategic Plan.

North Willamette Crossing

Purpose: *Study the need for a new bridge from US Highway 30 to Rivergate.*

Analysis for the RTP showed a strong demand for travel between NE Portland Highway from the Rivergate industrial area and Highway 30/St Helens Road on the west side of the

Willamette River. The St. Johns Bridge currently carries this traffic, but has limitations and will not be adequate in the long term to carry freight and other traffic. The St. Johns Truck Strategy recommends a number of changes to balance freight mobility needs with the vitality of the St. Johns town center. The Truck Strategy provides an interim solution to demand in the corridor and does not attempt to address long-term access needs to Rivergate and Highway 30. The refinement plan should incorporate the following:

- Building on the St Johns Truck Strategy, recommendations to provide adequate freight and general access to Rivergate, while considering potentially negative impacts on the future development of the St. Johns town center
- The potential for a “streamlined” northeast Portland connection from I-205 to Rivergate
- A long-term management plan for the St. Johns Bridge if the plan recommends a new crossing

Powell Boulevard/Foster Road

Purpose: *Resolve outstanding transportation issues in the Pleasant Valley, Damascus and south Gresham areas.*

The Powell Boulevard/Foster Road Corridor represents both a key transportation challenge and an opportunity to meet 2040 regional land use goals. The Powell/Foster Corridor is a top priority among corridors requiring refinement plans. Despite policy changes to level-of-service standards that permit greater levels of congestion, significant multimodal improvements will be needed in order to continue to serve transportation needs of the communities and industrial areas in southeast Portland and Gresham. The corridor is also critical to providing access to the planed growth areas in Pleasant Valley, along with Damascus and Springwater that have recently been added to the Urban Growth Boundary. In addition, the corridor is constrained by significant topographical and environmental features.

As a result of the findings from Phase 1 of the Powell Boulevard/Foster Road Corridor Plan, which was completed in 2003, specific multimodal projects have been identified that address transportation needs on Powell Boulevard between inner SE Portland and Gresham, and on Foster Road west of Barbara Welch Road. System level decisions for transit service were also made for the corridor.

Several outstanding transportation problems in the Pleasant Valley, Damascus and south Gresham areas, require additional planning work before specific multimodal projects can be developed and implemented. The Phase 2 plan should be closely coordinated with concept plans for Damascus and the Springwater area, in order to incorporate the updated land use and transportation assumptions. It should examine the following transportation solutions and strategies:

Determine the appropriate cross-section on Foster Road between Barbara Welch Road and Jenne Road and the project timing, to meet roadway, transit, pedestrian and bike needs.

Explore the possibilities for potential new street connection improvements in the Mount Scott area that reduce local travel demand on Foster Road and improve access to the Pleasant Valley area.

Develop conceptual designs and determine right-of-way for an improvement and extension of SE 174th Avenue between Powell Boulevard and Giese Road, or another new north-south roadway in the area, to accommodate travel demand and improve access to Pleasant Valley. The alignment should consider engineering feasibility, land use and environmental effects, safety, and overall costs.

Further define the three-lane Highland Drive and Pleasant View Drive option that was recommended as part of Phase 1. This option needs to address design, operational, and safety-related issues.

Work with local jurisdictions to provide for access management on arterials serving Pleasant Valley and Damascus.

Address other regional north-south transportation needs identified by the Damascus Concept Plan and Springwater concept planning effort. Further evaluate alignment issues, engineering cost estimates, and right-of-way impacts of future roadway projects north of Damascus that are identified as part of the concept planning effort.

Barbur/Interstate 5

Purpose: Identify needed improvements for motor vehicles, trucks, bicycles, pedestrians, and high-capacity transit travel in the Barbur/I-5 corridor from I-405 to the north Tigard interchange.

This corridor provides access to the Central City and to neighborhoods and commercial areas in the inner southwest quadrant of the region. Barbur Boulevard is designated in the RTP as a multimodal facility with potential light rail or rapid bus service, and also serves a regional role for motor vehicle, bicycle, and pedestrian systems. I-5 in this corridor is designated as a Main Roadway route for freight and a Principle Arterial for motor vehicles, extending southward beyond the region.

Even with priority system improvements, segments of both Barbur Boulevard and I-5 in this corridor experience significant congestion and poor service levels, especially from the Terwilliger interchange northward. However, rapid bus service along Barbur and other expanded bus services are expected to experience promising ridership levels. Significant localized congestion occurs along the intersecting street segments of Bertha, Terwilliger, and Capitol Highway/Taylor's Ferry. Broad street cross-sections, angled intersections, and limited signalized crossing opportunities along Barbur create traffic safety hazards and inhibit walking to local destinations and access to transit services.

The I-5 right-of-way presents a substantial barrier to local street system connectivity, contributing to congestion at the limited number of crossing points. The relatively steep freeway grade presents a safety hazard and contributes to significant roadway noise impacts on adjacent neighborhoods. The corridor is also located in the vicinity of several significant natural resource areas, including the Fanno Creek and Tryon Creek watersheds.

Several recent planning studies and actions will provide guidance for future transportation analyses and refinement planning. The South Portland Circulation Study report provides a circulation concept for the Ross Island bridgehead area and Naito Parkway. The Barbur Boulevard Streetscape Plan provides guidance for pedestrian and streetscape improvements.

The Barbur Boulevard Streamline Project recommends near-term improvements for transit operations and bus stop amenities. The West Portland Town Center Study recommends various transportation improvements for this area. The City did not adopt or act upon this study, but some portions may be useful for future considerations.

The adoption of the Southwest Community Plan and Comprehensive Plan (SWCP) and Zoning Map resolved many land use issues in the broader area surrounding the corridor. However, a 'Barbur envelope' has been delineated for a future land use and transportation planning process. This area includes a relatively narrow band of properties along Barbur between Miles Street and the City boundary and in the general area of the West Portland town center. Until the plan for this area is completed, the SWCP identifies the town center designation as conceptual only; the exact designation for the area could change as a result of further study.

Transportation solutions in the corridor should consider the following approaches:

- Combined land use and transportation alternatives within the 'Barbur envelope' area, and resulting transportation and livability benefits and impacts
- Regional and local transit services and facilities, and the appropriate transit vehicle type to serve the Barbur corridor within the RTP planning horizon
- Possible new locations or relocations for I-5 on-ramps and off-ramps and street connections across the freeway right-of-way
- Opportunities for new or improved local street connections to Barbur, including locations for possible signalized intersections and reconfiguration of angled intersections for safe, multimodal access
- Facilities to improve bicycle and pedestrian safety along Barbur and access to transit services and local destinations
- Traffic management and intelligent transportation system improvements along the corridor
- Potential mainline freeway improvements, including possible southbound truck climbing lanes and traffic and truck noise mitigation
- Special attention to the Barbur/Capitol/Taylor's Ferry intersection and local street connectivity improvements in the West Portland area
- Coordination with previous planning studies and recommendations from the South Portland Circulation Study, Barbur Boulevard Streetscape Plan, and Barbur Boulevard Streamline Project

RTP Studies

Columbia Slough Greenway Trail Study

Purpose: Determine the feasibility of constructing a multi use path of regional significance from Kelly Point Park to Blue Lake Park (2000-2005).

Limited segments of the Columbia Slough Trail have been completed, including some recently developed by the Bureau of Environmental Services (BES). Significant links are missing. This study would look at potential alignments, consider environmental and physical constraints, and determine where grade separation may be needed when the trail crosses rights-of-way.

Interstate 205 Ramp Study

Purpose: Evaluate and recommend improvements to I-205 ramps at SE Powell and SE Division to eliminate confusing intersections that direct drivers to frontage roads (2000-2005).

Based on adopted policy, the City designed the freeway ramp and collector-distributor road system on either side of the I-205 freeway to operate so Powell Boulevard on the west side of I-205 and Division on the east side of I-205 provide a continuous route from Portland to Gresham. This design was intended to take automobile and truck traffic off the more transit-oriented Division Street west of I-205 and use Division east of I-205, in combination with the more auto-oriented Powell Boulevard west of I-205, for the bulk of trips between the two centers.

The current design of the ramp termini reflects this policy intent. There has been recent interest, however, in revisiting the turn restrictions and physical restrictions imposed by the policy and design. ODOT and the City have agreed to analyze the type of improvements that might be necessary to remove the turn restrictions at SE 92nd and Powell Boulevard and allow for more balanced turn movements throughout the interchange area.

West Portland/I-5 Access and Crossings Study

Purpose: Identify possible new connections over I-5 to serve motor vehicles, pedestrians, and bicycle travel (2000-2005).

Because of the barrier effect of I-5 and SW Barbur, the existing street pattern in the vicinity of the West Portland town center/Barbur transit center is incomplete, particularly in the north-south direction. This 'wall' limits connections between cultural, institutional, recreational, and commercial facilities such as Woods Memorial Park, Multnomah Village, the Multnomah Center, Gabriel Park, Jackson Middle School, PCC-Sylvania, and Markham Elementary School. Topography presents a challenge to making additional connections in the vicinity of the transit center.

I-5 Crossing

The existing pedestrian/bicycle connection across I-5 ramps down from the transit center, crosses I-5 on a pedestrian bridge, then ramps down to SW Willard at 40th. The West Portland Town Center Study (December 1997) recommended enhancing the existing pedestrian bridge crossing by reconfiguring the park-and-ride lot, providing a new local street crossing in the vicinity of the transit center, and potentially capping a portion of I-5. In addition, sidewalk improvements are needed on local streets south of I-5 to improve connections to the existing pedestrian bridge.

Local Street Connectivity

Southwest Barbur and I-5 create barriers at the north and south ends of the West Portland town center. Only Capitol Highway and the pedestrian bridge at the transit center cross I-5 in the vicinity of the town center, resulting in a local street network with missing links. Potential locations for local street crossings of I-5 are:

- Replacing the existing pedestrian/bicycle bridge over I-5 with a pedestrian-oriented, local street connection on the 39th/40th alignment, connecting to 40th at Wilbard Street and to SW 35th
- Constructing a new local street that extends SW 48th Avenue south on a new bridge structure to SW Huber Street and then connects to an extension of SW Alfred Street
- Constructing a bicycle/pedestrian bridge between the Ash Creek and Crestwood neighborhood and the West Portland Park neighborhood in the vicinity of the Dickinson Street corridor, south of Markham School

This study may be incorporated into the Barbur/I-5 refinement plan (described earlier in this chapter), which identifies many of the issues described here.

Barbur Boulevard Crossings

Existing commercial areas along the west side of Barbur and south of I-5 are relatively inaccessible by pedestrians. Barbur presents a barrier to pedestrian access because of wide paved areas, limited crossing opportunities, and relatively high traffic volumes and speeds. Safer and more convenient pedestrian circulation is needed to support commercial uses, access transit service, and support a future town center.

Additional study is needed to determine the need and feasibility of new connections, within the context of the additional land use and transportation analysis being conducted as part of the Barbur and I-5 corridor refinement plan.

Willamette Cove Shoreline Trail

Purpose: Evaluate the feasibility of a multi use trail from Cathedral Park to Swan Island and from Swan Island to the Steel Bridge (2000-2005).

Willamette Cove is on the North Portland peninsula near St. Johns. With nearly one-half mile of riverfront, it is one of the last remaining semi natural shorelines in the Portland Harbor. The property is at the southern anchor of the Peninsula Crossing Trail, a 3.5-mile pedestrian trail that connects the Willamette and Columbia Rivers. The City of Portland recently completed a master plan for the redevelopment of the 27-acre Willamette Cove site as a natural area park.

Central City Pedestrian Enhancements Study

Purpose: Identify needed pedestrian improvements to address locations lacking pedestrian crossings, difficult bridge crossings, and access over freeways in the Central City (2000-2005).

The Central City Transportation Management Plan's (CCTMP) pedestrian policies and text note that the degree of pedestrian access is increased when the pedestrian network is

“comprehensive in coverage, easily accessible, and without significant barriers and obstacles that would prevent its use.” The pedestrian enhancements study should:

- Identify gaps and deficiencies in the pedestrian network
- Examine ‘no pedestrian crossing’ locations and identify appropriate measures to improve access
- Examine the need for underpasses and the potential for alternative pedestrian crossing opportunities
- Identify pedestrian access improvements to and across Willamette River bridges
- Identify pedestrian access improvements across I-5, I-84, and I-405
- Identify connections to and from surrounding neighborhoods
- Identify locations where pedestrian crossings need improvements and/or signal modifications
- Identify reconfigurations of ramp intersections to provide continuous sidewalks on both sides of SE Grand and SE Martin Luther King, Jr.

Tualatin/Portland Commuter Rail Extension Study

Purpose: Evaluate the extension of commuter rail service from Tualatin to Union Station via Lake Oswego and Milwaukie (2011-2020).

This project would use existing railroad tracks: the Tillamook branch from Tualatin and the Southern Pacific tracks in Portland. The line would extend from Tualatin, through Lake Oswego and Milwaukie, and through eastside Portland before crossing the Willamette and ending at Union Station.

Portland to Milwaukie Light Rail Transit Study

Purpose: Identify possible light rail route alignment from the Portland Transit Mall. (2005-2010)

Further study has been identified in the 2004 South/North Land Use Final Order (LUFO) Amendment adopted by Metro Council (Resolution No. 03-3372) for two areas within Portland. The LUFO identifies a study area for a possible light rail route alignment from the downtown Portland Transit Mall at SW Lincoln Street and SW 5th Avenue eastward along SW Lincoln Street and an extension of SW Lincoln to I-5. This area is immediately adjacent to the extension of the Portland Transit Mall to just south of SW Harrison.

Further study has also been identified for a section of land south of SE Tacoma Street and generally north of Highway 224, between McLoughlin Boulevard, east to the Tillamook Branch railroad line. The purpose of this study is to address issues of concern identified by the City of Milwaukie (Resolution 02-2003).

Lake Oswego to Portland Transit and Trail Study

Purpose: *Develop and evaluate transit and trail alternatives in the Lake Oswego to Portland corridor and select one or two preferred alternatives to advance into the federal environmental analysis process.*

In the Lake Oswego to Portland corridor, Highway 43 serves as the primary north/south route for cars, buses and trucks between Lake Oswego and Portland. Existing traffic volumes on Highway 43 create substantial congestion in the peak hours. Substantial roadway improvements and tolling for Highway 43 have been ruled out in earlier studies. Multiple studies have recommended consideration of transit along the existing Willamette Shoreline right-of-way. Given the public ownership of the railroad right-of-way within the corridor, transit alternatives, including, but not limited to streetcar service, are being studied.

The purpose is to develop a community-supported transit project that meets future travel demand in the Lake Oswego to Portland corridor and supports local and regional land use plans. The project will accomplish several objectives:

- Provide improved transportation access to and connectivity among significant destinations and activity centers.
- Minimize traffic and parking related impacts to neighborhoods.
- Support and enhance existing neighborhood character in an environmentally sensitive manner.
- Leverage investment in the existing transit system to cost-effectively increase riders in the corridor and across the system.
- Support transit-oriented economic development in Portland and Lake Oswego.
- Support community goals related to transportation, land use and development.
- Increase mobility.
- Provide additional transportation choices in the corridor.
- Provide access for persons with disabilities.
- Be part of an integrated multimodal transportation system.
- Anticipate future needs and impacts and not preclude future expansion opportunities.

The purpose of the pedestrian and bicycle trail is to provide a connection between the Willamette River Greenway trail at the north end and the Lake Oswego town center at the south which will:

- Significantly improve the access, safety and quality of experience for cyclists, pedestrians and persons with disabilities.
- Create a connected, high-quality facility that is compatible with the transit alternative and which makes bicycling and walking a viable transportation and recreation choice.
- Enhance the value of the existing transportation system by successfully integrating the bicycle and pedestrian trail.
- Be compatible with and serve the needs of surrounding neighborhoods.
- Connect and improve access to important pedestrian and bicycle destinations in the corridor.

RTP Preferred System Studies

The RTP project list includes the following studies only in the 2020 Preferred System. There is no timeframe associated with these studies.

I-84/Banfield Trail

Purpose: Study the feasibility of a multi use path from the Eastbank Esplanade to I-205 bike lanes.

A feasibility study is needed to determine whether a bicycle path could be constructed along I-84 between the Eastbank Esplanade and the I-205 bike lanes. The study would need to determine the path's location (adjacent to the heavy rail line, above the gulch, or a combination of the two) and access points to the path. Since the path will likely involve private (railroad) property, a public involvement component will be needed.

I-84/I-205/Tillamook Multi Use Connector Study

Purpose: Study the feasibility of a connection from I-84/122nd Avenue to I-205.

This study would consider the feasibility of a bicycle path connection between the existing path on I-84 (that has its western terminus at 122nd) and I-205. The terminus with I-205 would link to a future path identified in the I-84/Banfield Trail study discussed above. Topography and heavy rail lines would limit alignment alternatives. Topography and a limited number of east-west streets would also limit access points.

Third Track Connector Study

Purpose: Study additional rail capacity to address growth in high-speed rail and commuter rail from North Portland to Vancouver, Washington.

The 1999 Commuter Rail Feasibility Study evaluated the feasibility of regional commuter rail service operating on the existing freight rail lines. ODOT and the Washington Department of Transportation will jointly conduct a new Rail Capacity Analysis as part of the ongoing I-5 Transportation and Trade partnership. This study will examine possible commuter rail service between Portland and Vancouver/Woodland, and Portland and Camas/Washougal. It will consider the feasibility of commuter rail service on entirely new, separate, passenger-only rail lines for intercity passenger trains (including high-speed rail) and commuter rail trains. Potential ridership and infrastructure costs will also be examined. The study will likely find that a third rail line would be inadequate and two parallel passenger rail lines would be more feasible.

Union Station Multi Modal Center Study

Purpose: Identify improvements to meet additional transportation needs to Union Station.

Union Station is a highly accessible intermodal facility, with passenger connections between public and private bus systems and passenger rail. Motorists, pedestrians, transit riders, and

bicyclists can also access the station. Light rail and bus service will be expanded in the future, and NW Sixth will be extended north to NW Northrup. Improvements for Union Station area would focus on:

- Preserving access to and from Union Station for all modes of travel, including bus, light rail, passenger rail, motor vehicles, walking, and bicycles
- Further developing Union Station as an intermodal passenger terminal

Central Eastside Truck Access Study

Purpose: Evaluate circulation to improve connections in the Central Eastside to the regional traffic network and reduce conflicts with non industrial land uses.

The Central Eastside is an important industrial job base for the Central City, particularly for warehousing, distribution, and incubator industrial activities. Commercial vehicle access and circulation to and within the district must be maintained and enhanced. Areas of concern include access to and from I-5, SE Powell Boulevard, the Ross Island Bridge, and 'southern triangle' area. Circulation in the Central Eastside needs to be managed to minimize conflicts between trucks, automobiles, bicycles, pedestrians, and transit and to minimize conflicts between industrial, retail, and residential activities.

Lower Sandy Boulevard Circulation Study

Purpose: Realign blocks to improve circulation in the Stark to Burnside area.

The CCTMP identified a strategy to “consider modifying Sandy Boulevard from E Burnside to SE Stark to eliminate excess street area, realign city blocks, and improve routes and street design for pedestrians and bicyclists.”

PORTLAND PLANS AND STUDIES

Refinement Plans

Central City Transportation Management Plan (CCTMP) Update

Purpose: Update the CCTMP, including subarea access and circulation studies as needed (2000-2005).

City staff must review and update the CCTMP's policies, objectives, district strategies, and street classifications every five years. The review is limited to City Council directives, street reclassifications, new programs, policy amendments, land use changes, and legal issues, and must include a citizen involvement component. The CCTMP street classifications were updated as part of the TSP process to make them consistent with RTP classifications.

MAX Light Rail Corridor Master Street Plan

Purpose: Complete the master street plan for areas between NE Glisan and SE Stark, east of the Gateway regional center (2000-2005).

The RTP requires local jurisdictions to develop “conceptual new street plan maps” for “contiguous areas of vacant and redevelopable parcels of five or more acres planned or zoned for residential or mixed-use development.” The maps are intended to provide guidance to property owners and developers, as well as more certainty to nearby residents. The street plans should identify street connections to adjacent areas in a manner that promotes a convenient and well-connected street system. The street plans should show extensions to existing streets, new street connections to provide adequate connectivity, and a reliance on through-streets rather than closed street designs.

Because the MAX light rail corridor has unique connectivity needs, it was not included in the Far Southeast Street Master Plan study. A higher level of street connectivity is desirable in dense, mixed-use areas to access multiple destinations and disperse vehicle traffic throughout the area. High levels of pedestrian activity also warrant a more densely spaced street grid to facilitate movement and attain high mode split targets for alternatives to single-occupant vehicles.

Citywide Master Street Plans

Purpose: Complete master street plans for the following districts: Southeast, Far Northeast, North, Northeast, and Northwest (2000-2005)

The 2000 RTP requires local jurisdictions to develop “conceptual new streets plan maps” for “contiguous areas of vacant and redevelopable parcels of five or more acres planned or zoned for residential or mixed-use development. The maps are intended to provide guidance to property owners and developers as well as more certainty to nearby residents. The street plans must identify street connections to adjacent areas in a manner that promotes a convenient and well-connected street system. The street plans must show extensions to existing streets, new street connections to provide adequate connectivity, and reliance on through streets rather than closed street designs.

Areas of the City without adopted street plans must be analyzed to determine where adequate connectivity does not exist. Some areas, such as inner Southeast, have high levels of street connectivity that exceed regional standards. Other districts, such as Northwest, exhibit high street connectivity near the Central City, but poor connectivity in outlying areas where topography and industrial zoning may preclude connectivity. At a district level, the Far Northeast exhibits the lowest levels of connectivity for areas not covered by an adopted street plan.

Studies

ODOT District Highways Evaluation

Purpose: Assess the long-term design and functional needs of state highways inside the City.

The City and ODOT are both interested in transitioning district highways within the City limits to Portland's jurisdiction and management. These may include Sandy Boulevard, NE/SE 82nd Avenue, N/NE Lombard, NE/SE Martin Luther King, Jr. Boulevard, and NE/SE Grand Avenue. Many of these highways have changed roles over time, as parallel state routes and limited-access highways were constructed. These district highways formerly served as through-routes, but now provide more local circulation and commercial access functions.

The City's interest in assuming jurisdiction is based on land use (implementing 2040 main street development); development review (giving one agency permit authority for buildings, driveways, etc.); street design (incorporating multimodal features, more calmed traffic), and operations (implementing signalization, parking control, etc.).

The City must evaluate the significant cost implications of assuming jurisdiction for these district highways. Many of the highways need reconstruction or are not built to the level of urban standards the City desires. Jurisdiction also includes a long-term responsibility for maintenance and operations.

Brooklyn Rail Yard Access Study

Purpose: Identify pedestrian and bicycle improvements.

This idea was generated in the TSP workshop for the Southeast Transportation District and is also identified in the Brooklyn Neighborhood Plan (1991) concept plan. The Brooklyn yards contain numerous rail lines and associated activities that create a substantial barrier to pedestrian and bicycle access across the Brooklyn neighborhood. An existing pedestrian bridge over the tracks is in disrepair. The Brooklyn Neighborhood Plan envisions a new bicycle and pedestrian bridge over the rail lines for access to the park and high school from the east side of the neighborhood at approximately SE Lafayette.

East Burnside Pedestrian Access Improvements

Purpose: Analyze East Burnside between 12th and 39th for improvement of transit/pedestrian access to commercial and residential areas.

The Pedestrian Master Plan identifies the need for a plan for East Burnside between 12th and 39th to identify transportation improvements that will increase walking opportunities and provide streetscape improvements to enhance the main street character of this corridor.

Interstate 5/Interstate 405 Inner Freeway Loop Study

Purpose: Evaluate the current and future operations, design, and proposed improvements of the I-5/I-405 freeway loop in the Central City, and consider alternative design concepts.

The purpose of this study is to develop alternative design concepts for the inner freeway loop, addressing issues such as regional mobility; freight movements; access needs of Central City districts; minimization of physical barriers and impacts on the river; potential local street network improvements; and the role of alternative modes. The analysis should also evaluate changes to the transit system and the possible implications for land use in the district.

Numerous studies have evaluated the service capabilities of various existing segments of the inner freeway loop (such as the Greeley-Banfield segment and the Eastbank segment) and have recommended potential improvements. The freeway loop has not been evaluated as a whole system, however. Several recent planning activities indicate the need to evaluate the function and design of the entire inner freeway loop, given emerging land use and transportation objectives. These planning activities include the I-5 Transportation and Trade Partnership, the South Portland Circulation Study, the Rose Quarter Urban Design Plan and Development Strategy, the Lloyd District Development Strategy, and the Central Eastside Development Opportunity Strategy.

Brooklyn Neighborhood River Access

Purpose: Study pedestrian and bike access from the Brooklyn neighborhood to the Willamette River.

The 1991 Brooklyn Neighborhood Plan identifies improved access to the riverfront as a longstanding neighborhood priority. Objective 6A1 of the plan states: “Re-establish Brooklyn’s access and historic link to the Willamette River.”

McLoughlin Boulevard creates a barrier that separates the neighborhood from the river. Existing access from the neighborhood to the river is via the lower-level ramps at the Ross Island Bridge, where steep terrain limits easy access, or via Holgate Boulevard, where pedestrians can cross at a stoplight, but can reach the river only by descending a bramble-covered bank. Haig Park is undeveloped parkland between the river and McLoughlin Boulevard, south of the SE Franklin Street alignment and north of the SE Haig Street alignment.

The neighborhood concept plan identifies a pedestrian overpass bridging McLoughlin as a way to provide river access. A recent study investigated alternative crossing locations of McLoughlin Boulevard and access routes to the Springwater Trail, and provided rough cost estimates. That study may be detailed enough to identify a preferred alternative for an improvement project. The next step would be to determine if the project responds to a transportation need rather than a recreational need to qualify it for inclusion in the TSP. Because the preferred alternative may impact private property and existing business operations, a City Council hearing on the report's acceptance is also recommended.

Inner Powell/Ross Island Bridgehead Access and Circulation Study

Purpose: Study access and circulation alternatives to the east ramps of the Ross Island Bridge, including local circulation and pedestrian and bicycle access, and create a streetscape plan between the bridge and SE 50th Avenue.

This study has many elements that could be conducted as part of other recommended TSP studies (such as the I-5/I-405 Inner Freeway Loop Study or the Brooklyn Neighborhood River Access) or could be undertaken independently. It involves two basic issues that should be evaluated together: improving the access route to the Ross Island Bridge from the Central Eastside Industrial District (CEID) and reducing the pedestrian barrier effect created by the current design of the inner segment of Powell to SE 21st Avenue.

The Central Eastside Transportation Study (1990) presented several concepts for improving the current traffic and truck access route from the CEID to/from the Ross Island Bridge. Further investigation may identify other alternatives. During its most recent review of I-5 southbound access alternatives from the Central Eastside, City Council indicated a preference to improve access to I-5 southbound via the Ross Island Bridge rather than support construction of the Water Avenue ramp.

The inner segment of Powell Boulevard is a significant barrier for pedestrians, and its highway design may not be compatible as an edge to the neighborhood to the south. There are no protected at-grade crossings of Powell between the bridge and Milwaukie and between Milwaukie and SE 26th Avenue. The streetscape portion of the study should address the aesthetic environment and pedestrian crossing improvements at Powell Park and Cleveland High School, Creston Park and Creston Schol and SE Milwaukie, SE 17th, and SE 39th Avenues.

Interjurisdictional Arterial Improvements Coordination

Purpose: Develop a coordinated street improvement plan for arterial streets that transcend jurisdictional boundaries.

This study would look at streets that cross jurisdictional lines, to identify changes in traffic volumes and traffic origins/destinations and to monitor how the streets' classifications conform with their function and levels of regional traffic. Significant traffic growth is expected on streets that connect to other jurisdictions with planned population and/or employment growth.

Metro designates collector-level streets as part of the regional street system when a network of higher-classified streets is not present or lacks adequate capacity to carry regional traffic.

Designated in the RTP as ‘collectors of regional significance’, these streets connect the regional arterial system and the local collector system and distribute neighborhood traffic to arterials. They have three purposes: 1) ensure adequate access to the primary and secondary land use components of the 2040 Growth Concept, 2) allow dispersion of arterial traffic over a number of lesser facilities where an adequate local network exists, and 3) define appropriate collector-level movement between jurisdictions.

The RTP designates some district and neighborhood collectors in Portland as collectors of regional significance. Examples of Portland streets that have this designation and extend beyond Portland boundaries are SW Taylors Ferry, SW Terwilliger, SE 52nd, SE 112th, SE Johnson Creek, and NW Cornell.

NE Glisan Street Transportation and Streetscape Study

Purpose: Identify transportation and streetscape improvements that address commercial, pedestrian, bicycle, safety and neighborhood livability needs.

Northeast Glisan between NE 67th and 82nd Avenues has been designated a main street in the Region 2040 Growth Concept. The TSP designated this segment of Glisan as a Community Main Street for street design purposes. The TSP contains one project, bike lanes, for NE Glisan.

Currently, this segment of Glisan stretches between two light rail stations at 60th and 82nd. The land use and zoning pattern is storefront commercial, consistent with its main street designation. NE Glisan has the potential to be a thriving commercial district with multimodal connections. Barriers that prevent Glisan from realizing its potential include heavy automobile use as an alternative to I-84 during peak travel times; difficult pedestrian crossings and inadequate sidewalks and large curb cuts, missing bike lanes, intermittent on-street parking, and a lack of street trees.

Marquam Hill/Terwilliger Parkway Traffic Calming and Neighborhood Access Study

Purpose: Evaluate traffic calming and traffic mitigation aimed at reducing institutional traffic.

The Portland Aerial Tram Final Recommendations and Report identified a study to be included in “Tier 1” implementing actions. The study description states,

Initiate a community outreach and design process for evaluating traffic calming and traffic mitigation solutions aimed at reducing institutional traffic along routes accessing Marquam Hill facilities, including those identified in the Marquam Hill Plan. Emphasis should be placed on maintaining neighborhood access within the Homestead neighborhood.

Within the Marquam Hill and Terwilliger Parkway project list identified as mitigation for the aerial tram a number of traffic calming and traffic mitigation projects were identified. These projects all have a common theme, which is to mitigate impacts associated with Marquam Hill institution traffic on local neighborhood streets, and to encourage this institutional traffic to use appropriate routes travelling to and from Marquam Hill destinations. Given the

number of projects that are related to this issue, it is important to plan these projects in an integrated manner, working with affected residents and property owners.

The following potential projects were identified as part of the Portland Aerial Tram project:

- MH-1 Homestead Drive/6th Avenue/Gaines Street Connection
- MH-2 Marquam Hill Traffic Calming – Condor Avenue, Hamilton Street, Homestead Drive, Bancroft Street
- MH-6 US Veterans Drive/Sam Jackson Park Road Intersection Improvements
- TP-4 Terwilliger Parkway Intersection Improvements – Campus Drive, Condor Lane, Homestead Drive

MODAL PLANS and MANAGEMENT PLANS

5

INTRODUCTION

When Portland's first Comprehensive Plan was written in 1980, the job of transportation planners and engineers was to accommodate existing travel demand and the vehicle traffic it generated as best as possible with the available resources. Today, the community can no longer afford this response to transportation needs.

In 1980, the Portland urbanized area (urbanized portions of Clackamas, Multnomah, and Washington counties in Oregon) had a population of 970,000 people. The average person generated about 12 miles of vehicular travel per day.

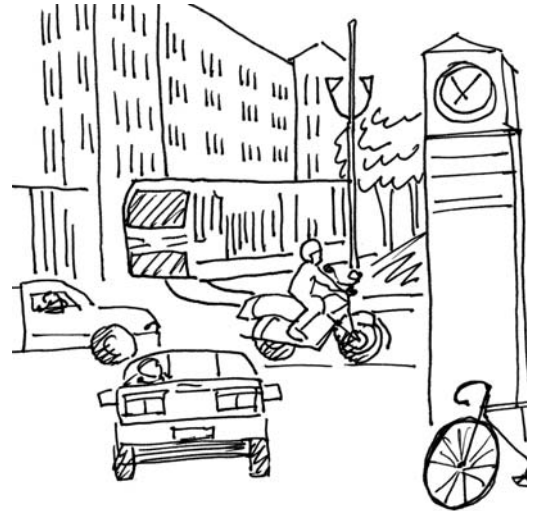
By 1997, population had increased by over 25 percent to 1,217,000 people. The average vehicular miles each person traveled per day had increased by 75 percent, and total vehicle miles traveled (VMT) had increased by 108 percent.

As a result of this fast-growing demand for mobility, too many vehicles are competing for too little space within the public right-of-way. The consequences include greater traffic congestion, longer travel times between destinations, huge traffic jams caused by minor incidents, more road rage as people are delayed, and threats to air quality, even as the exhaust from each individual car has become much cleaner.

The competition for vehicle space also has consequences for residential neighborhoods. To avoid the congested arterials, increasing numbers of cars travel at excessive speeds on local neighborhood streets. Neighborhood safety and livability are reduced, and residents become frustrated and angry about the traffic in front of their homes. Increasing traffic volumes also have consequences for economic health as truck delays increase the costs of doing business.

Portland's Transportation System Plan (TSP) will help the City take a more proactive approach to transportation planning. It sets transportation priorities and recommends a variety of programs and strategies to serve expected travel demand. The TSP recognizes that the transportation system must address the needs of all users of the right-of-way and accommodate those needs in the most efficient way.

This chapter reflects this comprehensive approach to transportation planning. It provides plans for multiple modes of travel: motor vehicle; public transportation and transportation disadvantaged; pedestrian; bicycle; freight; and air, rail, water, and pipeline. It also includes



a plan that addresses transportation demand management (TDM) and parking, and a plan for transportation system management (TSM).

REQUIREMENTS FOR MODAL PLANS

Transportation Planning Rule

Oregon's Transportation Planning Rule (TPR), adopted in 1991, reflects the state's desire to build a balanced, multimodal, accessible transportation system that reduces reliance on the automobile. In accordance with this vision, it requires metropolitan areas and cities to reduce vehicle miles traveled per capita and the number of parking spaces per capita. It also requires all TSPs to include:

- A modal plan for each transportation mode
- Measurable goals for increasing the modal share of modes other than the single occupant vehicles
- Interim benchmarks for evaluating progress towards these goals

The TPR also identifies the following minimum elements that must be included in each modal plan:

- An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity, and condition. The capacity analysis shall include:
 - Capacities of existing and committed facilities
 - Degree to which the capacities have been reached or surpassed on existing facilities
 - Assumptions on which these capacities are based
 - For state and regional facilities, consistency with standards of facility performance considered acceptable by the affected state or regional agency

Conditions shall describe the general physical and operational condition: very good, good, fair, poor, very poor

- A system of planned transportation facilities, services, and major improvements
- Description of the type or functional classification of planned facilities and services
- Planned capacities and levels of service
- The location of planned facilities, services, and major improvements, including a map of general location
- Description of facility parameters such as minimum and maximum road right-of-way width and number and size of lanes
- Identification of the provider of each transportation facility or service

In addition to these common requirements, the TSP identifies elements that are required for specific modal plans.

Urban Growth Management Functional Plan

Title 2 of the Urban Growth Management Function Plan (UGMFP) furthers the goal of the TPR to reduce parking spaces per capita. The City has adopted parking minimums and maximums to fulfill part of Title 2 requirements. The parking restrictions help the City achieve transportation and land use goals. Restrictions on parking are an important strategy for supporting alternatives to the automobile.

Regional Transportation Plan (Functional Plan for Transportation)

The Regional Transportation Plan (RTP) has the following requirements that are applicable to the modal plans. Many of the requirements mirror sections of the TPR, but are more specific.

- Consistency with policies, objectives, motor vehicle level-of-service measures and modal targets, system maps, and functional classifications
- Design standards for connectivity
- Transit service planning
- Alternative mode analysis
- Motor vehicle congestion analysis

CARRYING OUT THE TSP THEMES

The overall themes for the TSP (see Chapter 1) helped guide the development of the modal plans. The following discussion shows how the modal plans help carry out these themes.

2040 Growth Concept

The RTP and the 2040 Growth Concept guide the development of Portland's transportation system. These plans envision a transportation system that restrains urban sprawl by promoting mixed-use, high-density development in regional centers, town centers, and main streets. These development patterns will reduce per-person travel demand and VMT by providing a greater range of housing options, employment opportunities, and services within a given distance. They will also serve the shopping needs of adjacent lower-density residential neighborhoods, reducing the need to drive 5 to 10 miles to the nearest commercial centers. The Growth Concept also addresses the need for industrial and employment areas that are in proximity to employees and needed transportation facilities.

In other words, the Portland region's approach to transportation needs has shifted from an emphasis on *mobility* to an emphasis on *accessibility*. Instead of segregating land use types so people are required to travel long distances to satisfy their daily needs, land use types will

be carefully integrated so short trips, frequently by transit or non-motorized modes of travel, can accomplish the same purposes.

While this development strategy will have a positive effect on VMT and congestion at the city and regional level, it can also result in more travel to, from, and within the centers and main streets. The resulting traffic could potentially damage one of Portland's biggest assets: its solid residential neighborhoods. Steps will need to be taken to protect these neighborhoods as the centers and main streets grow.

Stewardship, Transportation Choices, and Environmental Sustainability

As a result of declining transportation revenues, many public resources have become limited, including existing roadways and the financial resources available to maintain and improve them. The most efficient modes of travel are those that require the least resources per person-trip.

A single-occupant vehicle (SOV) consumes approximately 20 lane feet (20 linear feet of one travel lane) of roadway (assuming a 10-foot car with 10 feet of headway). A standard Tri-Met bus carrying one person in each seat consumes about 60 linear feet of roadway, which is 1.5 lane feet per person (assuming a 40-seat bus that is 40 feet long, with 20 feet of headway).

This means that 40 persons in 40 single-occupant cars require 800 feet of roadway, while 40 persons in one bus require only 60 feet of roadway. In other words, a person riding a bus is 12 times more efficient in the use of the roadway and takes up less than eight percent of the space than a person driving an SOV.

Bicycling and walking are also more efficient than the SOV. They use no gasoline, cause no pollution, and require much less expensive facilities than those needed to support automobile, truck, and bus traffic.

Comprehensive Approach

The modal plans recognize and promote multiple and interconnected modes of travel that serve the needs of all users. It is important to note that while the TSP requires a separate plan for each mode, this does not reflect the City's approach to transportation improvements. The City is currently shifting away from a modal focus to a geographical focus, where the needs of all modes within the area are addressed simultaneously. While each modal plan will serve as a guide for projects that support that mode, Portland's transportation improvements will also balance the needs of all modes.

Planning documents can easily become a dusty remnant of a process that is quickly forgotten. The success of the TSP will be measured by how it's used over time and its ability to remain a vital guide to the City's approach to its transportation system. The TSP will use performance measures and benchmarks to evaluate how the various modes are performing and allow mid-course corrections to better meet goals.

INTERRELATIONSHIP OF THE MODAL PLANS

In some ways, the modal plans are an artificial way to think about transportation. Management of the transportation system must consider and balance all modes, and individual transportation projects may often incorporate multiple modes. In addition, some issues may be addressed primarily in one modal plan, but will also apply to other modes. Two of the plans included in this chapter focus on specific types of system improvements and strategies that benefit all modes.

Table 5.1 shows some on the interrelationships among the various modal plans. For example, access for the transportation disadvantaged is most thoroughly covered in the Transit Plan; however, audible signals that aid the blind are covered in the Pedestrian Plan because they are a pedestrian crossing strategy. If a particular topic is not covered in one plan, it may be in another of the cross-referenced plans.

**Table 5.1
Interrelationships of Modal Plans**

Modal Plan	Topic					
	Signalization	Transportation Disadvantaged	Traffic Calming	Education	Safety	Street Design
Motor Vehicle	X		X		X	X
Public Transportation	X	X	X		X	X
Pedestrian	X	X	X	X	X	X
Bicycle	X			X	X	X
Freight					X	X
Air, Rail, Water, Pipeline					X	
TDM/Parking				X	X	X
TSM	X		X		X	X

Note: The cell with the shading is where most of the information about that topic is located.

The Transportation System Management (TSM) Plan is not a modal plan in the conventional sense because it does not address any one mode. Historically, TSM has been seen as a tool to manage the automobile system to make it operate more efficiently. Today, the City looks at TSM as a way to prioritize use of the transportation system for all modes. TSM measures are used to manage traffic flow on freeways, give preferential treatment to buses and light rail, allow bicycles and pedestrians to have priority treatment at key intersections, and improve the safety of the transportation system for everyone.

The Transportation Demand Management (TDM) and Parking Plan is also not a conventional modal plan because it, too, does not address a particular mode of travel. However, TDM measures and parking restrictions are vital strategies for reducing auto trips, achieving desired mode split targets, and helping the other parts of the transportation system operate more efficiently. The TDM/Parking Plan also plays a significant role in implementing the 2040 Growth Concept and achieving a desirable land use pattern.

ORGANIZATION OF THE MODAL PLANS

The modal plans are all organized in a similar manner to include the common elements required by the TSP. They are modified as necessary to address requirements specific to each mode. The common elements of the plans are:

- Requirements
 - TRP requirements
 - UGMFP requirements, if any
 - RTP requirements
- Approach to Mode
- Policy Framework
 - City of Portland Comprehensive Plan
 - Goal 6: Transportation
 - Goal 11B: Public Rights-of-Way
 - Central City Transportation Management Plan
- Existing Conditions
 - Summary of Inventory
 - Recent Major Improvements
 - Existing Deficiencies
 - Recent Studies and Plans
- Implementation Measures
 - Existing Regulations
 - New Regulations
 - Projects
 - Programs
 - Strategies
- Conclusion

MOTOR VEHICLE MODAL PLAN

Introduction

Motor vehicles include all motorized vehicles authorized to use the street system including automobiles, trucks, motorcycles, buses, streetcars, and emergency vehicles.

Portland's arterial street system is substantially complete, although not necessarily improved to City standards. Major expansions to capacity are not anticipated, with a few exceptions. A few parts of the City, notably North Macadam, do not have a network of streets to support future growth. Other areas, such as Southwest and Far Southeast, have a network of arterials, but lack local street connectivity. A well-connected street system relieves congestion on arterials and improves access for alternatives to motor vehicles, such as walking and bicycling.



To accommodate growth in travel demand over the life of the Transportation System Plan (TSP), the Motor Vehicle Modal Plan focuses on using a variety of means to maximize the use of the existing transportation network. The City's emphasis will be on implementing projects, programs, and strategies that serve developing areas, enhance safety, and improve the efficiency of the motor vehicle system.

Other plans in this chapter address the functioning of the street system. The Transportation System Management (TSM) plan addresses traffic calming, signalization, and access management.

Requirements

Transportation Planning Rule

In addition to the common elements that must be included in each of the modal plans (as described on page 5-5), the Transportation Planning Rule (TPR) requires the creation and adoption of local transportation system plans that contain the following elements specific to motor vehicles:

- Reduction of vehicle miles traveled per capita
- Identification of a system of arterials and collectors
- Description of standards for the layout of local streets and other important non-collector street connections
- Functional classifications of roads consistent with state and regional TSPs and adjacent jurisdictions

- Consistency with access management for state highways (guidance on the spacing of future extensions and connections)
- Standards for local streets that address:
 - Extensions of existing streets
 - Connections to existing or planned streets, including arterials and collectors
 - Connections to neighborhood destinations
 - Narrow street standards
- Planned safety improvements

Oregon Highway Plan

The 1999 Oregon Highway Plan (OHP) attempts to provide a multimodal transportation system that is balanced, efficient, provides accessibility, is environmentally responsible, safe, financially stable, and connects places, modes, and carriers. The OHP gives policy and investment direction for the preparation of transportation system plans statewide. Policy direction related to local government plans for motor vehicles includes the following elements:

- Coordination of land use and transportation
- System efficiency
- Maximizing limited resources
- Interjurisdictional transfers (state roads to local jurisdictions)
- Intelligent transportation systems
- Access to state highways

2000 Regional Transportation Plan

The Regional Transportation Plan (RTP) identifies a regional motor vehicle network that serves the primary 2040 Growth Concept land use components. The regional motor vehicle system is designed to provide access to the Central City, regional centers, industrial areas, and intermodal facilities, with “an emphasis on mobility between these destinations.”



Motor Vehicle Policy and Objectives

The RTP contains a motor vehicle policy and a number of objectives with which Portland must be consistent. RTP Policy 13.0 calls for “a regional motor vehicle system of arterials and collectors that connect the Central City, regional centers, industrial areas and intermodal facilities, and other regional destinations, and provide mobility within and through the region.”

This is to be accomplished by:

- Providing a system of principal arterials for long distance, high speed travel
- Providing a system of arterials that supports local and regional travel
- Providing a system of local streets that supports localized travel and reduces dependence on the regional system
- Maintaining an appropriate level of service during peak and off-peak travel hours
- Implementing a ‘congestion management system’ to identify and evaluate low-cost strategies to mitigate and limit congestion in the region

Comparison of Traffic Classifications

The RTP’s traffic classification system uses different naming conventions from Portland’s. Table 5.2 compares classifications used in the RTP and the TSP. Traffic Access Street is classification unique to the Central City and is similar to a District Collector outside the Central City. The RTP does not classify streets below the Collector of Regional Significance level.

**Table 5.2
Comparison of Traffic Classifications**

2000 RTP Classification	TSP Classification
Principal Arterial (Freeway)	Regional Trafficway
Principal Arterial (Highway)	Regional Trafficway
Major Arterial	Major City Traffic Street
Minor Arterial	Major City Traffic Street, Traffic Access Street (Central City), District Collector
Collector of Regional Significance*	Traffic Access Street (Central City), District or Neighborhood Collector*
Not mapped	Neighborhood Collectors, Traffic Access Street (Central City)
Not mapped	Local Service Traffic Street

Note: Only a few of the City’s Neighborhood Collectors are considered Collectors of Regional Significance in the RTP.

The RTP defines Collectors of Regional Significance as routes that connect the regional arterial system and the local collector system. They serve three purposes:

1. Ensure adequate access to the primary and secondary land use components of the 2040 Growth Concept

2. Allow dispersion of arterial traffic over a number of lesser facilities where an adequate local network exists
3. Help define the appropriate collector-level movement between jurisdictions

Traffic calming may be appropriate on Collectors of Regional Significance to address the effects of regional traffic on streets that serve pedestrian-oriented land uses or cross through residential areas.

Potential Consistency Issues with the RTP Traffic Classifications

The TSP includes five motor vehicle consistency issues with RTP classifications. These are described below along with TSP recommendations to address the inconsistencies.

WATER AVENUE ON-RAMP (CENTRAL EASTSIDE INDUSTRIAL DISTRICT]

The project for the Water Avenue on-ramp is included in the RTP as Project No. 1026 – Water Avenue Ramps on I-5. It is described as “Construct new freeway access from the Central Eastside Industrial District to I-5.” This project has the potential for substantial environmental impacts and limited benefits given the large costs. The City does not support the project and believes that alternatives exist which would address the access issues addressed by the project. Projects already in the RTP and TSP specifically address access issues in the Central Eastside. In some cases, the TSP recommends that project descriptions be modified to better address access and circulation. Where those projects are listed on the Preferred RTP, the TSP recommends that they be moved to the Priority RTP project list. Those projects (with recommended changes) are:

2000 RTP Financially Constrained Project List:

- **RTP 1027** – South Portland Improvements: Update RTP project description to clarify project purpose to include access from Ross Island Bridge to I-405 and I-5 southbound.
- **RTP 1032** – Southern Triangle Improvements: Change project name to “Powell-12th Avenue – Willamette River – railroad mainline – Hawthorne Bridge” and change project description to “Improve local street network and regional access routes in the area. Improve freeway access route from Central Eastside Industrial District to I-5 southbound via the Ross Island Bridge.”
- **RTP 1047** – SE 7th/8th Connection: Construct new street connection from 7th to 8th Avenues at Division Street.

2000 RTP Priority Project List:

- **RTP 1029** – Water Avenue Extension: Construct new two-lane extension of street with sidewalks, bicycle lanes and landscaping to improve access to the Willamette River Greenway.
- **RTP 1030** – Ross Island Bridge Improvements: US 26 interchange improvement on east approach to Ross Island Bridge.

2000 RTP Preferred Project List (move to the Financially Constrained or Priority Project List):

- **RTP 1039** – SE Belmont Ramp Reconstruction: Reconstruct ramp to provide better access to the Central Eastside. (add to Project Year 11-20)

- **RTP 1040** – SE Clay/King Intersection Improvements: Geometric, signalization and channelization improvements to allow transit and general traffic access to westbound Clay Street from southbound Martin Luther King, Jr. Boulevard. (add to Project Year 6-10)
- **RTP 1082** – Grand Avenue Bridgeheads (Change project description to “Reconstruct west edge of SE Grand Avenue at the bridgeheads to provide sidewalks and urban standard turn lanes for vehicle and truck safety and access.”) (add to Project Year 1-5)

Additional local scale projects and street operations changes referred to in the Central Eastside Development Strategy will also be considered to facilitate improved truck access and circulation (see Chapter 12 in Volume II of the TSP for more detail). Access in the Central Eastside would be further addressed in the Interstate 5/Interstate 405 Freeway Loop Study identified in Chapter 4, Refinement Plans and Studies.

NORTH LOMBARD STREET

The RTP Motor Vehicle System map identifies N Lombard Street as the regional connection to Philadelphia Street and the St Johns Bridge. The RTP classifies this route as a Minor Arterial; the 1996 Transportation Element (TE) classifies this segment as a District Collector. However, these classifications do not reflect the signed US 30 business route, which uses N Richmond and N Ivanhoe between Lombard and Philadelphia for access to and from the St Johns Bridge. The TSP recommends that the RTP be amended to identify the current routing of the US 30 Bypass (Ivanhoe and Richmond between Philadelphia and Lombard) as the Minor Arterial connection to the bridge consistent with the TSP classification of this same route as a District Collector. Street classifications and transportation connections in the area are being evaluated as part of the St Johns/Lombard Plan. The segment of Lombard between Richmond and St. Louis is a Local Service Traffic Street between

NORTH INTERSTATE AVENUE

The RTP classifies Interstate Avenue as a Major Arterial, comparable to a Major City Traffic Street in Portland (see Table 5.2, above). With implementation of the Interstate MAX project, that designation is inconsistent with the increased transit role for the street. The TSP recommends classification of N Interstate as a District Collector, which would be comparable to a Minor Arterial or Collector of Regional Significance in the RTP. The classification would reflect the street’s new role as a regional transit corridor and a lesser role as a through traffic street. The TSP recommends that N Interstate be classified as a Minor Arterial in the RTP.

SOUTHEAST FLAVEL BOULEVARD/MT SCOTT BOULEVARD

The SE Flavel Boulevard/Mt Scott Boulevard corridor between SE 82nd and the City limits is classified as a Minor Arterial in the RTP. The comparable TSP classification would be Major City Traffic Street or District Collector. The City classifies the corridor as a Neighborhood Collector based on the relatively low-density existing and planned densities and the presence of other parallel facilities classified as Major or Minor Arterials in the RTP (SE Foster, SE Sunnyside, SE Johnson Creek/Idleman). The SE Flavel/Mt Scott corridor would also be difficult to build to arterial standards. The logical transition on the south end of the corridor would be Ridgecrest Road in Happy Valley. The City will request that the corridor be reclassified in the RTP as a Collector of Regional Significance within the City limits.

SOUTHEAST CLATSOP EXTENSION BETWEEN SOUTHEAST MT. SCOTT BOULEVARD AND DEARDORF/132ND

An extension of SE Clatsop west to Mt. Scott Boulevard is shown as a future Collector of Regional Significance. This extension while seeming “reasonable,” as noted in the City’s 1984 Mt. Scott/Powell Butte Transportation Study, “presents problems of terrain and land use.” The extension would cut through the Willamette National Cemetery requiring acquisition of federally protected lands. The TSP recommends that this future street connection be removed from the RTP motor vehicle map or realigned south of the cemetery boundaries.

Motor Vehicle Performance Measures

The RTP must demonstrate that it defines an adequate transportation system to serve planned land uses. Metro adopted motor vehicle performance measures to serve as the basis for making that determination. Portland is required to adopt these performance measures for the purposes of transportation system planning. They are incorporated into Policy 11.12, Performance Measures. (Chapter 2 of this document contains the full text of the policy and the accompanying Table 11.1.)

In parts of the region designated Areas of Special Concern, the RTP allows the use of “substitute performance measures” to determine whether the transportation system is adequate to serve planned land uses. Areas of Special Concern are planned for mixed-use development, but are constrained by physical or other factors. The RTP identifies two Areas of Special Concern in Portland: the Central City west of the Willamette River and generally within the I-405 freeway ring, and the Gateway regional center. Both areas have many streets of regional significance and high levels of congestion. Other parts of the TSP (including the Chapter 10 in Volume II) discuss both areas in more detail. The Strategies section of this modal plan includes the required action plan for Gateway, beginning on page 5-33.

Street Design Policies and Objectives

The RTP contains two street design policies and one objective with which Portland must be consistent. RTP Policy 11.0 Regional Street Design calls for “designing regional streets with a modal orientation that reflects the function and character of surrounding land uses.” The objective for this policy supports “local implementation of regional street design concepts in local transportation system plans.” The text accompanying the policy describes the regional street designs listed in Table 5.3.

Policy 12.0, Local Street Design, directs jurisdictions to “Design local street systems to complement planned land uses and to reduce dependence on major streets for local circulation.” The RTP considers all streets not on the regional motor vehicle system map to be local streets.

Comparison of Street Design Classifications

The RTP’s street design classification system uses different naming conventions from Portland’s. Table 5.3 compares classifications in the RTP and TSP. The classification descriptions do not deviate in any significant way from those in the RTP.

**Table 5.3
Comparison of Street Design Classifications**

2000 RTP Classification	TSP Classification
Freeway	Urban Throughway
Highway	Urban Highway
Regional Boulevard	Regional Main Street
Regional Street	Regional Corridor
Community Boulevard	Community Main Street
Community Street	Community Corridor
Urban Road	Urban Road
Rural Road	None in Portland
Local Street	Local Street
Boulevard Intersections	Multimodal Intersections (not mapped)

The street design classifications are described in Chapter 2, Policy 6.11. The purpose of the street design classifications is to reflect the appropriate modal orientation and reflect the function and character of planned land uses.

Boulevard Intersections are identified in the RTP, usually in centers or along main streets, at intersections with major streets where “motor vehicle traffic must be managed to limit negative impacts on other modes and adjacent land uses.” These intersections that should be designed to accommodate a significant amount of motor vehicle traffic, but have “special amenities that promote pedestrian, bicycle and public transportation travel.” The TSP does not map these intersections (Multimodal Intersections in the TSP) but describes the conditions where a Multimodal Intersection treatment would be appropriate. See Policy 6.11 in Chapter 2 for more details.

Potential Consistency Issues with the RTP Street Design Classifications

McLOUGHLIN BOULEVARD

The RTP classification for SE McLoughlin Boulevard is Highway from the Grand/Martin Luther King, Jr. Boulevard south through the City. This classification implies that the street should have few or minimal multimodal elements, creating a hard edge along adjacent residential areas and making a difficult design transition from the Regional Boulevard designation north of Powell on Grand/Martin Luther King, Jr. Boulevard. The TSP recommends extension of the Regional Boulevard designation south from Grand/Martin Luther King, Jr. Boulevard to SE Woodward (one block north of Powell), the Urban Road designation from Woodward south to SE 17th, and the Highway designation south from 17th to the City limits. The City’s Urban Road designation differs slightly from the RTP’s by recognizing that where a Highway (Urban Throughway in the TSP) passes through a residential area, the Urban Road designation may allow a ‘softer’ treatment to address neighborhood livability.

ST HELENS ROAD

The RTP classification for St Helens Road (US 30) is Highway along its entire length. As noted above, this classification implies that the street should have few or minimal multimodal elements, creating a hard edge along adjacent residential areas impacting

neighborhood livability. The TSP recommends transitioning to the Urban Road classification through Linnton from NW Harbor on the south to the north end of Kingsley Park.

NORTH LOMBARD STREET

The RTP and the 1996 Transportation Element are not consistent with the currently used access route along Lombard Street between N Richmond and Philadelphia and the St. Johns Bridge. The TSP recommends that the RTP be amended to identify the current route, via Lombard to Richmond and Ivanhoe to Philadelphia, as a Community Boulevard. The TSP classifies this same route as a Community Main Street, which is equivalent in function and policy to the RTP designation. Ivanhoe between Richmond and Philadelphia is classified as a Community Corridor (equivalent to Community Street in the RTP) in the TSP to reflect its existing role as the focus for main street-type activity within the St. Johns town center. All street classifications and transportation connections in the area will be evaluated as part of the St. Johns/Lombard Plan.

SOUTHEAST CLATSOP EXTENSION BETWEEN SOUTHEAST MT. SCOTT BOULEVARD AND DEARDORF/132ND

An extension of SE Clatsop west to Mt. Scott Boulevard is shown as a future Community Corridor on the RTP street design map. This extension while seeming “reasonable,” as noted in the City’s 1984 Mt. Scott/Powell Butte Transportation Study, “presents problems of terrain and land use.” The extension would cut through the Willamette National Cemetery requiring acquisition of federally protected lands. The TSP recommends that this future street connection be removed from the RTP street design map or realigned south of the cemetery boundaries.

TERMINI OF STREET DESIGN CLASSIFICATIONS

Based on a thorough review of RTP street design classifications, existing zoning and Comprehensive Plan map designations, and recent land use and transportation studies, the TSP recommends a number of changes to the RTP street design map. The majority of these changes involve changing the termini or transition points for street design classifications to respond to zoning or other land use elements. These requested changes are detailed in a written response to Metro. Some of the key changes are listed below:

- Adjusting the transition points between Regional Street and Regional Boulevard designations on 122nd, Division, and Foster
- Making some segments of Burnside east of I-205 between station areas Regional Streets instead of Regional Boulevards
- Adding Regional or Community Boulevard to main street/mixed use segments on Lombard, Cully, Killingsworth, Sandy, Foster, and 82nd
- Changing the Regional or Community Boulevard designations from the Broadway, Steel, Burnside, Morrison, Hawthorne, and Sellwood Bridges to Regional or Community Streets
- Changing the Urban Road designation on Lombard between St Louis and Roberts to Regional Corridor
- Changing the Community Street designation on NE/SE 39th between NE Broadway and Powell to Regional Street consistent with its traffic designation

The TSP adds street design designations on streets not included on the regional street design map to address local scale streets in the City’s network.

Other RTP Requirements

In addition to adopting policies consistent with the RTP, Portland must address several other requirements relating to the motor vehicle system and street design. These requirements are summarized below from Section 6.4 and Section 6.7 of the RTP.

- *Consistency with the RTP motor vehicle map.* Portland is generally consistent with the designations on the motor vehicle map, and will forward requests for changes to the map to Metro as needed
- *Consistency with the motor vehicle performance measures or alternative performance measures.* Portland incorporates the motor vehicle performance measures and table into TSP Policy 11.12: Performance Measures, for system planning and determining congestion on regional facilities. Objective C of Policy 11.2 identifies alternative performance measures for Areas of Special Concern.
- *Compliance with congestion management analysis when Comprehensive Plan amendments or local studies recommend or require an amendment to the RTP to add significant single-occupant vehicle (SOV) capacity to the regional motor vehicle system.* This requirement is discussed in more detail below and in TSP Chapter 6: Implementation Strategies and Regulations.
- *Compliance with design standards for street connectivity.* Portland's land division regulations meet the requirements for sites that are subdividing. Portland has completed street master plans for some parts of the City. Refinement plans will address street connectivity for the remaining areas of the City.
- *Compliance with street design requirements to allow consideration of narrow street design alternatives.* Portland's land division regulations and street standards allow narrow street designs for local streets in low-density areas.
- *Compliance with street design requirements for short and direct public connections between residential and other uses.* Portland City Code Titles 17 and 33 contain requirements to include connectivity to adjacent uses.
- *Compliance with street design requirements to consider traffic calming to discourage traffic infiltration and excessive speeds on local streets.* Portland uses traffic calming extensively to protect residential neighborhoods from excessive or speeding traffic.
- *Compliance with project development requirements.* TSP Chapter 6: Implementation Strategies and Regulations, includes a project development process that is in compliance with this requirement.
- *Compliance with refinement plans identified in the RTP.* TSP Chapter 4: Refinement Plans and Studies, includes the refinement plans.

Approach to Mode

Consistent with the themes for the TSP, Portland's approach to motor vehicle mobility and access and to street design is as follows:

- Management of the motor vehicle (roadway) system must serve to further the planning objectives contained in the Portland Comprehensive Plan, Metro Regional Framework Plan, and 2000 Regional Transportation Plan.
- Portland's street system is substantially built; most increases in motor vehicle capacity will be in areas that are developing or redeveloping.
- In most cases, the primary response to roadway congestion should be to encourage and facilitate those modes of travel that make most efficient use of the limited space available.
- The safe and efficient operation of the motor vehicle system for everyone involves enforcement and education in addition to engineering solutions.
- Street design should implement the 2040 Growth Concept.

The objectives of the Motor Vehicle Modal Plan are to:

1. Support and implement the Oregon Highway Plan on freeways and other designated state routes.
2. Support and implement the 2000 Regional Transportation Plan on roadways of regional significance.
3. Manage and improve the entire roadway system consistent with the City's transportation policies and street classifications.
4. Maintain a reasonable degree of mobility for all types of motor vehicles in all areas of the City, consistent with adopted level-of-service policies.
5. Enhance motor vehicle access to and from regional and town centers. Manage the roadway system within centers to benefit local access and circulation and implement land use goals rather than to facilitate through-trips.
6. Roadway improvements should not be designed solely to address peak hour deficiencies.
7. Implement changes to the street system to solve safety-related problems when consistent with the needs of other modes of travel.
8. Look at the capacity of longer street segments or corridors rather than at single points, such as individual intersections or bridges, when considering solutions to congested areas.
9. Ensure that the street environment resulting from improvements is compatible with adjacent land use activities during off-peak periods.



10. Define locations and conditions under which transit vehicles will be given priority over all other motor vehicles in the operation of the roadway system.
11. Define locations and conditions where the needs of commercial vehicles and freight movement will be emphasized in the operation of the roadway system.

Policy Framework

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan contains goals and policies that guide the way the City plans and implements improvements. In addition, a number of district and neighborhood plans have been adopted that contain more area-specific statements. These statements are ordered from the general to the specific as goals, policies, and objectives which are formally adopted by City Council ordinance.

The Comprehensive Plan addresses a broad range of goals for the City. Most policies relating to transportation are found in the Transportation Element of the Comprehensive Plan, which comprises Goal 6, Transportation, Goal 11B, Public Rights-of-Way; and the Central City Transportation Management Plan (CCTMP). Other policies relating to motor vehicle travel are found in Goal 5.

Goal 6 Transportation

Goal 6, Transportation, and its policies describe the many elements of the transportation system that Portland supports. The goal statement reflects the multiple functions of a balanced transportation system. An equitable transportation system fairly distributes transportation benefits and effects across the many populations of users. Goal 6 states:

Develop a balanced, equitable, and efficient transportation system that provides a range of transportation choices; reinforces the livability of neighborhoods; supports a strong and diverse economy; reduces air, noise, and water pollution; and lessens reliance on the automobile while maintaining accessibility.

Policy 6.4, Classification Descriptions, describes how the classification descriptions and designations are used.

Street classification descriptions and designations describe the types of motor vehicle, transit, bicycle, pedestrian, truck, and emergency vehicle movement that should be emphasized on each street.

The classifications for regionally significant streets must be consistent with Metro's RTP street classifications. Although Portland's TSP uses different names than Metro, the classifications are generally equivalent (as shown on Table 5.2 earlier in this modal plan). Objective C of Policy 6.4 states that all of a street's classifications must be considered in designing street improvements and allocating funding. That means that if a street is classified for a high level of motor vehicle traffic (e.g., a Major City Traffic Street), that function must be considered when improvements for other modes are considered (e.g., adding bike lanes). Similarly, if a street is classified as a City Bikeway, any changes to facilitate motor vehicle movement must consider the effects on bicycle movements.

Policy 6.5, Traffic Street Classification Descriptions, describes six types of traffic streets and how they should function (what kind of traffic is expected and what kinds of trips), as well as what types of land uses the streets should serve. There are eight maps that show the traffic classifications. They are located with the policy associated with each of the eight transportation districts. Policy 6.5 states:

Maintain a system of traffic streets that support the movement of motor vehicles for regional, interregional, interdistrict, and local trips. For each type of traffic classification, the majority of motor vehicle trips on a street should conform to its classification description.

The objectives address each of the six traffic classifications. They describe the intent of each classification, compatible land uses, desired connectivity, separation or buffering (if necessary), on-street parking, and function.

- Regional Trafficways are intended to serve interregional trips where only one trip end is within a Transportation District or where the district is bypassed completely. They should not intersect with Neighborhood Collectors or Local Service Traffic Streets and should prohibit access to Local Service Traffic Streets and private property. (Objective A)
- Major City Traffic Streets are intended to serve those living and doing business within a district. They should provide connections to Regional Trafficways, serve the major activity centers within the district, and discourage use by traffic with no trip ends within the district. (Objective B)
- Traffic Access Streets are intended to access within the Central City to destinations, distribute traffic within the Central City and from Regional Trafficways and Major City Traffic Streets. Traffic Access Routes are not intended for through traffic with no trip ends in the Central City. (Objective C)
- District Collectors are intended to provide concentrated access to district activity centers and serve trips made entirely within the district. They should also distribute traffic from Major Traffic Streets to streets of similar or lower classification, and discourage use by regional traffic. (Objective D)
- Neighborhood Collectors are intended to serve as distributors of traffic from Major City Traffic Streets or District Collectors to Local Service Traffic Streets and to serve trips that both start and end within areas bounded by Major City Traffic Streets and District Collectors. (Objective E)
- Local Service Traffic Streets are intended to provide local traffic and emergency vehicle access, on-street parking and access to local residences or commercial uses, and a safe and pleasant place for pedestrians and residents. Preference should be given to the needs of residents and property owners along the street. (Objective F)

Policy 6.10, Emergency Response Street Classification Descriptions, was formulated as part of the recommendations adopted “Emergency Response Classification Study (April 1998). There are eight maps that show the emergency response classifications. They are located

with the policy associated with each of the eight transportation districts. These classifications describe how emergency response streets should function, specify appropriate design treatments to facilitate prompt emergency response, and indicate which streets are and are not eligible for traffic slowing devices.

Policy 6.11, Street Design Classification Descriptions, is a new set of street classifications created to achieve consistency with the RTP Street Design classifications. The set of classifications reflects the full range of regional street design classifications but has different names to better reflect Portland's existing street system. Street design classifications include treatments that facilitate or restrict motor vehicle movement such as number of lanes and access controls, but address the needs of other modes as well.

The objectives address each of the nine street design classifications. Street design classifications describe the land uses served, number of lanes, design elements, and design treatment.

- Urban Throughways are intended to emphasize motor vehicle travel and connect major activity centers, industrial areas, and intermodal facilities. Urban Throughways have four to six lanes, limited access, high speeds, and separated pedestrian and bicycle facilities. (Objective A)
- Urban Highways are intended to connect major activity centers and points outside the region. Unlike Urban Throughways where all intersections have separated grades, Urban Highways may include a mix of separated and at-grade intersections and include sidewalks and bicycle facilities. (Objective B)
- Regional Main Streets are intended to be in centers and along main streets and, while accommodating relatively high traffic volumes, to have moderate vehicle speeds, bicycle lanes, wide sidewalks and pedestrian amenities, and frequent crossings. (Objective C)
- Community Main Streets are intended to similar features to Regional Main Streets but usually with fewer travel lanes and relatively low motor vehicle speeds. (Objective D)
- Regional Corridors are intended for streets serving as major transit corridors but not within main street areas. Pedestrian facilities include narrower sidewalks and less frequent crossings than in Regional Main Street areas. (Objective E)
- Community Corridors are intended for areas on transit routes but not within Community Main Street areas. Community Corridors include pedestrian facilities but with fewer amenities and crossings than in Community Main Street areas. (Objective F)
- Urban Roads are intended to serve industrial areas or carry large volumes of automobile and truck traffic through residential or neighborhood commercial areas. Lanes are designed for truck movement and moderate vehicle speeds. (Objective G)
- Greenscape Streets are applied to arterials where natural or informal landscapes dominate the adjacent areas and the right-of-way, usually on scenic drives or in lower-density residential areas in wooded settings. The Greenscape Street is based on the Beautification classification in the previous TE (Objective H)

- Local Streets are the remainder of the streets in the City for street design. They are intended to respond to adjacent land uses and provide local circulation. (Objective I)
- Multimodal Intersections are locations where the needs of pedestrians are prominent but where a significant amount of motor vehicle traffic must be accommodated. (Objective K)

Policy 6.12, Regional and City Travel Patterns, provides consistency with state, regional, and City classification descriptions. It states:

Support the use of the street system consistent with its state, regional, and city classifications and its classification descriptions.

The objectives address the appropriate use of streets, by classification.

Policy 6.13, Traffic Calming, emphasizes neighborhood livability as a goal and reflects the range of measures the City uses to calm traffic. This policy also addresses the desired function of Neighborhood Collectors and Local Service Traffic Streets.

Policy 6.14, Emergency Response, states:

Provide a network of emergency response streets that facilitates prompt response to emergencies.

The objectives for this policy call for using the emergency response classification system to determine whether traffic-slowing devices can be used on a given street (Objective A), guide the routing of emergency response vehicles (Objective B), and help site new fire stations (Objective C).

Policy 6.16, Access Management, addresses the sometimes conflicting goals of moving traffic and providing access to private property. It states:

Promote an efficient and safe street system and provide adequate accessibility to planned land uses.

The objectives address:

- Access spacing standards on state highways, based on highway classification, type of area, and allowed speeds (Objective A)
- The balance between the need for access to individual properties and the need for safe access (Objective B)
- Reducing the number of curb cuts through either consolidation or shared driveways, which can improve the function of the street for all modes (Objective C)

Policy 6.18, Adequacy of Transportation Facilities, reflects a requirement in the TPR (OAR 660-012) and the RTP to ensure that certain land use changes will not have an unacceptable impact on transportation facilities. City Code Title 33, Planning and Zoning, contains approval criteria language that implements this policy. The policy states:

Ensure that amendments to the Comprehensive Plan (including goal exceptions and map amendments), and zone changes; conditional uses; master plans; impact mitigation plans, and land use regulations that change allowed land uses are consistent with the identified function and capacity of, and adopted performance measures for, affected transportation facilities.

Policy 6.20, Connectivity, (along with Policy 11.9) addresses TPR and RTP connectivity requirements. It states:

Support development of an interconnected, multimodal transportation system to serve mixed-use areas, residential neighborhoods, and other activity centers.

The objectives address interconnection of local and collector streets for all modes of travel, focusing on street spacing and out-of-direction travel. Good connectivity supports all modes of travel by providing direct routes and dispersing traffic.

Policy 6.31, Regional Trafficways, calls for improving existing facilities to enhance safety and efficiency rather than building significant new roads. It emphasizes the existing regional traffic system as the mechanism to deal with regional traffic, and specifically opposes creating any new freeway that would intrude on Forest Park.

Policy 6.33, Congestion Pricing, states Portland's position that pricing or charging for motor vehicle trips (primarily automobile) on regional transportation facilities fairly allocates a scarce resource: motor vehicle capacity.

DISTRICT MOTOR VEHICLE-RELATED OBJECTIVES

District-specific objectives addressing motor vehicle movements are contained in Policy 6.34 through Policy 6.40 for the seven transportation districts: North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest. Selected objectives are listed below; Chapter 2 contains the complete text of district policies and objectives. Central City policies and objectives relating to motor vehicle travel are summarized in a later section of this modal plan.

North District:

- Direct commuter traffic around the district to the extent possible, encouraging use of Columbia Boulevard and Marine Drive. (Policy 6.34, Objectives B)
- Remove the US 30 Bypass designation from Philadelphia and Lombard, west of Martin Luther King, Jr. Boulevard, and relocate it to more appropriate streets to minimize impacts on the St. Johns Town Center and the Lombard main street. (Policy 6.34, Objective E)
- Preserve the planned functions of Willamette Boulevard by evaluating and implementing transportation measures along North Lombard to improve its function as a Major City Traffic Street and main street. (Policy 6.34, Objective I)

- Explore opportunities for additional street connections over the railroad cut and between the Willamette River and nearby residential areas. (Policy 6.34, Objective N)

Northeast:

- Encourage automobile and truck through-traffic to use major arterials at the edges of the district to reduce peak-period traffic impacts and to preserve neighborhood livability. (Policy 6.35, Objective A)
- Enhance traffic access to regional and district commercial areas, including Lloyd Center, Hollywood, Rose City Park, Sandy Boulevard, and the neighborhood commercial district at NE 60th/Prescott/Cully. (Policy 6.35, Objective B)
- Retain Portland Boulevard's interchange with I-5, while maintaining its function and appearance as a Neighborhood Collector east of I-5. (Policy 6.35, Objective C)
- Encourage the use of I-84 and I-205 for primary access to the Columbia South Shore, Portland International Airport, and Portland International Center; encourage the use of NE Airport Way (east of I-205) and Portland Boulevard/Killingsworth (south of the Columbia Slough) as the secondary access from the interstate system. (Policy 6.35, Objective D)
- Use street dedications and street vacations as a tool to support development while ensuring connectivity. (Policy 6.35, Objective L)
- Bring substandard streets up to city standards, especially in the Cully neighborhood. (Policy 6.35, Objective M)

Far Northeast:

- Enhance the arterial street system by improving connections between Neighborhood Collectors and District Collectors and eliminating bottlenecks, such as rail crossings and viaducts, that contribute to intrusions into residential neighborhoods by commercial, industrial, and non-local traffic. (Policy 6.36, Objective A)
- Implement the transportation goals developed for the Gateway regional center by focusing on 102nd as a main street boulevard, adding new local street connections as development occurs, and managing regional traffic that may inhibit Gateway's success as a regional center. (Policy 6.36, Objective D)

Southeast:

- Direct inter-district traffic to Regional Trafficways on the edges of the district, and manage traffic on Major City Traffic Streets and other arterials primarily through transportation system management measures. (Policy 6.37, Objective A)
- Support improvements to SE McLoughlin Boulevard to ensure its function as the major north/south route for regional traffic, while maintaining its operational characteristics as a Major City Traffic Street between Powell and Reedway. (Policy 6.37, Objective B)

- Operate Neighborhood Collectors in Southeast Portland to function primarily as circulation for district traffic rather than as regional streets, even where they carry a significant amount of regional traffic. (Policy 6.37, Objective C)
- Limit left-turn access to auto-accommodating development along SE 39th Avenue, and eliminate or consolidate driveways where possible. (Policy 6.37, Objective H)

Far Southeast:

- Consider existing and future land use patterns, environmental impacts, and the need for additional connectivity of collectors when improvements are planned and designed for the arterial system, particularly SE Powell and SE Foster. (Policy 6.38, Objective A)
- Provide adequate street connections in the Far Southeast District through the development of a master street plan that provides connections for vehicles. (Policy 6.38, Objective F)
- Implement transportation improvements identified in the Lents Urban Renewal Plan that will revitalize its commercial core and environs. (Policy 6.38, Objective H)
- Implement the Gateway Concept and Redevelopment Strategy recommendations to provide street connections as redevelopment occurs, manage regional traffic impacts, and focus boulevard and main street improvements on 102nd. (Policy 6.38, Objective I)

Northwest:

- Route non-local and industrial traffic around the edges of the district on Major City Traffic Streets and Regional Trafficways. (Policy 6.39, Objective B)
- Improve access to NW 14th and 16th to support their function as connections to the commercial and industrial areas in Northwest Portland and to reduce impacts of non-local traffic on residential areas. (Policy 6.39, Objective I)
- Support the scenic and natural character of NW Skyline Boulevard by focusing non-local north/south traffic between West Burnside and NW Cornell Road on NW Miller. (Policy 6.39, Objective J)

Southwest:

- Evaluate the transportation impacts on adjacent neighborhoods when considering increases in development potential of large new or redeveloping areas, and include mitigation measures in development plans. (Policy 6.40, Objective D)

Note: The Southwest Community Plan contains other transportation objectives for Southwest. Appendix C provides the full text of these objectives.

Goal 11B Public Rights-Of-Way

Goal 11B and its policies and objectives describe how the City's transportation system should be designed and built. Motor vehicle-related policies and objectives under Goal 11B call for:

- Maintenance of the existing street system
- Construction of local streets in accordance with neighborhood land use patterns, minimizing pavement width and total right-of-way and taking the needs of both pedestrians and vehicles into account
- Connectivity of streets in accordance with City spacing standards and adopted street plans
- Evaluating the performance of the transportation system with level-of-service standards or alternative performance measures
- Encouraging the formation of local improvement districts (LIDs) in developed areas to construct street improvements, including sidewalks, drainage, and street trees

Central City Transportation Management Plan

In May 1993, a circulation and access study was conducted as part of the CCTMP. The study identified guiding policies; circulation and access deficiencies, including critical intersections and links; and a set of recommendations to improve the motor vehicle system in the Central City. The guiding policies of that study were used to develop the circulation and access policies in the CCTMP. (Chapter 2 of the TSP contains the complete text of the CCTMP policies and objectives.)

Policy 2.4, Congestion Management, is the most important CCTMP policy for the motor vehicle system in the Central City. It states:

During the off-peak travel periods, manage the roadway system within the Central City to maintain stable traffic flow on freeways and major arterial routes and acceptable delays at intersections. During peak travel periods, greater levels of traffic congestion are acceptable, except where such congestion would result in significant additional delays to transit vehicles or contribute substantially to carbon monoxide problems. In congested areas, give priority to street improvements for modes other than single-occupant vehicles, where possible, to accommodate travel demand.

Other Motor Vehicle-Related Policies and Objectives

In addition to the Transportation Element (Goals 6 and 11B and the CCTMP), Goal 5: Economic Development, of the Comprehensive Plan contains the following policies and objectives that relate to the motor vehicle system.

Policy 5.4, Transportation System, states: "Promote a multi-modal regional transportation system that encourages economic development."

Objective A states:

Support the maintenance and efficient use of the transportation improvements to facilitate the efficient movement of goods and services in and out of Portland's major industrial and commercial areas. Ensure access to inter-modal terminals and related distribution facilities.

Policy 5.10, Columbia South Shore, Objective F states:

Protect the transportation capacity of the area's highways and roads through both review of individual projects and identification and construction of new facilities which increase the system's capacity.

Most adopted neighborhood or area plans have policies and/or objectives that address the motor vehicle system within their boundaries. These plans typically focus on traffic safety and access to jobs, and on the negative aspects of motor vehicles, such as environmental impacts and cut-through traffic.

Existing Conditions

Summary of Roadway Inventory

A number of databases and management systems contain Portland's roadway inventory. Portland Office of Transportation (PDOT) departments use these systems to make decisions about the maintenance, operation, and improvement of the transportation system. The TSP Inventory (Volume III, Section B) describes these systems in detail.

The 1999 Portland Transportation System Status and Condition Report describes the street system. As of that report, Portland had 1,236 miles of improved arterials and 2,605 miles of improved local streets. An additional 140 miles of streets were unimproved. The Oregon Department of Transportation (ODOT) maintains 11 state highways within the City.

Existing Deficiencies

Projected Traffic Volumes

Traffic volumes are expected to continue to grow throughout the region over the next 20 years. In the City of Portland, this growth will occur primarily on freeways and on certain regional arterial streets. Increases in traffic volumes do not necessarily result in unacceptable traffic congestion. Collector and neighborhood streets in most Portland neighborhoods are likely to experience only moderate traffic increases. However, both traffic volume and congestion are expected to increase substantially in many of the east-west streets in Southeast, Far Northeast, and Far Southeast neighborhoods.

Table 5.4 shows the major corridors in Portland that will experience significant growth in motor vehicle trips, according to the 2000 RTP. The volumes reflect the peak direction during the evening two-hour peak period, using the 2020 priority system in the RTP. By looking at corridors that serve the same general destinations, it is possible to consider overall capacity rather than the capacity of individual streets.

The large increase in traffic volumes in the 172nd/Foster/190th corridor reflect future large increases in population growth in the far southeast part of the region, resulting from the inclusion and development of new lands inside the urban growth boundary over the next 20 years.

**Table 5.4
Comparison of Motor Vehicle Volumes
(Two-hour Peak Traffic in Peak Direction)**

Corridor	1994 Volumes	2020 Priority System Volumes	Difference 1994-2020
I-5 North, MLK Jr., Interstate, and Greeley (south of Lombard)	18,799	20,777	1,978 (+11%)
I-5 North Interstate Bridge (north of Lombard)	11,504	17,348	5,844 (+51%)
I-84, Broadway-Weidler, Burnside, Stark, Belmont, Morrison, and Hawthorne	28,267	29,698	1,431 (+5%)
Powell, Division, and Holgate (west of I-205)	7,243	8,226	983 (+14%)
I-5 and Barbur	13,716	15,147	1,431 (+11%)
US 26, Cornell, Burnside, and Beaverton-Hillsdale Highway	19,156	20,834	1,678 (+9%)
Highway 30	3,123	4,014	891 (+29%)
Macadam, 17 th , McLoughlin	10,215	15,195	4,980 (+49%)
Sandy and I-84 (east of I-205)	12,365	14,369	2,004 (+16%)
Halsey, Glisan, Burnside, Stark, Division, and Powell (east of I-205)	6,077	9,887	4,648 (+30%)
172 nd , Foster, 190 th	1,783	8,575	6,792 (+381%)
I-205, 82 nd , and 92 nd	14,315	18,752	4,437 (+31%)

Source: Metro 2000 RTP

Projected Congestion Problems

Congestion levels are expected to grow, although not equally among areas. Some streets with relatively little congestion today are expected to see little or no increase in traffic. Some streets with high congestion today may not see a big increase in traffic volume (because they are already operating at near capacity), but the number of hours they are congested each day will increase. Other streets with little current congestion will see large increases in traffic volumes, which will result in significant new congestion.

All the freeway routes through Portland will be more congested. On some facilities, average vehicle speed will decrease substantially; I-205 is the most significant example. On other facilities, average rush-hour speed may not change much because it is already very low, but the number of hours the facility is congested each day will grow significantly (i.e. the evening rush hour may increase from one to two hours). I-5 North, I-84, or McLoughlin Boulevard may be good examples of this situation.

Portland reviewed the streets that exceed acceptable levels of service in the RTP in 2020 within its boundaries. A brief analysis of each corridor is discussed in Chapter 10, Needs Assessment, of Volume II of the TSP. In each corridor, a review of model assumptions and

recent network changes showed that the streets would operate at acceptable levels of service and that an operational level of analysis would, in all likelihood, confirm these findings.

RTP Subarea Analysis

The RTP breaks the region up into subareas to analyze future congestion. The RTP uses the word ‘congestion’ when a particular highway or street does not meet the motor vehicle performance measure for that corridor (as defined in Chapter 2, Table 11.1, of the TSP).

PROPOSED REFINEMENT PLANS

The following corridors have unresolved transportation issues and will be subject to refinement planning. (Chapter 4: Refinement Plans and Studies, provides additional description.)

- Interstate 5 North (Marquam Bridge to Interstate Bridge) – the I-5 Trade and Partnership Project is underway to study this corridor
- Northeast Portland Highway (Rivergate industrial area to I-205)
- I-205 North (I-84 to Clark County)
- I-205 Center (Oregon City to I-84)
- North Willamette crossing (between the north peninsula area and Highway 30)
- Powell Boulevard/Foster Road corridor (Portland Central City to Gresham regional center)
- Highway 43 (Portland Central City to Lake Oswego town center)
- Barbur/I-5 corridor (Portland Central City to Highway 217)

OTHER SUBAREA ISSUES

The RTP identifies the following areas and issues to be addressed in Portland’s TSP:

- **Portland International Airport:** A proposal to add operational capacity to the airport (for example, a third runway) should include an analysis of impacts and mitigation strategies for I-205, I-84, NE Portland Highway, AirMAX, and Columbia Corridor arterials. (The ‘Strategies’ section of this modal plan and the Air, Rail, Water, and Pipeline modal plan discuss the City’s regulation of the airport.)
- **East-West Arterials:** The RTP subarea analysis references east-west arterials in three places. Arterials parallel to I-84 between I-5 and I-205 will experience congestion over the plan period; all arterials between I-84 and SE Powell will be affected to some extent. The TSP identifies transit, pedestrian, and bicycle improvements for some of these arterials. The ‘Strategies’ section of this modal plan provides a more detailed response to this area’s congestion.
- **Going Street/Greeley Avenue:** Going Street at Greeley Avenue will experience localized congestion during the evening peak period. In addition to projects identified in the RTP,

the TSP has several projects designed to alleviate this congestion and improve transportation operations at this intersection and its vicinity. The ‘Strategies’ section of this modal plan provides more detail.

- Gateway Regional Center: From a transit perspective, Gateway is the second most accessible center in the region. As the RTP notes, however, spillover traffic from the I-5 corridor exceeds the level-of-service (LOS) policy on a number of east/west corridors in the Gateway area, including Halsey, Glisan, Burnside, Stark, and Division streets. (Chapter 4: Refinement Plans and Studies, provides more detail.) The ‘Strategies’ section of this modal plan discusses the Gateway action plan to address this deficiency.

Connectivity Deficiencies

The street system for the City of Portland is nearly complete. Soils, terrain, environmental concerns, and previous development have all affected the degree to which connectivity has been or will be achieved in specific areas.

The state TPR requires a master road plan for each jurisdiction. In turn, Metro’s Urban Growth Management Functional Plan and the RTP require master street plans that emphasize connectivity. The RTP establishes a standard of at least one street connection every 530 feet, recognizing limits to this standard for stream crossings or other barriers. A lack of connectivity reduces the overall capacity of the street system and increases out-of-direction travel, affecting both congestion and vehicle-miles of travel.

The TSP includes master street plans and other street circulation area plans that identify and evaluate places where the street system does not provide sufficient connectivity, and recommends where additional connections should take place. (See Volume II, Chapter 11: Master Street Plans.) It will be most difficult to achieve full connectivity in Southwest Portland and Far Southeast Portland because of barriers that affect the land, such as steep slopes, water features, environmental zoning, and development.

Completed street system plans in Portland include:

- South Portland Circulation Study August, 2001
- Southwest Portland Master Street Plan July 2001
- Far Southeast Portland Master Street Plan July 2001
- Gateway February 2000
- Bridgeton Neighborhood Plan November 1997
- North Macadam September 1996
- River District Right-Of-Way April 1996
- Airport Way Secondary Infrastructure Plan August 1994

Safety Management

Safety management describes a variety of strategies to make the transportation system safe for all modes of travel, including monitoring, education and outreach, enforcement, and engineering solutions. The Police Bureau is responsible for enforcement, which includes traditional ticketing and the newer photo enforcement for speeding and running red lights. The Oregon Legislature sets the scale of the electronic enforcement allowed in local jurisdictions. Educational and outreach efforts include elementary school programs on safe bicycling, informational booths at local events, and encouraging the use of alternative modes of travel through promotions and events. Engineering efforts include the wide range of

traffic calming strategies, pavement markings, signing and signal changes, and intersection improvements.

PDOT identifies high-collision locations within the City each year. Accident data from the State of Oregon are analyzed in regard to the number of injury, fatal, and property damage accidents per entering vehicle and the cost of accidents per arterial intersection. The most recent complete data are for 1994 through 1997, as shown below. The list changes each year, based on the number of crashes, traffic volumes, and improvements to the intersections. High-collision locations for the period of 1994-1997 (most recent complete data) are listed below:

- NW Germantown Road/Bridge Avenue
- SE Stark Street/3rd Avenue
- SW Taylor Street/15th Avenue
- N Cook Street/Williams Avenue
- SW Oak Street/5th Avenue
- SW Front Street/Ross Island Bridge
- N Broadway at Williams Avenue/I-5 northbound on-ramp
- SE Division Street/39th Avenue
- SE Washington Street/103rd Avenue
- N Broadway at Vancouver Avenue/I-5 southbound off-ramp

Additionally, intersections with more than six accidents over a four-year period are called 'major intersections' and are ranked in three groups:

- Level A – Critical Condition. Intersections with 20 or more accidents within the last four years and an accident cost greater than or equal to \$48,000 per million entering vehicles, or an accident rate equal to or greater than 1.60 accidents per million entering vehicles.
- Level B – Fair Condition. Intersections with 20 or more accidents within the last four years and an accident cost less than \$48,000 per million entering vehicles, or an accident rate less than 1.60 accidents per million entering vehicles.
- Level C – Good Condition. Intersections with 6 to 19 accidents within the last four years.

There were 1,204 major intersections in 1999. Of these, 18 (about two percent) were in critical condition and needed immediate attention or study; 232 (19 percent) were in fair condition and needed improvements to reduce accidents; and the remaining 954 (79 percent) had a relatively low accident frequency and were in good condition.

Members of the community report other safety-related situations to PDOT. The vast majority of these complaints relate to speeding. PDOT staff gather information about and evaluate these complaints.

A number of modifications can be used to reduce accidents, including signing, striping, signal phasing, adding new signals, and widening or restricting lanes. Some locations require major reconstruction projects that go beyond a traffic solution alone. Projects selected to reduce accidents are based on feasibility, cost, and available funding.

Based on the collision data, approximately 20 percent of the City's major intersections are in critical or poor condition. The unmet need for addressing these intersections is estimated to be \$8.9 million.

Issues from District Needs Assessment

In fall 1998, PDOT held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. Participants were asked to identify needed transportation improvements in their neighborhood and indicate their top three priority issues, or 'transportation values.'

Three of the top seven values identified in the workshops relate directly to motor vehicle travel: manage congestion, provide connectivity, and safety and livability on local streets. Managing congestion was especially important in the Northwest, Northeast, Far Northeast, and Far Southeast districts. The more suburban districts—Southwest, Far Northeast, and Far Southeast—emphasized the need for greater street connectivity. The Northwest, North, Northeast, and Southwest districts identified enhanced safety and livability on local streets as a top priority (discussed primarily in regard to traffic speeds and the interaction between pedestrians and automobile traffic).

Implementation Measures

Existing Regulations

A number of City Code titles regulate motor vehicle operations, including Title 16 (Vehicles and Traffic), Title 17 (Public Improvements), and Title 33 (Planning and Zoning). The City Council is the 'road authority' for all public streets, except state highways.

Title 16 regulates parking in the public right-of-way, towing of vehicles, taxicabs, the use of transit lanes, and miscellaneous activities affecting the right-of-way, such as reckless driving.

Title 17 primarily regulates public rights-of-way uses other than motor vehicle operation. It does, however, regulate special traffic control districts and driveways.

Title 33 primarily regulates activities on private property rather than on public rights-of-way. Some Title 33 regulations, however, affect streets and their use. The land division regulations were revised (effective date July 1, 2002) to incorporate connectivity standards consistent with the RTP.

New Regulations

Titles 17 and 33 are being amended to address connectivity on large sites that are developing or redeveloping, including institutional uses that require land use review and uses allowed by right, such as shopping centers in commercial zones. The intent is to require connectivity comparable to what is currently required for land divisions (530-foot spacing for streets and 330-foot spacing for pedestrian/bicycle accessways). See Chapter 6, Implementation Strategies and Regulations for more detail.

Projects

Many TSP projects over the next 20 years will include improvements to the street system, but few will focus strictly on enhancing capacity for motor vehicle travel. Some of the most significant street improvements on the TSP project list are described below, with project numbers in parentheses. (Chapter 3 contains the complete project list and additional details.)

- Construct new street connection from SE 7th to SE 8th at Division (Project No. 20004)
- Widen SW Bancroft (River Parkway – Macadam) in conformance with North Macadam district street standards (Project No.20006)
- Construct SW Bancroft/Hood/Macadam intersection improvements, including widening, realignment, and signal upgrades (Project No. 20007)
- Improve SW Bond (River Parkway – Bancroft) to serve as the primary north-south mobility street in North Macadam district (Project No. 20009)
- Redesign E Burnside/Sandy/12th intersection to improve safety for all modes (Project No. 20013)
- Construct SE Clay/MLK Jr. intersection improvements to allow traffic access from westbound Clay to southbound MLK Jr. (Project No. 20018)
- Widen Going Street Bridge at Swan Island entrance to improve traffic access to industrial area (Project No. 30013)
- Modernize I-5 freeway and ramp system to improve access to the Lloyd District and Rose Quarter (Project No. 30021)
- Widen I-5 to three lanes in each direction from N Lombard to the Expo Center exit (Project No. 30022)
- Improve I-405/N Kerby interchange to calm traffic at off-ramp (Project No. 30029)
- Signalize NE 33rd/Marine Dr intersection to facilitate traffic and freight movement Project No. 40006)
- Widen NE Airport Way (82nd – PDX terminal) to three lanes in each direction (Project No. 40021)
- Construct an at-grade intersection connection from NE Columbia Bl/82nd to US 30 Bypass/I-205 interchange and widen I-205 southbound on-ramp at NE Columbia Blvd (Project No. 40021)
- Add signal and improve turn lanes at Alderwood Rd/Cornfoot Rd intersection (Project No. 40035)

- Realign 62nd/Going/Cully intersection (Project No. 40041)
- Extend NE Marx (82nd – 87th) and signalize NE 82nd intersection (Project No. 40060)
- Widen NE 138th (Sandy – Marine Drive) to address traffic flow issues (Project No. 50008)
- Reconstruct primary local main street in the Gateway regional center on NE 99th (Weidler – Glisan) and NE Pacific (99th – 102nd) (Project No. 50014)
- Widen Sandy Boulevard (122nd – 185th) from three to five traffic lanes, with sidewalks and bike lanes (Project No. 50035)
- Add traffic signal at the NW112th/US 30 intersection (Project No. 60001)
- Realign offset intersections at US 30/Saltzman and US 30/Balboa (Project No. 60018)
- Construct intersection improvements at high accident locations on NE/SE 60th including Belmont, Glisan, and Stark (Project No. 70006)
- Replace substandard Bybee Boulevard bridge with two-lane bridge and bike lanes (Project No. 70012)
- Construct improvements on SE 174th and Jenne Road to increase safety and capacity to accommodate increased residential development (Project No. 80007)
- Construct multimodal improvements and services including sidewalks, pedestrians crossings, and bike lanes and transit and motor vehicle capacity as needed to SE Powell – I-205 to City limits – (Project No. 80015)
- Redesign the Beaverton-Hillsdale/Bertha/Capitol intersection to improve safety (Project No. 90028)
- Widen Garden Home Rd (Capitol Hwy to city limits) to three lanes, with signal at Multnomah intersection (Project No. 90033)
- Construct safety improvements at Barbur/Capitol/Huber/Taylor's Ferry, including traffic signal improvements (Project No. 90069)

Programs

Many potential changes to the motor vehicle system fall below the threshold for inclusion on the TSP 20-year project list. They may, however, still be important to how the transportation system functions in the future, the livability of Portland's neighborhoods, and access to destinations. The following is a partial listing of small projects or other transportation actions that are identified in the most recent capital improvement program and help implement the Motor Vehicle Modal Plan. They are grouped by category and are not ranked.

Local Street Development

- Improvement of local streets in low-income and moderate-income areas to City standards

Neighborhood Safety and Accessibility

- Safety and operations improvements at various locations. These may include widening, realignment, channelization, signals, landscaping, pedestrian and bicycle improvements, and right-of-way acquisition

Preservation and Rehabilitation

- SW Market and Clay reconstruction in downtown Portland
- Rose Garden Arena area redesign and remodel of traffic control at Broadway/Vancouver, Williams/Victoria, and Weidler/Victoria to improve safety for all modes

Safety and Congestion Management

- Opticom (signal preemption) for 150 intersections to allow emergency vehicles and buses to receive priority treatment at signals
- Road reconstruction on SE Washington between 82nd and 109th, including signal improvements at 102nd and 103rd
- Design and construction of roundabouts to improve traffic flow

Other safety-related projects are implemented with funding from the state's Hazard Elimination Fund (HEP) and some private grants, such as the State Farm Insurance Safety Grant. Both funds are used for specific identified safety problems that usually require a study and/or investigation to qualify for the grants. PDOT contributes a percentage of the cost for HEP projects. Current HEP projects include the NE Sandy corridor from Burnside to NE 33rd, and Lombard from St. Johns to Martin Luther King, Jr. Boulevard.

Strategies*Neighborhood Traffic Safety Plan*

The Neighborhood Traffic Safety Plan (NTSP) is a community-based education, enforcement, and engineering effort designed to reduce traffic safety problems. The plan is guided by a City Council appointed Traffic Safety Committee that includes representatives from schools, bicycle and pedestrian advocacy groups, neighborhood and business associations, public health advocates, Police Bureau, Tri-Met, and the Office of Transportation. The NTSP includes action plans for residents and schools to implement as they address issues such as neighborhood speeding and traffic safety at schools. City staff and the committee will provide recommendations on the optimal allocation of resources for traffic safety efforts and collaborate on an annual "State of Portland's Neighborhood Traffic Safety Report."

Congestion Management

The RTP requires certain actions to be considered when local transportation plans, multimodal corridor and subarea studies, mode-specific plans, or special studies amending the comprehensive plan are developed and when the studies recommend adding "significant

single-occupancy vehicle (SOV) capacity to the regional motor vehicle system.” The RTP identifies significant capacity to be “any increase in general vehicle capacity designed to serve 700 or more additional vehicle trips in one direction in one hour over a length of more than one mile.” This standard applies only to recommended capacity projects that are not included in the RTP.

When a recommended capacity project meets or exceeds this standard, the following congestion management alternatives must be considered before the project is added to a local TSP.

1. Transportation demand strategies that further refine or implement a regional strategy identified in the RTP
2. Transportation system management strategies, including intelligent transportation systems (ITS), that refine or implement a regional strategy identified in the RTP
3. Subarea or local transit, bicycle, and pedestrian system improvements to improve mode split
4. The effect of a comprehensive plan change on mode split targets, and actions to ensure the overall mode split target for the local TSP is being achieved
5. Improvements to parallel arterials, collectors, or local streets, consistent with connectivity standards, to address the transportation need and to keep through-trips on arterial streets and provide local trips with alternative routes
6. Traffic calming techniques or changes to the motor vehicle functional classification to maintain appropriate motor vehicle functional classification

Upon demonstration that the above considerations do not adequately and cost-effectively address the problem, a significant capacity improvement may be included in the comprehensive plan. The RTP establishes the approaches that can be taken to make this amendment. Metro and the local jurisdiction must consider the following options:

1. Amendments to the boundaries of a 2040 Growth Concept design type
2. Amendments or exceptions to land use functional plan requirements
3. Amendments to the 2040 Growth Concept
4. Designation of an area of special concern and the associated requirement for an action plan to mitigate congestion

Portland very infrequently considers a motor vehicle capacity project of a magnitude that would trigger this analysis. If this type of project is recommended through a study, Portland will follow the congestion management process specified by the RTP.

Gateway Action Plan

The RTP identifies the Gateway regional center as an ‘area of special concern’. The RTP directs Portland to:

. . . examine the ability of local streets in these areas to absorb travel demand to a degree that cannot be measured in the regional model. A traffic management plan for these streets should be integrated with the overall TSP strategy, but should establish a specific action plan and benchmarks for streets determined to exceed the LOS policy. . . Alternative mode choices should be identified to further reduce travel demand. The local TSP should also consider strategies for providing better access to LRT, including park-and-ride facilities at station areas.

The TSP has a large number of projects in the Gateway area designed to make the regional center function better and increase the mode split for non-SOV travel. Other non-transportation project strategies and activities will also improve the jobs/housing balance and support mixed-use development.

Gateway has been the subject of several land use and transportation studies over the past few years. City Council approved an Opportunity Gateway Redevelopment Strategy and Concept Plan (Opportunity Gateway) on February 23, 2000. Opportunity Gateway contains a set of principles and implementation measures to help Gateway become a regional center while improving its livability and the livability of adjacent areas. One element of Opportunity Gateway is a concept plan map that is the basis for an 'interim right-of-way plan' to guide the development and redevelopment of streets within Gateway.

Opportunity Gateway, the adopted Gateway Regional Center Urban Renewal Plan (June 2001), the regulatory framework of the Gateway Plan District, and the numerous transportation improvements identified in the RTP and TSP make up the "action plan" for Gateway. The goal of these efforts is to create a regional center that has a much-improved balance of jobs and housing, provides a wide range of commercial and offices uses, and creates an interconnected network of streets. The key elements of the action plan follow.

Opportunity Gateway

- Create four subareas or neighborhoods: Halsey Weidler main street, Gateway station area, 102nd and Burnside station area, and the employment district south of Stark and Washington.
- Develop a park.
- Develop new housing, such as the Russellville project at 102nd and Burnside.
- Implement the local street plan identified on the concept plan and map.
- Realign NE 99th at NE Glisan to improve intersection performance.
- Identify an enhancement program to include gateways, beautification of traffic islands, a signage program, and landscaping of the I-205 berm.
- Assemble fragmented ownerships into development-ready parcels.
- Develop an education center in coordination with educational institutions.

- Redevelop transit to improve access and parking and add commercial and civic activities.

Gateway Regional Center Urban Renewal Plan

The primary principle of this urban renewal plan is to “establish the Gateway regional center.” The subordinate principles are:

- Utilize informed public participation – inclusion, education, and coordination with other agencies.
- Optimize investment in the district – strategically use tax increment funds to leverage other public and private funds.
- Establish a distinctive identity – create a sense of cohesiveness with unifying elements such as open spaces, street furniture, and landscaping.
- Support compact development – locate transit-supportive uses close to light rail and transit, redevelop surface park-and-ride lots to more intense uses.
- Support a mixture of land uses – incorporate a mix of uses in development along commercial corridors, including housing or offices on upper floors.
- Create a mixture of public spaces – place a plaza near the transit center, use street trees and landscaping in street design, accommodate recreational activities, including a linear parkway.
- Establish a pedestrian orientation – pedestrian medians in wide streets, curb extensions, wider sidewalks, pedestrian scale at street level; concentrate highest level of amenities along the 102nd boulevard and the 99th and Pacific main streets.
- Expand and improve travel options – establish a dense street grid; facilitate non-auto trips by improving sidewalks, bicycle facilities, and transit facilities; use traffic management measures to improve safety for all modes and traffic flow; use demand management measures to reduce single-occupant vehicle trips.
- Expand and improve housing options – develop and implement a housing strategy; include a diversity of housing types and tenures.
- Enhance economic opportunities – provide financial assistance to existing businesses, site assembly, incentive programs.

Opportunity Gateway, the Gateway Regional Center Urban Renewal Plan, and the Portland Development Commission’s Five Year Plan planning process and yearly budget updates will guide the allocation of urban renewal funds in the district.

Gateway Plan District

City Council adopted the Gateway Plan District into Title 33, Planning and Zoning, in 1996, in conjunction with the Outer Southeast Community Plan. The regulations of the plan district are intended to:

- Encourage new development and expansion of existing development to promote the district's growth and light rail transit ridership.
- Promote compatibility between private and public investments along the light rail system through building design and site layout standards.
- Require new development and expansions of development to create attractive and convenient facilities for pedestrian and transit patrons.

These regulations are in addition to regulations in base zones, design review guidelines, and additional use and development regulations. The Gateway regional center is zoned for a mix of high-density development, including commercial, multi-family residential, and employment uses. Some uses, such as vehicle repair, are prohibited because they are not compatible with the transit orientation of the district.

Housing is required in some commercial and employment zones as a part of development on large sites to “prompt developers and owners to explore and take advantage of opportunities for more intense housing and mixed-use projects.” Residential zones have minimum density requirements, and some housing types are prohibited.

Development standards are sometimes more restrictive than the base zones would allow; for example, drive-through facilities are prohibited throughout the plan district. In other cases, the standards are more lenient; for example, buildings located west of 127th buildings are allowed to be 125 feet high.

Development is required to be built at a minimum of 0.5 to 1 floor area ratio in commercial and employment zones. Large sites are required to provide open areas, including walkways and public or private streets. Other open areas may include parks, plazas, public fountains, and landscaping. Site design must include safe, pleasant, and convenient pedestrian and bicycle connections between buildings and connecting to light rail; parking placed beside or behind development; and entrances oriented to the street. No required parking and maximum parking ratios ensure that vast areas will not be devoted to surface parking lots, as is frequently the case for existing development.

Gateway Transportation Projects

The TSP and RTP identify the following transportation projects for Gateway and the immediate vicinity to address future deficiencies:

- Project Nos. 50002, 50003 (102nd boulevard and safety improvements – phases 1 and 2)
- Project Nos. 50014, 50015 (99th & Pacific - phases 1, 2, and 3)
- Project Nos. 50018, 50019, 50020 (pedestrian and local street improvements – phases 1, 2, and 3)
- Project No. 50021 (Gateway TMA)
- Project No. 50022 (Gateway-wide traffic management)

- Project No. 50023 (Glisan bikeway – 106th to 162nd)
- Project No. 50039 (Halsey boulevard improvements and traffic management)
- Project No. 50024 (Glisan boulevard improvements and traffic management)
- Project No. 70034 (I-205 multi-use path crossings)
- Project No. 80017 (Stark/Washington bikeway)
- Project No. 80018 (Stark/Washington boulevard improvements and traffic management)

The transportation analysis for Gateway included a mode split analysis that evaluated the effects of land use and transportation changes on mode split. Opportunity Gateway guides improvements in mode split. The key elements are:

- 1) Reduce the impacts of the park-and-ride by consolidating parking in a mixed-use parking garage.
- 2) Create a finely grained local street network to increase connectivity.
- 3) Place buildings close to streets to make a more attractive pedestrian environment.
- 4) Add wider sidewalks, bike lanes, open space, street lighting, and crossing signals to improve walking and bicycling opportunities.
- 5) Implement other traffic control changes to mitigate the impact of regional through-traffic.

Based on these changes, the mode split figures shown in Table 5.5 were derived:

**Table 5.5
Existing and Projected Mode Splits**

Home-based Work Trips	1994 (percent)	2020 (percent)
Drive alone	78	59
Carpool	14	16
Transit	5	19
Bike	1	3
Walk	2	3
All Other Trips	1994	2020
Auto	95	89
Transit	3	6
Bike	1	1
Walk	1	4

The RTP non-SOV mode share goal for regional centers such as Gateway is 45 to 55 percent for 2040. The 41 percent non-SOV mode share for home-based work trips in 2020 shows that Gateway can meet this goal. As a regional center matures and residential densities increase, the non-SOV share tends to rise.

Southeast Arterials

The RTP forecasts that the east-west arterials in southeast Portland between the Central City and I-205 will experience some congestion during the evening two-hour peak period, possibly as a result of significant congestion on I-84. Although light rail and expanded bus service on parallel streets provide effective, reasonable alternatives to I-5, traffic volumes are expected to increase on these east-west arterials south of the freeway. The RTP states that additional measures are needed to address this congestion, beyond those identified in the RTP.

Southeast Portland is characterized by an extensive grid of arterials and local streets that exceeds the RTP standard for connectivity. Since the regional model does not include the local street network, the RTP be overestimating the demand for travel on the arterials. This network of streets relieves congestion by quickly dispersing local traffic onto local streets. Other land use and transportation factors that ameliorate the projected congestion are discussed below.

Land Use

Southeast Portland contains of a number of main streets (Burnside, Hawthorne, Belmont, Foster, Woodstock, and Division) that function much like a town center. The main streets have a mix of residential, retail, and commercial uses that together supply many of the daily needs of the area residents. By having a mix of uses in close proximity, many daily trips – work, shopping, education – can be made by walking, bicycling, or transit, thereby reducing congestion.

Transportation

Southeast Portland has existing high-quality transit service on most arterials (Glisan, Burnside, Belmont, Hawthorne, Division, Powell, Holgate, Woodstock, 39th, 52nd, 82nd, and Foster), resulting in a high mode split for non-SOV travel. The RTP anticipates improvements to increase transit frequency on Belmont, Hawthorne, Division, and Powell/Foster. Maximum parking ratios have been adopted for all non-residential uses, and some commercial areas (usually along main streets) require no off-street parking.

Southeast TSP Projects

In addition to increased transit frequency (as discussed above), a number of projects are proposed for southeast Portland to encourage more non-SOV travel and alleviate congestion. The RTP and/or TSP identify the following projects:

- Project No. 20013 (Burnside/Sandy/12th intersection – RTP, TSP)
- Project No. 20014 (Burnside: SE 12th to W 23rd – RTP, TSP)
- Project No. 70009 (Belmont street and pedestrian improvements between 12th and 43rd - RTP, TSP)

- Project No. 70010 (Burnside pedestrian (TSP only) and bicycle – RTP, TSP)
- Project No. 70009 (Belmont street and pedestrian improvements – RTP, TSP)
- Project No. 70013 (Division multimodal improvements – RTP, TSP)
- Project No. 70021 (Foster pedestrian-to-transit improvements – RTP, TSP)
- Project Nos. 70031 and 70033 (Hogate bike lanes, phase 1 and 2 – RTP, TSP)
- Project No. 70004 (26th and Hogate intersection improvements – TSP)
- Project No. 70005 (39th between Sandy and Woodstock pedestrian, safety, and signalization improvements – TSP)
- Project No. 70006 (60th corridor and intersection improvements – TSP)
- Project No. 20023 (SE 11th/12th/RR intersection improvements – TSP)
- Project No. 70032 (Hogate multimodal improvements – TSP)
- Project No. 70045 (Powell pedestrian and intersection improvements – TSP)
- Project No. 20023 (TSM improvements – TSP)

Congestion affects traffic movement and hinders alternatives to the automobile from negotiating the street network. It can also negatively impact the livability of residential neighborhoods. Traffic calming measures can help alleviate unacceptable traffic volumes and speeds. In addition to the many traffic calming projects that have been installed in southeast Portland over the last decade, new projects are targeted for areas where high traffic volumes and speeds affect safety and livability.

Portland International Airport

The Port of Portland has an approved airport master plan that will continue to be in effect for several years. The plan includes some expansion in facilities. For airport expansion beyond that which is currently approved, the Port must address the related transportation impacts in a new master plan or other regulatory tool (such as a plan district) and include measures to mitigate these impacts. The Port is currently working with the City and other affected agencies about future expansion plans and regulatory approaches.

Going Street/Greeley Avenue

The RTP states that Going Street at Greeley Avenue will experience localized congestion in the future during the evening two-hour peak period. The Union Pacific railyards and Swan Island port facilities will remain accessible from Greeley and Going during this peak time, but congestion on I-5 will limit truck access to these streets. The RTP contains several projects to address this congestion in the vicinity of Going and Greeley. The I-5 Trade

Partnership study now underway is developing potential strategies for I-5. The following projects that are identified in the RTP and TSP will adequately address traffic congestion in the Going/Greeley vicinity:

- Project No. 30012 (bikeway on Going – RTP, TSP)
- Project No. 30013 (seismic upgrade to Going Street bridge– RTP, TSP)
- Project No. 30015 (ITS – RTP, TSP)
- Project No. 30017 (Greeley/Interstate bike and pedestrian improvements – RTP, TSP)
- Project No. 30052 (Swan Island TMA – RTP, TSP)
- Project No. 30016 (climbing lane and interchange improvements - TSP)

Conclusion

Portland's motor vehicle system is substantially complete and new streets will, for the most part, serve developing areas that lack a complete street system. The City's motor vehicle system does need significant upgrading to improve the safety of all users, whether in vehicles, on bicycles, in buses, or on foot. The City's emphasis will continue to be placed on implementing projects, programs, and strategies that serve developing areas, enhance safety, and improve the efficiency of the motor vehicle system.

The subareas identified by the RTP as experiencing high levels of congestion in the future have been reviewed in this modal plan. The TSP analysis includes additional strategies and projects that will adequately address future congestion.

PUBLIC TRANSPORTATION and TRANSPORTATION DISADVANTAGED MODAL PLAN

Introduction

During the next 20 years, public transportation will play a critical role in linking activity centers and improving access within them. A complete transit system includes light rail, buses, streetcars, vanpools, dial-a-ride service, potentially water taxis, and limited park-and-ride facilities to serve the entire population, including the transportation disadvantaged.



Tri-Met is the primary transit provider for the region. Tri-Met implements transit improvements through annual updates and expansions to its service plan. Annual growth trends, ridership and traffic congestion are considered when making changes to transit service. The addition of new light rail lines and streetcar service results in adjustments to bus service to maintain and improve coverage and transfers.

Portland has in the past and will continue to have a large role in the development of an effective transit system. The city actively promotes transit to the community, advocates for better transit service to Tri-Met, develops transit-supportive infrastructure, implements transit-preferential measures, and facilitates and helps fund the development of streetcar lines, river taxi stops, and light rail.

The Transportation System Plan's (TSP) public transit policy supports a transit system that serves City residents and workers 24 hours a day, seven days a week. The City believes that light rail is the foundation for the transit system, linking the Central City to regional centers and major destinations such as the airport. Streetcars serve Portland neighborhoods, employment centers, shopping, educational institutions, and recreation destinations on both sides of the Willamette River. Buses provide the principal means of transit for access and mobility needs for the City, helping to relieve congestion and support economic activities.

Requirements

Transportation Planning Rule

In addition to the common elements that must be included in each of the modal plans (as described in the introduction to this chapter, the state Transportation Planning Rule (TPR) contains the following elements specific to public transportation:

- A description of public transportation services for the transportation disadvantaged and identification of service inadequacies (special transit services)
- A description of intercity bus and passenger rail service and identification of terminals

- Identification of existing and planned transit trunk routes, exclusive transit ways, transfer stations, major transit stops and stop location standards, and park-and-ride stations
- Planned service capacity

2000 Regional Transportation Plan Requirements

Metro's role in public transportation is to establish a 20-year plan for regional transit improvements, such as major bus or rail service, through the 2000 Regional Transportation Plan (RTP). Metro's goal is to ensure adequate provision of transit services in the region to implement Region 2040. Metro focuses on the higher levels of transit service and coordinates with Tri-Met on community-level transit service, such as local bus lines or lift services. The RTP identifies a regional transit network that serves the primary land use components, including the Central City, regional centers, industrial areas and intermodal facilities such the Portland International Airport. Because of this focus, the RTP classification system for public transportation varies somewhat from Portland's classifications, as shown on Table 5.6.

Portland must be consistent with the public transportation policies contained in the RTP:

- RTP Policy 14.0 focuses on providing an appropriate level, quality, and range of public transportation options to serve the region and support implementation of the 2040 Growth Concept.
- RTP Policy 14.1 calls for increasing the information available about public transportation to allow more people to use the system.
- RTP Policy 14.2 focuses on efforts to make public transportation an environmentally friendly and safe form of transportation.
- RTP Policy 14.3 identifies performance measures to ensure that transit service is fast, reliable, and competitive in travel times to the automobile.

Section 6.4.10 of the RTP lists a number of measures that local jurisdictions are required to comply with. Jurisdictions must adopt a transit system map, consistent with the transit functional classifications in the RTP. Portland has not identified any discrepancies between the RTP public transportation modal map and its own designations, with one exception, as described below.

**Table 5.6
Comparison of Transit Classifications**

RTP Classification	TSP Classification
Light Rail Transit	Regional Transitway/ Major Transit Priority Street
Intercity High-speed Rail	Intercity Passenger Rail
Rapid Bus	Regional Transitway/ Major Transit Priority Street
Street Car	Major Transit Priority Street/Transit Access Street
Frequent Bus	Major Transit Priority Street/Transit Access Street
Regional Bus	Transit Access Street
Community Bus (not mapped)	Community Transit Street
Transit Center, LRT Station	Transit Station
Major Transit Stop	Not mapped
Intercity Bus Passenger Terminal Intercity Rail Passenger Terminal Intercity Air Passenger Terminal	Passenger Intermodal Facilities

Metro identifies major transit stops throughout the region, where specific regulations must be adopted relating to orientation and location of buildings adjacent to these stops. Effective January 1, 1997, Portland adopted regulations into its Zoning Code that implement more stringent requirements than both the RTP and TPR. In Portland, building setbacks and orientation are required along the entire length of designated transit streets, rather than at major transit stops only. Portland’s regulations recognize that stop spacing is relatively close (and subject to change) and that the regulations also apply to many designated pedestrian districts. Portland believes the resulting urban design will respond better to the pedestrian by eliminating ‘gaps’ where buildings can be set back from the street. Chapter 6, Implementation Strategies and Regulations, of this document summarizes the Portland regulations that respond to these RTP requirements.

Other requirements of Section 6.4.10 of the RTP are:

- 1) Provide direct and logical pedestrian crossing at transit stops and marked crossings at major transit stops.
- 2) Consider street designs that anticipate planned transit stop spacing, location, and facilities and are consistent with the Creating Livable Streets design guidelines.

Portland’s Pedestrian Design Guide establishes minimum and maximum distances between crossing opportunities. Generally, crossings should be no more than 400 feet apart and may be more frequent in pedestrian districts and along main streets. The Pedestrian Design Guide also identifies where marked crossings are appropriate. The TSP contains a policy that references the Creating Livable Streets design guidelines for regional street design purposes. (See Chapter 2, Transportation Element, for the complete text of Objective 11.10E.)

Approach to Mode

The City's approach to transit services and facilities for the next 20 years is embodied in the following objectives:

- Continue to support transit as the preferred mode for person trips to and from the Central City, regional and town centers, and light rail stations.
- Continue to recognize light rail transit as the backbone of the regional transit system. Completing this system to connect all regional centers should be a high priority for the region.
- Address City travel needs through primary and secondary bus services (as defined by Metro).
- Expand primary and secondary bus services to ensure that access and mobility needs are served, traffic congestion is reduced, and the City's economy is supported.
- Give high priority to increased frequency and reduced travel times, particularly on major routes.
- Support transit that meets the needs of the transportation disadvantaged.
- In lower-density areas, consider other forms of transit, including vanpools and dial-a-ride.
- Support the development of commuter rail services to address the growing travel demands from communities outside the Portland metropolitan area. Commuter rail service should serve the Union Station transportation center, link to all modes of passenger travel, and support regional growth management strategies.
- Support transit enhancements to employment and industrial areas.



Policy Framework

City of Portland Comprehensive Plan

The Portland's Comprehensive Plan contains statements that guide how the City plans and implements improvements. In addition, a number of district and neighborhood plans have been adopted that contain more area-specific statements. These statements are ordered from the general to the specific as goals, policies, and objectives. Goals, policies, and objectives are formally adopted by City Council ordinance.

Goal 6 Transportation

Policies and objectives within Goal 6 that relate to public transportation are primarily under Policy 6.25, Public Transit, which states:

Develop a transit system that conveniently serves city residents and workers 24-hours a day, seven days a week and can become the preferred form of travel to major destinations, including the Central City, regional and town centers, main streets, and station communities.

The objectives for Policy 6.24 address:

- A. Supporting light rail and bus connections as the foundation of the regional transit system
- B. Basing light rail alignment decisions on individual corridor studies
- C. Expanding primary and secondary bus routes to meet the demand for work and non-work trips and support economic vitality
- D. Implementing transit-priority measures on Major Transit Priority Streets
- E. Considering alternative forms of transit
- F. Supporting a public transit system and regional transportation strategies that address the needs of the transportation disadvantaged and provide increased mobility options and access
- G. Locating park-and-ride lots only where they will significantly increase transit use and not hamper transit-supportive development
- H. Developing streetcar lines to connect residential areas to employment opportunities and other destinations

(The complete text is contained in Chapter 2.)

Policy 6.6, Transit Street Classification Descriptions, describes the eight types of transit streets and facilities. The purpose of the transit classifications is to describe the hierarchy of transit streets that support “the movement of transit vehicles for regional, interregional, interdistrict, and local trips.” In addition to transit streets, the classifications describe the desired character of transit stations, intercity passenger rail lines, and passenger intermodal facilities. There are eight maps that show the transit classifications. They are located with the policy associated with each of the eight transportation districts. This policy states:

Maintain a system of transit streets that supports the movement of transit vehicles for regional, interregional, interdistrict, and local trips.

The objectives address each of the transit classifications. The previous Transportation Element and Central City Transportation Management Plan classifications have been consolidated and new classifications added to be consistent with the 2000 RTP. The classifications describe the appropriate adjacent land uses, level of transit stop improvements, stop spacing, and access to transit.

- Regional Transitways serve interregional and interdistrict transit trips with frequent, high-speed, high-capacity, express, or limited service, and connect the Central City with regional centers.
- Major Transit Priority Streets provide high-quality transit service that connects the Central City with regional and town centers and main streets.
- Transit Access Streets provide district-oriented transit service serving main streets, neighborhoods, and commercial, industrial, and employment areas.
- Community Transit Streets provide local service in neighborhoods and industrial areas and connect to city-wide transit service.
- Local Service Transit Streets provide transit service to residents and adjacent commercial areas. Typically, Local Service Transit Streets seldom have regular transit service except for short street segments.
- Transit Stations are stops for light rail vehicles or other high-capacity transit service.
- Intercity Passenger Rail are heavy rail lines that provide commuter and other rail passenger service.
- Passenger Intermodal Facilities serve as the hub for various passenger modes and the transfer point between modes. Examples are Union Station and the airport.

Policy 6.19, Transit-Oriented Development, is directed to the relationship between land use and transportation. It states:

Reinforce the link between transit and land use by supporting increased residential employment densities and encouraging transit-oriented development along transit streets, at existing and planned light rail transit stations, and at other major activity centers.

Its objectives address:

- A. Considering the existing or planned availability of high-quality transit service in adopting more intensive zoning
- B. Focusing medium-density and high-density development in transit-oriented developments along transit lines
- C. Requiring commercial and multifamily development to orient to and provide connections to transit streets.

Policy 6.32, Multimodal Passenger Service, addresses the planning, development, and interconnection of Portland's, the region's and intercity transportation services for passenger travel. It's objectives cover:

- A. Continuation of Union Station as the multimodal transportation hub serving passenger rail and intercity bus travel.

- B. Recognizing the airport as the hub air passenger facility with connections to light rail.
- C. Support for new passenger transfer facilities in existing and emerging regional centers.
- D. Support for commuter rail service where it will support the 2040 Growth Concept.
- E. Support for expansion of passenger rail service between Eugene, Portland, Seattle, and Vancouver, B. C.

In addition to these policies and objectives, other transit-related objectives under Goal 6 are:

- Direct interregional traffic to use Regional Trafficways and Regional Transitways, and manage these facilities to maximize their existing capacity. (Policy 6.12, Regional and City Travel Patterns, Objective A)
- Employ transportation system management measures, including coordinating and synchronizing signals, to improve traffic and transit movements and safety for all modes of travel. (Policy 6.15, Transportation System Management, Objective B)

DISTRICT TRANSIT-RELATED OBJECTIVES

District-specific objectives addressing transit improvements are contained in Policy 6.34 through Policy 6.40 for seven of the eight transportation districts: North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest. Central City objectives are summarized later in the policy analysis. Selected objectives are listed below; the complete text of district policies and objectives is provided in Chapter 2.

North:

- Support improvements to transit service that will link North Portland to areas outside the downtown. (Policy 6.34, Objective F)
- Develop light rail on N Interstate and to the Expo Center, while mitigating for potential diversion of traffic onto local streets. (Policy 6.34, Objective H)

Northeast:

- Improve transit service and facilities where needed to serve employment areas, including the Columbia Corridor, Northwest industrial area, and developing residential areas. (Policy 6.35, Objective E)
- Work with Tri-Met and businesses to encourage the use of alternatives to automobiles, especially in Columbia Corridor. (Policy 6.35, Objective F)

Far Northeast:

- Improve cross-town transit service to accommodate trips within the Far Northeast District, transit service along Sandy, and transit connections to light rail. (Policy 6.36, Objective B)
- Resolve the long-term future of the park-and-ride at Gateway. (Policy 6.36, Objective E)

Southeast:

- Continue to improve cross-town transit service, transit travel times, and expand off-peak and weekend service. (Policy 6.37, Objective I)
- Support planning for and development of light rail transit and streetcars in Southeast Portland, including consideration of feeder transit service and pedestrian and bicycle access. (Policy 6.37, Objective J)

Far Southeast:

- Reduce travel demand in the district by providing additional transit service, including feeder service to light rail and alternatives to buses for low-density areas. (Policy 6.38, Objective D)

Northwest:

- Expand transit service throughout the district, including adding more cross-town service, connecting bus service from the Civic Stadium light rail station to the northwest industrial area, and improving service in low-density areas such as Linnton. (Policy 6.39, Objective A)

Southwest:

- Use the Willamette Shore Line right-of-way, the corridor identified in the Macadam Corridor Improvement Plan, or other alignment as appropriate to provide future streetcar commuter service or light rail in the Macadam corridor. (Policy 6.40, Objective A)

Goal 11 Public Rights-of-Way

Goal 11B, Public Rights-of-Way, and its policies and objectives describe how the City's transportation system should be designed and built. Transit-related objectives under Goal 11B include:

- Promote a compact urban form by supporting development in high-priority 2040 Growth Concept areas, including facilities and improvements that support mixed-use, pedestrian-friendly development and increase walking, bicycling, and transit use. (Policy 11.9, Project Selection, Objective A)

- Include improvements that enhance transit operations, safety, and travel times in projects on existing or planned transit routes. (Policy 11.10, Street Design and Rights-of-Way Improvements, Objective H)
- Ensure that transportation facilities are accessible to all people and that all improvements to the transportation system (traffic, transit, bicycle, and pedestrian) comply with the Americans with Disabilities Act. (Policy 11.10, Objective K)

Central City Transportation Management Plan

The CCTMP was adopted in December 1995 to implement the Central City Plan for transportation. Policy 4 of the Central City Plan states:

Improve the Central City’s accessibility to the rest of the region and its ability to accommodate growth, by extending the light rail system and by maintaining and improving other forms of transit and the street and highways system while preserving and enhancing the City’s livability.

The CCTMP expanded on this policy with a set of policies that address various aspects of transportation in the Central City.

Policy 2.3, Priority for Transit, states:

Support transit as the preferred mode of moving people to increase transportation access to the Central City, with light rail and express bus routes providing the link to urban and suburban centers and urban transit routes connecting close-in City neighborhoods.

Under Policy 3, Mode Split, sub-policy 3.1, Transit, establishes the following transit mode split goals for commuter trips in 2010 for the districts of the Central City:

Downtown	60%
North of Burnside	40%
Lloyd-Coliseum	40%
Northwest Triangle	20%
South Waterfront	20%
Goose Hollow	20%
Central Eastside	15%
Lower Albina	10%



Policy 5, Transit, and its sub-policies state:

Ensure that the transit system will be a key component in stimulating economic development in the Central City, supporting the density and diversity of activities that lead to high levels of pedestrian and bicycle trips, minimizing automobile congestion, and improving air quality. (Policy 5)

Improve transit access to the Central City to support its full development potential as envisioned in the Central City Plan. (Policy 5.1, Transit Access)

Increase the speed and reliability of transit service in the Central City. (Policy 5.2, Transit Operations)

Improve the understandability, predictability, and visibility of transit in the Central City. (Policy 5.3, Physical Image of Transit)

Improve transit service to provide better circulation and distribution within and between districts of the Central City. (Policy 5.4, Central City Transit Circulation)

Use transit to foster high-density, transit-supportive development. (Policy 5.5 Transit-Supportive Development)

Participate in regional efforts to secure funding for improved transit services, facilities, and demand management programs. (Policy 5.6 Funding Transit)

The complete text of the policies and their supporting objectives is contained in Chapter 2 of the TSP.

Other Transit-Related Policies and Objectives

In addition to the Transportation Element, the following Comprehensive Plan objectives mention transit and the link between transit and land use.

Goal 2, Urban Development, Objective 2.1, Transit Corridors states:

Provide a mixture of activities along major transit routes and Main Streets to support the use of transit. Encourage development of commercial uses and allow labor-intensive industrial activities that are compatible with the surrounding area. Increase residential densities on residentially-zoned lands within one-quarter mile of existing and planned transit routes to transit-supportive levels. Require development along transit routes to relate to the transit line and pedestrians and to provide on-site pedestrian connections.

Goal 2, Urban Development, Objective 2.17, Transit Stations and Transit Centers, states:

Encourage transit-oriented development patterns at light rail transit stations and at transit centers to provide for easy access to transit service. Establish minimum residential densities on residentially-zoned lands within one-half mile of light rail transit stations and one-quarter mile of transit centers that support the use of transit. The design and mix of land uses surrounding light rail transit stations and transit centers should emphasize a pedestrian- and bicycle-oriented environment and support transit use.

Goal 4, Housing, Objectives 4.3 A and 4.3C, Sustainable Housing, state, respectively:

Place new residential developments at locations that increase potential ridership on the regional transit system and support the Central City as the region's employment and cultural center.

Encourage the development of housing at transit-supportive densities near transit streets, especially where parks or schools are present, to ensure that the benefits of the public's investment in those facilities are available to as many households as possible.

Goal 5, Economic Development, Objectives 5.4C and 5.4D, Transportation System, state, respectively:

Work closely with public agencies, such as Tri-Met, and the private sector to deliver an efficient and effective transportation system and network. Improve transit connections between residential communities and work sites.

Support transit-supportive development and redevelopment along designated transit streets and in the vicinity of light rail stations.

Goal 5, Economic Development, Objective 5.7E, Business Environment Within Designated Commercial Areas, states:

Concentrate the expansion of commercial and mixed use activities near the intersections of Major City Traffic or Transit Streets as designated by the Transportation Element, and near Major Transit streets.

Goal 7, Energy, Objective 7.4C, Energy Efficiency through Land Use Regulations, states:

Promote medium to high-density residential near proposed transit stations and medium-density residential development along major transit routes.

Goal 7, Energy, Objective 7.6, Energy Efficient Transportation, and 7.6C and E state, respectively:

Provide opportunities for non-auto transportation including alternative vehicles, buses, light rail, bikeways, and walkways. The City shall promote the reduction of gasoline and diesel use by conventional buses, autos and trucks by increasing fuel efficiency and by promoting the use of alternative fuels.

Support efforts to ensure the energy efficiency of the transit system, including good street maintenance and transportation system management.

Promote the construction of a regional light rail transit system.

Existing Conditions

Summary of TSP Inventory

Regular Transit Service

The status of public transit in the region was most recently described in the TSP Inventory (1996). At that time, Tri-Met was operating 90 bus routes and eastside light rail, with a total fleet of 644 vehicles, including 25 mini-buses. This service consisted of 5 trunk lines, including eastside MAX, 22 city radial lines, 6 crosstown lines, 38 radial/feeder lines, and 20 peak radial/feeder lines. Since then, the westside light rail line has opened, and Tri-Met's

fleet now consists of 736 vehicles, including 664 buses and 72 light rail vehicles. Five transit centers are located within the City of Portland, and bus stops are located generally at two- to three-block intervals along each route. There are 18 park-and-ride lots within the City, providing approximately 2,380 parking spaces.

Route frequencies are based on the average load factor and time of day. Tri-Met routes have an average load factor of 0.47. Refer to the TSP Inventory (1996) for a map of routes with 20-minute or more frequent peak-hour service (Figure 14) and the following tables:

- Transit Frequency Table (Appendix D)
- Average Weekday Boarding Rides (Fiscal Year 1987 to 1995) and Average Daily Boarding Rides (Appendix E)
- Average Load Factor for All Routes (Weekdays) and Average Load Factors – September 3rd to December 2nd 1995 (Weekdays) (Appendix F)

Special Transit Services

Tri-Met's LIFT Program provides door-to-door rides to registered customers who are unable to use Tri-Met's regular service due to physical or mental disabilities. The program was operating 100 small, lift-equipped buses in the tri-county area at the time of the 1996 TSP Inventory. Service is provided from 4:30 am to 2:30 am, seven days a week (the same hours as regular Tri-Met bus and MAX service), to origins and destinations within three-quarters of a mile from a regular Tri-Met route.

Ride Connection is a coordinated transportation delivery system composed of community transportation providers throughout the Portland metropolitan area. These programs focus on service to the elderly and individuals with disabilities with no other viable transportation alternatives. Ride Connection relies on volunteers. Customers are not required to pay a fare, but donations are accepted. Volunteer drivers and escorts drive VTI lift-equipped mini-vans and mini-buses or their personal vehicles.

Tri-Met also provides Special Events Transit Service (SETS) to accommodate transit needs during special events. In most cases, the event sponsor requests the service. For examples of SETS, refer to the TSP Inventory (1996), Appendix G: Tri-Met Special Events Transit Service (SETS) '95.

Intercity Bus and Rail

Portland's Greyhound terminal, located next to Union Station, provides bus service to cities and towns throughout the United States.

Amtrak provides rail service for the Pacific Northwest Corridor. Portland is served by a total of five trains: four provide daily service between Vancouver, British Columbia and Eugene, Oregon, and one provides limited service between Seattle, Washington and Eugene. Two of those trains also run from Portland to Chicago, Illinois.

Recent Major Improvements

Light Rail Transit

AIRPORT MAX

Service on the new MAX light rail extension (Airport MAX) to the Portland International Airport (PDX) began September 2001. The extension is 5.5 miles and runs along I-205 between the Gateway Transit Center and PDX. It serves Cascade Station, an emerging 120-acre transit-oriented project along the light rail corridor. When complete, Cascade Station will feature hospitality, retail, entertainment, and office space and will be served by two MAX stations. The MAX 'red line' travels to the airport starting at approximately 3:30 A.M. and ending service at approximately 12:30 A.M. with 15-minute headways throughout the day and night.

Airport MAX is intended to provide airline passengers and employees with an important transportation link to the airport and Cascade Station. It will also improve transit service for the Columbia Corridor, a growing economic center.

INTERSTATE MAX

After voters rejected funding the South/North light rail project in 1998, residents of north and northeast Portland requested that Tri-Met, the City of Portland, and Metro consider building a light rail extension in north Portland. Tri-Met cites six key reasons for originally considering the Interstate MAX light rail:

- Provides another transportation option to help meet the growing demand in the I-5/ Interstate Avenue corridor.
- Provides additional transit service in the area that is dependable and expands the regional transportation system, linking jobs throughout the Portland metro area.
- Provides the opportunity to revitalize Interstate Avenue with employment, housing, and retail.
- Takes cars off the roads; reduces air pollution and related illnesses.
- Gives Vancouver commuters an alternative to driving through north Portland on I-5 by providing a potential park-and-ride lot at the Metro Expo Center. Shuttle bus service from Clark County may also serve the Expo Center. Interstate MAX also provides the opportunity to expand to Clark County in the future if Washington residents approve funding for the extension.
- Federal funds originally designated for Portland may still be available to help build the north extension.

Interstate MAX is under construction between the Rose Quarter and the Expo Center; operation will begin in 2004.

Central City Streetcar

The Central City streetcar connects the dense northwest Portland shopping district and Good Samaritan Hospital, along with the surrounding residential neighborhoods, to the Central City and Portland State University. After nearly a decade of study, a streetcar was determined to be the most appropriate choice for providing convenient access to and from the northwest district, where parking shortages and traffic congestion have become a serious problem.



The streetcar is the City's first step in extending the same quality service available on MAX into the Central City and its surrounding neighborhoods. The streetcar follows a five-mile route with stops every two to three blocks. The streetcar is largely fareless, the exception being north of Hoyt. The \$33 million project was funded through a creative mix of federal grant monies, bonds on public parking facilities, and a local improvement district. Currently the streetcar is averaging 6,000 to 7,000 daily riders.

As more communities—such as North Macadam—emerge as residential, employment, or retail hubs, new connections should be added to these areas to support development, meet growing demands for transit, and discourage automobile use.

Existing Deficiencies

Issues from District Needs Assessment

In fall 1998, the Portland Office of Transportation (PDOT) held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. Participants were asked to identify needed transportation improvements in their neighborhood and indicate their top three priority issues, or 'transportation values.'

One of the top seven values identified in the workshops was to significantly increase transit services. This value was especially important in the Northwest, Southwest, Southeast, and Far Southeast Districts. Other values related to transit were to manage congestion and provide choices. Managing congestion was especially important in Northwest, Northeast, Far Northeast, and Far Southeast. Providing more transportation choices was one of the top priorities in Southeast.

Transit Choices for Livability

In 1998, Tri-Met completed a regional process for soliciting input on future transit priorities, called Transit Choices for Livability. The intent was to ask the community where and what kinds of service were desired, but not currently being provided. The result was a Transit Livability Strategy containing a series of sketch plans with identified transit service priorities, funding recommendations, and service delivery recommendations.

The highlights of recommended new or improved service for Portland were:

- Improved service to employment areas in the Columbia Corridor and NE Airport Way, and ultimately airport MAX service (better connections between housing and jobs in the Columbia Corridor)
- Improvements in existing bus service for NE Glisan and SE Market/Main
- Better service between Gateway and Clackamas town center
- Rapid bus service on SE McLoughlin, connecting to the South/North transit corridor
- Shuttle service to Swan Island and the Rose Quarter
- Improved service in southwest Portland along SW 35th, SW Stephenson, SW Boones Ferry, and other underserved areas
- New rapid bus service along SE Division from Portland to Gresham
- New connection between Civic Stadium and the northwest industrial area, with a link to north and northeast Portland
- New connections between Forest Heights and light rail
- Improved service on existing lines serving SW Taylors Ferry, SW Garden Home, Raleigh Hills town center, NE 33rd, SE Holgate, NE Glisan, NE Broadway, and Hollywood town center
- All-night service on selected routes
- Extension of Fareless Square to the Lloyd District
- New streetcar service between Good Samaritan Hospital and Portland State University
- Better service to the Lloyd District, with better connections to other Central City locations
- Improved connections between downtown Portland and the Central Eastside industrial area
- More buses connecting to the Portland State University transit center
- Extended service on SW Jefferson and SW Columbia to connect Goose Hollow to SW Naito Parkway
- Connection of the North Macadam hub area and Oregon Health Sciences University via the Portland State University transit center
- Better north-south service on the east side of the Willamette River

Tri-Met Three-Year Service Proposal

As part of the longer-term strategy outlined in the Transit Choices for Livability, Tri-Met developed a three-year plan that proposes adjustments to routes and schedules. With additional federal funds available for transit, Tri-Met now has the opportunity to make significant improvements aimed at substantial and sustained increases in ridership. The plan addresses five overall action items:

- Develop transit corridors.
- Add service to high-ridership lines.
- Improve service quality.
- Increase efficiency with new technology.
- Reallocate service on lowest ridership lines.

Specific improvements proposed for the Portland area include:

- Improve weekday, midday, and night service to North Portland (lines 1-Greeley and 40-Mocks Crest); weekday service to Southeast (line 10-Harold); weekend service to

Southeast (lines 9-Powell, 10-Harold, 17-Holgate and 19-Woodstock); and weekday and weekend service to Northeast (line 10-NE 33rd).

- Improve service to North, Northeast, and Southeast along Killingsworth and 82nd Avenue to Clackamas Town Center regional center (line 72-Killingsworth-82nd).
- Extend Fareless Square to the Lloyd District, in partnership with the Lloyd District Transportation Management Association and City of Portland.
- Develop partnership plans that coordinate public and private investments to address development, parking, and alternative transportation needs in the River District and North Macadam areas.
- Consider reconfiguring service to connect with the Central City streetcar project.

Tri-Met Five-Year Plan

Tri-Met is in the formative stages of developing a five-year plan for transit service. This plan will guide service and capital investments for annual service planning. Relevant portions of the plan, when completed, will be incorporated into the next TSP update.

Underserved Areas and Populations

This section outlines the segments of the transit network that are in great need of service improvements, based on the 1996 inventory. The service frequency at which a particular line should operate, according to adopted standards, is referred to as a ‘policy-headway’. Policy-headways are not rigid standards; service should not necessarily operate at a policy-headway if the service does not meet effectiveness standards or is not projected to do so. The following lines are operating below the policy-headway during two or more *weekday* time periods, also identified below. Periods are defined as peak (7-9 am and 4-6 pm), base (6-7 am and 9 am-4 pm), evening (6-9:30 pm) and night (9:30 pm-midnight).

TRUNK LINES

- Barbur Blvd, #12 Evening, Night
- McLoughlin, #33 All time periods

CITY RADIAL LINES

- Greeley, #1 Peak, Base
- NE 33rd Ave, #10 Base, Night
- Harold, #10 Base, Evening, Night
- Tacoma, #40 Peak, Base
- Mocks Crest, #40 Peak, Base, Night

RADIAL/FEEDER LINE

- San Rafael-182nd, #23 Base, Evening
- Glisan-Rockwood, #25 Base, Evening
- Market-Main, #27 Base, Evening
- Linwood, #28 Base, Evening
- Lake-Webster, #29 Base, Evening
- River Road, #34 Base, Evening

- South Shore, #36 Base, Evening
- North Shore, #37 Base, Evening
- Taylors Ferry Rd, #43 Base, Evening
- Washington Park-OMSI, #63 Peak, Base, Evening
- Canby-Clackamas TC, #79 Peak, Base, Evening
- Gresham-257th, #81 Peak, Base Evening
- Sandy/Boring, #84 Peak, Base, Evening
- Willamette, #154 Base, Evening

An area is considered to be a ‘major underserved area’ if it includes one or more of Metro’s regional traffic zones in which less than 25 percent of the population is within one-quarter mile of existing transit service. The major underserved areas in Portland identified in the 1996 TSP inventory were:

- Arnold/Stephenson
- Front Avenue
- Hart/Bany
- Johnson Creek/92nd

Since the inventory, weekday peak-hour service has been instituted on Front Avenue, between St. Johns and the Central City.

Recent Transit Studies and Plans

Barbur Corridor Light Rail Transit Study

In 1991, the City completed a study of the Barbur Corridor’s potential for light rail (Barbur Corridor Light Rail Study). The study evaluated light rail options, based on criteria such as travel times, ridership, costs, traffic and environmental impacts, displacements, and the economic development potential at stations. The study concluded that the Barbur Corridor is “a viable corridor for further study of Light Rail Transit.”

The travel demand analysis identified a potential ridership for light rail transit with a supporting feeder bus network. While definitive ridership numbers and impacts were not determined, analysis indicated that “implementation would result in a notable increase in transit ridership. Furthermore, there is a demand for additional people-carrying capacity in the corridor, and limited space in which to provide that capacity.”

Transit Preferential Streets

The 1992 Transportation Element (TE) of the City of Portland Comprehensive Plan recommended implementing a Transit Preferential Street Program. The problem statement in the TE was:

Increased transit demand and on-street congestion have increased travel times in the Central City area. Increased travel times result in one-half percent increase each year in transit operating costs. The current solution to this problem is to add buses on routes that experience increased traffic congestion and/or ridership. This remedy also results in additional service delays by increasing congestion.

The program objectives would be to improve transit travel times, both overall and in relation to auto travel times; reduce vehicle miles traveled per capita; and place emphasis on the transportation of people, not vehicles.

In 1997, PDOT issued the Transit Preferential Streets Program report. The report identified potential tools for improving transit travel times, selected a number of transit corridors for analysis of transit preferential strategies, and designed improvements for those corridors. In addition, the report recommended that transit priority measures should be considered on all major transit corridors to achieve competitive travel times and improve service reliability.

The report identified the following corridors as having the highest priority for transit preferential treatment, based on existing travel times, ridership, and delay factors:

- NE Martin Luther King, Jr. Boulevard (Hawthorne Bridge to North Lombard)
- NE Sandy Boulevard (Burnside Bridge to SE 82nd Avenue)
- SE Hawthorne Boulevard/Foster Road (Hawthorne Bridge to I-205)
- SE Division Street (Martin Luther King, Jr. Boulevard to SE 82nd)
- SW Beaverton-Hillsdale Highway/Barbur Boulevard (I-405 to Oleson Road)

Tri-Met and the City of Portland have received federal grant monies to implement transit preferential treatment. This project is called “Streamline.” It targets high-ridership lines that have significant delays, and seeks to make operations more efficient, compatible with low-floor buses, and more attractive to riders. Under this program, three transit lines are being treated first:

- Line No. 4 – Division/Fessenden
- Line No. 72 – Killingsworth/82nd
- Line No. 12 – Sandy/Barbur

The primary project components are:

- Traffic signal changes, including signal priority, queue jump, queue bypass lanes, and signal timing changes
- Physical changes, including curb extension, low-floor buses, and right-turn only lane exemption
- Operational changes, including bus stop relocation and consolidation, reduction in route deviations, and on-street parking adjustments
- Passenger amenity enhancements

Implementation of the entire Streamline project will take several years. After the initial lines are completed, other routes (including Line No. 9 – Broadway/Powell and Line No. 14 – Hawthorne) will receive similar treatment.

Central City Transit Plan

In February 1997, the Portland City Council passed a resolution requesting that Tri-Met prepare a transit plan to address the phasing of light rail service and the overall circulation needs of the Central City, focusing especially on transit needs for the River District. The purpose of the resolution was to ensure that changes made to tie bus service into light rail would not reduce overall access to north downtown and the River District. A comprehensive bus circulation plan was also needed to address other proposed changes in transit service, such as South/North light rail, changes to westside bus service, and new streetcar service.

Tri-Met completed Phase I of the Central City Transit Plan (CCTP) in April 1998. The CCTP established the goals, objectives, and principles that will serve as a framework for short-range implementation and long-range planning of Tri-Met service in the Central City. The elements of the CCTP goal include:

- Improving passenger convenience
- Facilitating mobility
- Maximizing ridership
- Supporting land use and economic goals
- Increasing transit's modal share within Central City and the region

Phase II of the CCTP will address service improvements to each of the Central City Districts, integrate the CCTP into Tri-Met's Transit Choices for Livability Plan, and develop work plans for implementation.

Lloyd District Transit Strategy

The Lloyd District Transit Strategy is one part of the Partnership Plan developed by the Lloyd District Transportation Management Association (LDTMA), the City Of Portland, and Tri-Met. The Partnership Plan was created to provide an effective strategy for implementing the Central City Transportation Management Plan. Elements of the Partnership Plan include, but are not limited to, providing employer incentive programs that support parking meter installation and transit service improvements.

The Partnership Plan goals, objectives, performance standards, and measures reflect regional ridership goals and mode split targets, local transportation and parking requirements, and the transportation needs of Lloyd District employees. The plan goals include:

- Establish programs and services that meet diverse transportation needs, implement strategies of the CCTMP Lloyd District Plan, and result in reduced auto trips by employees in the LDTMA boundaries. The first targeted group will be Eco-rule employers.

- Ensure long-term funding of the LDTMA by creating plan policies that support the LDTMA, maximize resource availability, and minimize program and service cost to the employer.
- Support the LDTMA as the formal structure for an ongoing partnership between Tri-Met and the City of Portland to address the Lloyd District area transportation needs.

The Partnership Plan includes the following recommendations for increasing the transit mode split within the Lloyd District:

- **Fixed Route Service Element.** This involves potentially increasing three am/pm direct express routes to the district's business core. The service plan allocates 190 weekly service hours for the first year of implementation, in concert with sales of Tri-Met's employer PASSport program.
- **Facility Improvements.** This involves developing an on-street transit hub in the district's business core: NE 7th and Multnomah. This hub will contain some of the rider-friendly amenities of a transit center, without the layovers and staging functions associated with transit centers. The amenities will include relocation of bus shelters on Multnomah, trash receptacles, information kiosks, banners/gateway concepts, and an enlarged sidewalk area adjacent to future development.
- Other elements of the Partnership Plan that directly influence the use of transit or other non-auto modes within the Lloyd District include installing parking meters and implementing an aggressive marketing plan. The marketing plan is designed to increase awareness and encourage the use of alternative transportation options within the district. The primary components of the marketing plan are the PASSport program, emergence ride home, communications, and promotional activities.

North Macadam Transit Strategy

Policies from the North Macadam Framework Plan, Central City Plan, and Central City Transportation Management Plan form the basis for the North Macadam Transit Strategy. The North Macadam Framework Plan calls for development of 1,900 to 3,000 new housing units and 8,500 to 10,000 new jobs in the North Macadam District. Because the district is primarily served by two major traffic portals (Macadam and Bancroft) parking management, maximum use of transit, walking, bicycling, and ridesharing will be critical to support this development goal. Metro's 2020 strategic network transportation model was used to analyze travel demand in and out of North Macadam. The transit strategy is based on the forecasted travel demand and supported by the following service plan recommendations.

- With the SW Bond Avenue improvements, implement Macadam Avenue regional rapid bus service linking North Macadam with Lake Oswego and West Linn and the 5th and 6th Avenue transit mall in downtown Portland.
- Provide one or more bus routes to link North Macadam with Milwaukie and Clackamas County.
- Pursue South/North Light Rail to Clackamas County as part of the 20-year strategy.

- Implement the Central City streetcar to link North Macadam with Portland State University, the west end area, the River District, and northwest Portland.
- Provide direct bus linkage between southeast Portland, North Macadam, Lloyd District, and Central Eastside.
- Add a future bus connection from downtown to North Macadam to provide a connection between the eastern edge of downtown Portland and the River District area.
- Preserve future high-capacity rail options for the Jefferson Street line.
- Provide additional southwest bus connections to North Macadam by rerouting two or more southwest Portland bus lines to directly serve North Macadam.

Capitol improvements should include:

- Develop a transit hub in the North Macadam area and transit-preferential improvements at key intersections, including Bancroft/Macadam.

Partnership efforts are needed among the City of Portland, Tri-Met, property owners, and businesses to maximize the ridership potential in North Macadam. The following recommendations support transit and facilitate partnership formation:

- Create partnerships with Tri-Met, North Macadam businesses, and property owners to develop a transportation management association.
- Develop a partnership plan for supporting the use of alternative transportation modes, including an adopted service plan, transit pass programs, and a parking management plan.

Tri-County Elderly and Disabled Transportation Plan

The Tri-County Elderly and Disabled Transportation Plan was completed in June 2001. The plan identified a number of ways in which the existing services for the elderly and disabled populations could be improved. There were approximately 115,700 elderly (60 and over) and disabled (mobility limitation and/or self-care limitation) within Multnomah County in 1999. In the tri-county area, about 75 percent of the elderly and disabled populations live within a quarter mile of a fixed-route transit line. About 50 percent live within areas with a pedestrian-friendly environment (easy access to transit). About 37 percent of the elderly and disabled populations had difficulty finding transportation for some or all of their trips.

The five areas that need improvement that were identified in the plan are:

- There is no regional authority responsible for a tri-county elderly and disabled transportation system.
- Tri-county service delivery is not well planned, and service outside the public transit providers' district is limited.
- Elderly and disabled service standards vary from provider to provider.

- Elderly and disabled transportation planning is not well integrated with social service plans, local or regional transportation system plans, or local or regional land use planning.
- Needs exceed available resources for elderly and disabled service delivery.

As part of the study, key principles were developed and based on these principles three service-delivery strategies were developed. The recommended strategy focuses on a ‘land use concept’. The concept is based on providing the highest level of service to the area where the highest concentration of elderly and people with disabilities are located. The plan recommends a number of pedestrian network improvements and land use and design measures that will enhance access for the elderly and disabled. The ‘land use concept’ covers the following:

1. Elderly and disabled transit-supportive development

- Encourage the location of new elderly and disabled development along existing or planned transit corridors
- Encourage a mix of uses for development projects that cater to the elderly and disabled community
- Create pedestrian-oriented design



2. Pedestrian oriented planning with the elderly and disabled community in mind

- Accessibility for compliance with Americans with Disabilities Act
- Building orientation
- Pedestrian crossings
- Pedestrian-scale lighting and other amenities
- Designation of transfer points within communities
- Bicycle Access

3. Street Standard Planning with the elderly and disabled community in mind

- Circulation networks that create walkable blocks
- Street connectivity
- Vehicle travel lanes to accommodate transit
- Moderate or slow vehicle speeds
- On-street parking to buffer pedestrians
- Pedestrian medians on wide arterials

Many of the recommendations identified above are already adopted into the City’s codes or are a part of street design standards. (See the implementation portion of this modal plan for details.)

Commuter Rail

Commuter rail is one of the wide-range of transportation modes that could be implemented to address transportation congestion within the south corridor – southeast Portland to

Clackamas County – and southwest part of the region. Typically, commuter rail provides a service link between an urban core, a central business district, and outlying suburban areas. Commuter rail service usually utilizes existing railroad rights-of-way. Passenger stations, park-and-ride lots, and train servicing facilities are added as needed.

Metro evaluated commuter rail during the South/North Transit Corridor Pre-Alternative Analysis in 1997. The study evaluated a 47.4-mile corridor between Canby, Oregon, and Ridgefield, Washington, using portions of the Burlington Northern and Southern Pacific Railroad rights-of-way. The study identified 12 potential stations, including Union Station, OMSI, Brooklyn Yard, Milwaukie, Clackamas, Oregon City, and Canby.

In May 1997, Metro published the Commuter Rail Final Report, which included the following conclusions:

- Commuter rail would not directly serve the main trip generators in the corridor.
- Distribution of trips in downtown Portland would be slow, with transfers required at either Union Station or a Hawthorne Bridge/OMSI station.
- Commuter rail would attract only five percent of the ridership projected for light rail in the same corridor.
- Commuter rail is unlikely to influence land use in the same manner as light rail, given potential station locations and the qualities that allow light rail to be integrated into a built environment.

Although implementation costs for commuter rail are less than for light rail, the cost-effectiveness of commuter rail in the south corridor is poor, given the ridership potential. Based on the technical findings and public involvement efforts, the South Corridor Policy Group decided in December 2000 to drop commuter rail from further consideration for this corridor.

Other potential commuter rail corridors identified in the 2000 Regional Transportation Plan would possibly link Sherwood, Beaverton, Wilsonville, Tualatin, Lake Oswego, and Milwaukie. A future Metro-led study of Interstate 5 between Highway 217 and Wilsonville will consider commuter rail service from Salem to Portland's Central City, the Tualatin transit center, and Milwaukie, primarily along existing heavy rail tracks. A future Metro study of Highway 217 will include coordination with planned commuter rail service from Wilsonville to the Beaverton regional center.

Implementation Measures

Existing Regulations

All new development, changes to existing development, and changes in the type or number of uses must comply with the zoning regulations in the City Code. Title 33, Planning and Zoning, has the most consequence for transit. These regulations are intended to implement the goals and policies of the Comprehensive Plan.

Title 33

Several new regulations were added to Title 33 in 1996 (effective date January 1, 1997) as part of the City's efforts to incorporate requirements of the state Transportation Planning Rule (TPR). The City went beyond the minimum requirements in some cases. For example, while the TPR requires new retail, office, and institutional buildings to be oriented to transit "at major transit stops," the City elected to require a wider range of development (including multifamily) in multifamily, commercial, and employment zones to be oriented to transit streets. A uniform setback is desirable in Portland, where transit stops are frequent along a transit route and there are many main streets and other commercial corridors. In addition, transit stops are sometimes moved, making it difficult to administer a regulation relating to transit stops. By not orienting to stops, it is not necessary to map 'major transit stops', as the TPR and RTP require local jurisdictions to do. The building orientation requirements also apply on all streets in pedestrian districts.

On large sites with over 100,000 square feet of retail uses, larger retail buildings can be placed further from the street if all the following conditions are met:

1. Smaller buildings are near the transit streets for at least 25 percent of the frontages
2. The internal circulation system for vehicles includes street-like features: sidewalks, curb extensions, and parking
3. The vehicle circulation system divides the parking into areas no more than 55,000 square feet in size
4. The internal 'streets' connect to adjacent transit streets

Other transit-related code amendments in 1996 include:

- Allowing a 'transit-supportive plaza' to be substituted for up to 10 percent of the number of required parking spaces. The design of the plaza must: 1) be adjacent to the transit street or stop, 2) be at least 300 feet square, 3) contain seating, 4) have at least 20 square feet covered, and 4) have between 10percent and 25 percent of the area landscaped.
- Restricting vehicle parking and maneuvering from being located between the main building and the transit street in most commercial zones.
- Requiring a main entrance and ground floor windows along the transit street.
- Requiring pedestrian connections between buildings and the adjacent street system.

Other Title 33 regulations that increase access to transit include connectivity standards for land divisions to create walkable blocks (adopted in 2001) with streets no more than 530 feet apart.

Portland Pedestrian Design Guide

The Portland Pedestrian Design Guide provides guidance for the development of sidewalks, street corners, crosswalks, and pathways and stairs. The Design Guide includes the appropriate location of elements in the sidewalk, including transit shelters in sidewalks and

of transit signs. The location of shelters and transit signs is based on an intergovernmental agreement (*Bus Stop and Passenger Amenities Guidelines, 1995*) between Tri-Met and Portland. The Pedestrian Design Guide is consistent with the requirements of the Americans with Disability Act, including allowed slopes, curb ramps, and clear space.

New Regulations

Title 33 is being revised as part of the TSP to better address building orientation along transit streets in pedestrian districts. To comply with the TPR, the City needs to be able to require “major industrial, institutional, retail and office developments to provide either a transit stop on site or connection to a transit stop” when Tri-Met requires such an improvement. The City already requires connections to streets adjacent to a site when it develops. The City can also require transit facilities and easements when a property is subject to a land use review such as a Comprehensive Plan Map amendment, zone change or conditional use.

Park-and-ride lots have been conditional uses in residential zones. Occasionally, Tri-Met would like to use existing religious institutions’ parking lots as small park-and-ride lots. Limited use of existing parking lots will have little impact on residential areas and will increase transit use. The TSP will include Zoning Code changes to allow small amounts of existing parking in residential zones to be used as park-and-ride lots for public transit.

Amendments to Title 17 are also proposed to increase connectivity on large sites that are not being divided or subject to land use reviews such as shopping centers and institutions in commercial zones.

Projects

While Tri-Met is responsible for improvements in transit service and transit shelters, the City is responsible for the majority of changes that will improve access to transit. Many TSP projects over the next 20 years will include transit improvements (particularly improvements that will benefit pedestrians) and intelligent transportation system improvements that move transit vehicles more smoothly and efficiently. Some of the most significant transit improvements on the TSP project list are briefly described below. (Chapter 3 provides the complete list and additional details.)

- Citywide transit signal priority projects, including ‘opticom’ preemption of signals (Project No. 10003)
- SW Multnomah street improvements between SW Barbur and 45th, including pedestrian crossings at bus stops (Project No. 90050)
- SE Foster Road street improvements between SE Powell and 82nd, including bus shelters and benches and pedestrian crossing improvements at bus stops (Project No. 70021)
- Parkrose area improvements, including sidewalks and pedestrian crossing improvements at bus stops (Project No. 50001)

- Extension of the Central City streetcar from SW Harrison into the North Macadam district (Project No. 20015)
- Improved sidewalks, lighting, crossings, bus shelters, and benches for the 60th, 82nd, 148th, and 162nd light rail station communities and intersecting streets (Project No. 10001)
- Hollywood town center multi-modal street improvements, including improved pedestrian crossings and connections to the transit center (Project No. 40045)

Programs and Strategies

Streamlined Bus Service

The City is working with Tri-Met to improve transit service in key corridors through the 'Streamline' program. The project includes making physical changes to the street – curb extensions, curb ramps, turning lanes – technological changes – preferential signal phases for transit – and stop improvements – shelters and customer information. The project is intended to improve access to transit and to improve transit travel times in the corridors. The first lines in the 'Streamline' program are No. 4 – Division/Fessenden, No. 72 – Killingsworth/82nd, and No. 12 – Sandy/Barbur. Other lines that will be added to the program as funds allow are No. 9 – Broadway/Powell and No. 14 Hawthorne/Foster in 2002.

Transportation Demand Management

Many of the activities described in the Transportation Demand Management Plan support the use of transit. Transportation management associations (TMAs) encourage employers to subsidize transit passes for their employees. Additional TMAs are in the formative stages and are identified in both the RTP and TSP – Gateway, Swan Island, and Columbia Corridor. The region is also allocating funds for a Northwest (exploratory stage) TMA.

Light Rail

Portland participates in regional transit projects, including light rail to the airport and light rail on N Interstate. On the Interstate line, Portland is managing a grant to identify improvements to the streets that intersect with light rail that will improve access to the light rail stations and support transit-oriented development.

Curb Ramp Program, Audible Signals, Truncated Domes

The City is retrofitting existing sidewalks to have curb ramps that comply with the Americans with Disabilities Act including adding 'truncated domes' at curb ramp edges so blind or low-sighted individuals can more easily detect where the street begins. Audible signals help blind or low-sighted individuals know when traffic signals change and the walk sign is on. Additional details for all three of these efforts in found in the Pedestrian Modal Plan.

Tri-Met Five-Year Plan

Tri-Met is in the formative stages of developing a five-year transit plan to guide service and capital improvements throughout the region.

Water Taxis

In 1991, the Office of Transportation Commissioned a report, River Access and Transportation (RAT), to describe a program to “unite the east and west banks of the Willamette River while maximizing the potential for economic benefit from recent public and private investments.” The program is intended to implement a series of projects to increase access to and along the river and complement public and private sector initiatives such as the Oregon Convention Center and OMSI. Existing docks are at NW Ankeny, RiverPlace, and Willamette Park. Phase I and II of RAT resulted in the River Overlook near the Convention Center and the Eastbank Esplanade dock. The TSP Major Improvements List includes Phase III, a dock at Oaks Park. Other future dock locations identified in the report are NW 9th Avenue and OMSI. Other potential dock locations are Ports of Call, NW 27th, NW 19th, N Albina, SW Salmon, North Macadam, SW Whitaker, and Johns Landing. The report ultimately envisioned a fleet of water taxis with frequent headways.

Conclusion

While Portland is not a direct provider of public transportation services, it is responsible for many elements of the public transportation system. The City is responsible for ensuring that pedestrians and bicyclists have safe and convenient access to transit by providing sidewalks and bike lanes. Curb ramps help the elderly and disabled access the transit system more easily. The City also sponsors and participates in programs that encourage the use of transit. The Central City streetcar was developed through a consortium of public and private entities, including the City. Improved transit service and the transportation infrastructure to support it are key to implementing the 2040 Growth Concept and creating livable communities.



PEDESTRIAN MODAL PLAN

Introduction

Walking is the most affordable and accessible of all transportation modes. It is also clean, easy on the City's infrastructure, healthy for the individual, and integral to community livability. Portland has a history of creating a wonderful pedestrian scale, as can be seen in the Central City and older neighborhoods. Like most North American cities, however, Portland has its share of 'edge' communities developed around automobile transportation. In the last several decades, the City has annexed many neighborhoods where streets are not built with sidewalks, principally in Southwest Portland and mid-Multnomah County.



Various local studies have demonstrated a correlation between the quality of the pedestrian environment and the amount of walking activity. (These studies include the Land Use Transportation Air Quality (LUTRAQ) Project and household surveys conducted by Metro and the Portland Office of Transportation [PDOT] in 1994.) Residents in 'walkable' neighborhoods are very satisfied with the pedestrian safety and convenience these neighborhoods provide.

Today, the City of Portland is committed to providing the benefits of walking to all residents by supporting pedestrian travel as a safe, efficient, desirable, and accessible mode throughout the City's neighborhoods. Walking is no longer considered an 'alternative' to the automobile, rather, it is an essential component in efforts to develop a multimodal transportation system and reduce reliance on the automobile. Walking is considered the preferred, not the alternative, mode for short trips. State and regional policies also support this view, including Oregon's Transportation Planning Rule (TPR), the Urban Growth Management Functional Plan (UGMFP), and the 2000 Regional Transportation Plan (RTP).

Portland's 1998 Pedestrian Master Plan and Pedestrian Design Guide are the culmination of two years of work, including outreach and input from thousands of citizens. The Master Plan details the many elements that go into making Portland pedestrian friendly. It is the City's guiding document for pedestrian policies and projects. The Pedestrian Design Guide is the guiding document for designing pedestrian facilities. Any updates or changes to the guidelines go through a City-sponsored public process.

This pedestrian modal plan incorporates many elements of the 1998 Pedestrian Master Plan, but does not replace it. The Transportation System Plan (TSP) updates the Comprehensive Plan policies and objectives contained in the Pedestrian Master Plan and identifies a 20-year list of pedestrian projects taken from the Master Plan. The other elements of the Pedestrian Master Plan and Pedestrian Design Guide remain in effect as the guiding documents for improving pedestrian facilities and access in Portland.

Requirements

Transportation Planning Rule

In addition to the common elements that must be included in each of the modal plans (as described on page 5-2), the TPR includes the following element specific to pedestrians:

Identify a network of pedestrian routes throughout the planning area and a list of facility improvements that are consistent with ORS 366.514, which requires that at least one percent of the funds received from the State Highway Fund each year be spent on footpaths (and bicycle trails) along highways, roads or streets and in parks and recreation areas.

In addition to the modal plan requirements, Section 660-012-045 of the TPR requires jurisdictions to adopt regulations that address the following:

On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from and within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.

Section 660-012-045 also requires “convenient pedestrian and bicycle travel” as a condition of land use approval for any offsite road improvements.

2000 Regional Transportation Plan

The RTP includes three policies that specifically affect pedestrians:

- Policy 17.0 focuses on designing a regional pedestrian environment that is safe, direct, convenient, attractive, and accessible for all users.
- Policy 17.1 calls for increasing the pedestrian mode share through improved access to transit, improved pedestrian facilities, and land use and design.
- Policy 17.2 focuses on providing increased pedestrian access and connectivity to transit, appropriate and planned land uses, and pedestrian facilities as part of all transportation projects.

The RTP identifies a regional pedestrian system that provides mobility between, and easy accessibility within, the Central City, regional centers, and town centers. On-street and off-street regional pedestrian corridors, multi-use paths, and local pedestrianways form a complementary and continuous network. Portland’s pedestrian network and classifications must be consistent with the RTP pedestrian system. Although the pedestrian classifications

in the RTP, TSP, and Central City Transportation Management Plan (CCTMP) differ somewhat, they are consistent with each other (see Table 5.6).

**Table 5.7
Comparison of Pedestrian Classifications**

2000 RTP	TSP Classification
Pedestrian District	Pedestrian District
Transit/Mixed Use Corridor	City Walkway, Transit/Pedestrian Street (Central City)
Multi-Use Facility with Pedestrian Transportation Function	Off-Street Path
Not mapped	Local Service Walkway

With three exceptions, the TSP classification maps contain all of the regionally designated pedestrianways. The first exception is an extension of the Willamette Greenway Trail in North Portland from its existing designation that ends south of the St. Johns Bridge to a connection with the existing designation on Swan Island. The extension would go through an area of north Portland that currently has industrial sanctuary zoning along most of it. The City is conducting a feasibility study for this extension. If the extension proves feasible, the TSP will be amended to add an Off-Street Path designation along this section. The TSP contains a new objective for the North District to address this discrepancy between the RTP and the TSP. (See “District Pedestrian-Related Objectives” on Page 5-71.)

The second exception is the ‘Red Electric Line’ alignment shown in the RTP. If completed, this trail would provide a link between the future Fanno Creek Greenway and the Willamette Greenway. The Southwest Urban Trails Plan discusses the possibility of this trail. A feasibility study is needed to determine if and where there should be an alignment. If the trail proves feasible, the TSP will be amended to add an Off-Street Path designation. The TSP contains a new objective for the Southwest District to address this discrepancy between the RTP and TSP. (See “District Pedestrian-Related Objectives” on Page 5-73)

The final exception is the Banfield (I-84) trail alignment in the Northeast District. This alignment is designated as a Multi-use Path in the RTP and will also be on the Regional Trails and Greenway Map. The City has incorporated the alignment in the bicycle modal plan and maps, but has not determined the alignment to be inappropriate for pedestrians. The alignment is on the TSP’s Potential Studies list.



2040 Growth Concept

The 2040 Growth Concept lays out a network of main streets and corridors. Main streets are linear corridors of district-wide importance, characterized by dense commercial and mixed-use development and transit-supportive residential uses, frequent transit service, and high pedestrian use. SE Hawthorne Boulevard and NW 23rd Avenue are often cited as examples of main streets. Similar to main streets, corridors emphasize high-quality transit and pedestrian and bicycle

improvements; however, less intensive land uses are planned for them.

A Main Street Pedestrian Design Area overlay was adopted by resolution as part of Portland's Pedestrian Master Plan. This overlay is a refinement of the City Walkway street classification. It is applied to 2040 Growth Concept main streets that meet the land use and transit guidelines for Pedestrian Districts.

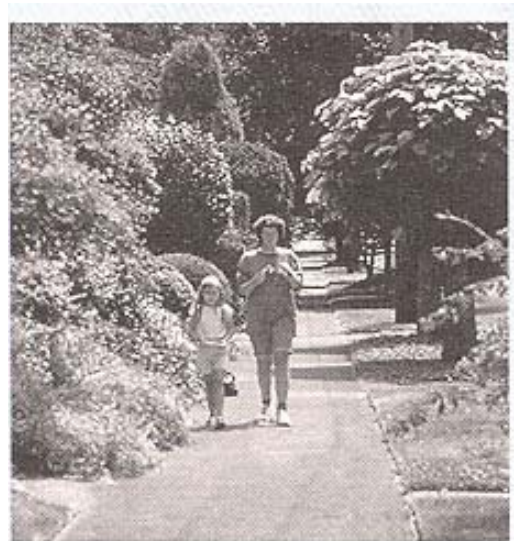
Main Street Pedestrian Design Areas share many characteristics with Pedestrian Districts, and the design treatment would be similar for both. A Main Street Pedestrian Design Area differs from a Pedestrian District in being a linear corridor rather than a compact district, and an overlay rather than a TSP classification. As the City implements new zoning that supports the Main Street Pedestrian Design Area criteria, additional City Walkways may be designated for the design areas by amending the Pedestrian Master Plan.

The TSP will also implement the 2040 Growth Concept through better pedestrian access to transit. This will be achieved through the addition of Pedestrian Districts, as well as the addition of transit classifications.

Approach to Mode

To promote walking as the preferred mode for short trips, the Portland region has a vision of neighborhoods with well-connected, human-scale streets; concentrated areas of activity; interesting landscapes; and pedestrian amenities. Neighborhoods will provide safe, convenient, and pleasant walking environments and increase residents' accessibility to local destinations. These pedestrian-oriented neighborhoods will be linked by high-quality transit, providing residents with greater regional accessibility. Education of all transportation users regarding safe driving and pedestrian rights will increase pedestrian safety.

To help the region move towards this vision, the City's approach to the pedestrian system continues to emphasize capital projects. Portland has decided it can make the greatest contribution to encouraging pedestrian travel by providing facilities (such as sidewalks, curb ramps, and crossings) where they are most needed. These facilities improve the attractiveness and quality of the pedestrian environment. This approach is directly related to the adopted pedestrian goals and policies in Portland's Comprehensive Plan.



Policy Framework

City of Portland Pedestrian Master Plan

The City of Portland Pedestrian Master Plan was adopted in 1998, following an extensive needs assessment and active citizen involvement process. The Pedestrian Master Plan establishes a 20-year framework for improvements that will enhance the pedestrian environment and increase opportunities to choose walking as a mode of transportation. The plan includes pedestrian policies, pedestrian street classifications, pedestrian design guidelines, a list of capital projects, and a set of recommended funding strategies. The TSP updates the policies and street classifications in the Pedestrian Master Plan. (Other sections of this modal plan discuss other elements of the plan, including the Pedestrian Design Guide and programs.)

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan contains statements that guide how the City plans and implements improvements. In addition, a number of district and neighborhood plans have been adopted that contain more area-specific statements. These statements are ordered from the general to the specific as goals, policies, objectives, and action items. Goals, policies, and objectives are formally adopted by City Council Ordinance. Action items are recommended steps to achieve the objectives, but are not formally adopted by City Council.

The Comprehensive Plan addresses a broad range of goals for the City. Most policies relating to transportation are found in the Transportation Element of the Comprehensive Plan, which encompasses Goal 6: Transportation, Goal 11B: Public Rights-of-Way, and the Central City Transportation Management Plan (CCTMP). Other policies relating to pedestrians are found in Goals 2, 5, 7, 8, and 12.

Goal 6 Transportation

Policies and objectives within Goal 6 that relate to pedestrian transportation are primarily under Policy 6.23, Pedestrian Transportation, which states:

Plan and complete a pedestrian network that increases the opportunities for walking to shopping and services, schools and parks, employment, and transit.

The objectives for Policy 6.23 address:

- A. Promote walking as the mode of choice for short trips by giving priority to the completion of the pedestrian network that serves Pedestrian Districts, neighborhood shopping, schools, and parks.
- B. Support walking to transit by giving priority to the completion of the pedestrian network that serves transit centers, stations, and stops; providing adequate crossing opportunities at transit stops; and planning and designing pedestrian improvements that allow adequate space for transit stop facilities.

- C. Improve the quality of the pedestrian environment by implementing pedestrian design guidelines to ensure that all construction in the right-of-way meets a pedestrian quality standard and by developing special design districts for Pedestrian Districts and main streets.
- D. Increase pedestrian safety and convenience by identifying and analyzing high pedestrian collision locations; making physical improvements, such as traffic calming, signal improvements, and crossing improvements in areas of high pedestrian use; and supporting changes to adopted statutes and codes that would enhance pedestrian safety.

Other pedestrian-related policies and objectives in Goal 6 are as follows.

Policy 6.8, Pedestrianway Classification Descriptions, describes the type of pedestrian use that should be emphasized on each street and how future street improvements and public and private development relate to those uses. These classifications update those contained in the Pedestrian Master Plan. They also supercede the classifications in the CCTMP, except for the Central City Transit/Pedestrian Street classification, which remains unique to the Central City.

The pedestrian classifications are described briefly below. Chapter 2 contains the full text.

- Pedestrian Districts are areas with a dense mix of land uses, convenient and frequent transit service, and a compact and walkable size. Pedestrian districts are intended to give priority to pedestrian access where high levels of pedestrian activity exist or are planned.
- City Walkways are intended to provide safe, convenient, and attractive pedestrian access to activities along major streets and to recreation and institutions within and between neighborhoods.
- Off-Street Paths are intended to serve recreational and other walking trips with a transportation purpose. Off-Street Paths are located along the rivers, in parks, or in forest areas where streets do not exist.
- Local Service Walkways are intended to serve local circulation needs for pedestrians and provide safe and convenient access to local destinations.
- Central City Transit/Pedestrian Streets are intended to accommodate high levels of pedestrian traffic, provide urban design features to promote pedestrian activities, and provide visual signals to motor vehicles to respect the presence and priority of pedestrians and transit along the street.



The Pedestrian Design Guide provides specific guidance on the design treatment of each classification.

Policy 6.3, Transportation Education, states:

Encourage walking by developing education programs for both motorists and pedestrians and by supporting and participating in encouragement events for pedestrians. (Objective C)

Increase public awareness of the benefits of walking and bicycling and of available resources and facilities. (Objective E)

Policy 6.20, Connectivity, states:

Provide interconnected local and collector streets to serve new development and to ensure safe, efficient, and convenient pedestrian, bicycle, and vehicle access with preference for public streets. (Objective A)

Provide convenient and safe bicycle and pedestrian connections to transit routes, schools and parks, as well as within and between new and existing residential developments, employment areas, and other activity centers where street connections are not feasible. (Objective C)

Policy 6.21, Rights-of-Way Opportunities, states:

Evaluate opportunities and the existing and future need for a bikeway, walkway, or other transportation use when considering vacation of any right-of-way. (Objective A)

As a condition of street vacation, require pedestrian and bicycle facilities if needed. Give first preference to a dedicated right-of-way and second preference to a public walkway/bikeway easement. (Objective B)

DISTRICT PEDESTRIAN-RELATED OBJECTIVES

District-specific objectives addressing pedestrian access and infrastructure improvements are contained in Policy 6.34 through Policy 6.40 for the seven Transportation Districts: North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest. Selected objectives are listed below; the complete text of district policies and objectives is provided in Chapter 2.

North:

- Improve pedestrian and bicycle access within the St. Johns Town Center. (Policy 6.34, Objective I)
- Complete the sidewalk system in North Portland, including enhanced pedestrian crossings. (Policy 6.34, Objective K)
- Consider extension of the Willamette Greenway Trail south following the outcome of a feasibility study. (Policy 6.34, Objective L)

Northeast:

- Enhance pedestrian access to and improve transit service to regional and district commercial areas. (Policy 6.35, Objective B)

- Implement the projects recommended in the Columbia Corridor Transportation Study that improve safety for all modes and local connections. (Policy 6.35, Objective I)
- Implement the recommendations in the Hollywood and Sandy Plan to create a pedestrian-friendly and transit-supportive town center and main street. (Policy 6.35, Objective J)
- Bring substandard streets up to city standards. (Policy 6.35, Objective L)

Far Northeast:

- Implement the transportation goals developed for the Gateway regional center by focusing on 102nd as a main street boulevard. (Policy 6.36, Objective D)
- Add pedestrian facilities, including sidewalks and crossings, and enhancements such as street trees and drinking fountains to provide good access within neighborhoods and to Gateway and other commercial areas. (Policy 6.36, Objective F)

Southeast:

- Facilitate pedestrian access and safety by improving connections to the Willamette River; adding connections between neighborhoods and parks, institutions, and commercial areas; and enhancing pedestrian crossings with curb extensions and improved markings. (Policy 6.37, Objective D)
- Support SE Tacoma's function as a main street, and implement transportation projects that will reinforce this designation. (Policy 6.37, Objective L)

Far Southeast:

- Accommodate bicyclists and pedestrians along arterials and at crossings. (Policy 6.38, Objective C)
- Provide adequate street connections in the Far Southeast District through the development of a master street plan. (Policy 6.38, Objective F)
- Support transit and pedestrian-friendly development along the Division main street. (Policy 6.38, Objective G)
- Implement the Gateway Concept and Redevelopment Strategy recommendations to provide street connections as redevelopment occurs. (Policy 6.38, Objective I)
- Improve pedestrian access at the light rail transit stations by adding local street connections and improvements. (Policy 6.38, Objective J)

Northwest:

- Incorporate pedestrian and bicycle access improvements into all transportation projects, especially along arterials and at crossing locations. (Policy 6.39, Objective C)
- Reinforce the Northwest District main streets by retaining and improving their pedestrian-oriented character and improving access to transit. (Policy 6.39, Objective E)
- Preserve on-street parking, adding street trees, and buffering pedestrians from traffic. (Policy 6.39, Objective G)
- Limit transportation projects on West Burnside to those that reduce vehicle miles traveled, give preference to transit, improve pedestrian and bicycle access, or improve safety. (Policy 6.39, Objective H)

Southwest:

- Improve the primary transportation functions of SW Neighborhood Collectors by supporting pedestrian, bicycle, and transit use; calming traffic; and discouraging heavy volumes of non-local commuter traffic. (Policy 6.40, Objective B)
- Consider designation of a 'Red Electric Line' alignment for pedestrians and bicyclists, as identified in the Southwest Urban Trails Plan, upon completion of a feasibility study. (Policy 6.40, Objective C)

Goal 11B Public Rights-of-Way

Goal 11B, Public Rights-of-Way, and its policies and objectives describe how the City's transportation system should be designed and built. Pedestrian-related policies and objectives under Goal 11B include:

- Promote a compact urban form by supporting development in high-priority 2040 Growth Concept areas, including facilities and improvements that support mixed-use, pedestrian-friendly development and increase walking, bicycling, and transit use. (Policy 11.9, Objective A)
- Address existing deficiencies or hazards by improving pedestrian safety. (Policy 11.9, Objective B)
- Consider the needs of all users of a planned facility in its design and construction process. (Policy 11.10, Objective B).
- Use a variety of transportation resources in developing and design projects such as the Pedestrian Design Guide. (Policy 11.10, Objective E)
- Include sidewalks on both sides of all new street improvement projects except where noted in the policy. (Policy 11.10, Objective G)
- Construct local residential streets to minimize pavement, but take into account the needs of pedestrians. (Policy 11.10, Objective J)

- Ensure that transportation facilities are accessible to all people and that all improvements to the system comply with the Americans with Disabilities Act. (Policy 11.10, Objective K)
- Encourage the formation of local improvement districts (LIDs) in currently developed areas for the construction of street improvements, including sidewalks, drainage, and street trees, where feasible. (Policy 11.10, Objective M)

Central City Transportation Management Plan

The pedestrian classifications in the CCTMP are: Pedestrian Districts, City Walkways, Off-Street Paths, Local Service Walkways, and Central City Transit/Pedestrian Streets. The TSP incorporates all these pedestrian classifications, except for Central City Transit/Pedestrian Streets, which remains unique to the Central City.

The CCTMP’s pedestrian policies generally support a Central City that has a pedestrian-friendly environment with good connections to neighborhoods and a high level of availability, accessibility, convenience, safety, and attractiveness. The policies also address increasing the pedestrian mode split. (Chapter 2 of the TSP contains the complete text of the CCTMP policies and objectives.)

Other Pedestrian-Related Policies and Objectives

In addition to the Transportation Element (Goal 6, Goal 11B, and the CCTMP), the following Comprehensive Plan policies and objectives address pedestrian transportation.

RECREATIONAL TRAIL DESIGNATIONS.

Recreational Trails are Comprehensive Plan designations that are depicted as ‘stars’ on the City’s Official Zoning Maps. Many, but not all, Recreational Trails are also classified as City Walkways and Off-Street Paths. PDOT is working with the Bureau of Planning and the Bureau of Parks and Recreation to determine the best approach to combine and/or incorporate the Recreational Trail designations into the transportation system. Initial analysis indicates that not all of the designated Recreational Trails have a true transportation (i.e., connectivity) purpose; it therefore may not be appropriate to incorporate all of them into the transportation system. There are also mapping inconsistencies among bureaus, making it difficult to determine where overlaps occur. This issue will not be fully addressed during the adoption of the TSP, but will be an ongoing effort.



Goal 2, Urban Development, Policy 2.12, Transit Corridors, states in part:

Require development along transit routes to relate to the transit line and pedestrians and to provide onsite pedestrian connections.

Policy 2.16, Strip Development, states:

Discourage the development of new strip commercial areas and focus future activity in such areas to create a more clustered pattern of commercial development.

Policy 2.17, Transit Stations and Transit Centers, states in part:

Encourage transit-oriented development patterns at light rail transit stations and at transit centers to provide for easy access to transit service. The design and mix of land uses surrounding light rail transit stations and transit centers should emphasize a pedestrian- and bicycle-oriented environment and support transit use.

Goal 5, Economic Development, Policy 5.4, Transportation System, Objective E states:

Promote safe and pleasant bicycle and pedestrian access to and circulation within commercial areas. Provide convenient, secure bicycle parking for employees and shoppers.

Goal 7, Energy, Policy 7.6, Energy Efficient Transportation, states in part:

Provide opportunities for non-auto transportation including alternative vehicles, buses, light rail, bikeways, and walkways.

Objective H of Policy 7.6 states:

Promote walking and bicycle commuting by developing bikeways and walkways, encouraging spot hazard improvements on city streets, providing bicycle lockers at transit centers and park-and-ride lots, implementing bicycle commuter services such as long-term bicycle parking, showers, and changing facilities, and promoting covered walkways/sidewalks.

Goal 8, Environment, Policy 8.4, Natural Resources, Objective H states:

Enhance the value and beauty of Portland's bicycle and pedestrian routes by locating them to take advantage of significant viewpoints, scenic sites, and scenic corridors.

Goal 12, Urban Design, enhances the pedestrian environment through its policies of enhancing and extending "Portland's attractive identity" and providing a "pleasant, rich and diverse experience for pedestrians."

Policy 12.4, Provide for Pedestrians, states:

Portland is experienced most intimately by pedestrians. Recognize that auto, transit and bicycle users are pedestrians at either end of every trip and that Portland's citizens and visitors experience the City as pedestrians. Provide for a pleasant, rich and diverse experience for pedestrians. Ensure that those traveling on foot have comfortable, safe and attractive pathways that connect

Portland's neighborhoods, parks, water features, transit facilities, commercial districts, employment centers and attractions.

Objectives:

- A. Providing for pedestrians should be a primary mode of transportation throughout the City. Ensure that the safety and convenience of pedestrians are not compromised by transportation improvements aimed at motor vehicle traffic. Movement patterns for pedestrians should contribute to Portland's sense of community and provide for connections between areas of the City.
- B. Enhance the environment occupied by Portland's pedestrians. Seek to enrich these places with designs that express the pleasure and hold the pleasant surprises of urban living.
- C. Provide Portland's sidewalks with buffering from auto traffic and auto parking areas; provide trees that will shade sidewalks on hot days; provide sidewalks of adequate width to accommodate the pedestrians that future development is expected to generate; provide convenient connections from sidewalks to parks, developments, and attractions; and ensure that the pedestrian circulation system is safe and accessible to children, seniors and the disabled (including the blind).
- D. Reinforce commercial areas that include a storefront character and/or are on transit streets by requiring development to be oriented to pedestrians.
- E. Complete the 40-Mile Loop and Willamette Greenway trails and establish links between these trails and Portland's residential neighborhoods and parks.
- F. Link Portland's trails and parks to the system of greenspaces being created for the metropolitan region.
- G. Retain rights for pedestrian access and circulation when considering requests for street vacations. Preserve existing pedestrian routes and protect routes needed by pedestrians in the future. Ensure that street vacations do not reduce access to light and air or the intimate scale that is so much a part of Portland's character.

Most district and neighborhood plans, which are adopted as part of the Comprehensive Plan, have policies and/or objectives that address pedestrian transportation. These plans typically focus on the need for safe and convenient pedestrian access to neighborhood destinations such as schools and parks and on providing signage on designated routes.

Existing Conditions

Summary of Inventory

An adequate pedestrian network requires supportive physical infrastructure (sidewalks, curb ramps, crossings), interconnected destinations within walking distance, and a comfortable, attractive pedestrian environment. To assess the non-qualitative elements of the pedestrian network, the City took an inventory of sidewalks and curb ramps on all street segments within the city limits in fall 1994.

The sidewalk inventory revealed that the inner, older neighborhoods are much more likely to have completed sidewalk systems than the more recently annexed areas of Portland such as the outer east neighborhoods or southwest. Within each Transportation District, the pattern of sidewalk distribution between local and arterial streets is fairly similar. Citywide, a slightly greater percentage of local streets have sidewalks than do arterial streets. (Figure 4-2 of the Pedestrian Master Plan shows the Sidewalk Inventory Map.)

The curb ramp inventory showed that, as of 1994, Portland had ramps at approximately one-third of all corners. Ramps are more concentrated in business districts and along transit routes. There is a greater deficiency of ramps at 'T' intersections than at other intersections.

Pedestrian Districts

The concept of the Pedestrian District was introduced in Portland in 1977 as part of the original Arterial Streets Classification Policy. Pedestrian Districts are typically compact walkable areas of intense pedestrian use, with a dense mix of land uses and good transit service, where walking is intended to be the primary mode for trips within the district. The 21 areas classified as Pedestrian Districts outside the Central City and the six within the Central City are listed below.

Transportation Element Pedestrian Districts outside the Central City (with transportation district initials in parentheses) are:

- St Johns (N)
- Kenton (N) – revised from 1996
- Woodlawn (NE)
- Killingsworth (NE)
- Boise (NE)
- Eliot (NE)
- Hollywood (NE)
- Montavilla (FNE)
- Gateway (FSE, FNE) – revised from 1996
- Ventura Park (FNE) – revised from 1996
- Northwest (NW)
- Lents (FSE) – revised from 1996
- Hillsdale (SW) – revised from 1996
- Multnomah Village (SW)
- Johns Landing (SW)

- Lair Hill (SW) – new
- Bridgeton (NE) – new
- 60th Station (NE, SE) – new
- 82nd Station (NE, SE) – new
- 148th Station (NE, SE) – new
- 162nd Station (NE, SE) – new

Central City Transportation Management Plan Pedestrian Districts are:

- North Macadam
- Downtown
- Goose Hollow
- North of Burnside
- River District
- Lloyd-Coliseum

Over time, new Pedestrian Districts may be added or existing districts may be revised. For example, several areas in Portland are identified as regional Pedestrian Districts in the RTP, but were not classified as Pedestrian Districts in Portland's 1996 Transportation Element. The TSP incorporates these new Pedestrian Districts.

New and revised Pedestrian Districts should meet certain essential criteria to ensure they are consistent with the policy established in the Comprehensive Plan. The guidelines for new or expanded Pedestrian Districts relate to zoning, transit service, size, and configuration. (Chapter 2 of the Pedestrian Master Plan provides a detailed description of the relevant guidelines.)

Creating or revising Pedestrian Districts requires amending the Transportation Element of the Comprehensive Plan.

Existing Deficiencies

High-Crash Locations

The State of Oregon collects crash data and makes it available to the City annually. High-crash locations were identified during the Pedestrian Master Plan process, based on data from 1991 to 1995. This analysis revealed that automobile/pedestrian crashes tended to be distributed along major arterial routes, particularly where two arterial streets intersect.

As a result of this process, the Pedestrian Master Plan recommends crossing improvements for two intersections with high crash rates (N Lombard at Interstate Avenue and SE Foster Road at 82nd Avenue). In addition, a number of projects on the TSP Project List address some of the high auto/pedestrian crash statistics. These improvements and projects include multimodal and signal improvements at SE 39th and Hawthorne, and pedestrian and crossing improvements along inner West Burnside, SE 122nd, and N Killingsworth.

According to more recent data, the intersections with the highest crash rates are:

- SE Powell Boulevard at 82nd Avenue
- N Interstate Avenue at Lombard Street
- SE Division Street at 122nd Avenue
- E Burnside Street at Grand Avenue
- SE Hawthorne Boulevard at 39th Avenue
- W Burnside Street at 4th Avenue
- SW Broadway at Jefferson Street
- NE Killingsworth Street at 72nd Avenue
- SW Broadway at Harrison Street
- SE Woodstock Boulevard at 45th Avenue
- NE Glisan Street at 82nd Avenue

Deficiency Index

The Pedestrian Deficiency Index, developed through the Pedestrian Master Plan process, measures how critically pedestrian improvements are needed by assigning a value to each street segment. This value is based on several factors: missing sidewalks, difficult and dangerous street crossings, and lack of a connected street network.

Information about missing sidewalks was based on the 1994 sidewalk inventory data. Difficult and dangerous street crossings were evaluated based on traffic speed, traffic volume, roadway width, and high-crash locations. Lack of a connected street network was approximated by giving points to especially long street segments.

Streets of highest deficiency tended to be toward the edges of the City, with the notable exception of inner West Burnside, which has a high deficiency rating based as a result of high auto/pedestrian crash counts. (Figure 4-5 of the Pedestrian Master Plan shows the Deficiency Index Map.)

Status and Conditions Report

PDOT prepares an annual status and conditions report for transportation facilities. The latest report was published in 2000, but reflects 1997 data. The 2000 report indicates that the City has 2,117 lineal miles of sidewalk and 54,870 street corners.

Issues from District Needs Assessment

In fall 1998, PDOT held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. Participants were asked to identify needed transportation improvements in their neighborhood and indicate their top three priority issues, or 'transportation values.'

Four of the top seven values identified in the workshops relate directly to pedestrian travel: safety and livability on local streets; sidewalks, curb cuts, and off-street facilities; greater connectivity; and more transportation choices. Increasing safety and livability was especially important in the Northwest, North, Northeast, and Southwest Districts. Adding or improving sidewalks, curb cuts and other off-street facilities was a major concern in the North, Far Northeast, Southwest, Southeast and Far Southeast Districts. Improving connectivity was especially important in the Far Northeast, Southwest and Far Southeast Districts. Providing more transportation choices was one of the top priorities in Southeast.

Implementation Measures

Pedestrian Design Guide

The Portland Pedestrian Design Guide was created as a companion to the Pedestrian Master Plan. It was developed through a consensus-building process involving each of the programs and agencies responsible for the form and function of the public right-of-way.

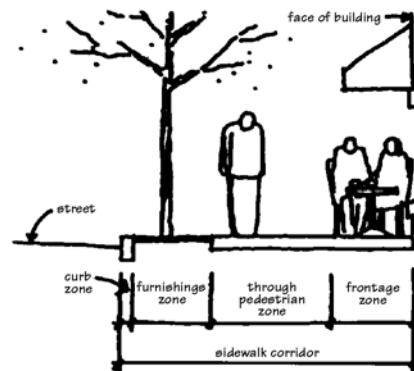
Many transportation activities share the public right-of-way, including walking, bicycling, transit, freight movement, and automobile travel. Each function has specific design needs and constraints. Accommodating the variety of functions often results in an environment that discourages pedestrian travel.



'Domes', being tested at SW Woodstock, are intended to assist visually-impaired pedestrians.

The Pedestrian Design Guide integrates the wide range of design criteria and practices related to the public right-of-way into a coherent set of new standards and guidelines that, over time, will promote an environment conducive to walking. It also attempts to bring together the many disparate regulations and codes that relate to pedestrian travel, including the Americans with Disabilities Act (ADA) of 1990, the City Code, some of the Standard Construction Specifications issued by the City Engineer, and other engineering guidelines issued by various national organizations.

The City Engineer issues the Pedestrian Design Guide, and every project designed and built in the City of Portland should conform to these guidelines. The Pedestrian Design Guide comprises both general design principles, which should be incorporated into every pedestrian improvement, and design guidelines for specific elements of the pedestrian network. The design principles state that a pedestrian environment should be safe and accessible to all, connect to places people want to go, be easy to use and provide good places, and be economical and used for many things.



The design guidelines describe the attributes of good sidewalk corridors, street corners, crosswalks, pathways, and stairs. For each of these pedestrian network elements, the guidelines also outline the associated legal aspects of making additions and improvements to the system and provide guidance for designing and implementing the improvements.

The most basic element of the pedestrian network is the area intended for pedestrian travel. Within sidewalk corridors, this area is referred to as the through pedestrian zone. The recommended widths for this zone range from 10 feet to 15 feet, depending on the street classification and the density of the surrounding area. Narrower widths are not

recommended for new construction, but are accepted in existing constrained conditions where increasing the sidewalk width is not practicable. (Table A-1 of the Pedestrian Master Plan provides additional detail.)

For City arterial streets where construction to a full urban standard is not anticipated, the guidelines provide for two types of alternative pathways: separated pathways and widened shoulder pathways. The Pedestrian Design Guide also provides a hierarchy of materials and treatment methods to guide the development of pathways. For example, pathway materials range from concrete (most preferred) to bark mulch (least preferred) and should be selected based on a number of criteria, such as safety, durability, amount of use, impact, and cost. It is important to note that these alternative treatments are intended to be interim improvements and are not intended to fulfill development requirements for street improvements.

Southwest Urban Trails Plan

City Council adopted the Southwest Urban Trails Plan in July 2000. The plan is a collaborative effort among PDOT, Southwest Portland neighbors, and the Southwest Trails Group. Its purpose is to increase pedestrian access throughout Southwest Portland for recreation and transportation. The plan identifies an urban trail network linking pedestrians to schools, parks, transit, shopping, regional trail systems, and adjacent cities. Urban trails are a combination of existing public roads, sidewalks, stairs, trails, and walkways, as well as proposed trail routes and improvements primarily through unimproved public rights-of-way and across parks and schools.

The trails have been incorporated into the TSP's structure of pedestrian designations. Many of the trails occur on Local Service Streets. When consistent with policies, trail segments are designated as Off-Street Paths or City Walkways. Some of the projects in the plan were large enough to be included in the TSP project list (see Chapter 3), while others are on the reference list. The final trails map is referenced in Policy 6.40 Southwest Transportation District, Objective E. and included in Appendix B.

Hollywood-Sandy Plan Pedestrian Component

The Hollywood-Sandy Plan, adopted by City Council in April 2000, identifies a number of pedestrian improvements needed to support the Sandy main street and Hollywood town center. While sidewalks are present along virtually all street frontages, they are typically less than the 12-foot and 15-foot widths appropriate for City Walkways and arterials in pedestrian districts such as Hollywood. Additional pedestrian crossings are needed for better access to transit.

The transportation concept for the Hollywood-Sandy Plan identifies additional signalized pedestrian crossings at NE 14th, 31st, and 35th. Curb extensions and medians are proposed for several locations, such as NE 37th, to reduce crossing distances. Northeast 42nd from Tillamook to the transit center and NE Sandy from 37th to 47th are identified as 'enhanced pedestrian streets' where the highest level of pedestrian enhancements should be focused. The enhancements would include streetscape improvements, traffic modifications, curb extensions, and improved crossings.

Existing Regulations

All new development, changes to existing development, and changes in the type or number of uses must comply with the zoning regulations in the City Code. Title 33: Planning and Zoning, has the most consequence for the pedestrian mode. Other pedestrian-related regulations are contained in Title 14: Public Peace, Safety and Morals; Title 16: Vehicles and Traffic; and Title 17: Public Improvements. These regulations implement the goals and policies of the Comprehensive Plan.

Title 33

BASE ZONES

In single-dwelling and multi-dwelling residential zones, a variety of standards influence the pedestrian environment. Building and garage setbacks maintain the scale and placement of buildings, promote "open, visually pleasing front yards," and minimize the obtrusiveness of vehicle areas. Institutional development standards are intended to "maintain compatibility with and limit the negative impacts on surrounding residential areas" by requiring, for example, buffer zones, landscaped areas, and minimum building setbacks of 15 feet. In pedestrian districts and on transit streets, additional standards (such as reduced setbacks) are provided for institutional uses to "reduce reliance on the automobile and encourage pedestrians and transit riders by ensuring safe and convenient pedestrian access to buildings."

In high-density multi-dwelling zones, commercial zones, and higher-density employment and industrial zones, standards are generally intended to provide a pedestrian orientation and create an environment that is inviting to pedestrians. These include minimal building setbacks, landscaped area and ground floor window requirements, and pedestrian standards.

Pedestrian standards primarily address connectivity and apply to all development (except houses, attached houses, and duplexes) in multi-family, commercial, and employment zones. The standards are intended to "encourage a safe, attractive, and usable pedestrian circulation system in all developments. They ensure a direct pedestrian connection between the street and buildings on the site, and between buildings and other activities within the site. In addition, they provide for connections between adjacent sites, where feasible."

The basic requirement of the pedestrian standards is an onsite pedestrian circulation system that connects the main entrance to all adjacent streets, and provides connections between all buildings and to all amenities on the site. The circulation system must be hard surfaced, at least 5 feet wide (6 feet in commercial and employment zones), and lighted to allow for night use. If the system crosses driveways, parking areas, and loading areas, it must be visually separated, using a different elevation or paving material or other method. If it runs parallel and adjacent to auto travel lanes, the system must be a raised path or be separated by a physical barrier.

ADDITIONAL USE AND DEVELOPMENT REGULATIONS

Community design standards ensure that new development "enhance the character and livability of Portland's neighborhoods" through methods such as landscaping and building design requirements, vehicle parking restrictions, and pedestrian access standards.

Standards for public recreational trails improve the pedestrian environment by supporting alternative travel modes, providing connections to other transportation systems, and creating a “pleasant, aesthetically-pleasing urban environment”.

In designated areas, special street setback requirements maintain appropriate open areas and adequate separation from the street to “increase visibility and safety for pedestrians and drivers; provide a pleasant pedestrian environment and human scale; [and] improve the appearance of the corridor and reduce visual clutter”.

Superblocks standards regulate the amount and location of open areas and walkways on large commercial sites where streets have been vacated, in order to promote an improved system of walkways and open areas that link to adjacent buildings, the public circulation system, and any available public transit.

The regulations may be modified or adjusted if a site is difficult to develop in compliance with the regulations and the proposed development meets the intended purpose of the regulations, or when strict application of the regulations would prevent all use of a site.

OVERLAY ZONES AND PLAN DISTRICTS

Overlay zones and plan districts modify the regulations of the base zone in a variety of areas identified on the City’s Official Zoning Maps. Overlay zones consist of regulations that address specific subjects; plan districts consist of regulations tailored to a specific area of the City. Those that are particularly relevant to the pedestrian environment are briefly described below.

Design overlay zones are intended to ensure that infill development in areas where design and neighborhood character are of special concern is compatible with the neighborhood and enhances the area. Specific guidelines are adopted for each design district or subdistrict. Areas outside a design district but within a design overlay zone use the community design standards.

Although not currently applied anywhere, light rail transit station overlay zones have potential implications for the pedestrian environment. These zones promote a pedestrian-oriented and transit-supportive environment by encouraging mixed uses; built-up, intensive areas of shops; and activities near light rail stations.

Plan districts with special pedestrian regulations have been designated for Central City, Columbia South Shore, Gateway, Hillsdale, Johnson Creek Basin, Macadam, North Cully, and South Auditorium. Because of variations in use and character, each plan district applies a unique set of pedestrian regulations. The regulations generally comprise one or more of the following: special setbacks, site design requirements, ground floor window standards, streetscape standards, parking restrictions, density bonuses, restrictions on drive-through facilities, and pedestrian access requirements.

New Regulations

Title 33

Pedestrian-related changes in Title 33 focus on clarifying and improving the building setback along transit streets and in Pedestrian Districts and clarifying and strengthening

main entrance requirements along transit streets. The recently adopted subdivision regulations (formally Title 34 of the Zoning Code) improved regulations for pedestrian connections and pedestrian facilities for sites that are subdividing based on Metro's standards for connectivity.

Title 17

New provisions are being added to Title 17 to address the need for street and pedestrian connections on large sites being developed but not subdivided using Metro's RTP standards for connectivity – 530 feet for full street connections and 330 feet for pedestrian connections where full streets are not feasible.

Programs and Strategies

PDOT funds a pedestrian coordinator position within Transportation Planning. The Transportation Options Division and Traffic Investigations Section fund other activities associated with promoting pedestrian facilities, education, and safety.

Audible Pedestrian Signals

The Audible Pedestrian Signals (APS) program is a joint effort of PDOT's Transportation Options Division and Signals and Street Lighting Section to increase the number of audible signals for blind and low-sighted pedestrians. PDOT recently received an ODOT grant to install 50 new signals, adding to the existing 35 locations.

Traffic Calming

The Traffic Investigations and Transportation Options Division reviews and installs traffic calming measures such as speed bumps, traffic circles, and curb extensions. Most traffic calming measures enhance the pedestrian environment and increase pedestrian safety. A number of traffic calming projects will be reviewed and funded through PDOT's CIP process.



Education and Outreach

The 1998 Pedestrian Master Plan includes education and encouragement. PDOT's Transportation Options Division leads education and outreach efforts. Safety education includes safety curricula for elementary and middle schools and Walk Your Kids to School Day. The division also conducts walks and publishes materials to encourage and educate citizens about the benefits of walking.

Safe Routes to Schools

Safe Routes to Schools is a program designed to enable and encourage children to walk and bicycle to and from school. The intent of the program is to identify routes used by children to reach schools and analyze potential problems. Safe Routes to Schools began in Oregon in 2001 with the passage of House Bill 3712. The legislation directs cities and counties to work with school districts to identify hazards that keep children from walking and bicycling to school safely. Five schools in Portland received small grants to establish community task forces to develop plans for their schools. The program looks at conditions near schools such

as traffic speeds, amount of truck and bus traffic, lack of sidewalks, sidewalk condition, unsafe crosswalks, pedestrian-unfriendly intersections, and missing links in the transportation system that makes it difficult for children to walk and bicycle to school. Transportation staff participated on the task forces and facilitated discussions on traffic safety problems, helped to design student and parent surveys on travel behavior and attitudes, produced maps and educational materials for classroom instruction, made small operational improvements in school zones to improve pedestrian safety. With additional funding, larger scale projects such as curb extensions, pedestrian refuge islands, speed bumps, raised crosswalks, traffic circles, and flashing beacons. Safe Routes to Schools is one of several education, enforcement, and engineering programs recommended in the Neighborhood Traffic Safety Plan (see Motor Vehicle Modal Plan – Programs).

Facilities Tracking

PDOT is working to provide a better database and tracking system of pedestrian facilities, using the TSP benchmarks and PDOT's internal Information Management System (IMS) program. The TSP performance measures and benchmarks will track the percentage of streets and pathways improved with complete pedestrian facilities. These benchmarks will be reviewed every five years. The IMS program will use work orders, permitting, and computer mapping to track existing and new facilities as they are planned, permitted, and constructed.

Local Improvement District Program

The City rarely builds local street improvements, including sidewalks. Property owners usually use the local improvement district (LID) process to improve existing streets. The affected property owners must vote to approve the improvements and pay a portion of the cost. The City recently revised the LID process and standards to provide additional funding and flexibility in order to increase the number of local street improvements.

Curb Ramp Program

The ADA Curb Ramp Request Program identifies and builds new curb ramps throughout the City to enhance accessibility. Each year, staff and area residents identify locations that need additional ramps. PDOT's pedestrian coordinator works with Bureau of Maintenance staff and the Metropolitan Human Rights Center to provide outreach, database maintenance, site inspections, prioritization, and construction. The program constructs approximately 100 ramps each year.

Project Review

PDOT is working to improve its system for moving projects from the TSP to the CIP. It is creating procedures and criteria to review and prioritize pedestrian projects that are identified during the year, prior to a TSP update.

Other Programs

The pedestrian coordinator works with staff throughout PDOT to obtain funding for pedestrian and signal projects; advises on and monitors transportation plans and projects; and coordinates with Metro on regional trail and pedestrian plans and projects.

Projects

Many TSP projects over the next 20 years, such as new streets, seismic upgrades for bridges, and redesign and redevelopment of streets, will include pedestrian-related improvements. Other transportation projects, such as traffic signals and turning lanes, may also have benefits for pedestrians.

The TSP identifies the following significant pedestrian improvements (not listed in order of importance or funding priority). (Chapter 3 provides the complete project list and additional details.)

- Pedestrian improvements and safe crossings, streetscape improvements, and signal remodels on SE Hawthorne between SE 20th and SE 60th (Project No. 70029)
- Pedestrian improvements and safe crossings, curb ramp upgrades, sidewalks, and curb extensions in conjunction with transit and other street improvements on Burnside between SE 12th and NW 23rd (Project No. 20014)
- Design and construction of transportation and streetscape improvements on NE Alberta between NE Martin Luther King, Jr. and NE 33rd (Project No. 40026)
- Pedestrian, streetscape, and transportation improvements along SE Belmont between SE 12th and SE 43rd (Project No. 70009)
- Sidewalk and crossing improvements, main street design, and multi-modal improvements on NE Cully between NE Fremont and NE Columbia (Project No. 40037)
- High-priority pedestrian and local street improvements in Gateway Regional Center (Project Nos. 50018, 50019, and 50020)
- Multi-modal street improvements, improved pedestrian crossings, and connections to transit in the Hollywood Town Center (Project No. 40045)
- Improved pedestrian crossings, signals, and facilities on SE Powell between Ross Island Bridge and SE 26th (Project No. 70045)
- Improvements to the pedestrian environment within the Eliot, Woodlawn Park, and Montavilla Pedestrian Districts (Project Nos. 40038, 40076, 70043)
- Walkway to provide access to transit and schools on SW Hamilton between Scholls Ferry and Dosch (Project No. 90034)
- Bridge and pedestrian path to connect SW Lee to SW 43rd (Project No. 90044)



- Sidewalks and crossing improvements for pedestrians and access to transit on N Killingsworth between Denver and Greeley (Project No. 30030)
- Improved sidewalks, pedestrian access to transit, and pedestrian crossings on SE Division between I-205 and the city limits (Project No. 80009)

Other pedestrian improvements fall below the threshold for inclusion on the TSP 20-year project list, but are still important for completing the pedestrian network. These smaller projects tend to be lower in cost and/or fill in small gaps in the network. Most of them come from the Pedestrian Master Plan, neighborhood and community plans, or TSP district workshop suggestions. A small sample of these projects is listed below. (Appendix E contains the complete list.)

- Stairs in the SW 10th Avenue right-of-way from Burlingame to Bertha
- Pedestrian improvements on streets between SE 130th and 135th Avenues and SE Salmon and Mill in the vicinity of David Douglas High School
- Improvement of NW 26th to City Walkway standards
- Construction of a 70-meter off-street path connection in the SE 36th Place right-of-way between 36th Place and Francis
- Pedestrian connection from the Bridgeton neighborhood to Delta Park
- Public stairway within the SW Harrison right-of-way to link Harrison to 16th
- Sidewalks on N Portland Boulevard between Willamette Boulevard and 7th/Dekum
- Pedestrian connections in SW Portland consistent with the Southwest Urban Trails Plan

Conclusion

As the Pedestrian Master Plan states, “A community that is designed to support walking is livable and attractive.” Implementation of the 2040 Growth Concept relies on creating compact centers that are walkable. Portland is committed to improving the pedestrian realm throughout the City and ensuring that walking is a viable choice for short trips.



BICYCLE MODAL PLAN

Introduction

The bicycle is a low-cost and effective means of transportation that is quiet, non-polluting, extremely energy-efficient, versatile, healthy, and fun. Bicycles also offer low-cost mobility to the non-driving public, including the young. In the United States, bicycles were a popular means of transportation in the pre-automobile age. As the automobile became more popular, bicycles lost their advantage as well as their place on the road. Now, as cities work to create more balanced transportation systems and make streets a safe place for all modes, the bicycle is making a comeback.



Since the 1970s, Portland residents have successfully advocated for improved bicycling conditions in the region. The City formed a Bicycle Path Task Force in 1972. A Bicycle Master Plan was created in 1973, but languished until 1978, when City Council appointed a citizen Bicycle and Pedestrian Advisory Committee. The committee worked on identifying and prioritizing improvements to the bicycle and pedestrian networks. That group evolved into separate advisory committees in 1992.

The Office of Transportation initiated the Bicycle Program in 1979 to create a bicycle map, develop bicycle-parking regulations, install bicycle racks and lockers, and organize events. The Bicycle Program emphasized various aspects of bicycling over the next two decades, depending on community interest and funding availability: corridor improvements, district improvements, bicycle parking, maintenance, and events and education.

The 1996 Bicycle Master Plan was created through a 2½-year effort that included extensive citizen outreach and input. The plan details the many elements that go into making Portland bicycle friendly. The improvements that resulted from these efforts, along with increased environmental awareness and improvements in bicycling equipment, have dramatically increased bicycle travel in Portland and have led policymakers at all levels to treat the bicycle as a serious mode of transportation.

This bicycle modal plan incorporates many elements of the Bicycle Master Plan, but does not replace it. The TSP updates the Comprehensive Plan policies and objectives contained in the Bicycle Master Plan, identifies a 20-year list of bicycle projects taken from the Bicycle Master Plan and other sources, and updates Table 3.2 (guidelines for selecting bikeway facilities) in Appendix A of the Bicycle Master Plan. The remainder of the Bicycle Master Plan remains in effect as the guiding document for improving bicycling in Portland.

Requirements

Transportation Planning Rule

In addition to the common elements that must be included in each of the modal plans (as described on page 5-2), the TPR also contains the following elements specific to bicycling:

Identify a network of bicycle routes throughout the planning area and a list of facility improvements that are consistent with ORS 366.514, which requires that at least one percent of the funds received from the State Highway Fund each year be spent on bicycle trails (and footpaths) along highways, roads or streets and in parks and recreation areas.

In addition to the modal plan requirements, other sections of the TPR address bicycle transportation. Section 660-012-045 requires jurisdictions to adopt regulations so that development will provide onsite facilities that will accommodate “safe and convenient pedestrian and bicycle access” from and within residential, commercial, and other activity centers and to transit. Section 660-012-045(3)(b)(B) states: “Bikeways shall be required along arterials and major collectors.” Development that requires offsite road improvements must accommodate “convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors.” The TPR defines “safe and convenient” as “reasonably free from hazards, particularly types or levels of automobile traffic, which would interfere with or discourage pedestrian or cycle travel for short trips.”

2000 Regional Transportation Plan

The first RTP bicycle policy focuses on providing a continuous regional network of safe and convenient bikeways that connect to other transportation modes and local bikeway systems. The second bicycle policy focuses on increasing the bicycle mode share throughout the region and improving bicycle access to the region’s public transportation system.

The regional bikeway system identifies a network that provides mobility among the Central City, regional centers, and town centers, as well as easy accessibility among and within them. A system of on-street and off-street regional bikeway corridors, multi-use paths, and local bikeways forms a complementary and continuous network. Portland’s bicycle network and classifications must be consistent with the 2000 RTP bicycle system. Although the bikeway classifications in the RTP and TSP are somewhat different from each other, they are consistent (see Table 5.8).

**Table 5.8
Comparison of Bicycle Classifications**

2000 RTP	Portland TSP
Regional Access Bikeway	City Bikeway
Regional Corridor On-Street Bikeway	City Bikeway
Community Connector Bikeway	City Bikeway
Regional Corridor Off-Street Bikeway	Off-street Path
Not mapped	Local Service Bikeway

With two exceptions, the TSP classification maps contain all of the regionally designated bikeways. The first exception is an extension of the Willamette Greenway Trail from its existing designation that ends south of the St. Johns Bridge to a connection with the existing designation on Swan Island. The extension would go through an area of north Portland that currently has industrial sanctuary zoning along most of it. The City is conducting a feasibility study for this extension. If the extension proves feasible, the TSP will be amended to add an Off-Street Path designation. The TSP contains a new objective for the North District to address this discrepancy between the RTP and the TSP. (See “District Bicycle-Related Objectives” on page 5-96)

The second exception is the ‘Red Electric Line’ alignment shown in the RTP. If completed, this trail would provide a link between the Fanno Creek Greenway and the Willamette Greenway. The Southwest Urban Trails Plan discusses the possibility of this trail. A feasibility study is needed to determine if and where there should be an alignment. If the trail proves feasible, the TSP will be amended to add an Off-Street Path designation. The TSP contains a new objective for the Southwest District to address this discrepancy between the RTP and TSP. (See “District Bicycle-Related Objectives” on page 5-96)

Approach to Mode

The City’s approach to the bicycle system focuses primarily on capital projects and bicycle education. Capital projects include expanding the existing bikeway network and providing end-of-trip facilities, such as short-term and long-term bicycle parking (including at transit centers and MAX stations to improve the bicycle/transit link), showers, changing rooms, and clothing storage. Bicycle education and encouragement efforts are concerned with developing safe, responsible bicycling skills in children and adults, teaching motorists how to share the road, and increasing public awareness of the benefits of bicycling. This approach is directly related to the goals and policies adopted in Portland’s Comprehensive Plan.

The City is now shifting its bicycle capital spending to focus on filling in gaps in the existing network, as well as expanding the network. The City is also focusing on improved bike signage along the bike routes; the goal is to develop a network of signs that will guide bicycle riders along developed bikeways and to major destination points. In addition, the City continues to concentrate on providing convenient and secure short-term and long-term bicycle parking at all expected destinations. This approach is intended to emphasize Portland’s interconnected bicycle network and make bicycling more attractive as a mode of travel.



Bicycle lanes alert merging drivers on the approach to the Broadway Bridge to where bicyclists will be

Policy Framework

City of Portland Bicycle Master Plan

The City of Portland Bicycle Master Plan was adopted in 1996 following an extensive citizen involvement process. The purpose of the Bicycle Master Plan is to establish a 20-year framework for changes that will substantially improve the bicycling environment in Portland. The Plan includes bicycle policies, benchmarks, a recommended bikeway network, discussion of end-of-trip facilities, design guidelines, a list of capital projects, and other strategies to encourage bicycling. The TSP updates the policies of the Bicycle Master Plan. Elements of the Bicycle Master Plan are discussed in other parts of this modal plan.

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan contains general statements that guide how the City plans and implements improvements. In addition, a number of district and neighborhood plans have been adopted that also contain more area-specific statements. These statements are ordered from the general to the specific as goals, policies, objectives, and action items. Goals, policies, and objectives are formally adopted by City Council ordinance.

The Comprehensive Plan addresses a broad range of goals for the City. Most policies relating to transportation are found in the Transportation Element of the Comprehensive Plan, which encompasses Goal 6, Transportation, Goal 11B, Public Rights-of-Way, and the Central City Transportation Management Plan. The Transportation Element has been completely rewritten as part of the TSP. The Goal 6, Goal 11B, and CCTMP policies are summarized below. The full text for each can be found in Chapter 2 of the TSP.

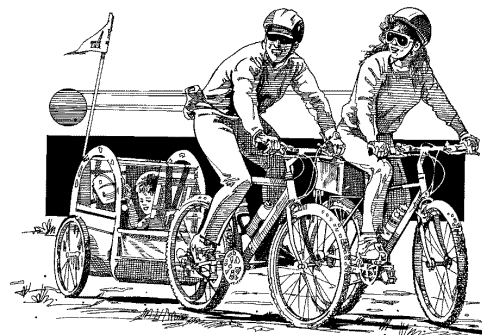
Goal 6 Transportation

The policies and objectives within Goal 6 that relate to bicycle transportation are primarily under Policy 6.23, which states:

Make the bicycle an integral part of daily life in Portland, particularly for trips of less than five miles, by implementing a bikeway network, providing end-of-trip facilities, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer.

The objectives for Policy 6.23 address:

- A. Completing a network of bikeways
- B. Providing continuous bicycle facilities
- C. Installing bicycle signage
- D. Increasing bicyclist safety and convenience
- E. Providing short-term and long-term bicycle parking



F. Encouraging the provision of showers and changing facilities

G. Increasing the number of bicycle/transit trips

H. Promoting bicycling as safe and convenient transportation to and from school

Policy 6.7 provides three bikeway classification descriptions – City Bikeway, Off-Street Path, and Local Service Bikeway.

- The City Bikeway classification describes appropriate land use, facility design, improvements, on-street parking, and bicycle parking that are typical of or should be made in conjunction with City Bikeways.
- The Off-Street Path classification describes its function as a connection or short-cut to other bikeways and destinations, where Off-Street Paths should be located, and how the paths should be improved.
- The Local Service Bikeway classification describes all other streets not classified as City Bikeways or Off-Street Paths as local and describes the appropriate level of bicycle improvements, the priority of on-street parking, and how the street should operate for bicycles.

The bikeway classifications are shown on the maps for each of the city's seven Transportation Districts, located under policies 6.34 through 6.40 in Chapter 2 and following the policies for CCTMP (for that district). These designated bikeways are adopted as part of the Comprehensive Plan.

In addition to these policies and objectives, other bicycle-related objectives in Goal 6 are:

- Develop and implement education and encouragement plans aimed at youth and adult cyclists and motorists. (Policy 6.3, Transportation Education, Objective D)
- Increase public awareness of the benefits of walking and bicycling and of available resources and facilities. (Policy 6.3, Transportation Education, Objective E)
- Provide interconnected local and collector streets to serve new development and redeveloping areas and to ensure safe, efficient, and convenient pedestrian, bicycle, and vehicle access with preference for public streets. (Policy 6.20, Connectivity, Objective A)
- Provide convenient and safe bicycle and pedestrian connections to transit routes, schools, and parks, as well as within and between new and existing residential developments, employment areas, and other activity centers where street connections are not feasible. (Policy 6.20, Connectivity, Objective C)
- Evaluate opportunities and the existing and future need for a bikeway, walkway, or other transportation use when considering vacation of any right-of-way. (Policy 6.21, Rights-of-Way Opportunities, Objective A)

- As a condition of street vacation, require pedestrian and bicycle facilities if needed. Give first preference to a dedicated right-of-way and second preference to a public walkway and bikeway easement. (Policy 6.21, Rights-of-Way Opportunities, Objective B)

DISTRICT BICYCLE-RELATED OBJECTIVES

District-specific objectives addressing bicycle access and infrastructure improvements are contained in Policy 6.34 through Policy 6.40 for the seven Transportation Element Districts: North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest. The CCTMP also includes policies and objectives for bicycles. Selected objectives are listed below; the complete text of district policies and objectives is provided in Chapter 2.

- North – Consider extension of the Willamette Greenway Trail south from its current designation that ends at N Edgewater and connecting to the trail on Swan Island, following the outcome of a feasibility study. (Policy 6.35, Objective L)
- Northeast – Continue to develop east/west and north/south bicycle routes, both on-street and off-street, to connect with existing bikeways (including those on East Burnside and I-205) and with work, school, commercial, and recreational destinations. (Policy 6.36, Objective G)
- Far Northeast – Improve the designated bicycle network and connect major routes to routes in adjacent districts and jurisdictions. (Policy 6.37, Objective C)
- Southeast – Improve access and safety for bicycles through the development of more inner Southeast east/west bike routes and the provision of bicycle facilities across bridges and to a variety of destinations, including downtown, the river, and parks. (Policy 6.38, Objective E)
- Far Southeast – Accommodate bicyclists and pedestrians along arterials and at crossings, especially at activity nodes, through a combination of street and traffic management improvements. (Policy 6.39, Objective C)
- Northwest – Incorporate pedestrian and bicycle access improvements into all transportation projects, especially along arterials and at crossings. (Policy 6.40, Objective C)
- Southwest – Consider designation of a ‘Red Electric Line’ alignment for pedestrians and bicyclists, as identified in the Southwest Urban Trails Plan, upon completion of a feasibility study. (Policy 6.41, Objective C)

Goal 11B Public Rights-of-Way

Goal 11B, Public Rights-of-Way, and its policies and objectives describe how the City’s transportation system should be designed and built. Bicycle-related objectives under Goal 11B include:

- Promote a compact urban form by supporting development in high-priority 2040 Growth Concept areas, including facilities and improvements that support mixed-use, pedestrian-friendly development and increase walking, bicycling, and transit use. (Policy 11.8, Project Selection, Objective A)

- Address existing deficiencies or hazards by improving pedestrian, bicycle, and vehicular safety. (Policy 11.8, Project Selection, Objective B)
- Use a variety of transportation resources in developing and designing projects for all City streets, such as the City of Portland’s Pedestrian Design Guide, Bicycle Master Plan, and Design Guide for Public Street Improvements. (Policy 11.10, Street Design and Right-of-Way Improvements, Objective E)
- Provide planned bicycle facilities in conjunction with street improvements, or develop convenient alternative access for bicycles on parallel streets, when the appropriate bikeway facility cannot be provided on the designated street because of severe environmental or topographical constraints, unacceptable levels of traffic congestion, or the need to retain on-street parking. (Policy 11.10, Street Design and Right-of-Way Improvements, Objective F)
- Provide bike and pedestrian connections at approximately 330-foot intervals on public easements or rights-of-way when full street connections are not possible, except where prevented by barriers such as topography, railroads, freeways, or environmental constraints. (Policy 11.11, Street Plans, Objective E)

Central City Transportation Management Plan (CCTMP)

In July 1993, a bicycle transportation study was conducted as part of the CCTMP. The study identified the factors that encourage or discourage people from commuting by bicycle to and from the Central City and focused on how to support bicycling as a serious mode of transportation. The study’s findings are addressed by the CCTMP bicycle policies and action items.

The CCTMP also describes the functional purpose of Central City Bikeways and the desired design treatment and traffic operations of these bikeways. In general, Central City Bikeways are “intended to provide safe, direct, and convenient access between and within transportation districts and sub-districts.” To accommodate bicycles on Central City Bikeways, suggested roadway modifications include:

- Reduction of mixed-use travel lane widths
- Reduction in the number of mixed-use travel lanes
- Relocation of transit stops where transit operations are not negatively impacted
- Removal of on-street parking except where it is determined to be critical to adjacent land uses
- Measures to reduce traffic volume or speed

Bicycle policies specific to the Central City address bicycle mode split, trip-end facilities, bicycle access, and improvements to the bicycle network and connections. These policies and their associated action items were adopted as part of the Central City Transportation

Management Plan in 1995. The complete text of the policies and objectives is contained in Chapter 2.

Other Bicycle-Related Policies and Objectives

In addition to the Transportation Element, the following Comprehensive Plan objectives address bicycle transportation.

Economic Development Goal, Policy 5.4, Transportation System, Objective E, states:

Promote safe and pleasant bicycle and pedestrian access to and circulation within commercial areas. Provide convenient, secure bicycle parking for employees and shoppers.

Energy Goal, Policy 7.6, Energy Efficient Transportation, states, in part:

Provide opportunities for non-auto transportation including alternative vehicles, buses, light rail, bikeways, and walkways. . .

Energy Goal, Policy 7.6, Energy Efficient Transportation, Objective H, states:

Promote walking and bicycle commuting by developing bikeways and walkways, encouraging spot hazard improvements on City streets, providing bicycle lockers at transit centers and park-and-ride lots, implementing bicycle commuter services such as long-term bicycle parking, showers, and changing facilities, and promoting covered walkways/sidewalks.

Environment Goal, Policy 8.4, Natural Resources, Objective H states:

Enhance the value and beauty of Portland's bicycle and pedestrian routes by locating them to take advantage of significant viewpoints, scenic sites, and scenic corridors.

Most district and neighborhood plans have policies and/or objectives that address bicycle transportation. Typically, these plans focus on the need for safe and convenient bicycle access to neighborhood destinations such as schools and parks and on providing signage on designated routes.

Existing Conditions

Summary of Inventory

Bicycle Lanes, Bicycle Boulevards, and Paths

As of October 2001, there were approximately 146 miles of bicycle lanes, 27 miles of bicycle boulevards, and 55 miles of off-street paths in the City of Portland.

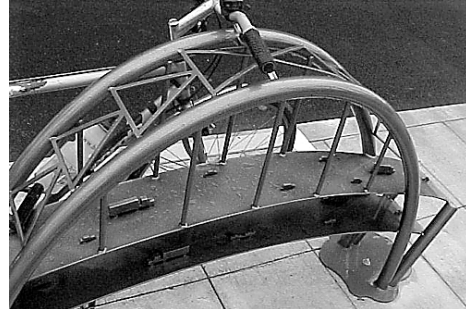
The City has also planned and funded an additional 16 miles of bicycle lanes, 11 miles of off-street paths, and 1.4 miles of bicycle boulevards, to be implemented by the end of 2001. An additional 24.6 miles of "signed connections" will be identified when bicycle route signs are installed.

End-of-Trip Facilities

BICYCLE PARKING

Throughout the Central City, there are more than 1,500 City-installed short-term parking spaces (mostly on sidewalks), 300 privately installed short-term spaces, over 700 long-term spaces, and 290 additional long-term spaces in the form of bicycle lockers. Unfortunately, many spaces intended for long-term parking (not including bicycle lockers) do not comply with existing City Code and do not provide adequate security.

New short-term bicycle parking the public right-of-way in the River District.



Outside the Central City are approximately 600 City-installed short-term spaces. According to a 1995 bicycle parking survey of all of Portland's commercial and industrial districts outside the Central City, total bicycle parking amounts to only 3 percent of available off-street automobile parking (less than the City Code requirements of 5 percent). Municipal buildings provide the most bicycle parking (9 percent of off-street automobile parking) and office buildings and retail businesses provide the least (2 to 3 percent of off-street automobile parking).

Bicycle parking at light rail stations, transit centers, and park-and-ride lots is essential for improving the bicycle/transit link. As of 1996, bicycle lockers had been installed at park-and-ride lots, light rail stations, and transit centers. These include:

- 4 lockers, 6 bike lids, and 10 rack spaces at Gateway Regional Center
- 4 lockers and 6 rack spaces at 60th Avenue
- 4 lockers and 3 rack spaces at Rose Quarter
- 3 bike lids and 4 rack spaces at Civic Stadium
- 4 lockers and 14 rack spaces at Washington Park
- 4 lockers, 2 bike lids, and 8 rack spaces at 122nd Avenue station area
- 4 lockers and 4 rack spaces at Barbur Boulevard
- 8 lockers and 5 rack spaces at Hollywood Transit Center

The City provides long-term bicycle parking in 170 locker spaces throughout the Downtown core.

SHOWERS AND CHANGING FACILITIES FOR COMMUTING CYCLISTS

As of February 2001, publicly accessible showers and changing facilities were provided at four City-sponsored 'bike central' locations: Lloyd Athletic Club, Riverplace Athletic Club, Princeton Athletic Club, and Commonwealth Fitness Club. Commuting cyclists are also served by showers and changing spaces at their workplaces. The zoning code awards bonus floor area to buildings in the Central City that provide locker rooms and showers that are available for employees and additional long-term bicycle parking.

Existing Deficiencies

Bicycle/Motor Vehicle Crashes

On average, approximately 160 bicycle/motor vehicle crashes per year are reported in Portland, with the number of crashes decreasing since 1987 and leveling off since 1990 (ODOT Bicycle-Motor Vehicle Crash Summaries, 1987-1994). Most of these crashes occurred at intersections, resulting from both motorist errors (30 percent of total crashes) and cyclist errors (21 percent of total crashes). Other causes were bicyclists traveling against the flow of traffic (11 percent) and bicyclists or motorists entering or leaving mid-block (12 percent and 9 percent, respectively).

Collision data from January 1996 through December 1998 also show that nearly all crashes over this period (nearly 72 percent) took place at an intersection. There are no particular locations where collision rates are high. This indicates that intersections in general provide the most dangerous riding conditions for bicyclists.

Many potential bicyclists cite the fear of traffic as their main objection to riding a bicycle on urban streets. The City can help alleviate this fear by providing good bikeway facilities. All streets (other than limited access facilities such as freeways) should be accessible by bicycle, with the appropriate bicycle facility based on the street's classification, motor vehicle traffic speed and volume, and the street's presence on Portland's bikeway network (see Table 5.8). The type of facility may be a bicycle boulevard, separate bicycle lanes, or a wider shared outside lane.

End-of-Trip Facilities

The provision of adequate short-term bicycle parking continues to vex planners and cyclists alike, particularly in the City's urban core where lot-line to lot-line developments make it difficult to easily site bicycle parking within fifty feet of building entrances, as required by Title 33 of the City Code. Often, required bicycle parking at newly-constructed development is located in parking garages. Though this is allowed by Title 33, which states that short-term bicycle parking can be sited "inside a building, in a location that is easily accessible for bicycles," the result is bicycle parking that is difficult to reach and not clearly visible to potential users. Title 33 also requires signage to be placed at main entrances if bicycle parking is not visible from the main entrance, but property owners and managers frequently do not want to do this.

Issues from District Needs Assessment

In fall 1998, PDOT held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. Participants were asked to identify needed transportation improvements in their neighborhood and indicate their top three priority issues, or 'transportation values.'

Three of the top seven values identified in the workshops relate directly to bicycle travel: safety and livability on local streets; greater connectivity; and more transportation choices. Increasing safety and livability was especially important in the Northwest, North, Northeast, and Southwest Districts. Improving connectivity was especially important in the Far Northeast, Southwest, and Far Southeast Districts. Providing more transportation choices was one of the top priorities in the Southeast District.

Bicycle Master Plan

Portland's Bicycle Master Plan was developed from 1994 to 1996, with input from over 2,000 residents, including neighborhood activists, business people, parents, educators, regular cyclists, and individuals wishing to bicycle—both for the first time and more frequently. Additional input came from staff of the Portland Office of Transportation (PDOT); Tri-Met; the Port of Portland; Multnomah, Washington, and Clackamas Counties; Metro; the Oregon Department of Transportation (ODOT); and the Portland Bureaus of Planning and Parks. The plan was adopted by City Council Resolution No. 35515 on May 1, 1996.

The plan provides guidance over a 20-year period for improvements that will encourage more people to ride more frequently for daily needs. The goal is to make bicycling an integral part of daily life in Portland. In addition to the policies and objectives of Portland's Comprehensive Plan Transportation Element, the Bicycle Master Plan addresses four key elements:

- Developing a recommended bikeway network
- Providing end-of-trip facilities
- Improving the bicycle/transit link
- Promoting bicycling through education and encouragement

The plan also includes bikeway design and engineering guidelines. It addresses bikeway classifications, as well as bicycle policies and strategies for the Central City Transportation Management Plan (CCTMP).

The TSP is intended to balance the implementation of Bicycle Master Plan elements with the improvements needed to serve all other modes.

Recommended Bikeway Network

National and local polls frequently cite the lack of bikeways as the primary reason more people do not bicycle for daily trips. This is also the case in Portland, where 88 percent of those surveyed in 1994 stated that lack of bikeways prevented more frequent cycling. In addition, the survey identified bicycle lanes as the most desirable type of bikeway facility (49 percent), with bicycle boulevards and off-street paths also considered important (35 and 18 percent, respectively).

The Bicycle Master Plan recommends streets and paths as bikeways, based on their connection to land uses, ease of implementation, need for safety improvements, lack of parallel facilities, and/or need for continuity. The objectives and action items in the plan are intended to result in a comprehensive, continuous, and well-maintained bikeway network that will maximize the benefits of bicycling to both Portland's cycling and



non-cycling public. Table 5.9 below shows under what circumstances the types of bikeway facilities are appropriate on streets with specific classifications. For instance, striped bicycle lanes are usually not needed on Local Service Streets.

**Table 5.9
Guidelines for Selecting Bikeway Facilities**

Average vehicles/day	Transportation Element Street Classification	Recommended Bikeway Facility
≤ 3,000	Local Service Street	Street as is, unless specified otherwise on bikeway network.
> 3,000	Local Service Street	Bicycle lanes. Where not possible, traffic calming improvements or wide outside lane acceptable.
≥ 3,000 but < 10,000	Neighborhood Collector; Community Transit	Bicycle lanes. Where not possible, traffic calming improvements or wide outside lane acceptable.
≥ 10,000 but < 20,000	Neighborhood Collector; District Collector; Traffic Access Street; Major City Traffic Street; Major Transit Priority Street; Transit Access Street; Community Transit; Major Truck Street; Minor Truck Streets	Bicycle lanes. Where not possible, wide outside lane acceptable.
≥ 20,000	Neighborhood Collector; District Collector; Traffic Access Street; Major City Traffic Street; Major Transit Priority Street; Transit Access Street; Major Truck Street; Minor Truck Street	Bicycle lanes. Where not possible, a parallel alternative facility should be developed.

End-of-Trip Facilities

End-of-trip facilities consist of bicycle parking, showers, and changing space for bicycle commuters and are an essential component of bicycle travel. Based on the results of a nationwide Harris Poll conducted in 1991 and a 1992 Portland bicycle user survey, the availability of end-of-trip facilities is a critical factor in deciding whether or not to commute by bicycle.

Good, secure bicycle parking offers the following benefits:

- Inexpensively and efficiently increases a building’s parking capacity
- Serves those who use bicycles as a mode of transportation
- Encourages bicycle use



The type of facilities needed (from simple street furniture to secure bicycle lockers and gear storage space) varies, according to the following factors:

- The type of trip being made; whether the bicycle will be left unattended all day or for a short time.
- Weather conditions. Covered bicycle parking is likely to be of greater importance during the wetter months.
- The value of the bicycle. The more a cyclist has invested in a bicycle, the more concern she or he will show for theft protection.
- Security of the area. This is fairly subjective, determined by cyclists' perception of how prone the area is to bicycle theft and their own experiences with bicycle theft.

Bicycles and Transit

Linking bicycles with mass transit (bus and rail) addresses the barriers of lengthy trips, riding at night, inclement weather, and steep topography. This linkage enables bicyclists to reach distant areas and can increase transit ridership on weekends and midday. Bicycling to transit decreases the amount of land and funds consumed by expansive park-and-rides, and reduces air pollution, energy consumption, and traffic congestion.

Bicycle/transit integration has four main components:

- Allowing bicycles on transit
- Offering bicycle parking at transit locations
- Improving bikeways to transit
- Encouraging usage of bicycle and transit programs



Education and Encouragement



Education is an important element in increasing bicycling and improving safety. While the most immediate way to improve the safety of cycling is to improve the quality of Portland's bikeway facilities, bikeways cannot do it alone. There is also a need for proper education of both youth and adult cyclists and motorists.

The Bicycle Master Plan addresses three education components:

- Developing safe cycling skills in children
- Teaching adult cyclists their rights and responsibilities
- Teaching motorists how to more effectively share the road with cyclists

Bikeway Design Guidelines

The Bicycle Master Plan outlines bicycle facility design practices and standards, based on the American Association of State and Highway Transportation Officials' (AASHTO) manual, "Guide for the Development of Bicycle Facilities 1991," with supplementary material from ODOT's 1996 ODOT "Oregon Bicycle and Pedestrian Plan."

Implementation Measures

Summary of Existing Regulations

All new development, changes to existing development, and changes in the type or number of uses must comply with the zoning regulations in the City Code. Title 33, Planning and Zoning, has the most consequence for the bicycle mode. Other bicycle-related regulations are found in Title 16, Vehicles and Traffic, and Title 17, Public Improvements. These regulations are intended to implement the goals and policies of the Comprehensive Plan. Modifications or adjustments may be made to the regulations if a site is difficult to develop in compliance with the regulations and the proposed development meets the intended purpose of those regulations, or when strict application of the regulations would prevent all use of a site.

Title 33

In multi-dwelling residential, commercial, employment, and industrial zones, standards are generally intended to provide onsite circulation, bicycle parking, and access to bicycle amenities.

ADDITIONAL USE AND DEVELOPMENT REGULATIONS

Additional use and development regulations intended to encourage the use of bicycles include:

- Parking and loading standards, which ensure adequate short-term and long-term bicycle parking based on the demand generated by the use category and the level of security necessary.
- Superblocks standards, which require that developments on superblocks provide walkways within the block and that these walkways be accessible to bicycles (or provide an alternative connection), hard surfaced, and lighted.

PLAN DISTRICTS

Plan districts modify the regulations of the base zone in a variety of areas identified on the City's official zoning maps. Plan districts with bicycle provisions include Cascade Station/Portland International Center (CS/PIC), Central City, Gateway, and Hillsdale. Special bicycle regulations generally consist of one or more of the following: bicycle parking and other end-of-trip facilities, bicycle connections between buildings and to transit, overall accessibility, and use restrictions. The Central City Plan District also offers a floor area bonus for projects in commercial and employment zones that provide locker room facilities and extra long-term bicycle parking.

Title 16

Title 16 contains bicycle-riding regulations for Portland. It includes operating rules, rules on impounding bicycles, and rules on renting bicycles. Title 16 also regulates roller skates, skateboards, and scooters.

Bicycle Design Guidelines

The standards address the type of bicycle facility to be implemented (off-street path, bicycle lane, bicycle boulevard, or shared roadway), based on a street's classification and motor vehicle traffic speed and volume. They also specify guidelines for each type of facility, intersections, and miscellaneous design elements. Appendix A of the Bicycle Master Plan contains the detailed engineering and design guidelines.

Oregon Revised Statutes

ORS 366.514 mandates the expenditure of funds for bicycle and pedestrian facilities when roads are being 'constructed, reconstructed, or relocated' using state highway funds. Not less than one percent of the total amount of highway funds received must be spent on bicycle and pedestrian facilities.

Oregon Vehicle Code

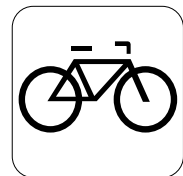
The Oregon Vehicle Code regulates bicyclists (and motorists when bicycles are present) in several ways. The regulations address failure of motorists to yield to bicyclists, vehicle laws that pertain to bicyclists, and vehicle equipment requirements, including the bicycle helmet law. The Bicycle Master Plan contains the complete text of the state regulations and Title 16 regulations.

New Regulations

Title 33

Potential changes to Title 33 regulations for bicycles include clarifying where short-term bicycle parking can be located. Currently, short-term bicycle parking can be located inside buildings if the location is easily accessible to bicycles. Short-term bicycle parking in garages or other automobile storage areas is problematic because the parking is frequently not under observation, making the bicycles more easily stolen, and because more conflicts between bicyclists and motorists are likely to occur. The potential revisions to the regulations relating to the location of short-term bicycle parking will be examined through a separate process.

A change is being made to long-term bicycle parking regulations. Currently, long-term parking can be located within 750 feet offsite. In areas with large blocks, measuring the distance 'as the crow flies' sometimes means the bicyclist has to walk much further than 750 feet. Within the Central City, with its generally tight grid, 750 feet is a reasonable measurement. Outside the Central City, where block sizes vary greatly and the pedestrian environment is less complete, it may not be reasonable to allow offsite long-term bicycle parking. Amendments to the bicycle parking regulations will reduce the distance from 750 feet to 300 feet (the same distance that required automobile parking is allowed to be from a site).



Title 17

In areas of the City with storefront and/or lot-line to lot-line development, typically no room is provided on private property for the installation of convenient, short-term bicycle parking. Including short-term bicycle parking as a part of frontage improvements required by Title 17 will increase the supply of convenient bicycle parking over time. In the Central City, three short-term bicycle parking racks can be accommodated on each block face. The number of racks will vary by length of block face and sidewalk constraints (i.e., only in sidewalks that

are at least ten feet in width. A new development standard will describe where and how the bicycle racks will be placed within the right-of-way. This standard will be applied similarly to how street trees and street lighting are required. The intent is that bicycle parking will be placed on block faces that have building main entrances.

Programs and Strategies

Bicycle Promotions

PDOT continues to fund a bicycle coordinator position within Transportation Planning. The Transportation Options division funds other activities associated with promoting bicycle use, including managing the bicycle locker program, managing bicycle signing projects, soliciting funding for bicycle projects, advising on and monitoring transportation plans and projects, and conducting bicycle rides. Encouraging bicyclists to bike to events can reduce congestion and reduce the demand for automobile parking as it did for Bike to the Ballpark Day at PGE Park in August 2001 (at right).



Bicycle parking for PGE Park replaces a few spaces of on-street auto parking.

Education and Encouragement

Encouragement goes hand-in-hand with education to increase cycling. Together, they improve skills and raise awareness. Encouragement includes such measures as providing a bikeway network and associated facilities (bicycle parking, network signing), holding encouragement events, providing financial and non-financial incentives, providing information about cycling routes, sponsoring group rides, and other bicycle-related activities. PDOT’s Transportation Options section implements these activities.

Bicycle/Transit Integration

Tri-Met manages most of the aspects related to bicycle/transit integration, but PDOT staff help Tri-Met’s efforts by promoting bicycle/transit services and providing bikeways to transit stations. The Bicycle Transportation Alliance, a local bicycle advocacy group, assists by administering bicycle locker rental at transit centers.

The City currently administers a bicycle locker program in the Downtown core, providing secure and weather-protected long-term bicycle parking to area students, workers, and residents. This locker rental program charges a month user fee of \$10 with a refundable \$25 key deposit. The program operates at capacity during much of the year, with an occupancy rate of approximately 90 percent during the winter months.

Bicycle Projects

TSP Major Transportation Improvements

Some of the significant bicycle improvements identified in the TSP Major Improvements List include (not in order of importance or funding priority):

- Bike lanes on SE Foster between SE 136th and the City limits in conjunction with other street improvements (Project No. 80011)
- Bike lanes on SE 92nd between SE Stark and Lincoln in conjunction with other street improvements (Project No. 70060)
- Bike lanes on NE Cully between NE Prescott and Columbia in conjunction with other street improvements (Project No. 40037)
- Bike lanes on SE 174th between SE Stark and the City limits in conjunction with other street improvements to SE 174th/Jenne Road and the intersection with SE Powell (Project No. 80007)
- Bike lanes on SE Holgate between SE 42nd and the City limits (Project Nos. 70032 and 70033)
- SW Sunset between SW Capitol and Dosch in conjunction with other improvements to City standards (Project No. 90063)
- NW and SW Naito Parkway improvements, including bike lanes between NW Davis and SW Market (Project No. 20038)
- Signed bikeway connection on N Force/Broadacre/Victory to the I-5 river crossing (Project No. 30011)

Chapter 3 contains the complete list of TSP projects (although not sorted by mode).

Many of the projects in the TSP planned for construction over the next 20 years incorporate multimodal design elements that will enhance bicycle transportation. Projects that result in the redesign of existing streets or structures, or provide new streets, often improve bicycle access. Other transportation projects such as traffic signals and turn lanes, may also benefit bicycle movement and safety. Maintenance activities such as pavement overlays provide an opportunity to include new bicycle features such as bike lanes.

Other Bicycle Projects

Many of the bicycle projects identified through the needs assessment process do not qualify as 'significant planned improvements' in the TSP, but are still important to improving the bicycling environment. In addition to the projects listed on the Major Transportation Improvements List, many bicycle improvements are implemented as a part of Reference List categories. Chapter 3 describes how the projects were placed in each of these two project lists. The Bicycle Master Plan is the primary source for both major bicycle improvements such as those listed above, as well less expensive bicycle projects. Appendix E lists all of the Bicycle Master Plan projects. These smaller projects are funded through a variety of sources, including the Capital Improvement Program. See Chapter 14 in Volume II for more details on funding.

Conclusion

The bicycle is an essential component in our efforts to develop a multi-modal transportation system and reduce our reliance on the automobile. No longer considered an 'alternative' means of travel, it plays an important role as a legitimate transportation choice. This view is also supported by regional and state policies such as Oregon's Transportation Planning Rule and Metro's 2000 Regional Transportation Plan. The City of Portland is committed to making the bicycle a safe, efficient, and desirable mode of travel and an integral part of daily life.



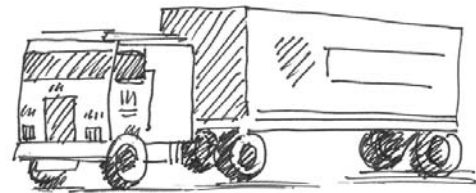
City-sponsored rides encourage new riders to explore their neighborhoods and practice good bicycling habits.

FREIGHT MODAL PLAN

Introduction

The confluence of important geographic elements make Portland one of the largest and most important freight distribution centers on the West Coast:

- Two navigable rivers, Columbia and Willamette, providing access from hundreds of thousands of fertile inland acres (barge)
- Proximity and ease of access to the Pacific Ocean coast and the Pacific Rim countries beyond (ship)
- Relatively flat and accessible north-south access via I-5 and the Burlington Northern, and Santa Fe Railroads (truck/train)
- Relatively flat and accessible east-west access via I-84 and the Union Pacific Railroad (truck/train)
- A rapidly growing air/freight industry (airplane)



The efficient movement of freight, including hazardous substances, through and within the City is critical to Portland's economic well-being. Trucking is the most frequently used, versatile, and often most efficient means of movement. Whether as a beginning or interim step in distribution, or as a final delivery to a retail outlet or end user, trucking will continue to be the way most goods and products move within the City and region.

Trucks are subject to most of the same traffic constraints as other vehicles. With vehicle miles of travel increasing more rapidly than miles of roadway, congestion (especially during peak travel hours) will worsen in the future. Travel times will increase, encouraging truckers to look for alternate, and potentially inappropriate, routes to their destinations. Although absolutely necessary to retail/commercial businesses, truck deliveries and loading practices can also have adverse impacts.

Potential truck freight conflicts with the quality of life in urban situations include:

- Late night deliveries (light, noise, vibration)
- Peak-hour deliveries (congestion, traffic interference)
- Movement of hazardous substances (safety)
- Through-trucks on neighborhood or retail commercial streets (noise, vibration, intimidation, safety, inappropriate use of street capacity)
- Loading operations (noise, aesthetics)

- On-street loading (traffic or access interference)

The most efficient way to prevent inappropriate truck traffic, on neighborhood streets or elsewhere, is to provide a system of safe, efficient, and convenient truck routes within truck districts, between industrial districts, and to intermodal terminals and truck loading areas. Improvements that reduce delays and barriers on the designated routes are needed to maintain efficient truck freight movement.

Freight movement by air, water, and rail does not require accommodation in the street right-of-way. Each of these modes is, for the most part, separate from other modes of transportation, except at intermodal terminals where freight loads are interchanged and at street and rail right-of-way intersections. Non-truck modes of freight movement are also regulated differently, with the state and federal governments having most regulatory responsibility for air, water, and rail freight. Because these modes have different needs from truck freight, they are addressed separately in this chapter under the Air, Rail, Water, and Pipeline Modal Plan.

Requirements

Transportation Planning Rule

In addition to the common elements that must be included in each of the modal plans (as described on page 5-2), the state Transportation Planning Rule (TRP) contains the following elements specific to trucks and freight:

OAR 660-12-030, (1) (c): Determination of Transportation Needs, requires the “movement of goods and services to support industrial and commercial development.”

The movement of hazardous substances is a special consideration within freight movement. The state Transportation System Planning Guidelines recognize this special need by recommending that transportation system plans include a ‘Truck Route Plan – Hazardous Materials Routes’ as a functional consideration in street design requirements.

2000 Regional Transportation Plan

Metro’s role is to identify the regionally significant freight system and intermodal facilities, coordinate planning for the system, and make sure that adequate land is available for expansion of intermodal facilities, manufacturing, wholesale, and distribution activities. The 2000 Regional Transportation Plan (RTP) includes two freight-related policies and a number of objectives. The RTP requires Portland to be consistent with these RTP policies and classification maps.

RTP Policy 15.0, Regional Freight System, focuses on providing an “efficient, cost-effective and safe movement of freight in and through the region.” The objectives address providing access between the freight corridors and intermodal facilities and industrial sanctuaries, maintaining reasonable travel times for freight movement, coordinating planning activities for regional freight corridors, and correcting safety deficiencies.

Policy 15.1, Regional Freight System Investments, focuses on protecting and enhancing “public and private investments in the freight network.” Its objectives address opportunities for partnerships and funding for freight mobility investments.

The RTP identifies freight corridors and intermodal facilities. Table 5.10 compares the freight classifications in the RTP, Portland’s Transportation System Plan (TSP), and Central City Transportation Management Plan (CCTMP).

**Table 5.10
Comparison of Freight Classifications**

2000 RTP Classification	TSP Classification
Industrial Area	Freight District*
Main Roadway Route	Regional Truck Street
Road Connector	Major Truck Street/Minor Truck Street
Not mapped	Local Service Truck Street
Marine Facility, Air Cargo Facility, Railroad Facility, Intermodal Railyard	Freight Facility
Truck Terminal, Distribution Facility	Not mapped
Main Railroad Line	Main Rail Line
Branch Railroad Line	Not mapped

Note: Within Freight Districts, streets are not separately identified, except for Regional Truck Streets and Major Truck Streets that form a boundary of a Freight District.

The City’s freight classifications relate to the RTP freight classifications as follows:

- The City’s Regional Truck Streets, for truck freight trips “with one or no trip ends within a City of Portland Transportation District,” coincide with state and federal highways (I-5, I-84, I-205, I-405, US 26, US 30, 99W, 99E). These highway routes, in turn, coincide with the RTP’s Main Roadway Routes.
- Many of the City’s arterials, or portions of those arterials, serve as Major Truck Streets, “with one or both trip ends in a Transportation District.” Included in this category are: Interstate, Going, St. Helen’s Road/US 30, Grand/Martin Luther King, Jr., Portland, Killingsworth, 82nd, 102nd, 122nd, Stark/Washington, Jefferson/Canyon, Hawthorne, Powell, Holgate, Macadam, Barbur, Capitol, Beaverton-Hillsdale, Front, Arthur, Sheridan, 4th, 5th, and Kelly. These arterials are classified in the RTP as Road Connectors.

Potential Consistency Issues with the RTP Freight Classifications

TERMINALS, RAILROAD BRANCH LINES, DISTRIBUTION FACILITIES

Portland has inventoried, but not mapped, truck terminals, distribution facilities, and branch rail lines other than the major facilities. These are minor facilities whose location may change over time without impacting the freight system.

FREIGHT DESIGNATIONS IN FREIGHT DISTRICTS

For purposes of Portland’s TSP, all streets in Freight Districts are ‘truck streets’ available for the movement of trucks. The Freight Districts only call out Regional Truck Streets that go

through or are at the boundary and Major Truck Streets that form a boundary of a district. The traffic and street design designations within Freight Districts determines the hierarchy of streets for design and the movement of motor vehicles, including trucks.

WATER AVENUE ON-RAMP (CENTRAL EASTSIDE INDUSTRIAL DISTRICT)

The project for the Water Avenue on-ramp is included in the RTP as Project No. 1026 – Water Avenue Ramps on I-5. It is described as “Construct new freeway access from the Central Eastside Industrial District to I-5.” This project has the potential for substantial environmental impacts and limited benefits given the large costs. The City does not support the project and believes that alternatives exist which would address the access issues addressed by the project. See the discussion on page 5-10 for the alternative projects.

Approach To Mode

Consistent with the themes for the TSP, Portland’s approach to truck freight mobility and access is:

- Manage the road system to provide for and further the objectives of truck freight mobility and access contained in the Portland Comprehensive Plan, the Portland Regional Framework Plan, and the Regional Transportation Plan.
- Recognize the contributions that freight movement and distribution make to the economic well being of the City.
- Minimize conflicts between truck freight and residential or retail/commercial activities.

The objectives of the Freight Modal Plan are to:

1. Support and implement the Federal and National Highway Plans as they apply to freeways and other designated federal truck routes or connectors.
2. Support and implement the Oregon Highway Plan on freeways and other designated state routes.
3. Support and implement the Regional Transportation Plan on roadways of regional significance.
4. Enhance truck access to intermodal facilities and within designated Freight Districts.
5. Define locations and conditions where the needs of commercial vehicles and freight movement will be emphasized in the operation of the roadway system.
6. Build public and private partnerships to support the maintenance and development of public infrastructure for truck freight.

Definitions

Truck Freight

The City of Portland defines truck freight movement as the movement of heavy and medium trucks. Because light commercial trucks cannot be distinguished from private vehicles, they are not included.

Medium trucks include trucks with two to four axles, and two-axle trucks with six tires. Heavy trucks include all articulated trucks, trucks with one to three trailers, and/or



Heavy Truck: Container

with three to nine axles.

Hazardous Substances

The movement of hazardous substances is included within truck freight movements. Hazardous substances are defined by the U.S. Department of Transportation in the Code of Federal Regulations (CFR), Title 49, Parts 100 to 177 (October, 1983), and by the City of Portland in the Planning and Zoning Code, Chapter 33.910, Definitions.

The Oregon Department of Transportation (ODOT) prohibits the movement of hazardous substances where there is a potentially increased hazard for truck movement, humans, or the environment at a specific location. Hazardous substances are directed away from the I-26 tunnel leading into downtown Portland, and the at-grade railroad crossing parallel to U.S. Route 30, near Balboa Street.

Policy Framework

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan contains general statements that guide how the City plans and implements improvements. In addition, a number of district and neighborhood plans have been adopted that contain more area-specific statements. These statements are ordered from the general to the specific as goals, policies, objectives, and action items. Goals, policies, and objectives are formally adopted by City Council ordinance.

The Comprehensive Plan addresses a broad range of goals for the City. Most policies relating to transportation are found in the Transportation Element of the Comprehensive Plan, which comprises Goal 6, Transportation; Goal 11B: Public Rights-of-Way; and the Central City Transportation Management Plan. The Transportation Element has been completely rewritten as part of the TSP, and the truck and freight-related policies and objectives are identified below on pages 5-114 through 5-115. These policies emphasize the efficient movement of trucks and the protection of residential and commercial areas from inappropriate truck traffic.

Goal 6 Transportation

Policies and objectives within Goal 6 that relate to freight and truck movement are primarily under Policy 6.9, Freight Classification Descriptions, Policy 6.29, Freight Intermodal Facilities and Freight Activity Areas, and Policy 6.30, Truck Movement. (The complete text of these policies is contained in Chapter 2.)

Policy 6.4, Classification Descriptions, describes how the classification descriptions and designations are used. Regionally significant streets must be classified for consistency with the 2000 RTP classifications for freight. While Portland uses different names for street classifications than those in the RTP, they are generally equivalent as shown on the matrix in this plan.

Policy 6.9, Freight Classification Descriptions, describes the freight districts, the four types of truck streets, and rail and freight facilities.

- Portland's Freight Districts include virtually all marine facilities, rail yards, air cargo facilities, reload facilities, truck terminals, and distribution facilities, as identified on Metro's regional freight system map. All streets within a Freight District, including Local Service Truck Streets, may be used for delivery of goods and access to truck-related industries.

Outside of Freight Districts, truck streets are classified as follows:

- Regional Truck Streets are intended to provide for interstate and interregional truck trips that bypass a district completely or have only one trip end within a Transportation District.
- Major Truck Streets are intended to provide for truck trips with one or both trip ends within a Transportation District, and to distribute traffic from Regional Truck Streets to Minor Truck Streets.
- Minor Truck Streets are intended to serve truck trips with both trip ends within a Transportation district, and to distribute traffic from Major Truck Streets to Local Service Streets to and from shipping and receiving points.
- Local Service Truck Streets are intended to provide for local circulation, access, and service requirements for truck movement.
- Major intermodal freight facilities are classified as either Main Rail Lines or Freight Facilities. Main Rail Lines are those identified as Class I rail lines—for example, the Union Pacific and Burlington Northern/Santa Fe. Freight Facilities are the major shipping and air terminals, and rail facilities that serve the statewide, interstate, and international movement of goods or commodities. These designations are in addition to the Freight District designation, which is where most of these intermodal facilities are located.

Policy 6.29, Freight Intermodal Facilities and Freight Activity Areas, guides the development and maintenance of the freight transportation system to ensure the safe and efficient movement of freight, goods, and commercial vehicles within and through the City. Several objectives address the need for coordination with other agencies, particularly the Port of Portland, in planning and developing road, marine, aviation, and rail facilities.

Policy 6.30, Truck Movement, guides the use of the transportation system by trucks. The policy attempts to balance the needs of trucks to travel to and from intermodal facilities, freight districts and other destinations with the needs of residents for quiet, livable streets. The policy recognizes that delivery and service trucks need to use local residential streets, but that through truck movement should be confined to higher classified streets. Generally, the longer the truck trip, the higher classified the street it travels on should be. Tools to insure that this occurs are street design (narrow residential streets), operation (tight corner radius), permitting (oversize load permits), and signing (truck-restricted streets).

DISTRICT FREIGHT-RELATED OBJECTIVES

District-specific objectives addressing freight and truck issues are included within the Transportation District policies of Goal 6. Selected objectives are listed below; the complete text of the district policies and objectives is contained in Chapter 2. Truck traffic is of

particular interest to North Portland residents, leading to the St. Johns Truck Strategy, which was completed in 2001.

North:

- Improve truck and freight movement in North Portland through changes to the street system, street classifications, and signing to enhance the economic vitality of the area and minimize impacts on residential, commercial, and recreational areas. (Policy 6.34, Objective A)
- Support use of the North Marine Drive/Lombard (north of downtown St. Johns)/North Columbia Boulevard loop as the truck and commuter access to the Rivergate Industrial Area and adjacent industrial uses. (Policy 6.34, Objective B)
- Direct industrial traffic onto North Columbia Boulevard, while allowing limited access from residential neighborhoods and mitigating for unacceptable traffic impacts. (Policy 6.34, Objective C)

Northeast:

- Encourage automobile and truck through-traffic to use major arterials at the edges of the district to reduce peak-period traffic impacts and to preserve neighborhood livability. (Policy 6.35, Objective A)

Far Northeast:

- Enhance the arterial system by improving connections and eliminating bottlenecks, such as rail crossings and viaducts, that contribute to intrusions into residential neighborhoods by commercial, industrial and non-local traffic. (Policy 6.36, Objective A)

Southeast:

- Discourage regional and interdistrict truck traffic from using Local Service Streets in Southeast Portland by establishing convenient truck routing and signing that better serve trucks, while protecting Southeast neighborhoods. (Policy 6.37, Objective G)

Northwest:

- Route non-local and industrial traffic around the edges of the district on Major City Traffic Streets and Regional Trafficways. (Policy 6.39, Objective B)

Goal 11B Public Rights-of-Way

Freight and truck-related policies and objectives under Goal 11B focus on carrying out the 2040 Growth Concept, including providing adequate access to employment and industrial areas. Policy 11.10, Street Design and Right-of-Way Improvements, Objective I states, "Improve streets within Freight Districts and on truck-designated streets to facilitate truck movement." Objective F under Policy 11.13, Performance Measures, includes 'mobility and access' and 'economic development' as topics for which benchmarks should be measured.

Central City Transportation Management Plan

The Central City Transportation Management Plan (CCTMP) recognizes that all of Lower Albina and a large portion of the Central Eastside have important industrial functions. Policy 2.7, Maintain Access to Industrial Activities, supports mobility for commercial vehicles serving industrial activities. Policy 2.8, Industrial Sanctuaries, supports protecting the Central City's industrial sanctuaries from commercial development and its associated parking.

Other Truck and Freight-Related Policies and Objectives

Many of the policies and objectives under Goal 5, Economic Development, address the importance of freight and truck movement in Portland, as identified below.

Policy 5.1, Urban Development and Revitalization, Objective C, states:

Retain industrial sanctuary zones and maximize use of infrastructure and intermodal transportation linkages with and within these areas.”

Policy 5.4, Transportation System, states:

Promote a multi-modal regional transportation system that encourages economic development.

Objective A of Policy 5.4 states:

Support regional transportation improvements to facilitate the efficient movement of goods and services in and out of Portland's major industrial and commercial areas. Ensure access to intermodal terminals and related distribution facilities.

Objective B of Policy 5.4 states:

Support the maintenance and efficient use of the transportation infrastructure for local, national, and international distribution of goods and services.

Policy 5.5, Infrastructure Development, specifically addresses the importance of public infrastructure in fostering economic development in City-designated target areas.

Objective D of Policy 5.5 states:

Build public and private partnerships to link public infrastructure development to other development plans.

Objective E of Policy 5.5 states:

Use public investment as a catalyst to foster private development in Council-designated target areas.

Policy 5.10, Columbia South Shore, addresses the needs of one of the most important employment and industrial areas of the city, including maintaining the capacity of the area infrastructure to accommodate future development.

Objective F of Policy 5.10 states:

Protect the transportation capacity of the area's highways and roads through both review of individual projects and identification and construction of new facilities which increase the system's capacity.

Objective G of Policy 5.10 states:

Recognize the importance of Portland International Airport and other regional transportation facilities to the South Shore district.

Existing Conditions

Summary of Inventory

The total freight tonnage moved in and around the Portland metropolitan area was more than 165 million tons in 1996. In 1996, the truck share of this cargo was 106 million tons, or 61 percent, of the total tonnage. Trucks carried 68 percent of the value of all freight.

The TSP Inventory (1996) describes air, freight, mainline, and pipeline facilities. (Air, rail, water, and pipeline facilities are addressed in a separate modal plan later in this chapter.) The TSP Inventory describes the 273 freight facilities by category. Marine facilities including port terminals, rail facilities, airports, reload facilities (rail-to-truck and truck-to-truck), truck terminals, distribution facilities, carriers, and freight forwarder and customs brokers. Mainline freight carriers include navigable waterways, railroad main lines, and main roadway routes. Pipeline distribution centers are also identified. The vast majority of these facilities are located in areas zoned as industrial sanctuaries and freight districts.

Recent Freight Studies and Plans

Recently completed studies include (additional details can be found in Chapter 12, Area Studies, Volume II of the TSP):

West Hayden Island Marine Terminal Development

West Hayden Island is separated on the south from Portland by the Oregon Slough. The only automobile access to Hayden Island is via I-5 which connect the eastern end of the island to both Portland and Vancouver via the Interstate Bridge. Rail access is provided by a main line of the Burlington Northern Santa Fe Railroad which runs north/south across the center of the island. Through earlier studies, it was determined that a need for future marine industrial use would exist and West Hayden Island was the only major land parcel available to meet this need.

In order to transition the West Hayden Island area to marine terminal facilities and an intermodal rail yard in accordance with the West Hayden Island Development Plan, a transportation analysis was completed in 1999. The purpose of the analysis was to identify

specific traffic impacts associated with development of the bulk terminal and the container terminal/intermodal rail yard. The analysis showed that the addition of bulk terminal traffic would have no adverse traffic impacts. The addition of a container terminal(s) and intermodal rail facilities would result in adverse impacts to traffic operation on Hayden Island and at the intersection of I-5 with Marine Drive. A bridge linking West Hayden island to Marine drive is proposed in conjunction with development of the marine terminal facilities and the intermodal rail yard. Development of West Hayden Island is not occurring immediately because of cost and other issues.

Columbia Corridor Transportation Study

The Columbia Corridor reaches from the Rivergate Industrial District on the west to Troutdale on the east. The purpose of the study was to look at ways to reduce or remove the impacts of truck traffic on NE Marine Drive and on NE 33rd Drive. The 1999 study adopted by City Council resolution recommends accommodating future traffic by directing more traffic to existing underutilized facilities before constructing increased traffic capacity. Improvements fall into four categories: expanded transit service, safety and traffic management projects, connectivity improvements, and system improvements. (Additional details of the study and its recommendations are in Chapter 12 of Volume II of the TSP.

St. Johns Truck Strategy

The St. Johns Truck Strategy was in response to citizen requests during the 1992 update of the Transportation Element regarding the impacts of truck traffic on residential and commercial streets in the North Portland area. The intent of the study was to identify ways to reduce or remove truck traffic on these streets while providing for truck movement across the peninsula from Columbia Boulevard, I-5, and the industrial areas in North Portland to the St. Johns Bridge. The recommendations from the St. Johns Truck Strategy include:

- Designating a truck route between Columbia Boulevard and the St. Johns Bridge
- Limiting truck weights for local deliveries
- Follow-up studies to evaluate implemented projects and to study hazardous materials movement
- Education and enforcement of existing regulations and a truck signing program
- Projects including traffic calming, redesign/rebuild of certain intersections and street segments

Additional detail on the St. Johns Truck Strategy can be found in Chapter 12, Area Studies, of Volume II of the TSP and in the St. Johns Truck Strategy report and recommendation dated May 2001.

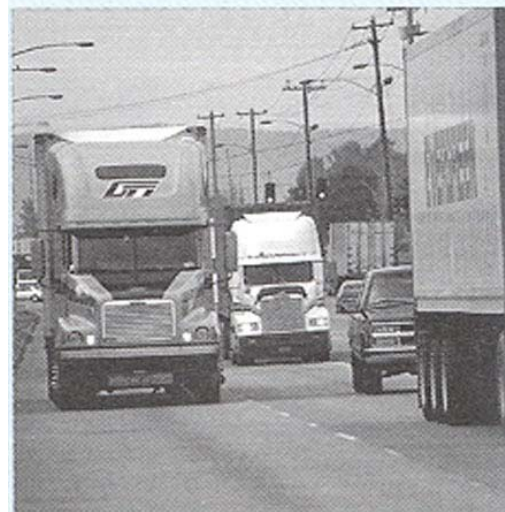
Currently underway is:

I-5 Transportation and Trade Partnership

The states of Washington and Oregon initiated the I-5 Transportation and Trade Partnership in response to recommendations of a 1999 bi-state leadership committee considering the effects of congestion on the highway and rail systems. It recommended that the region develop a strategic plan for the I-5 corridor to address the transportation mobility needs in the corridor between I-205 in Vancouver and I-84 in Portland. The outcome will be list of recommendations and implementation measures, including future exploration of innovative

Existing Deficiencies

Recent studies of the truck freight distribution system have identified a number of deficiencies within the system. The majority of those deficiencies take the form of congestion or street/intersection design, leading to delays and/or trucks seeking alternate routes that may not be part of the designated truck routing system. A lack of appropriate truck route signing also contributes to unnecessary truck freight movement in residential and commercial areas.



The important geographic elements that make Portland one of the largest and most important distribution centers on the West Coast will continue to direct the City's business interests in the foreseeable future. Truck freight volume tends to grow at a faster rate than the region's population. The growth assumptions used by the Metro and Port of Portland's commodity flow model include a 4.2 percent annual growth in truck trips. The same source shows a doubling of freight volume by the year 2030. Barge, ship, and rail tonnage is also expected to grow.

If there is no significant change in how the region provides for truck freight, these assumptions foretell a future of inconsistent and inefficient truck trips and delayed cargo or supplies.

Regional Freight System Performance

The RTP states that of the total goods moving into, out of, and within the region, 62 percent complete all or part of the trip by truck. By 2020, the increase in truck trips will result in an average 30 percent increase in truck travel times. Regional truck delay hours are expected to increase by more than nine times over 1994 levels by 2020 if no new transportation projects are constructed.

Identified deficiencies in the system include street and intersection designs, including railroad crossings, turn movements, signalization, and freeway interchanges. The greatest negative impact on truck freight movement is congestion, which causes delays and difficulty in maintaining specific schedules. Congestion and delay have encouraged peak truck freight movement to occur prior to the PM peak period, to avoid the heaviest traffic. For example, peak direction travel in the I-5 corridor consumes between about 80 and 100 percent of the corridor's capacity. Within the two-hour periods, travel demands approach or surpass the corridor's capacity, resulting in congestion and slow travel speeds. During the midday, when the highest volume of trucks use the freeway (e.g., 11 percent of the traffic across the I-5 bridge consists of heavy trucks), from 30 to 80 percent of the corridor's capacity is used.

Many of the regional corridors that carry truck freight are expected to experience continued congestion over the next 20 years. These corridors include I-5 North, I-205, and I-84. Future studies will address the major identified corridors where adequate improvements have not

been included in the RTP. The RTP and Chapter 4, Refinement Plans and Studies, of the TSP provide additional information about the issues and study objectives for these corridors.

Issues from District Needs Assessment

In fall 1998, PDOT held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. The resulting District Needs Assessments reinforce and expand upon the deficiencies and concerns identified in studies and the TSP Inventory. Residents' most common concern was the inappropriate use of neighborhood streets by trucks. Other concerns about trucks included the hours of operation, loading practices, size of trucks, and noise.

Two of the top seven values identified in the workshops relate to trucks and freight: providing for the movements of goods, and supporting economic development and access to jobs. In addition, managing congestion was a key value mentioned at all district workshops.

Implementation Measures

Existing Regulations

Hazardous Substances

Title 33, Planning and Zoning, regulates the use, storage, and routing of hazardous substances.

In the Portland Planning and Zoning Code, Chapters 33.140, Employment and Industrial Zones, and 33.840, Hazardous Substances Review, regulate the use, storage, and routing of hazardous substances. Paragraph 33.840.030, Evaluation Factors, requires applicants for Hazardous Substances Review to relate the location of their site "to City-designated routes for the transport of hazardous substances." At this time, the City does not have designated hazardous substances routes. Chapter 33.840 requires applicants for Hazardous Substances Review to relate the location of their site to "City-designated routes for the transport of hazardous substances."

Truck Loading

Truck loading facilities are required on private property for any building with 20,000 square feet or more of floor area. Buildings with more than 50,000 square feet of floor area require two loading spaces. Loading spaces must be set back from the street or other property lines and provided with landscaping.

Projects

The following TSP projects provide examples of projects that address freight movement needs (not listed in order of importance or funding priority):

- Grand/Martin Luther King Jr Viaduct Reconstruction (Project No. 20036)
- Southern Triangle Circulation Improvements (Project No. 20050)
- Going/Greeley Climbing Lane and Interchange Improvements (Project No. 30016)

- North I-5 Widening (Project No. 30022)
- 11th/13th Roadway Connector (Project No. 40001)
- 47th/Cornfoot Intersection Improvements (Project No. 40009)
- 105th/Clark/Holman Street Improvements (Project No. 50017)
- South Portland Improvements (Project No. 90060)

Potential Strategies

Region 2040

The relationships, conflicts, and mitigation of truck deliveries and loading practices with the form and function of designated urban centers, including the Central City, regional centers, town centers, main streets and station communities is an on-going need. Freight needs should be considered as a part of area plans and strategies developed to address these needs and potential conflicts. Strategies to consider include:

- Timed truck deliveries (off-peak hours, specified hours)
- Loading regulations and/or loading facility requirements (placement, hours of operation, screening)
- Truck regulation enforcement

Specific truck freight needs should be addressed in the City's industrial districts such as, Johnson Creek, Banfield, Brooklyn, Central Eastside, Guild's Lake, Lower Albina, and Swan Island. Strategies to consider include:

Hazardous Substances

Several possible responses to moving hazardous substances could be explored.

- All or some existing truck routes could be designated as hazardous substance routes.
- Hazardous substance shipments could be directed to emergency service routes. However, some emergency service routes coincide with the state's identification of areas where hazardous substance movement is prohibited (I-26 tunnel, Balboa Street crossing of railroad tracks). (Emergency Response Classification Study, PDOT & Bureau of Fire, Rescue & Emergency Services, 1998)

The following considerations apply in designating hazardous substances routes:

- Routes with storm drainage or runoff directly to rivers, streams, or other bodies of water used for human consumption should be avoided.
- No specific identifiable situations that could increase the likelihood of spills should be included, such as dangerous intersections, steep grades, and inadequate street improvements.

- No situations that could unduly exacerbate the effects of a hazardous material spill should be included, such as proximity to schools, residential areas, community water supplies, or sensitive environmental areas.

Information and Education

Truck movements can be improved through informational and educational efforts.

Strategies include:

- Provide clarity of truck routes through signing, including hazardous substances routes.
- Provide information about Portland's truck routes and facilities to truck freight businesses and/or companies with their own truck fleets.
- The provision of information to business transportation managers, dispatchers, truck drivers, and others responsible for truck routing.

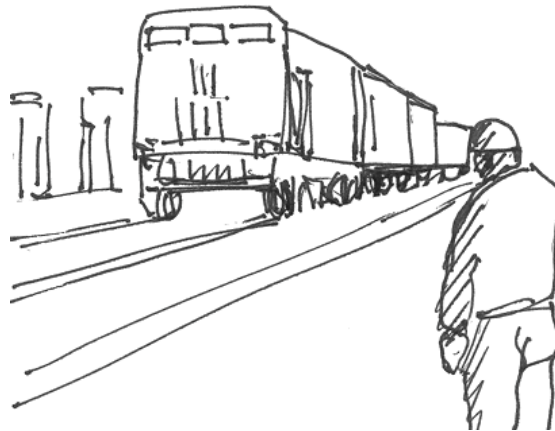
Conclusion

As the RTP states, the significant growth in freight movement that is projected by the 2040 Commodity Flow Analysis indicates that there is a need for an adequate supply of land for intermodal facilities and the need to maintain and enhance the freight transportation system. The TSP addresses the freight movement needs inside Portland through recommended projects and future studies.

AIR, RAIL, WATER, AND PIPELINE MODAL PLAN

Introduction

Air, rail, water, and pipeline (ARWP) facilities provide alternative modes to motor vehicles for delivering and distributing necessary goods and services. They help reduce road congestion and associated vehicle-produced air and water pollution. In some cases, they serve where typical ground vehicles would be impractical, such as for conveying power, data, bulk goods, large quantities of smaller goods, or rapid national or global distribution.



The authority to regulate ships, trains, and planes and their movements lies mostly with the federal government. The Oregon Public Utility Commission also has regulations affecting trains, such as railroad crossings. The City of Portland's authority is largely limited to regulation of support facilities (land uses), such as train stations, airports, and docking facilities.

The Port of Portland's Portland International Airport and Columbia and Willamette River terminals serve airborne and shipborne traffic, providing connections to other modes of travel. The federal government regulates air space, river and coastal waters, and the routes used by these modes.

AMTRAK, an agency of the federal government, provides rail passenger service. The Burlington Northern/Santa Fe Railroad and Union Pacific Railroad provide freight movement. Railroads and railroad rights-of-way are privately owned.

The public pipeline infrastructure includes water distribution, sewage, and stormwater collection. Investor-owned utilities include natural gas and petroleum pipelines, as well as electronic trunk lines for television, telephone and data transmission wire, and fiber optic cables. Pipeline distribution occurs largely within easements, both within and outside of street rights-of-way.

Requirements

The state Transportation Planning Rule (TPR) requirements include Oregon Revised Statute (ORS 660-12-020), Elements of Transportation System Plans, and ORS 660-12-030, (1) (c), Determination of Transportation Needs. These sections require local jurisdictions to prepare modal plans, including "air/mainlines and pipelines," and to consider the "movement of goods and services to support industrial and commercial development."

In addition to the common elements that must be included in each of the modal plans (as described on page 5-2), the TPR contains the following elements specific to the air, rail, water, and pipeline modes:

- Location of public use airports.
- Location of mainline and branchline railroads and railroad facilities.
- Location of port facilities.
- Location of major regional pipelines and terminals.
- For airports, the planning area includes the areas within airport imaginary surfaces (flight envelopes).

The TSP inventory (supporting document) identifies the location of these facilities. Major port and rail facilities are shown on the maps for each of the City's seven Transportation Districts, located under policies 6.34 through 6.40 in Chapter 2 and on the CCTMP district map for freight.

Approach to Mode

Consistent with the themes for the TSP, Portland's approach to the provision of air, rail, water and pipeline services is:

- Management of public resources and infrastructure to further the planning objectives for the development and maintenance of the air, rail, water and pipeline facilities identified in the Portland Comprehensive Plan, the Portland Regional Framework Plan, and the Regional Transportation Plan.
- Recognize the contributions that air, rail, water and pipeline facilities make to the economic well being of the City.
- Administration and management of the street rights-of-way, as necessary for the distribution of goods and services provided by mainlines and pipelines.
- Provision of safe and efficient access to regional air, water and rail facilities.

The objectives of the Air, Rail, Water and Pipeline Modal Plan are to:

1. Support the economic health of Portland and the region through planning and development of marine, aviation, and rail facilities with the Port of Portland and other affected agencies, groups, and individuals.
2. Support rail as a primary mode for freight movement.
3. Provide support for area and regional planning for major regional pipelines and terminals.
4. Maintain the viability and efficiency of Union Station as the multimodal transportation hub for downtown Portland, Portland International Airport as the air passenger hub facility for the region, and other passenger transfer facilities in existing and emerging regional centers.

5. Support expansion of and improvements to the Northwest Corridor passenger rail service between Eugene, Portland, Seattle, and Vancouver, B. C., including high speed rail service.

Policy Framework

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan addresses a broad range of goals and policies for the City. Specific goals and policies relating to ARWP facilities are contained in:

- Goal 5 Economic Development
- Goal 6 Transportation
- Goal 11 A Public Facilities
- Goal 11 C Sanitary and Stormwater Facilities
- Goal 11 E Water Service

These policies emphasize the public or private provision of infrastructure (sanitary and stormwater sewers and water supply), Portland International Airport and Union Station as multimodal passenger centers, freight-related intermodal facilities (marine and aviation), and the quality and maintenance of distribution facilities.

Transportation Element

Goal 6 and Goal 11B along with the CCTMP make up the Transportation Element of the Comprehensive Plan.

Goal 6 Transportation

Policies and objectives within Goal 6 that relate to ARWP facilities are primarily under Policy 6.9, Freight Classification Descriptions, and Policy 6.29, Freight Intermodal Facilities and Freight Activity Areas.

Policy 6.4, Classification Descriptions, describes how the classification descriptions and designations are used. Policy 6.9, Freight Classification Descriptions, describes the freight districts where most ARWP facilities are located and rail and freight facilities.

- Portland's freight districts include virtually all marine facilities, rail yards, air cargo facilities, reload facilities, truck terminals, and distribution facilities, as identified on the RTP's freight system map. All streets within a Freight District, including Local Service Truck Streets, may be used for delivery and movement of goods and access to truck-related industries.
- Main Rail Lines are those that are identified as Class I rail lines, for example, Union Pacific and Burlington Northern/Santa Fe.
- Freight Facilities include major shipping and air terminals and rail facilities that serve the statewide, interstate, and international movement of goods and commodities.

Policy 6.29, Freight Intermodal Facilities and Freight Activity Areas, guides the development and maintenance of the freight transportation system to ensure the safe and efficient movement of freight, goods, and commercial vehicles within and through the City. The objectives address the need for coordination with other agencies, particularly the Port of Portland, in planning and developing road, marine, aviation, and rail facilities. Since Portland does not have a lead role in developing ARWP facilities, coordination and inter-jurisdictional planning is its main involvement.

District freight-related objectives relate primarily to truck freight movement and are detailed in the Freight Modal Plan in this chapter.

Goal 11B Public Rights-of-Way

Freight-related policies and objectives under Goal 11B focus on carrying out the 2040 Growth Concept, including providing adequate access to employment and industrial areas. Objective F under Policy 11.13, Performance Measures, includes “mobility and access” and “economic development” as topics for which benchmarks should be developed to evaluate the TSP.

Central City Transportation Management Plan

The Central City Transportation Management Plan (CCTMP) recognizes that all of Lower Albina and a large portion of the Central Eastside have important industrial functions. Policy 2.8, Industrial Sanctuaries, supports protecting the Central City’s industrial sanctuaries from commercial development.

Other ARWP-Related Policies and Objectives

Outside of Goals 6 and 11B, several policies and objectives address AWRP facilities, as identified below.

GOAL 5 ECONOMIC DEVELOPMENT

Policy 5.4, Transportation System, Objectives A and B, support “transportation improvements that facilitate the efficient movement of goods and serves” and the “maintenance and efficient use of the transportation infrastructure for local, national, and international distributions of goods and services.”

Policy 5.10, Columbia South Shore, Objective G, recognizes “the importance of Portland International Airport” to the South Shore district.

GOAL 11 PUBLIC FACILITIES

Goal 11A contains sub-goals and policies that address the City’s infrastructure. Policy 11.1, Service Responsibility, and Policy 11.6, Public Facilities System Plan, require the City to provide facilities and services at appropriate levels for all land use types and to develop a public facilities plan that addresses the needs of the City for the following 20 years.

Goal 11 C, Sanitary and Stormwater FacilitiesPolicies require the development and maintenance of a sanitary and storm sewer system that will “meet the needs of the public and comply with federal, state and local clean water requirements.”

Goal 11 E, Water ServicePolicies require the City to “insure that reliable and adequate water supply and delivery systems are available to provide sufficient quantities of high quality water to meet the existing and future needs of the community.” In particular, Policy 11.32

requires that storage and distribution facilities are maintained in order to protect water quality, insure a reliable supply, assure adequate flow for all user needs, and minimize water loss.

Existing Conditions

Portland lies approximately 100 river miles from the Pacific Ocean and serves as the collection and distribution point for goods and produce as much as 360 miles upriver. The Port of Portland owns and operates four shipping terminals (Terminals 2, 4, 5, and 6) and one passenger ship boarding facility at Swan Island. Cascade General leases the Swan Island shipyard (dry dock/ship repair) from the Port. The Port is also planning to develop and is initiating the acquisition of approximately 500 acres on West Hayden Island for marine facilities, largely to accommodate growth in container and bulk shipping and car delivery and distribution. While this project is temporarily on hold, it is still slated for development in the future.

Several privately owned general-purpose docks and bulk facilities (grain/mineral) provide additional shipping opportunities.

Portland International Airport, the region’s major airport, lies within Portland’s city limits, adjacent to the Columbia River. It is located close to the region’s largest industrial area, Columbia South Shore. The Portland International Center/ Cascade Station site supports airport uses. Including all related and proximate facilities, the airport totals approximately 3,200 acres, and the Portland International Center/ Cascade Station site encompasses 458 acres.

Portland International Airport lies within the Columbia South Shore Plan District, West Columbia Industrial District, and Northeast Truck District. Portland International Center is a separate plan district, and is also within the West Columbia Industrial District and the Northeast Truck District.

Plan districts address concerns unique to an area when other zoning mechanisms cannot achieve the desired results. Each plan district has its own nontransferable set of regulations (Title 33 Planning and Zoning Code, Chapter 33.500, Plan Districts in General).

Portland International Airport is allowed and regulated through a 10-year conditional use master plan, which addresses all aspects of the airport’s growth and operation. The City is in the process of updating and approving the master plan. The nearly 500-acre Portland International Center/ Cascade Station site east of the airport will include office, retail-commercial, lodging, entertainment, warehousing, and manufacturing uses in support of the airport, as well as airport-related parking (employee and rental cars). This recently approved site was previously regulated as a planned unit development, a form of conditional use, but is now regulated as a Plan District. The movement of truck freight, and all other street traffic, to and from the airport is regulated by a transportation agreement between the Port of Portland and the City of Portland for certain street improvements, and by regulations included within the Portland International Center/Cascade Station Plan District.

The Port of Portland’s air facilities serve growing passenger and freight movement. A total of 2.5 million air passengers in 1970 grew to 13.0 million in 1998. Air freight movement, including mail, was less than 100,000 tons in 1970, and grew to over 320,000 tons in 1998. (Port of Portland, Portland International Master Plan Summary Report, September 2000)

The airport and its related facilities also provide for general aviation and helicopters. In addition, several other public and private helicopter facilities/landing pads are located at area hospitals and downtown structures, Tom McCall Waterfront Park, and the Rose Garden.

The Union Station rail and bus multimodal facility predates the conditional use process. The Trailways bus depot was sited and operates in accordance with a conditional use review, as does an approved ship passenger boarding facility at Swan Island.

The Trailways bus depot and Union Station train passenger facilities are located within the Central Business District. Other rail facilities, such as the Albina and Brooklyn rail yards (northeast and southeast Portland, respectively), provide for the distribution of freight by rail.

Portland International Airport has a significant freight component, while the Union Station rail depot and Trailways bus depot do not.

Rail terminals (rail yards) for freight have undergone significant change in recent years. A reliance on large, all-encompassing rail yards has given way to smaller switching yards, unit trains, and other technologies. Of five railroads serving this area in 1980, only Burlington Northern/Santa Fe and Union Pacific are left, and only two rail yards of significant size remain in Portland: Brooklyn and Lower Albina. Both of these larger rail yards, and a number of smaller switching yards, were established prior to the City's current conditional use review requirements. Freight moved by rail totaled 10.3 million tons in 1996. (Metro, Commodity Flow Analysis for the Portland Metropolitan Area, 1999) Union Station provides the only passenger station for rail travel within the metropolitan area.

Private river tours often depart from and return to downtown Portland at either Tom McCall Waterfront Park or the Riverplace marina, both within the Central Business District.

Recent Studies and Plans

Columbia River Channel Deepening

The Columbia River navigation channel is 114 miles long, 40 feet in depth, and 600 feet wide. It is a very important passage to reach port facilities in Oregon and Washington. The transpacific container fleet is getting larger; 75 percent is constrained by the current channel. Over 50 percent of the grain vessels are also constrained. The Bi-State Committee on the Columbia River Channel are recommending deepening the channel from 40 to 43 feet to accommodate present and future fleet requirements while meeting environmental requirements and building public consensus for the project. An analysis has found that approximately one-half of the channel would require deepening, but there are environmental issues including sediment quality, compliance with the Endangered Species Act (ESA), dredge disposal, and ecosystem restoration. In January 2002, the U.S. Army Corps of Engineers completed a Biological Assessment for the Columbia River channel deepening project. In May, National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) released 'no jeopardy' opinions. The U.S. Army Corps of Engineers will issue a draft supplemental EIS for public comment in July, with the final document to be released in Fall 2002.

If the project goes forward, it is expected to cost \$183.6 million with Oregon's share approximately \$10 million.

West Hayden Island Marine Terminal Development

West Hayden Island is separated on the south from Portland by the Oregon Slough. The only automobile access to Hayden Island is via I-5 which connect the eastern end of the island to both Portland and Vancouver via the Interstate Bridge. Rail access is provided by a main line of the Burlington Northern Santa Fe Railroad which runs north/south across the center of the island. Through earlier studies, it was determined that a need for future marine industrial use would exist and West Hayden Island was the only major land parcel available to meet this need.

In order to transition the West Hayden Island area to marine terminal facilities and an intermodal rail yard in accordance with the West Hayden Island Development Plan, a transportation analysis was completed in 1999. The purpose of the analysis was to identify specific traffic impacts associated with development of the bulk terminal and the container terminal/intermodal rail yard. The analysis showed that the addition of bulk terminal traffic would have no adverse traffic impacts. The addition of a container terminal(s) and intermodal rail facilities would result in adverse impacts to traffic operation on Hayden Island and at the intersection of I-5 with Marine Drive. A bridge linking West Hayden island to Marine drive is proposed in conjunction with development of the marine terminal facilities and the intermodal rail yard. Development of West Hayden Island is not occurring immediately because of cost and other issues.

Future Conditions

Growth in air, rail, and waterborne freight and passengers will put significant burdens on existing facilities and services, or even on proposed new facilities and services. Additional or expanded facilities are typically subject to City land use review, which is intended to eliminate unnecessary impacts on surrounding land uses or to require mitigation of those impacts that cannot be eliminated.

Traditional public utilities, such as sewer and stormwater, are undergoing significant changes in the City. Sewage and stormwater are being converted to separate systems to improve water quality of the Willamette River and Columbia Slough. Pipeline facilities are rapidly diversifying; basic infrastructure needs now include investor-owned electronic services such as fiber optic or cable access trunk lines for data and remote systems control.



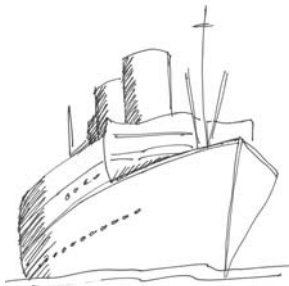
Continued significant growth is expected for both air passengers and air freight. Although air freight represents only about one tenth of one percent of all freight tonnage in the region, it moves some of highest-valued products, largely from high-technology sources. Air freight tonnage is expected to increase more than three-fold from 1998 tonnage to 958,000 tons in 2020. (Port of Portland, Port Transportation Improvement

Plan, 1997) The number of air passengers is expected to more than double from 1998 (13.0 million) to 2020 (27.0 million). (Port of Portland, Portland International Master Plan Summary Report, September 2000)

The growth in air freight and passenger service will require increased air service facilities. It has not yet been resolved whether airport facilities should be expanded at Portland International Airport or a satellite location, or if a new regional airport should be built. The Regional Air Transportation Demand Task Force (of Portland State University's Institute of Portland Metropolitan Studies) has reviewed these issues and recommends not creating any major new facilities at this time.

Bulk goods (grains and minerals) moved through Portland constitute more than half of the region's annual export tonnage. Most of the bulk goods to be exported arrive by unit trains. However, about 40 percent of grain exports arrive in Portland by barge. The future promises even more bulk goods via both unit trains and barges, through both the Port of Portland and private facilities. (Metro, Commodity Flow Analysis for the Portland Metropolitan Area, 1999)

Rail freight movement in the area is not expected to grow as fast as other segments of the economy. The volume of domestic rail freight is expected to increase by less than 2 percent in the medium term and less than 1.5 percent in the long term. International rail freight is expected to grow about twice as fast as domestic: 4.4 percent in the short term and 3.9 percent in the long term. (Metro, Commodity Flow Analysis for the Portland Metropolitan Area, 1999)



High expectations are held for marine freight, where tonnage is expected to increase more than three-fold by 2030. (Scott Drumm, Port of Portland, commodity flow presentation to St. Johns Truck Strategy Advisory Committee, 2001) More barges, bulk shipping, and car unloading are expected to occur at Port of Portland and private terminals. These expectations lead to concerns about sufficient land for marine facilities in future years.

In a more speculative vein, it is expected that water taxis and commuter boats will add to the transportation options in Portland and the region. River tour activities are also expected to increase. Portland has existing facilities to accommodate significant waterborne commuter or commercial recreational traffic, such as the Tom McCall Waterfront Park seawall, Eastside Esplanade docking facilities, South Waterfront marina and docking facilities, and Swan Island passenger terminal. Growth in these activities will likely result in additional development requests for small- to medium-sized docking and passenger boarding facilities.

Implementation Measures

Title 33

Portland City Code, Title 33, Planning and Zoning, regulates pipelines, other trunklines (such as fiber optic cables), and rail lines, under the category of Rail Lines and Utility Corridors. This land use category is allowed by right in employment and industrial zones, and is a conditional use in all residential and commercial zones.

Title 33 also regulates rail, bus, and air passenger terminals, under the category of Aviation and Surface Passenger Terminals. This land use category is not allowed in residential or most commercial zones. Where it is not an allowed use, it is regulated as a conditional use.

The **conditional use** review provides an opportunity to allow a use when there are minimal impacts or to mitigate for impacts to address identified concerns, or to deny the use if the concerns cannot be resolved. (Title 33: Planning and Zoning Code, Chapter 33.815, Conditional Uses)

The Aircraft Landing overlay zone in Title 33 is intended to provide safer operating conditions for aircraft in the vicinity of the Portland Airport by limiting the height of structures and vegetation. All structures and vegetation within the Aircraft Landing zone are subject to height limits to protect aircraft during take-offs and landings.

The Portland International Airport Noise Impact overlay zone in Title 33 is intended to reduce the impact of aircraft noise on development within the noise impact area surrounding the airport. The zone achieves this by limiting residential densities and by requiring noise insulation, noise disclosure statements, and noise easements.

Title 33 regulates truck, marine and rail freight terminals, and grain terminals, under the category of Warehouse and Freight Movement. This land use category is an allowed use only within employment and industrial zones, it is prohibited in other zones. The Port of Portland and a few private companies control shipborne freight movement within the City of Portland, through various docks, grain and shipping terminals.

Significant portions of the Willamette and Columbia River frontages have been zoned for employment or industrial uses. This includes the Port of Portland's Terminals 2, 4, 5, and 6 and Swan Island. A number of private docks and bulk goods (grain, mineral) terminals are interspersed with the Port's facilities.

Title 17

Title 17, Public Improvements, provides for installation of utilities within the right-of-way. Investor-owned utilities are required to enter into a franchise agreement before use of the right-of-way is allowed.

Projects

The identification of improvements or actions necessary to meet state and regional goals and requirements is integral to the TSP. Improvements included in the TSP projects list (Chapter 3) for the upkeep of ARWP facilities include:

- Several projects to provide access to businesses currently impacted by railroad crossing difficulties (Lombard, Division Street, and Marine Drive rail crossings) (Project Nos. 30048, 20023, 30039)
- Boat docks accessible to water taxis, at Oaks Park and the Steel Bridge (Project No. 70048)

- Railroad improvements, including expanding rail capacity in and to Rivergate, and rail access from Rivergate to Hayden Island (Project Nos. 30019, 30054, 30055)

Programs and Strategies

In addition to projects identified by the TSP process, recent or near-future actions to maintain competitive ARWP facilities in the City and region include:

- Renewal and amendment of the existing Portland International Airport 10-year master plan (Port draft complete; needs City approval)
- Regional discussions about the growth and expansion of Portland International Airport (through the Regional Air Transportation Demand Task Force, of Portland State University's Institute of Portland Metropolitan Studies)
- Deepening of the Columbia River to accommodate larger, more efficient ships
- Combined Sewer Overflow Program to improve the quality of the Willamette River for wildlife and recreation
- Annexation of West Hayden Island, expected to provide more than 500 additional acres for marine-related development for multimodal freight facilities (ship/train/truck)

Conclusion

The efficiency of Portland's economic engine relies to a significant degree on a complete and modern infrastructure, providing for the latest technologies as well as standard services. The ability of local businesses to compete globally depends on access to all levels of technology. Existing goals, policies, and code recognize the need to provide for traditional facilities and services, but do not necessarily accommodate new services.

TRANSPORTATION DEMAND MANAGEMENT and PARKING PLAN

Introduction

Portland has long believed it is not possible to eliminate congestion by building more roads because of the costs involved, effects on air quality, and unacceptable impacts on neighborhoods. Transportation demand management (TDM) holds the most promise for reducing congestion and creating communities that are not dominated by the automobile. TDM includes a variety of strategies to encourage more efficient use of the existing transportation system and reduce reliance on the personal automobile. These strategies include:



- Increasing the number of travel choices, such as transit, ridesharing, walking, bicycling, telecommuting and delivery services.
- Reducing the need for travel by creating more efficient land use.
- Rewarding consumers for using the travel option that fits the trip, using each mode for what it does best.



TDM measures reduce congestion and the need for costly road expansion.

The primary benefit of managing travel demand is to minimize the need to expand the capacity of the region's transportation system (e.g., building new highways or adding lanes to existing highways). Managing travel demand will also help the region reduce overall per capita vehicle travel, reduce air pollution, and maximize energy conservation in a relatively low-cost manner. Other benefits include road and parking facility cost savings, user financial savings, increased road safety, increased travel choice, and increased equity.

Transportation demand management and parking management strategies have historically been focused on the downtown area and the Lloyd District. The primary strategies were designed to reduce automobile trips, encourage transit use, and discourage commuter parking through a variety of parking pricing strategies, regulations, and employer incentive programs.

More recently, demand management activities have spread throughout the City and region. While transit is the main focus in diverting trips from single-occupant vehicles, over three dozen common TDM strategies are available. The City, Tri-Met, Metro, DEQ, and transportation management associations (TMAs) are pursuing a number of these approaches.

Requirements

Transportation Planning Rule

The state Transportation Planning Rule (TPR) defines transportation demand management as “actions which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity. Methods may include but are not limited to the use of alternative modes, ride-sharing and vanpool programs, and trip-reduction ordinances.”

The TPR contains requirements specific to transportation demand management and parking management. The basic requirement is to have a demand management plan and a parking plan. The two plans should do the following:

- Show achievement of a 10 percent reduction in the number of parking spaces per capita over a 20-year period.
- Show achievement of a 10 percent reduction in vehicle miles traveled (VMT) per capita over a 20-year period.
- Show achievement of an additional five percent reduction in VMT within 30 years of adoption of the Transportation System Plan (TSP).
- Establish minimum and maximum parking regulations.
- Be consistent with demand management programs, transit-oriented developments, and planned transit service.

If jurisdictions choose alternative standards instead of the VMT reduction standard, the Land Conservation and Development Commission (LCDC) can authorize alternative standards to demonstrate progress towards achieving reduced reliance on the automobile. Metro is choosing to use an alternative method that relies on non-SOV (single-occupant vehicle) split targets rather than VMT reduction.

In lieu of meeting the 10 percent reduction in parking spaces per capita, jurisdictions may use ordinances to reduce parking, as follows:

- Reduce minimum off-street parking requirements for all non-residential uses from 1990 levels.
- Allow provision of on-street parking, long-term lease parking, and shared parking to meet minimum off-street parking requirements.

- Establish off-street parking maximums in appropriate locations, such as downtowns, designated regional or community centers, and transit-oriented developments.
- Exempt structured parking and on-street parking from parking maximums.
- Require that parking lots over three acres in size provide street-like features along major driveways (including curbs, sidewalks, and street trees or planting strips).
- Provide for designation of residential parking districts.



Employee Commute Option Rule

The Oregon Environmental Quality Commission adopted the Employee Commute Option (ECO) Rule in July 1996 in response to the Federal Clean Air Act. The rule requires employers with 50 or more employees at a single site to reduce vehicle commute trips to their site by 10 percent over three years. The ECO Rule is part of the region's Ozone Maintenance Plan (OMP). Although due to expire in 2006, its requirements will likely be part of a new OMP after that date.

Urban Growth Management Functional Plan

Title 2, Regional Parking Policy, of the Urban Growth Management Functional Plan (UGMFP) is intended to make more efficient use of land and encourage the use of non-SOV modes by restricting the construction of new parking spaces. It requires local jurisdictions to:

- Place an upper limit on the amount of parking that local governments can require for specified land uses.
- Adopt parking maximums no greater than those established by the regional parking ratios for specified land uses.
- Develop large parking lots (over three acres) with 'street-like features' such as curbs, sidewalks, and trees in planting strips

The intent is to link parking minimums and maximums to the availability of transit and the pedestrian environment. Title 2 establishes two zones for the region: one where 20-minute peak hour bus service or light rail is easily accessible and one where this service is not available.

Jurisdictions can determine parking standards that make sense for their communities, but they must substantially comply with the regional adopted limits specified in Title 2. If a jurisdiction chooses to vary from the Title 2 requirements, it must show that its parking regulations, as a package, substantially meet the intent of Title 2. The implementation

section of this modal plan (page 5-148) details the regulations the City of Portland adopted in October 2000 to meet these requirements.

2000 Regional Transportation Plan

The 2000 Regional Transportation Plan (RTP) establishes 2040 regional non-SOV modal targets, as shown in Table 5.11.

**Table 5.11
2040 Regional Non-SOV Modal Targets**

2040 Design Type	Non-SOV Modal Target
Central City	60 – 70 percent
Regional Centers Town Centers Main Streets Station Communities Corridors	45 – 55 percent
Industrial Areas Intermodal Facilities Employment Areas Inner Neighborhoods Outer Neighborhoods	40 – 45 percent

Note: The targets apply to trips to and within each 2040 design type. The targets reflect conditions appropriate for the year 2040 and are needed to comply with TPR objectives to reduce reliance on single-occupant vehicles.

The alternative mode share targets are intended to be goals for cities and counties to work toward as they implement the 2040 Growth Concept at the local level. They may also serve as performance measures in “areas of special concern” (see the Motor Vehicle Modal Plan in this chapter). Improvement in non-SOV mode share will be used as the *key regional measure* of assessing transportation system improvements in the Central City, regional centers, town centers, and station communities. In other 2040 design types, non-SOV mode share will be used as an *important factor* in assessing transportation system improvements. Local mode share targets can be no less than the modal targets shown in Table 5.10. In addition, local jurisdictions must identify actions in local TSPs that will result in progress toward achieving the non-SOV modal targets. The actions should include consideration of maximum parking ratios, regional street designs, transportation demand management strategies, and transit’s role. Benchmarks to evaluate progress toward achieving modal targets may be based on future RTP updates and analysis if local jurisdictions cannot generate benchmarks as part of their TSPs.

Three regionally adopted RTP policies are relevant to the TDM/parking modal plan:

- Policy 19, Regional Transportation Demand Management, and its objectives are aimed at the regional role in improving access to alternatives to SOV driving, including promoting transit-supportive design and TMAs, establishing mode split targets, and investigating the use of market-based strategies to encourage more efficient use of resources.
- Policy 19.1, Regional Parking Management, supports efficiently managing the use of public and commercial parking through minimum and maximum parking ratios,

adopting parking management plans, and conducting studies of market-based strategies such as parking pricing and employer-based parking cash-outs.

- Policy 19.2, Peak Period Pricing, deals with managing and optimizing the use of highways to reduce congestion, improve mobility, and maintain accessibility. The Metro-led Traffic Relief Options Study, completed in 1999, examined the potential of roadway pricing to meet regional transportation, environmental, and land use goals. The study determined that pricing certain roads would achieve these goals, but did not recommend pricing existing roads at this time. The study did recommend pursuing a pilot project in the near future, particularly where new roadway capacity is being constructed.

Oregon Highway Plan

The 1999 Oregon Transportation Commission requires local TSPs to be consistent with certain policies of the Oregon Highway Plan. The policy applicable to TDM is 4D, Transportation and Demand Management, which states: “It is the policy of the State of Oregon to support the efficient use of the state transportation system through investment in transportation demand management strategies.”

Approach to Mode

Successful TDM implementation requires a package of strategies, programs, and measures. As shown in Table 5.12, these include, but are not limited to, enabling programs, alternative mode improvements and encouragement, driving disincentives, parking programs, marginalizing user costs and reducing auto ownership, and linking transportation and land use.

Marginalizing user costs means making the driver pay for more of the costs associated with driving – road damage, congestion, parking facilities, accident damages, and environmental damages.

The City’s approach to TDM and parking management has focused on working with employers to create TDM programs for their employees. The City is now expanding its focus to also develop strategies and policies that encourage transportation options such as walking, biking, ridesharing, transit, telecommuting, and smart use of the automobile. In the coming years, the approach will include education, outreach, promotion, removing physical and perceptual barriers, providing incentives to target audiences, and creating and supporting partnerships and initiatives that promote transportation options. This approach is reflected in the following objectives:

- Work with employers to create programs for their employees to reduce SOV trips and increase use of carpooling, transit, and non-motor vehicle modes.
- Continue with the K-5 curriculum, and develop and implement a strong middle school and high school curriculum. Use interactive programs that illustrate the impacts of transportation choices on personal safety, health, and the environment, with a long-term goal to change travel behavior.
- Continue to develop and implement adult education programs such as the Portland State University traffic and transportation class designed for citizen activists to learn about and get involved in Portland transportation issues.

- Continue successful outreach programs to teach residents about safe and convenient places to ride or walk in their neighborhoods.
- Develop new outreach programs and collateral materials to promote and deliver trip reduction strategies.
- Work with employers, primarily through TMAs, to develop strategies and create programs for their employees to reduce SOV work trips.
- Work with businesses and employees in key employment and other regional 2040 centers to develop customized multi-modal transportation programs.
- Continue the use of parking controls.

**Table 5.12
Transportation Demand Management (TDM) Measures**

Enabling Programs	Alternative Mode Improvements and Encouragement	Driving Disincentives
<ul style="list-style-type: none"> • Comprehensive market reforms • Market TDM • Commute trip reduction • Transportation management associations (TMAs) and coordinators • Monitor travel 	<ul style="list-style-type: none"> • Transportation allowances /subsidized transit passes • Park & Ride facilities • HOV facilities and preferential treatment • Transit service improvements • Rideshare programs • Free transit zones/shuttle services • Bicycle improvements • Pedestrian improvements • Bike & transit integration • Teleworking • Alternative work hours • Guaranteed ride home 	<ul style="list-style-type: none"> • Full-cost pricing • Mileage fees • Increased fuel taxes • Road pricing • Vehicle restrictions
Parking Programs	Recognizing user costs and reducing car ownership	Land Use Management
<ul style="list-style-type: none"> • Increased and marginalized parking prices • Cash-out free parking • Reduced and flexible parking requirement • Preferential parking for rideshare vehicles 	<ul style="list-style-type: none"> • Prorate insurance, licensing & registration by mileage • Distance-based vehicle purchase taxes • Encourage vehicle rentals and ownership cooperatives 	<ul style="list-style-type: none"> • Higher density/mixed use/growth management • Neotraditional neighborhoods & transit-oriented development • Traffic calming • Transportation-efficient development & location-efficient mortgages

Source: PKM/TDM and Parking Management Approach to Mode

Policy Framework

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan contains statements that guide how the City plans and implements improvements. These statements are ordered from the general to the specific as goals, policies, objectives, and action items. Goals, policies, and objectives are formally adopted by City Council ordinance. Action items are adopted by resolution and provide guidance for future activities.

Most policies relating to transportation are found in the Transportation Element of the Comprehensive Plan, which encompasses Goal 6, Transportation, Goal 11B, Public Rights-of-Way, and the Central City Transportation Management Plan. The Transportation Element has been completely rewritten as part of the TSP, and the policies and objectives that relate to transportation demand management and parking are identified below.

Goal 6 Transportation

Several policies and objectives under Goal 6 relate to transportation demand management and parking. (The complete text is contained in Chapter 2 of this document.)

Policy 6.15, Transportation System Management, states in Objective A:

Reduce and manage automobile travel demand and promote transportation choices before considering the addition of roadway capacity for single-occupant vehicles.

Policy 6.26, Parking Management, is the overall policy that addresses parking and relates to TPR parking requirements. It states:

Manage the parking supply to achieve transportation policy objectives for neighborhood and business district vitality, auto trip reduction, and improved air quality.

Objective A of this policy states:

Implement measures to achieve Portland's share of the mandated 10 percent reduction in parking spaces per capita within the metropolitan area over the next 20 years.

Policy 6.27, On-Street Parking Management, directs the City to:

Manage the supply, operations, and demand for parking and loading in the public right-of-way to encourage economic vitality, safety for all modes, and livability of residential neighborhoods.

The City's goal is to ensure that on-street parking is provided or retained where it is needed to support economic vitality of established commercial districts and neighborhoods.

Policy 6.28, Off-Street Parking, establishes the policy basis for zoning code regulations for minimum and maximum parking ratios, as required by Title 2 of the UGMFP. Its objectives

address how parking needs vary depending on the availability of transit, and how limitations on new parking can help achieve land use, transportation, and environmental goals. The policy states:

Regulate off-street parking to promote good urban form and the vitality of commercial and employment areas.

Policy 6.29, Travel Management, is the primary policy addressing demand management and the impacts of traffic and parking, particularly on neighborhoods. The policy states:

Reduce congestion, improve air quality, and mitigate the impact of development-generated traffic by supporting transportation choices through demand management programs and measures and through education and public information strategies.

This policy and its objectives address the range of measures that reduce the demand for parking and reduce vehicle miles traveled. Transportation demand management measures are key to ensuring the compatibility of institutions with the neighborhoods where they are located. The policy and objectives are implemented through conditional use and impact mitigation plan approval criteria in the zoning code.

Policy 6.34, Congestion Pricing, describes the City's role in supporting a regional, market-based system to price or charge for auto trips during peak hours.

District TDM/Parking-Related Policies and Objectives

District-specific objectives addressing parking and TDM strategies are contained in Policy 6.35 through Policy 6.41 for the seven Transportation Districts: North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest. Selected objectives are listed below; the complete text of district policies and objectives is provided in Chapter 2. Policies for the Central City are discussed separately.

- North – Improve parking management within the St. Johns Town Center and at Portland International Raceway. (Policy 6.34, Objective O)
- Northeast – Work with Tri-Met and businesses to encourage the use of alternatives to automobiles, particularly in the Columbia Corridor, through transit service improvements and incentives and transportation demand management techniques such as flexible work hours, telecommuting, carpooling, and vanpooling. (Policy 6.35, Objective F)
- Far Northeast – Resolve the long-term future of the park-and-ride facility at the Gateway transit center to reinforce the Gateway regional center's long-term vitality. (Policy 6.36, Objective E)
- Southeast – Support the livability of Southeast neighborhoods by improving the efficiency of parking and loading in commercial areas and by reducing commuter parking in residential areas. (Policy 6.37, Objective N)

- Far Southeast – Consider implementing parking controls in the vicinity of light rail stations where commuter parking is impacting nearby residential neighborhoods. (Policy 6.38, Objective E)
- Northwest – Support a range of strategies in the high-density portions of the district parking issues, including commuter and event parking impacts. (Policy 6.39, Objective F)
- Southwest – Evaluate the transportation impacts on adjacent neighborhoods when considering increases in development potential of large new or redeveloping areas, and include mitigation measures in development plans. (Policy 6.40, Objective D)

Goal 11B, Public Rights-of-Way

Policy 11.12, Performance Measures, identifies criteria for measuring progress in achieving transportation goals. Objective E states:

Use a set of benchmarks to measure progress toward attaining the Transportation Planning Rule goals of reduced vehicle miles traveled per capita and reduced parking spaces per capita.

Chapter 15, System Performance, of Volume II of the TSP contains the benchmarks for this objective and others under Policy 11.12.

Central City Transportation Management Plan

The 1995 Central City Transportation Management Plan (CCTMP) is the transportation system plan for the Central City. One of its primary goals is “minimizing the demand for parking without negatively impacting development opportunities by managing long- and short-term parking and providing incentives to encourage the use of alternative modes.” The CCTMP has numerous policies and objectives that address parking and demand management.

The parking policies in the CCTMP are critical in setting the policy stage for the parking regulations found in the Central City Plan District chapter of the zoning code. The concept of the policies is to:

- Constrain the parking supply to encourage the use of alternatives to the automobile.
- Establish a system of parking ratios for office uses throughout the Central City.
- Manage on-street parking to support land use activities and mitigate impacts on adjacent neighborhoods.

The demand management policies of the CCTMP are intended to increase the availability of transit and support ridesharing, walking, and bicycling in the Central City. The emphasis is on supporting new demand management programs and working with Tri-Met and other organizations to promote alternatives to driving.

The mode split policies of the CCTMP establish targets for transit by district and for walk/bike and rideshare for the Central City as a whole. The mode split goal for walk/bike trips is 10 percent for home-based work trip attractions by 2010. The rideshare goal for average auto occupancy is 1.3 person per vehicle for home-based work trip attractions by 2010.

Chapter 2 contains the complete text for the Central City goal, policies, and objectives.

Other TDM/Parking-Related Policies and Objectives

In addition to the Transportation Element, the following Comprehensive Plan policies and objectives address transportation demand management and parking. (Policies and objectives that relate to transit, bicycle, and pedestrian movement are detailed in the modal plans addressing those subjects in this chapter.)

Goal 2 Urban Development.

Policy 2.15, Living Closer to Work of the Urban Development Goal states:

Locate greater residential densities near major employment centers, including Metro-designated regional and town centers, to reduce vehicle miles traveled per capita and maintain air quality. Locate affordable housing close to employment centers. Encourage home-based work where the nature of the work is not disruptive to the neighborhood.

Goal 5 Economic Development.

Policy 5.4, Transportation System, states:

Pursue transportation and parking improvements that reinforce commercial, industrial and residential districts and promote development of new commercial, industrial, and residential districts.

Goal 7 Energy.

Policy 7.6, Energy Efficient Transportation, states:

Promote shared recreational use of school facilities and city parks, close-in recreation opportunities, and improved scheduling of events to reduce recreation-related transportation needs. (Objective D)

Work with the private and public sectors to increase the number of preferentially located parking spots available for carpools. Work with Tri-Met to promote their availability. (Objective I)

Match carpool riders and provide transit information to city employees. Promote public/private partnerships to increase employee ride-share, transit use, and flextime. (Objective J)

Policy 7.7, Telecommunications as an Energy Efficiency Strategy, and its objectives support telecommunications as a strategy to reduce the need for travel.

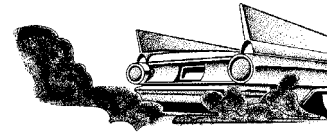
Investigate opportunities for city employees to allow off-site work and telecommuting, when appropriate. (Objective C)

Goal 8, Environment, Policy 8.4, Ride Sharing, Bicycling, Walking, and Transit, states:

Promote the use of alternative modes of transportation such as ridesharing, bicycling, walking, and transit throughout the metropolitan area.

Existing Conditions

Oregon's primary contribution to global warming is the burning of fossil fuels. Oregon generates about 40 million tons of carbon dioxide (CO₂) a year from all sources, with transportation contributing the largest share (about 53 percent).



One of the most significant barriers to a more sustainable transportation system is how motorists pay (or are subsidized) for their motor vehicle use. High fixed costs to purchase the vehicle, combined with low incremental user costs (e.g., free parking, free roads, and low motor fuel taxes), create hidden subsidies and incentives to driving. People need to know and experience the true cost of driving their cars. Even with these subsidies and low incremental costs, households in the Portland-Salem area spend more of their incomes on transportation than on any other category of expense except shelter.

Portland has a long history of managing downtown parking, adopting the Downtown Parking and Circulation Policy in 1975 (in response to the Federal Clean Air Act) and the Downtown Parking Management Plan. With the adoption of the Central City Transportation Management Plan (CCTMP) in 1995, the City expanded parking controls to the Central City area, while eliminating the 'lid' on parking downtown.

Parking Management Measures (Downtown Portland)

Parking Inventory

As of January 1999, there were 47,394 off-street and on-street spaces in the core area of downtown Portland, including 2,083 future spaces that have been approved by the City. Of the 35,645 existing off-street spaces (garages and lots), 32,194 (90 percent) are for commercial use and 3,451 (10 percent) are for residential and hotel use. Of the 6,215 on-street spaces, most (73 percent) are metered for 1 to 3 hours; only 8 percent are metered for over 4 hours or less than 1 hour. Fourteen percent are located in loading zones, and just over two percent are dedicated to other special zones, such as taxi, carpool, fire, and police.

As of January 1996, there were 8,121 off-street parking spaces in the Lloyd District. Over half (4,274) are located in garages, and over three-quarters (6,905) are for commercial use. The Lloyd District also has 1,118 metered spaces.

Carpool and Vanpool Parking

CITY-OWNED FACILITIES

To reduce the number of vehicles commuting to and parking in the Central City, the City offers conveniently located parking at a reduced rate for carpools. Tri-Met carpool staff

administer the various Central City carpool programs, using the spaces provided by the City. There are 1,284 carpool spaces available, and 889 of these are used.

PRIVATELY OWNED FACILITIES

Eight privately owned downtown surface lots currently provide a total of 150 carpool parking spaces. This program has reduced the number of vehicles commuting to downtown by approximately 80 vehicles.

SMARTPARK GARAGES

The City of Portland operates a system of six short-term parking garages downtown, providing over 4,500 parking spaces.

PARKING METER DISTRICTS

There are currently two parking meter districts in the City, one downtown and one in the Lloyd District. The districts are managed in accordance with the City's Parking Meter District Policy.

Area Parking Permit Programs

There are currently eight area parking permit programs – Goose Hollow (Zone A), Gander Ridge (Zone B); Homestead (Zones c, D and E); Lair Hill (Zone F); Central Eastside (Zone G); Northwest (Zone K). Expansion of the Northwest program is considering expanding its boundaries. Zone B will have its hours of operation expanded to include evening hours. Zone G boundaries may expand to SE 12th Avenue. Sullivan's Gulch and Irvington are considering permit programs in response to the recent expansion of Fareless Square to Lloyd District.

Transportation Management Associations

A transportation management association (TMA) is an organization of interested people – employers, institutions, and others – working together to address local transportation problems. There are five official TMAs in the region; of these, three are in Portland (Lloyd District, Columbia Corridor, and Swan Island.) The City's role is to provide technical assistance and funding. The operations funding for TMAs comes from the City, business improvement districts (if applicable), regional funds administered by Tri-Met, and private employer contributions.

Lloyd District Transportation Management Association

The Lloyd District TMA was formed in 1994, with federal and City of Portland resources, to provide trip reduction programs for employers in the Lloyd District. Trip reduction programs were critical to manage the access, mobility, and congestion problems expected to occur with the rapidly growing population and employment base in this business district. The TMA membership has developed from 10 to over 35 businesses, with a 12-member board of directors.

The TMA's focus includes improved public transit; ride sharing; alternative work hour programs; and programs promoting parking management, bicycle, and pedestrian measures. To accomplish these goals, the TMA partnered with the City of Portland and Tri-Met to develop the Lloyd District Partnership Plan, which includes the following elements:

- Implementation of Tri-Met's discounted employer transit fare program. Called PASSport, this program currently provides annual passes to over 44 employers in Lloyd District. In 2000, 6,000 employees participated, resulting in a reduction of nearly 4 million vehicle miles traveled annually.
- Implementation of a bicycle promotion and facilities improvement plan, resulting in a 38 percent increase in weekly bicycle trips since 1999 and the addition of 66 new bicycle parking spaces.
- A marketing and communications program, which has resulted in:
 - Thirty-five transit fairs and brown bags conducted at work sites within the Lloyd District since 1997, reaching over 3,000 employees.
 - Development of promotional and educational materials, which target employers looking for programs to help their employees use alternative transportation modes, and provide information and to employees about the variety of transportation options available to them.
 - Information centers, transportation coordinators, and a website to help the TMA provide information to district employees.
- Improved transit service for Lloyd District employees, including two new limited-stop, express route buses to the core of the Lloyd District; extension of Fareless Square to the Lloyd District; and the addition of Airport MAX service to the core of the Lloyd District.

The TMA also implements projects approved by the Lloyd District Revenue Allocation Committee. A portion of parking meter revenues is used to support implementation of the Lloyd District Partnership Plan, as well as to fund a number of other transportation-related projects and programs. The TMA recently voted to expand its services to include marketing and public safety.

Transit Management Alliance

The Transit Management Alliance is a program of the Columbia Corridor Association, an advocacy group for business and development interests in the Columbia Corridor. The Transit Management Alliance works with local businesses to create and promote commute options that improve employee access to Columbia Corridor businesses. The present area of focus is the airport area (north of Columbia Boulevard and Sandy Boulevard, from NE 33rd Avenue to NE 185th Avenue). The Transit Management Alliance operates a shuttle within the area bounded by NE 82nd Avenue, NE Airport Way, I-205, and NE Columbia Boulevard. Last year, the shuttle reduced vehicle miles traveled in the area by 10,008. The Transit Management Alliance is partially funded by regional transportation funds administered by Tri-Met.

Swan Island Transportation Management Plan

The Swan Island TMA began in 1999 and is partially funded by regional transportation funds administered by Tri-Met. Because there is limited access to major employers on Swan Island (such as Freightliner, UPS, Wanke Cascade, and WW Grainger), a major activity of the TMA is the ongoing effort to inform employers and employees about transportation options. In

2000, the TMA held over 20 transportation fairs to promote transit, the carpool incentive program, evening shuttle, and Car Free/CareFree week. The carpool incentive program encourages the use of commuter carpools, with a focus on swing and graveyard shifts. Funded by a regional Job Access grant, this program now has over 200 individuals registered in 100 carpools. An evening shuttle service links swing shift and graveyard shift employees to bus and MAX service from the Rose Quarter. The TMA also contracts with C-Tran to provide direct commuter service from Clark County. Swan Island programs have reduced annual vehicle miles traveled by 259,989.

Marquam Hill Transportation Partnership Plan

Adopted in August 1995, the Marquam Hill Transportation Partnership Plan is a joint effort to address transportation and parking problems on Marquam Hill and reduce auto trips to the area. The partners are:

- Oregon Health Sciences University
- Shriners Hospital for Crippled Children
- Veterans Affairs Medical Center
- Tri-Met
- City of Portland

The plan addresses regional ridership, mode split targets, local transportation and parking requirements, and the transportation needs of Marquam Hill. A Marquam Hill Oversight Board, with representation from the partner organizations and the Homestead neighborhood, was established to supervise implementation of the plan.

Major elements of the plan include:

- Introduction of an annual all-zone transit pass program, which health care providers make available to employees and students free or at a reduced price
- Introduction of three new am/pm direct express bus routes to Marquam Hill
- Introduction of a carpool matching program
- Introduction of a subsidized vanpool program
- Intensive use of marketing to promote the transit pass program, emergency ride home program, carpool and vanpool matching service, and new bus routes

The various data sources used to track progress and evaluate impacts of the plan indicate significant declines in the drive-alone mode and significant increases in transit usage. The plan is demonstrating that the strategies of a free transit pass, convenient bus service, strong marketing promotion of express bus service, promotion of carpooling, the availability of emergency ride home service, limited parking supply, and fees for parking can shift commuters from driving alone to other modes.

Car Sharing

Car sharing decreases auto dependence, VMT and vehicle emissions. It allows an individual to have the benefits of auto use, when needed, without the drawbacks of car ownership

(insurance, maintenance, car storage). While car ownership strongly encourages auto use, car sharing promotes auto use as one transportation option, along with transit, carpooling, biking, or walking.

The City recently promoted and coordinated a multi-agency effort to develop the first successful car sharing organization in the United States, which has become a model for car sharing organizations throughout the country. As of 2001, CarShare Portland operates 28 vehicles from 25 locations and has about 525 members. CarShare has been purchased by Flexcar of Seattle, which will expand the number of locations where its members can access vehicles.

Existing Deficiencies

Future population and employment growth projections indicate an increasing need to continue and expand on existing TDM programs and develop new programs, such as the web-based carpool/vanpool matching service, that will encourage a reduction in drive-alone trips. Parking limitations and pricing strategies will continue to be effective tools for reducing congestion and emissions.

Non-work trips that contribute to congestion and air pollution can be reduced by expanding Portland's TDM efforts into education, outreach, and neighborhood trip reduction programs.

Issues from District Needs Assessment

In fall 1998, the Portland Office of Transportation (PDOT) held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. Participants were asked to identify needed transportation improvements in their neighborhood and indicate their top three priority issues, or 'transportation values.'

Two of the top seven values identified in the workshops relate directly to transportation demand management: manage congestion and provide more transportation choices. Managing congestion was especially important in the Northwest, Northeast, Far Northeast, and Far Southeast Districts. Providing more transportation choices was a top priority in the Southeast District.

Systemwide Needs

The City was a partner with Metro and other local jurisdictions in a demonstration project financed by the Federal Highway Administration (FHWA) to determine if pricing roadways during peak traffic hours can help reduce congestion. Peak-period pricing is very effective in reducing congestion and improving mobility while limiting vehicle miles traveled and the need for new roads. Called the Traffic Relief Options (TRO) Study, the project was completed in spring 1999. The TRO Task Force recommended not to support peak-period pricing on existing roadways at that time. It recommended choosing a demonstration project for a new facility or new capacity on an existing roadway within two years.

Implementation Measures

Existing Regulations

Effective parking management has been part of the City's efforts to promote livability and economic vitality for many years. Existing parking regulations vary across the City.

Parking in the Central City is governed by a complex set of regulations intended to promote the use of alternative modes, support existing and new economic development, maintain air quality, and enhance urban form. These regulations were adopted as part of the 1995 CCTMP. Varying regulations and approval criteria apply, depending on whether the parking is to support existing or new development, is commercial parking not associated with a specific use, or is parking within a certain distance of light rail or the transit mall. A set of parking ratios limits the amount of parking for all uses downtown and for office uses in other districts of the Central City.

More recently, special parking regulations have been adopted for the Gateway plan district, Cascade/PIC plan district, and the Hollywood plan district. The intent of these regulations is to limit the amount of surface parking in order to support a compact urban form and reinforce use of transit and light rail. Light rail serves all three of the plan districts.

In October 2000, the City adopted new parking regulations to meet the requirements of Title 2 of the UGMFP. Because of the extensive parking regulations that had already been adopted, the City made only a few changes for the Central City. For the most part, the City's parking minimums were already consistent with Title 2 ratios. Several zones already allowed development without parking, and central employment (EX) and commercial office (CO1) zones were added. In addition, the minimum parking requirement for residential uses in the core area of the Central City plan district was eliminated.

Parking maximums already existed for all uses downtown; office uses in most other Central City districts; the Gateway, Cascade Station/PIC, and Hollywood plan districts; and EX and neighborhood commercial 1 (CN1) zones. The Citywide Parking Ratios Project adopted in 2000 added parking maximums for office uses in Central City districts that did not already have them (except North Macadam, which is establishing parking maximums through a separate process), and for most uses in all other areas of the City. The UGMFP suggests a two-tier approach to parking maximums. The City chose instead to apply one standard, but allows a higher parking maximum through a zoning code exception for areas located more than $\frac{1}{4}$ mile from 20-minute peak-hour bus service or $\frac{1}{2}$ mile from a light rail station. Structured parking is exempt from parking maximums, except for colleges and other institutions or where plan district regulations do not exempt them.

Through conditional use and conditional use master plan reviews (Chapters 33.815 and 33.820 of the zoning code), conditions of approval are often placed on large institutions, such as churches and colleges, to require a transportation demand management plan. The TDM plans are tailored to each institution to ensure that transportation impacts can be mitigated over time as the institution grows. Impact mitigation plans (similar to a conditional use master plan) specifically require TDM plans. Policy 6.29, Travel Management, of the Transportation Element of the Comprehensive Plan, supports the TDM plan requirement.

Proposed Code Changes

Chapter 6, Implementation Strategies and Regulations, contains the new Title 33, Planning and Zoning, language that specifically requires TDM plans as part of conditional land use reviews. This language makes it clear that TDM plans are an important part of the transportation strategy to support large institutions and other uses.

To comply with the UGMFP Title 2 requirement that parking lots over three acres in size have 'street-like features', new regulations are being added to Title 33. In addition to the 'street-like features', these large parking lots must have their 'streets' or driveways spaced to meet the connectivity requirements (every 530 feet) contained in the 2000 RTP.

To encourage carsharing, incentives are being considered to encourage developers to provide parking for carsharing vehicles. A pilot project to allow carsharing vehicles to have designated on-street parking may be expanded to apply more widely.

Projects

The City will continue to support existing TMAs in Gateway, Swan Island, the Columbia Corridor, and Marquam Hill, as well as the development of new TMAs in other areas. The structure and the types of City participation differ for each TMA. City involvement may include funding, advice about forming the TMA, serving on the membership board, policy development, project development, and other technical support. In exchange for the City's support, the TMAs provide outreach services.

The TSP project list includes financial support for TMAs. The RTP and TSP project lists both include the following TMA projects (not listed in order importance or funding priority):

- North Macadam (Project No. 20041)
- Lloyd District (Project No. 20032)
- Gateway regional center (Project No. 50021)
- Swan Island (Project No. 30052)
- Columbia Corridor (Project No. 40033)

Programs and Strategies

The City of Portland currently implements a number of trip reduction programs to reduce congestion and improve air quality. This section identifies existing programs that should be continued and expanded, as well as new programs and strategies to support the City's parking management and TDM goals and objectives.

Parking Meter Districts

Parking meter districts are managed according to the district's parking management needs. By requiring users to pay to park, meter districts encourage the public to consider alternatives to driving to these districts.



Parking meters can be a useful tool for discouraging commuter or special event parking and ensuring that customer or residential parking is available in a timely manner. Generally, the lowest priority is to allow all-day on-street parking by commuters. The City will continue to explore opportunities for installing on-street parking meters in business districts of the Central City and in other inner-city commercial and residential areas.

In less dense commercial areas, on-street parking is managed with signage that limits the time a vehicle can park. It is difficult to effectively enforce these time limits without high-cost staffing to document violations. Parking meters are a more efficient and effective technique for achieving turnover of parking spaces.

Although meter districts are a source of revenue for the transportation system, the rates are set to support the economic vitality of the commercial district or to allocate scarce parking resources, rather than primarily to generate revenue. The revenues go first to pay for capital and operating costs of the meter system. Operating costs include initial costs to mitigate parking impacts on adjacent neighborhoods if that should occur. After capital and operating costs are covered, remaining revenues may be allocated to support transportation services within the district and potentially citywide. These transportation services may include:

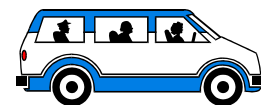
- Improvements in adjacent neighborhoods to offset the direct impacts of the meter district
- Public education programs to promote non-auto modes of travel
- Improvements to the pedestrian environment
- Maintenance and improvement of the right-of-way within the district
- Development of short-term off-street parking facilities
- Promotion of transit service and support of alternatives to standard transit service
- Programs to reduce the demand for parking

SmartPark Garage System

The City of Portland develops and operates a system of short-term parking garages that provide affordable parking for retail shoppers and visitors to the downtown area. This helps encourage downtown visitors, increase downtown viability and opportunities for development, and reduce auto emissions (since shoppers are less likely to circle City blocks in search of an on-street, metered space). Net revenue from the SmartPark system is used to finance a variety of transportation-related projects, such as the streetcar.

Carpools and Vanpools

Several carpool programs in Portland are designed to reduce the number of vehicles commuting to and parking within certain areas of the City. Carpooling is encouraged as an alternative to single-occupant commuting, especially for people traveling from destinations not well served by transit.



The City has partnered with Tri-Met since 1977 to offer discounted parking for carpoolers to downtown and the Lloyd District. The City provides both off-street and on-street parking spaces, while Tri-Met administers the monthly permit program and assists with carpool matching and marketing through employer outreach efforts. Carpoolers must carpool with the required number of members – (two or three-plus members, depending upon parking facility requirements) at least one way to or from work or school, at least four days a week.

Another City program establishes downtown carpool parking locations on privately owned surface lots, in accordance with a CCTMP requirement. Private operators contract with Tri-Met to sell carpool permits at a discounted price for a small number of spaces on each lot, subject to the CCTMP requirement. Some new development is also required to set aside carpool spaces in private parking facilities.

The City of Portland and Tri-Met have also developed an employer-paid carpool subsidy program called CarpoolCheck. The subsidy can be used by carpoolers in programs managed by Tri-Met, or used to pay private parking operators. Tri-Met manages CarpoolCheck, and five Central City employers (including the City of Portland) participate.

The City of Portland is currently developing a web-based ridesharing system. A coalition of over 20 public, private, and non-profit organizations participate in this project, which began September 1, 2001. CarpoolMatchNW.org is a self-serve, internet-based service that links riders and drivers from Salem to Vancouver, Washington. All transit, rideshare, and TMA organizations between Salem and Vancouver will be tied into this carpool/vanpool matching tool.

This new service addresses the three barriers to conventional carpool matching programs:

1. It is anonymous, so people can feel secure about finding fellow car and vanpoolers.
2. It is user-driven and does not depend on a coordinator to find suitable riders.
3. It is fast and convenient. People can find other riders in a few days, rather than in weeks or months.

Carpool, vanpool, and rideshare efforts should continue and expand in the following ways:

- Continue to explore opportunities to provide preferential carpool spaces on-street and in private parking facilities and public garages.
- Explore the possibility of a “School-Pool Program,” using the web-based rideshare system, for parents who drive their children to public and private schools. The School-Pool program would reduce the vehicle trips generated by parents whose children cannot walk or bicycle to school.
- Explore opportunities for turning small plots of temporarily unused land (such as ramps near highway projects, vacant lots, and land slated for new facilities) into vanpool parking lots. The spaces would ideally be available for about one year, with each parking lot eventually reverting to its owner for other uses.

- Explore opportunities to create vanpool loading zones in appropriate areas throughout the City.

Area Parking Permit Program

The Area Parking Permit Program (APPP) is used to control on-street commuter parking in areas adjacent to large employment centers, large attractions, or near major transit facilities. The program converts the on-street system to a limited time zone for all vehicles without permits. Permits are issued to residents and employees of the permit area. This program keeps out-of-district commuters from parking for free, then leaving the area to work, attending an event, or take transit to their final destination. The City has 10 programs bordering downtown and one in the Central Eastside Industrial District. Several more programs are under consideration.

Expanded Fareless Square

The fareless transit area, in place in the Central City since the late 1970's, expanded to a portion of the Lloyd District in September 2001. The program is funded by a combination of parking meter revenue, Tri-Met, and the Lloyd District TMA.

Recent planning for the Gateway regional center has included support for a 'circulator' – either a free bus that travels within the center or a combination of transit services that residents and employees could use within the area. Portland will continue to work with Tri-Met to develop this concept so some form of a fareless area will be in place by 2020. Fareless areas must meet Tri-Met criteria, such as having transportation and parking management plans, fees for parking, and an analysis of the costs and benefits to Tri-Met and the region.

Neighborhood-Based Programs

NEIGHBORHOOD RIDESHARE

Using federal funds, the City tested neighborhood-based rideshare matching and promotion as a possible way to overcome the barrier of sharing a ride with strangers and increase rideshare participation. Conducted with Central Northeast Neighbors, the project ended December 1998. It effectively showed the ability of a neighborhood to organize around the transportation needs of its residents and reduce SOV traffic from the neighborhood. Although there was interest in continuing the program, no funding is available at this time.

WALKING, BICYCLING, TRANSIT PROMOTION EVENTS

Bicycling and walking tours are held during the summer months to promote these modes. The Summer Cycle 2001 rides taught skills that make it easier to incorporate cycling into daily activities. Summer Walks 2001 tours showed people what makes Portland's neighborhoods livable and enjoyable to walk in.

NORTHWEST/RIVER DISTRICT TRANSPORTATION OPTION PLAN

The Northwest/River District Transportation Option Plan was developed to celebrate and encourage use of the Portland streetcar and other transportation options. The plan kicked off in July 2001 with the opening of the streetcar line, and is valid through December 2001. A central piece of the plan is the transportation options card, an incentive for residents of Northwest Portland to try one or more transportation options. The card is available to the first 1,000 residents who answer a short survey and order the card. It provides one-time offers of a free month transit pass, free use of the Portland streetcar, bike locker and Bike

Central discounts, and a CarSharing Portland membership discount. Six months after the card expires, the City will evaluate its use and its success as an incentive to try new transportation options.

City of Portland Employee Programs

TRIP REDUCTION INCENTIVE PROGRAM

The City of Portland began the employee Trip Reduction Incentive Program (TRIP) in 1995. TRIP includes a \$25 per month (pre-tax) bus pass and carpool parking subsidy. There are approximately 2,700 employees in downtown work sites and over 1,400 participants in some element of the program. Transportation's Bureau of Maintenance has a separate 'Passport' program that provides a 100 percent subsidy to its employees.

In addition to the transit and carpool elements, the City created a Bike and Walk Commuter Program in 1999 to offer City employees \$25 of additional (taxable) income per month. Employees who walk or bicycle to work at least 80 percent of their scheduled workdays are eligible for this benefit. The over 100 participants have reduced vehicle miles traveled in 2000 by 130,000.

As a result of these subsidies, City employees in the downtown complex have reduced their weekly auto trips by 20 percent. The auto trip rate before the program began has dropped from 33 percent to 26 percent, exceeding the target auto trip rate of 29 percent.

ALTERNATIVE WORK HOURS AND TELEWORK

Many employees work modified schedules or flex their schedules on an irregular basis. Telework is another management tool that can be used to increase productivity, reduce employee commute trips, and accommodate special needs of employees by allowing employees to work out of their home for part of the week.

The City of Portland adopted guidelines for a Telework program in 1995. These were updated and amended in 1996 and apply to all permanent City employees. Although not yet used extensively, the Telework program has demonstrated increased productivity, better time management, opportunities to balance home and work responsibilities, trust between managers and employees, employee retention, and improved employee morale. The Office of Transportation is developing a recommendation and proposed pilot program to implement the Telework program.

Clean Air Action Days

Clean Air Action (CAA) Days are days of voluntary action to reduce ozone precursor emissions (volatile organic compounds and nitrous oxides). When temperatures reach 90 degrees, the City, along with DEQ and other partners in clean air, promote actions and messages to encourage people to get to work without driving.

Education

During development of the TSP, the community expressed strong support for education activities for children and adults, with the emphasis on transportation choices and safety. Portland's transportation system includes nearly 300 miles of bikeways and 3,000 miles of sidewalks, as well as pedestrian trails, a state-of-the-art transit system, carsharing, and one of the first web-based ridesharing systems in the country. It is critical for residents and visitors to know about the options that are available.

PUBLIC SCHOOLS

Approximately five years ago, the City's Bureau of Traffic Management hosted a 'Reclaiming Our Streets' community forum at the Oregon Convention Center and designed the 'Reclaiming Our Streets' implementation guide. This guide outlines numerous trip reduction, education, and outreach activities to help promote the use of non-SOV transportation modes. The guide's education section recommends curricula for K-5, middle school, and high school.

The current 'Kids on the Move' K-5 education program focuses on safety, primarily because safety was the basis for a National Highway Traffic Safety Administration grant that helps fund the program. The curriculum also integrates lessons on alternatives to the SOV.

All five school districts within the Portland city limits have adopted the K-5 'Kids on the Move' curriculum. PDOT staff and police officers conduct bicycle and pedestrian safety workshops at the elementary schools, and 'Slow Down' banners are placed near the schools targeted for the workshops. During the summer, PDOT and the Bureau of Parks and Recreation conduct safety training at over 30 parks in the Play It Safe program.



The middle and high school curricula are being developed with interactive support programs, with implementation planned for 2002 and 2003. The long-term goal for the education program is to bring about behavior change by teaching children the impacts of their transportation choices. The curricula integrate messages that support alternatives to the automobile based on safety, health, and environmental considerations. io

OTHER EDUCATION PROGRAMS

PDOT also conducts several ongoing programs in cooperation with other organizations and agencies.

- **BTA Middle School Bike Safety Curriculum:** PDOT staff work with the Bicycle Transportation Alliance (BTA) on community outreach events in conjunction with BTA's curriculum and training program.
- **Portland State University Transportation Class:** A class taught in the spring and fall targets citizens and PSU students interested in how transportation works in Portland. PDOT staff act as guest speakers and participate in review of student projects.
- **Police Activities League:** PDOT participates in education activities aimed at disadvantaged youth.
- **After Schools Programs:** PDOT staff works with the Bureau of Parks and Recreation and the Community School Program to teach children about alternatives to the automobile.

Outreach

PDOT creates various written materials on transportation topics, including newsletters and promotional brochures. A web-based site (GettingAroundPortland.org) offers a wide range of transportation options available to residents and visitors, as well as on-line safety guide to biking, walking, riding the bus, and driving.

Special events throughout the year include summer cycle and walk events designed to teach people safe and convenient places to ride or walk in their neighborhoods. PDOT also participates in numerous special events at schools, transportation fairs, and parades.

Partners for Smart Commuting

Partners for Smart Commuting is a consortium of approximately 30 public agencies in Oregon and Washington. The group includes transit agencies, cities, counties, and state agencies, as well the participation of interested transportation management associations.

The main goal of Partners for Smart Commuting is to raise awareness about the effects of driving alone to work, such as air pollution, traffic congestion, gasoline dependence, and costs. Because the group members provide alternative transportation and promote energy conservation and environmental stewardship, they are dedicated to making an impact on people's transportation choices. By working together, the members can combine limited resources to help deliver an effective message through public service advertising.

Connections

The Connections program identifies problem areas, makes physical improvements (such as crosswalks, bus pads or shelters, improved signage, signal timing changes, audible signals, and tactile strips for the visually impaired), and completes missing segments of the existing citywide bikeway network. The program informs the most affected residents about the improvements and encourages their use by offering an incentive or promoting the improved access.

This approach can be used in a selected area or in conjunction with a larger capital project. One example is the linking of a Connections program to the opening of the Portland streetcar. PDOT coordinated marketing with Tri-Met and Portland Streetcar, Inc. to inform citizens about all their transportation options. This partnership program included improvements to other transit service and enhanced transit customer facilities: more shelters, signs, maps, and schedules at bus and streetcar stops; additional CarShare locations; additional bike racks; and a reinvigorated retail customer shop-and-ride program. The transportation options card was included as a key promotion incentive, offering the first 1,000 residents who signed up a free Tri-Met pass, streetcar pass, bike locker and Bike Central discounts, and CarSharing discount.

Future Projects and Programs

Transportation Center - Mobile Unit, Web Site, and Downtown Site

The Transportation Center is visualized as a place where Portland residents and visitors can learn about the variety of transportation options available to them and how to use them. The center will bring transportation partners together in a virtual and physical location. Using state-of-the-art technology, graphics, promotional opportunities, and events, this space will promote walking, cycling, transit, electric vehicles, trains, and the smart use of cars. It will have three different types of presence.

- A physical storefront, preferably downtown near light rail and streetcar
- An e-mobility center that uses the internet/web and kiosks at key locations to offer an easy information resource

- A mobile, traveling display with the same look and feel as the physical site, offering targeted information and services to specific audiences while promoting the web and downtown center

TravelSmart

The City is proposing a pilot project to test a pioneering method to reduce travel demand. Because changing travel behavior is a difficult task, this project will go beyond the customary approach of trying to bring messages about smart travel choices to individuals through advertising, public service announcements, workplace programs, and other traditional avenues.

Called 'TravelSmart', this approach has been implemented in South Perth, Australia, where it achieved a documented 14 percent reduction in VMT. It uses telemarketing to identify individuals interested in changing their travel habits. Based on the interest shown by the consumer, it then responds with individualized services about walking, cycling, or using public transportation. These services include information, follow up, and even home visits by trained volunteers to assist and motivate people to use their travel choices.

By focusing on willing participants, TravelSmart targets the people who are open to making changes in the way they travel and connects them with the resources they need. The TravelSmart Portland proposal will apply this approach for the first time in the United States.

Potential Strategies

Distance-Based Insurance

A truly efficient system of auto insurance would charge each driver a per-mile charge, based on the probability of having an accident as a result of driving an additional mile. This per-mile fee would differ by driver, based on driving records and other personal characteristics, the type of car driven, and the areas where most of the driving occurs (as is the case with insurance at present). A low-risk driver would have a lower per-mile (or per-minute) rate, while a driver in a high-risk class would have a higher per-mile (or per-minute) rate.

VMT or Emission Fee

No VMT or emission fees currently exist in Oregon. However, the concept is raised periodically as a potential method to reduce auto use. Many agree that the only real way to get people to leave their car at home is to make it more expensive to drive. Such a fee would be based on VMT, auto emissions, or a combination of both.

Parking Pricing and Taxation

The relationship between charging for parking and reduced auto use has long been established. It has been cited as one of the reasons for the high use of transit in downtown Portland. Additional parking charges or taxes have been suggested as a way to encourage alternatives to the auto in other parts of the region.

Gas Taxes

Gas taxes also increase the cost of driving and therefore reduce auto use. Because gas is still relatively inexpensive in this country, however, it would take significant increases in gas taxes to make an impression on the average driver.



Parking Cash-Out

Free employee parking has been shown to be important in an individual's decision to drive to work versus take another mode. Parking cash-out establishes a parking fee for employer-provided commuter parking and provides a transportation allowance that employees can use to pay for parking or transit, as a supplement to carpool or vanpool use, or as an incentive to walk or bike to work.

Location-Efficient Mortgage Program

The City is currently working with a group of housing and transportation agencies to study the value of the location-efficient mortgage (LEM) in the Portland area. LEM is a lending practice that increases the borrowing power of potential homebuyers in 'location-efficient' neighborhoods. Location-efficient neighborhoods are pedestrian-friendly areas with easy access to public transit, shopping, employment, and schools. The LEM recognizes that families can save money by living in location-efficient neighborhoods because the need to travel by car is reduced. Instead of owning two cars, a family could get by with one or none.

Potential benefits are support for transit-oriented development, reduced parking demand and requirements, and improved opportunities for home ownership. The work group is pursuing funding for a feasibility study, to be followed by a design and implementation phase.

Green Vehicles

Neighborhood electric vehicles (NEV) are designed for short daily trips within neighborhoods. The system is integrated with private vehicles and public transportation to reduce the burden that conventional vehicles place on the environment and alleviate various transportation problems, such as parking space shortages and traffic congestion, without making transportation less convenient. Twenty-five communities have tested NEVs, allowing residents to use the vehicles for all their daily needs for two weeks.

Existing research supports the implementation of NEVs. Fifty percent of all travel is less than 10 minutes in duration, and 80 percent of all trips are within 10 miles of home. Short, start-and-stop trips in conventional vehicles result in many cold starts and unnecessary hydrocarbon emissions, which can be alleviated with the use of NEVs.

Conclusion

Portland has long supported policies and programs to reduce transportation demand, and the region has adopted a policy of minimizing construction of new roads. Despite these efforts, however, vehicle miles traveled in the region continue to grow, and roads and highways are more congested than ever. As more people move to Portland and drive automobiles, the amount of CO₂ and other harmful emissions climbs. It is difficult to change individual behaviors to drive smarter and use alternative modes of transportation.

Current available funding is inadequate to implement the range of projects, programs, and strategies that can successfully reduce vehicle miles traveled and congestion. More money is spent each year in the United States to market the use of the automobile as the primary means of transportation than is spent to fund operations for all the transit systems in the country.

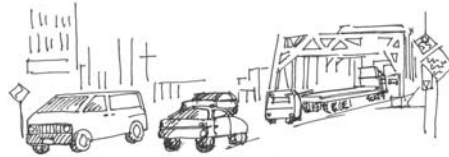
New legislation and the removal of barriers to TDM are needed to implement some of the more innovative approaches. A few examples of supportive legislation proposed in the most recent legislative session are parking cash-out, distance-based insurance, a bicycle commuter bill, and a business energy tax credit expansion.

No one approach to demand management will address the variety of reasons that the automobile is the mode of choice for most trips. Reducing the number and length of trips and/or changing the choice of trip mode will continue to be a challenge until motorists bear the true cost of driving and safe and convenient alternatives are widely available throughout the region. Portland will continue to take a leadership role in promoting TDM as one of the most cost-effective ways to address congestion, air quality, and livability issues.

TRANSPORTATION SYSTEM MANAGEMENT PLAN

Introduction

The size and complexity of our transportation network, expected regional growth, implementation of the 2040 Growth Concept, and the range of competing transportation system users create a challenge to Portland's livability and mobility. Increased demand on the transportation system will increase congestion unless preventive measures are taken.



Transportation system management (TSM) strategies provide a viable alternative to costly new construction or road widening projects. The City's Office of Transportation uses TSM to increase the efficiency, safety, or flow of traffic on transportation facilities. Like transportation demand management (discussed in a separate TDM/parking modal plan), TSM can optimize the performance of the City's transportation network without adding new infrastructure that is often much more expensive and disruptive while being constructed. Added capacity is gained through TSM measures such as intelligent transportation systems, facility design and modification, access management, signal timing changes and phasing, transit priority treatments, and other operation-oriented strategies. Other strategies, such as traffic calming and safety measures, support livability.

Requirements

Transportation Planning Rule

The state Transportation Planning Rule (TPR) requires jurisdictions to evaluate the potential for transportation system management measures to address transportation needs. The TPR defines TSM measures as

. . . techniques for increasing the efficiency, safety, capacity or level of service of a transportation facility without increasing its size. Examples include, but are not limited to, traffic signal improvements, traffic control devices including installing medians and parking removal, channelization, access management, ramp metering, and restriping of high-occupancy vehicle (HOV) lanes.

The TPR defines access management as

. . . measures regulating access to streets, roads and highways from public roads and private driveways. Measures may include but are not limited to restrictions on the siting of interchanges, restrictions on the type and amount of access to roadways, and use of physical controls, such as signals and channelization including raised medians, to reduce impacts of approach road traffic on the main facility.

The TPR requires new connections to arterials and state highways to “be consistent with designated access management categories.” Jurisdictions are required to adopt measures to “limit unintended effects on travel and land use patterns including access management.”

The TPR requires “for areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management.” Portland is separating this plan requirement into two modal plans: one for TSM and one for TDM/parking.

2000 Regional Transportation Plan

The City’s Transportation System Plan (TSP) must be consistent with the TSM policies of the 2000 Regional Transportation Plan (RTP). Policy 18.0, Transportation System Management, of the RTP supports the use of TSM techniques to optimize performance of the region’s transportation systems. The RTP emphasizes mobility on road segments between 2040 Growth Concept primary land use components, and access and livability within these designated areas.

The objectives of Policy 18.0 emphasize:

- a. Through-travel on major routes that connect the Central City, regional centers, industrial areas, and intermodal facilities
- b. An integrated, regional advanced traffic management system program to address:
 - Freeway management, such as ramp meters and automated incident detection
 - Arterial signal coordination, such as comprehensive signal timing
 - Transit operations, such as computer-aided fleet location and dispatch
 - Multimodal traveler information services, such as variable message signs
- c. Access management plans consistent with regional street design concepts
- d. Integration of traffic calming into new street designs
- e. Minor reconstruction consistent with regional street design to address roadway safety and operations

Section 6.6.3, Congestion Management Requirements, of the RTP apply to any amendments to the RTP to add significant single-occupancy vehicle (SOV) capacity to multimodal arterials and/or highways. Several factors must be considered before capacity is added. One of these factors is “regional transportation system management strategies, including intelligent transportation systems.”

The Portland TSP must comply with the elements of Section 6.7, Project Development and Refinement Planning, of the RTP. The development of projects that are on the regional system, but not identified as projects in the RTP, and not locally funded must include the following considerations:

...cities, counties, Tri-Met, ODOT, and the Port of Portland shall consider the following project level operational and design considerations during transportation project analysis: 1) Transportation system management (e.g.,

access management, signal interties, land channelization, etc) to address or preserve existing street capacity; 2) Street design policies, classifications and design principles.

This requirement is considered guidance for locally funded projects, rather than as a requirement.

Oregon Highway Plan

The 1999 Oregon Transportation Commission requires local and regional TSPs to be consistent with certain policies of the Oregon Highway Plan. The policies applicable to TSM are 3 A through E: Access Management.

- Policy 3A describes how the state will “manage the location, spacing and type of road and street intersections and approach roads on state highways to assure the safe and efficient operation of state highways consistent with the classification of the highways.” State highways are classified for varying degrees of access management.
- Policy 3B addresses the use of medians.
- Policy 3C describes access management at interchanges.
- Policies 3D and 3E describes how ‘deviations’ and ‘appeals’ to the access management standards are dealt with. The standards are contained in Appendix C of the Oregon Highway Plan.

Approach to Mode

The City’s primary approach to managing increased congestion is to manage existing transportation facilities more efficiently. The focus is on using TSM strategies to ensure the optimum efficiency of the City’s transportation network and support economic vitality and neighborhood livability.

The objectives of this approach are to:

- Manage operations of the street system to maintain acceptable levels of service on major arterials that connect the Central City, regional centers, industrial areas, and multimodal facilities.
- Coordinate with regional partners to develop an integrated, advanced traffic management system to ensure optimum efficiency and mobility during the morning peak-period incidents.
- Coordinate arterial and freeway operations with other agencies to ensure efficient operations of both types of facilities.
- Develop system management programs that provide flexibility in addressing anticipated future traffic growth with the implementation of the 2040 Growth Concept and other local land use decisions.

- Establish a transportation system management program that provides both mobility and accessibility for people, freight, and goods at all times.
- Reduce and manage automobile travel demand, and promote transportation choices, before considering the addition of roadway capacity for single-occupant vehicles.
- Employ transportation system management measures to improve traffic and transit movements and safety for all modes of travel, including coordinating and synchronizing signals.
- Integrate traffic calming elements into facility design and modifications to manage traffic on Neighborhood Collectors, Local Service Streets, along main streets, and in centers, consistent with their street classifications, functions, and desired land uses.
- Coordinate with the Oregon Department of Transportation (ODOT) to develop access management measures that do not adversely impact any transportation mode and are consistent with the functional classifications of the street where these measures are applied.

Policy Framework

City of Portland Comprehensive Plan

The City of Portland's Comprehensive Plan contains statements that guide how the City plans and implements improvements. These statements are ordered from the general to the specific as goals, policies, objectives, and action items. Goals, policies, and objectives are formally adopted by City Council ordinance. Action items are adopted by resolution and provide guidance for future activities.

Transportation Element Policies and Objectives

The Comprehensive Plan addresses a broad range of goals for the City. Most policies relating to transportation are found in the Transportation Element of the Comprehensive Plan, which encompasses Goal 6, Transportation; Goal 11B, Public Rights-of-Way; and the Central City Transportation Management Plan (CCTMP). The Transportation Element has been completely rewritten as part of the TSP, and the policies and objectives that relate to transportation system management are identified below.

Goal 6 Transportation

Several policies and objectives under Goal 6 relate to transportation system management. (The complete text is contained in Chapter 2 of the TSP.)

Policy 6.6, Transit Street Classification Descriptions, specifies where transit-preferential treatments are appropriate:

- Along the length of Regional Transitways and Major Transit Priority Streets
- At key intersections along Transit Access Streets

Access management is identified as an appropriate system management tool for Regional Transitways and Major Transit Priority Streets where needed to reduce conflicts between transit vehicles and other vehicles.

Policy 6.10, Emergency Response Street Classification Descriptions, Objective A, states that preferential or priority treatments are appropriate on Major Emergency Response Streets.

The Street Design classification for Urban Throughways identifies access management as a key operating characteristic for the smooth flow of traffic. Other street design classifications also address medians and access management to support the desired function of Regional and Community Corridors and of Urban Roads.

Policy 6.13, Traffic Calming, describes how traffic calming devices should be used to manage traffic and protect neighborhood livability. The intent of the policy is to balance the need for traffic to reach destinations efficiently with the need to implement the 2040 Growth Concept and support residential neighborhoods.

Policy 6.15, Transportation System Management, states:

Give preference to transportation improvements that use existing roadway capacity efficiently and improve the safety of the system.

Objective B addresses system management most directly:

Employ transportation system management measures including coordinating and synchronizing signals, to improve traffic and transit movements and safety for all modes of travel.

Policy 6.16, Access Management, defines how the City uses access management strategies. Access management is typically used on state-owned facilities to support the flow of traffic. It must be applied carefully to ensure that other transportation and land use objectives are not unfairly compromised. For example, not allowing curb cuts along a street may have a positive effect on traffic flow. If curb cuts are allowed on adjacent residential streets, however, traffic could choose to use those streets, with negative impacts on the neighborhood.

Policy 6.31, Truck Movement, Objective A, identifies street design and operating characteristic as ways to discourage truck through-traffic from using local residential streets.

DISTRICT TSM-RELATED POLICIES AND OBJECTIVES

District-specific objectives addressing transportation system management are contained in Policy 6.34 through Policy 6.40 for the seven transportation districts: North, Northeast, Far Northeast, Southeast, Far Southeast, Northwest, and Southwest. Policies and objectives related to TSM in the Central City are discussed in a separate section. Selected objectives are noted below; Chapter 2 provides the complete text of district policies and objectives.

- North – Improve truck and freight movement in North Portland through changes to the street system, street classifications, and signing to enhance the economic vitality of the area and minimize impacts on residential, commercial and recreational areas. (Policy 6.34, Objective A)

- Northeast – Encourage automobile and truck through-traffic to use major arterials at the edges of the district to reduce peak period traffic impacts and to preserve neighborhood livability. (Policy 6.35, Objective A)
- Far Northeast – Enhance the arterial street system by improving connections between Neighborhood Collectors and District Collectors and eliminating bottlenecks, such as rail crossings and viaducts, that contribute to intrusions into residential neighborhoods by commercial, industrial, and non-local traffic. (Policy 6.36, Objective A)
- Southeast – Direct interdistrict traffic to Regional Trafficways on the edges of the district, and manage traffic on Major City Traffic Streets and other arterials primarily through transportation system management measures. (Policy 6.37, Objective A)
- Far Southeast – Improve arterials through better signalization and intersection design to serve adjacent land uses and to provide for access to adjacent neighborhoods, while minimizing non-local traffic on local streets. (Policy 6.38, Objective B)
- Northwest – Limit transportation projects on West Burnside to those that reduce vehicle miles traveled, give preference to transit, improve pedestrian and bicycle access, or improve safety, but do not increase automobile capacity. (Policy 6.39, Objective H)
- Southwest – Improve the primary transportation function of SW Broadway Drive, SW Patton Road, SW Vista, SW Humphrey, and SW Dosch Road as Neighborhood Collectors by supporting pedestrian, bicycle, and transit use; calming traffic; and discouraging heavy volumes of non-local commuter traffic. (Policy 6.40, Objective B)

Goal 11B Public Rights-of-Way

The policies and objectives of Goal address the efficiency and safety of the transportation system.

Policy 11.8, Project Selection, identifies the correction of deficiencies and hazards as one criterion in project selection (Objective B).

Policy 11.12, Performance Measures, identifies safety and efficiency as two performance indicators with 5-year benchmarks. Benchmarks are used to evaluate the success of the TSP in achieving its goals.

Central City Transportation Management Plan

The CCTMP contains a number of policies that address transportation system management. TSM is particularly important within highly concentrated activity areas where there is very limited ability to expand system capacity. The following policies under Policy 2, Circulation and Access, address many aspects of system management:

- Policy 2.2, Modal Choice
- Policy 2.3, Priority for Transit
- Policy 2.4, Congestion Management
- Policy 2.6, Access Management to Increase Safety and Efficiency
- Policy 2.9, Central City Edges

Chapter 2 contains the complete text of these policies.

Other TSM-Related Policies and Objectives

In addition to the Transportation Element, the following Comprehensive Plan policies and objectives address transportation system management.

GOAL 5, ECONOMIC DEVELOPMENT

Policy 5.4, Transportation System, Objectives A, B, and C, support making transportation improvements that facilitate an efficient movement of goods and services in and out of Portland's major industrial and commercial areas.

GOAL 7, ENERGY

Policy 7.6, Energy Efficient Transportation, Objective C, states:

Support efforts to ensure the energy efficiency of the transit system, including good street maintenance and transportation system management.

Existing Conditions

The Office of Transportation uses a variety of strategies or combinations of strategies to optimize performance of the City's transportation facilities, improve transportation safety, and improve air quality. These programs are divided into four main categories:

- Facility Design and Modifications
- Access Management
- Intelligent Transportation System
- Safety Measures and Traffic Calming

Facility Design and Modifications

The City modifies existing roadways in many ways to address roadway safety and operations. Intersection modifications such as channelization, traffic control devices, prohibitions on turns, bus pullouts, traffic signal timing and phasing are used to improve the operational efficiency of an intersection without costly reconstruction of the entire roadway.

Channelization is used to ensure gradual and smooth transitions when traffic moves from one lane to another or onto a bypass or detour, or when land width is reduced. Channelization devices include, but are not limited to, striping, cones, vertical panels, drums, barricades, and barriers. Channelization is frequently used in construction zones to temporarily direct traffic into new pathways.

Larger street modifications can improve the operational efficiency of existing facilities without expensive reconstruction to add lanes. These can include traffic circulation changes such as creating one-way streets. Other modifications include removing on-street parking, either completely or only at peak times in the peak direction of traffic.

The City is working with Tri-Met to create 'Streamline' bus corridors along streets with high ridership. The number 4 bus line travels between St. Johns and Gresham over Fessenden,

Albina, through downtown, and along Division. The number 4 bus Streamline project includes changes to signals, stop consolidations, and lanes with 'no turn except bus' treatments at 10 locations. Other routes in the Streamline project include bus lines number 12 and 72. Other spot changes along bus lines that experience delays will include 'bus only' lanes at locations with multiple bus lines.

The City traffic control center can make traffic circulation and signal timing changes to optimize the efficiency of City streets, especially during special events and at construction and maintenance zones. This strategy helps quickly move traffic in and out of the Rose Garden before and after Blazers basketball games.

Access Management

Access management provides efficient and safe movement of traffic while also providing adequate accessibility to adjacent land uses. Both the City and state recognize the importance of controlling access to properties adjacent to highways and major arterials to ensure the facilities operate safely, efficiently, and at reasonable levels of service. The City implements access management strategies on a case-by-case basis as land use applications come in. Exceptions are: 1) Airport Way, which has an access management plan, and 2) a portion of NE Killingsworth Street, which has an access management plan, which was adopted in 2004. The actions and objectives set forth in the latter access management plan are specifically incorporated into this TSP. ODOT administers access management on state facilities, based on the state's access management standards, which are part of the 1999 Oregon Highway Plan.

The City's approach to access management considers more than the need to maintain traffic flow and safe turn movements in and out of driveways along arterials. If, for example, locating driveways off side streets would lead to traffic infiltration on local residential streets, the needs of neighborhood livability may be more important than traffic flow on the arterials.

Various chapters of Title 33, Planning and Zoning, include access management regulations intended to reduce conflicts with transit movements or support pedestrian-oriented development. Plan district provisions regulate areas of the City subject to access management, including the Central City, Gateway regional center, small areas along SE Powell Boulevard, and the Hollywood town center.

Title 17 regulates the location, number, and size of driveways. Driveways may be restricted where necessary to "insure the safe and orderly flow of pedestrian and vehicular traffic." Driveways may be required to be reconstructed or removed "for the protection or convenience of pedestrians or vehicles using the street." Access management tools could also be used to reduce conflicts with bicyclists, particularly where the City has installed bike lanes.

Intelligent Transportation System

In 1994, ODOT completed the Region-wide Advanced Traffic Management System Plan, which provides the framework for regional development of intelligent transportation system (ITS) operational strategies. Based on this regional framework and policies, PDOT developed the Intelligent Transportation System (ITS) Implementation Plan in June 1997.

This plan provides guidance on the use of modern technology to optimize performance of multimodal transportation facilities within the City. As a TSM tool, the ITS Implementation Plan allows the City to apply and integrate advanced technologies in innovative ways to manage arterial operations and traffic control systems, resulting in improved operation of arterial and other surface streets. The City’s ITS plan is built on the following vision statement:

- To maximize transportation productivity, mobility, efficiency, and safety
- To provide faster and better sharing of information between agencies and to the public
- To work as an integral member of a regional team using cost-effective ITS technologies and systems to promote efficient use of all mode of transportation

ITS strategies place more emphasis on technology than on major capital investments to provide the following potential benefits:

- Systematic monitoring and information sharing
- Improved management of traffic flows, congestion, and incidents
- Technologies and tools that allow interagency coordination to better manage and control roadway networks in real time or near-real time as a function of actual operating conditions

According to a 1995 report by Kittelson & Associates and DKS Associates, the 82nd Avenue Traffic Signal Coordination Improvements project (6.4 miles between NE Webster and SE Flavel) substantially smoothed traffic flow on 82nd and resulted in the following annual savings to weekday motorists:

- *Travel time saved: 182,221 vehicle hours*
- *Reduced number of stops: 25,501,500*
- *Fuel savings: 135,937 gallons*
- *Reduced carbon monoxide emissions: 173,650 pounds.*

Based on the project cost of \$50,000, a benefits-cost ratio of 4:1 was realized from fuel savings over just one year.

The City’s use of ITS for traffic management includes:

- Traffic monitoring
- Traffic control
- Traveler information
- Advanced Traffic Management System
- Ramp metering
- Bus priority measures

Traffic Monitoring

Traffic monitoring provides real-time monitoring of the City’s transportation network. The information is integrated into traffic control scenarios, traveler information, and emergency response. Closed circuit television cameras (CCTV) and vehicle detection systems are used to identify congested operating conditions and incidents as quickly as possible. This real-time information allows the City to make quick operational changes or traveler notification, including signal timing changes, incident clearance needs, and media traffic reports. This strategy also gathers and maintains traffic data that can be used for transportation system management plans or future modeling for transportation projects. As a result of ITS plan, the City currently deploys many detector loops and about 60 video cameras.

Traffic Control

Traffic control devices help ensure road safety by providing for the orderly and predictable movement of all traffic (both motorized and non-motorized) throughout the City's transportation system. As a TSM tool, properly designed and maintained advanced traffic control devices can provide optimum benefits for the movement of people, goods, and vehicles. As of 2001, the City maintains a series 2000 central traffic signal computer and a communication system that provide central control to 450 of the City's 950 traffic signals.

Traveler Information

Advanced Traveler Information Systems (ATIS) is an important element of the City's ITS plan. The City's Traffic Operation Center collects real-time information about the transportation network and distributes it to travelers and other agencies at work, at home, on web sites, and through the media. This information helps travelers make informed decisions regarding traffic conditions, transit schedules, routing information, and mode choices before starting their trips. More efficient trip-planning decisions help the transportation network operate more efficiently.

Advanced Traffic Management System

The Advanced Traffic Management System (ATMS) is another primary component of the City's ITS plan. Unlike regular traffic management systems of the early 1990s, ATMS works in real time, responds to changes in traffic flow, works with surveillance and detection systems, and integrates multiple functions, including transportation information, demand management, freeway ramp metering, and arterial signal control. The functions of ATMS and ATIS (discussed above) are interrelated. Both use real-time information to manage congestion, and both can collect and distribute information to travelers to help them make efficient trip-planning decisions.

ATMS requires collaborative actions among the City and other regional agencies, and requires rapid-response incident-management strategies. Based on ATMS, the City monitors traffic with a limited number of closed circuit TV cameras and several detection stations, and monitors and controls 450 of 950 signalized intersections from the Series 2000 central computer system in the City's Traffic Operation Center. This coordinated set of strategies combines all of the ITS strategies into a seamless system that can make instantaneous changes to respond to traffic conditions.

Ramp Metering

Ramp metering is used primarily to control access onto urban freeways. The green intervals are typically short, permitting only one vehicle at a time to enter. This improves operating efficiency on the freeway and minimizes the occurrence and impact of congestion.

Because ramp meters are on state freeways, they are managed by the state. However, the City's and state's traffic operation centers are able to communicate with each other about the impact of metering on the City's arterials.

Although the City supports its use where necessary, ramp metering must be balanced with the operational needs of City streets that connect to the ramps. If ramp metering forces traffic to back up onto City streets, the resulting congestion can have negative land use and livability impacts on adjacent areas.

Bus Priority Lanes

Bus priority lanes or exclusive bus lanes are commonly used to improve transit operating efficiency and on-time performance in areas with high congestion or side frictions (delays caused by vehicles interfering with bus movements). This strategy focuses on achieving maximum efficiency of persons (rather than vehicles) moved. When properly implemented, a bus priority lane can result in a 5 to 10 percent reduction in peak-hour travel time.

A secondary benefit is that this strategy increases transit visibility and recognition to motorists queuing in general-purpose lanes.

Safety Measures and Traffic Calming

Four types of measures are used to improve the safety of City streets for all modes and calm traffic:

- Ongoing monitoring of traffic conditions and location-specific monitoring based on community reports are used to design and implement appropriate safety measures.
- Education measures alert people to ways they can help ease safety problems such as speeding. Programs such as Neighborhood Speed Watch and the 'Slow Down' banners can target specific locations where problems occur.
- Enforcement is a TSM tool used by the Police Bureau. It includes traditional ticket writing and the high-tech SMART wagon (an unstaffed trailer that uses radar to monitor speeds and a reader board to show drivers how fast they are going).
- Engineering (when used to describe TSM measures) means using a variety of traffic calming devices to reduce the speed and/or volume of traffic. Along with enforcement and education efforts, traffic calming can substantially mitigate for the traffic volumes that are typical in a dense, urban environment. Because traffic calming measures force motor vehicles to slow down, they benefit pedestrians and bicyclists as well. Traffic calming techniques can also be used to protect neighborhood streets from cut-through traffic seeking to avoid delays caused by traffic incidents or congestion during peak hours.



Traffic calming devices must be selected and installed based on the specific problem being addressed. Some devices, such as speed bumps, have an impact on emergency vehicle response time and therefore are not used on Major Emergency Response Streets. Other traffic calming devices include traffic circles, traffic barriers such as diverters, special entrance treatments at key entryways into a neighborhood, pedestrian improvements such as curb extensions and medians, and bicycle lanes to reduce roadway width.



Traffic circle at NE 37th and Wisteria

As part of PDOT's reorganization in 1999, the Traffic Calming Program was consolidated with the operations section. Various program components (analysis, project management, engineering) were divided among task-specific groups. Recent traffic calming projects include NE Albina/Ainsworth, SW Corbett, SE Flavel, and school safety projects at Abernethy, Brooklyn/WinterHaven and Chief Joseph elementary schools.

PDOT, in partnership with the Traffic Calming Plan Citizen Advisory Committee (TCP-CAC), is engaged in the development of a Traffic Calming Master Plan (TCMP). This plan will define the role traffic calming has played in past to improve the livability of our community, describe the current state of traffic calming, and direct the future of traffic calming in Portland. The master plan will serve as an internal planning and design tool for PDOT in the provision of future traffic calming services. It will also serve as a reference guide and self-evaluation tool for residents seeking to address undesirable traffic conditions in their neighborhoods.

Existing Deficiencies

Issues from District Needs Assessment

In fall 1998, PDOT held TSP workshops in each of the Transportation Districts to gather information about transportation issues and community needs. Participants were asked to identify needed transportation improvements in their neighborhood and indicate their top three priority issues, or 'transportation values.'

Three of the top seven values identified in the workshops relate directly to transportation system management: manage congestion, provide connectivity, and safety and livability on local streets. Managing congestion was especially important in the Northwest, Northeast, Far Northeast, and Far Southeast Districts. Enhancing safety and livability on local streets (discussed primarily in regard to traffic speeds and the interaction between pedestrians and automobile traffic) was identified as a top priority in the Northwest, North, Northeast, and Southwest Districts.

Traffic Calming Needs

Beginning in the early 1990's, PDOT began compiling ranked lists – Streamline Speed Bump list, Local Service Complex list, and Neighborhood Collector list. Together, these lists identified more than 300 streets meeting minimum qualification criteria for traffic calming measures. In 1999, due to budget shortfalls, PDOT suspended additions to the list of projects and is no longer evaluating streets for potential traffic calming services. Currently, neighborhoods can receive traffic calming services through the Residential Speed Bump Purchase Program that allows residents to self-fund speed bump projects where their street meets minimum qualification criteria. Tables 5.13 and 5.14 list the high-ranking streamline speed bump and local service complex projects, respectively.

**Table 5.13
High-Ranking Streamline Speed Bump Projects**

Rank	Street	Segment	Posted Speed (MPH)	85% Speed (MPH)	Volume (vehicles per day)
1	NW Westover Rd	25 th to Cornell	25	38	2366
2	SE 41 st Ave	Holgate to Steele	25	37	2125
3	N Wall Ave	Lombard to Willamette	25	36	1295
4	N Alaska Ave	Foss to Chautauqua	25	36	1576
5	SW Barnes Rd	Burnside to Skyline	25	36	2289
6	N Woolsey Ave	Lombard to Willamette	25	35	2228
7	NE 114 th Ave	Halsey to Glisan	25	36	1316
8	SE 130 th Ave	Powell to Holgate	25	36	1845
9	SE 135 th Ave	Stark to Division	25	35	2146
10	SE Lincoln St	39th to 50th	25	35	1878

**Table 5.14
High-Ranking Local Service Complex Projects**

Rank	Street	Segment	Posted Speed (MPH)	85% Speed (MPH)	Volume (vehicles per day)
1	NE Shaver St	122nd to 141st	25	40	2615
2	N Schmeer Rd	Interstate to Whitaker	25	42	2774
3	NE Knott St	15th to 33rd	30	40	5581
4	N Denver Ave	Lombard to Interstate	30	38	8851
5	NW Westover Rd	25th to Cornell	25	38	2366
6	SE Duke St	82nd to 92nd	25	36	3743
7	NE 72nd Ave	Killingsworth to Prescott	25	36	3782
8	SE Hawthorne Bl	50th to 60th	25	35	4791
9	N Mississippi Ave	Skidmore to Interstate	25	36	3411
10	SE 135th Ave	Stark to Division	25	35	2146

Note: Streets that are on both lists means that although the street would benefit from only speed bumps, the street has also been identified as one that would realize a greater benefit from a more comprehensive traffic calming treatment, i.e., Complex project. Not all streets on the Complex list qualify for speed bumps, for example, high traffic volumes and roadway characteristics.

Signal Replacement

The replacement value of traffic signal hardware and controllers and other equipment is approximately \$98 million. The existing replacement rate for intersection hardware is not sufficient to adequately meet the need for replacements. If hardware is replaced at the current rate of 10 signals per year, 73 percent of intersection hardware will be in poor condition in the year 2020. Using the current replacement rate of 20 signal controllers per year, 70 percent of the controllers will be in poor condition by the year 2010. These numbers

do not take into consideration new signalized locations that may be added with the City due to future development, increased congestion and accidents.

Implementation Measures

Existing Regulations

Access Management

The Central City plan district regulations include access management on many streets to “enhance the street system’s overall efficiency and safety for motor vehicles, transit, bicycles, and pedestrians.” Access is prohibited (not allowed under any circumstances) in some cases; not allowed along the street in other cases; and not allowed within 75 feet of the street in other cases. Martin Luther King, Jr. Boulevard/Grand Avenue (99E) is a state facility where state access management measures also apply. Maps 510-9 of the Central City plan district regulations (Title 33, Planning and Zoning, Chapter 33.510) identify the access-restricted streets.

The Gateway plan district (Title 33, Chapter 33.526) states that motor vehicle access to any parking area or structure or loading area is not allowed from a light rail alignment unless the site does not abut another street.

The Hollywood plan district (Title 33, Chapter 33.536) restricts motor vehicle access along “enhanced pedestrian streets” unless the site has no other street frontage. The affected streets are NE Sandy Boulevard between NE 37th and NE 47th, and NE 42nd Avenue between NE Tillamook and the transit center north of the Banfield Freeway. NE Sandy is a state facility subject to state access management requirements. The purpose of these restrictions is to enhance and ensure the continuity of the pedestrian environment.

The Powell Boulevard plan district (Title 33, Chapter 33.565) encourages the consolidation of curb cuts where possible. Traffic access points from the frontage roads immediately south of Powell Boulevard are given preference over new access points directly onto Powell Boulevard. Powell Boulevard is a state facility subject to state access management requirements.

The Rocky Butte plan district (Title 33, Chapter 33.570) limits access to the “ring road” portion of Rocky Butte. For each 1,000 feet of property frontage abutting the ring road portion, no more than one intersection with a public or private street is allowed.

The NE Airport Way Access Management Policy applies to development along NE Airport Way. The intent of the policy is to promote traffic safety and flow, minimize new railroad and slough crossings, and provide a visually continuous median. City Council adopted this policy by Resolution No. 34846 in 1991.

Title 17, Public Improvements, regulates the number, location, and width of driveways. The City Engineer has authority to refer any driveway permit application to the City Traffic Engineer for review of the location and width. Table 5.14 identifies the minimum and maximum driveway widths allowed. No portions of a driveway, excluding ramps, can be within 25 feet from the corner of the lot where two streets intersect.

**Table 5.15
Driveway Widths**

Private Property Frontage¹	Minimum Width	Maximum Width
<i>Residential Driveways²</i>		
50 feet or less	9 feet	20 feet
51 to 75 feet	9 feet	25 feet
76 to 100 feet	9 feet	30 feet
<i>Commercial Driveways³</i>		
50 feet or less	10 feet	20 feet
51 to 100 feet	20 feet	30 feet

*1 Each 100 feet of frontage, or fraction thereof, under single ownership is considered a separate frontage.
 2 If more than one driveway is desired, with frontage up to 100 feet the maximum width of driveways can be 15 feet, with not more than two driveways, as long as five feet of straight curb separates the driveways.
 3 If more than one driveway is desired, with frontage up to 100 feet the maximum width of driveways can be 20 feet, with not more than two driveways, as long as five feet of straight curb separates the driveways.*

The City Traffic Engineer recommends conditions and limitations regarding the location and operation of driveways as necessary to ensure the safe and orderly flow of pedestrian and vehicular traffic. Driveways are regulated by use: residential (one to two units) and commercial (all other uses).

Proposed Regulation Changes

Amendments to Title 17 include reducing driveway widths in residential zones from 10 feet to 9 feet to match Title 33 requirements, and providing for street and pedestrian/bicycle connections through development sites consistent with connectivity requirements in land divisions.

Projects

The following TSP projects implement TSM measures (not listed in order of importance or funding priority):

- Barbur Boulevard ITS corridor (Project No.90014)
- Martin Luther King, Jr. Boulevard ITS corridor (Project No. 40058)
- Sandy Boulevard ITS corridor (Project No. 40069)
- 82nd Avenue ITS corridor (Project No. 40015)
- Macadam Avenue ITS corridor (Project No. 90046)
- Airport Way ITS corridor (Project No. 50016)
- Beaverton-Hillsdale Highway ITS corridor (Project No. 90019)

- Columbia Boulevard ITS between Burgard and I-205 (Project No. 30008)
- Lombard ITS corridor (Project No. 30035)
- 122nd ITS corridor (Project No. 50005)
- Cornfoot Road/Alderwood intersection improvements (Project No. 40035)
- Transit signal priority, citywide (Project No. 10003)
- SE 26th/Holgate, intersection improvements and traffic calming (Project No. 70004)
- 60th Avenue corridor safety (Project No. 70006)
- Central City TSM improvements (Project No. 20016)
- Clay/Martin Luther King, Jr. Boulevard intersection improvements (Project No. 20018)
- Everett Street between Park and 16th corridor safety (Project No. 60008)

Many other TSP projects include TSM elements to improve traffic flow and safety. Chapter 3 contains the complete list of TSM projects and project descriptions.

Other TSM Projects

Many TSM projects are too small to qualify for the TSP project list, but are important to the safe and efficient operation of Portland's streets. Very small-scale improvements, such as adding a stop sign or removing vegetation that blocks visibility, are not considered for capital funding. Instead, these small projects are addressed relatively quickly through ongoing Bureau of Maintenance (BOM) activities. Other projects that are neither addressed through BOM operations nor on the TSP list may be financed through the capital improvements plan (CIP). A sample of recent TSM projects that fall into this CIP category includes:

- SW Corbett traffic calming, Phase III
- Signal communication system (ongoing program)
- ITS signal system upgrade (ATMS)

PDOT has widely used traffic calming measures to slow traffic in Portland neighborhoods. Most recently, funds have been allocated to an Elementary School Safety Program to improve safety for children in school zones at public and private elementary schools.



Strategies

Chapter 4, Refinement Plans and Studies, of the TSP identifies the evaluation of ODOT district highways as a future study. The purpose of the study would be to devise a mechanism for transitioning district highways within the City limits to Portland's jurisdiction and management. For the most part, the district highways do not serve regional through traffic. The City's interest in assuming jurisdiction is based on land use (implementing 2040 main street development); development review (giving one agency permit authority for buildings and access); street design (incorporating multimodal features and calming traffic); and operations (implementing signalization and parking controls). There are significant costs associated with the transfer from ODOT to City authority including maintenance costs and bringing the highways up to City standards.

Conclusion

Managing the transportation system will increasingly be one of the most important tools to address population and employment growth in Portland. Funding limitations and community concerns have led to using transportation system management strategies to maximize efficiency, safety, and extend the useful life of the existing transportation network in a cost-efficient manner. New technologies allow the City to improve both traffic flow and transit operations.

Traffic calming, along with enforcement and education efforts, can help to ensure that neighborhoods are pleasant for residents, pedestrians, and bicyclists. However, recent budget reductions have significantly decreased the number of traffic calming projects being installed. The City is reviewing new local funding sources that will enable the City to reduce the backlog of traffic calming projects requested by neighborhoods and individuals.

IMPLEMENTATION STRATEGIES and REGULATIONS

6

INTRODUCTION

The Transportation System Plan (TSP) is a set of policies, strategies, projects, and procedures that guide the development and management of the transportation infrastructure. This chapter describes the existing and new tools that help implement the TSP policies and strategies. The chapter includes amendments to City codes, amendments to the City's Comprehensive Plan, project development procedures, street standards and guidelines, and practices that support sustainable infrastructure.

Amendments to City Codes and the Comprehensive Plan

Amendments to several City codes and the Comprehensive Plan help implement the TSP policies and strategies. Three City codes are amended – Title 16: Vehicles and Traffic, Title 17: Public Improvements, and Title 33: Planning and Zoning. In the Comprehensive Plan, minor word changes are being made to a few policies and objectives and three terms are being deleted to ensure that references and terms are consistent with the TSP. A summary of the code amendments and Comprehensive Plan amendments are included in this chapter. The text of the amendments is incorporated into the respective documents.

Project Development

Following the code and Comprehensive Plan amendments, this chapter summarizes the project development guidelines the Portland Office of Transportation (PDOT) uses to develop transportation projects; street standards and guidelines used to construct streets; and excerpts from a report on PDOT's approach to sustainable infrastructure.

Street improvements evolve from conceptual plans to final engineered construction plans through the final plan review process. Streets are designed to meet both street standards (number of lanes, width of sidewalk, pavement thickness) and traffic design criteria. The considerations for traffic design include driveway access, design speed, street grades, design vehicles/intersection geometry, guardrail design, street lighting, and traffic signals. The Design Guide for Public Street Improvements includes the City's traffic speeds policy. That policy elaborates on Policy 6.11, Street Design Classification Descriptions; Policy 6.13, Traffic Calming; and Policy 6.15, Transportation System Management (contained in Chapter 2 of this document).

Street Standards and Guidelines

Street standards and guidelines are derived from a number of documents, including:

- Pedestrian Design Guide
- Bicycle Master Plan—Appendix A
- Design Guide for Public Street Improvements
- Standard Construction Specifications

- Title 16: Vehicles and Traffic
- Title 17: Public Improvements
- Green Streets Handbook
- Oregon Department of Transportation (ODOT) Standard Specifications for Highway Construction
- American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement and Structures
- AASHTO Roadside Design Guide

The City's street standards are summarized in a new document called *Creating Public Streets and Pedestrian Connections through the Land Use and Building Permit Process*. The content of that document is provided in this chapter, but is not adopted as part of the Comprehensive Plan or City codes.

Sustainable Infrastructure

PDOT, the Bureau of Water Works, the Bureau of Environmental Services, and the Office of Sustainable Development have identified the elements of 'sustainable infrastructure'. This chapter's section on sustainable infrastructure summarizes sustainable practices relating to the transportation system.

CODE AMENDMENTS

This section contains a summary of code amendments for Title 16: Vehicles and Traffic, Title 17: Public Improvements, and Title 33: Planning and Zoning. The majority of the amendments make changes to terms and definitions to bring them into consistency with the TSP and the State Transportation Planning Rule (TPR).

The TPR directs local jurisdictions to:

adopt land use or subdivision regulations for urban areas to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely . . . and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.

Title 33 was amended in 2001 and 2002 to revise land division regulations that had previously been in Title 34: Subdivision and Partitioning Regulations. The changes to Title 17 mirror the connectivity regulations for land divisions and apply to land as it develops or redevelops, but not subdivided. The beginning of the section on Title 33 summarizes other code revisions to address TPR requirements. Some of these regulations are being modified to better accomplish the TPR and TSP goals of improving opportunities for alternatives to the automobile by providing convenient pedestrian and bicycle circulation and access to transit.

The combination of previous code changes and the changes summarized in this chapter fulfill the requirements of the TPR and Metro's 2000 Regional Transportation Plan (RTP) for regulatory changes.

Title 16: Vehicles and Traffic Amendments

The definitions in Title 16 use many different words to describe the concept of transportation within the context of what PDOT does. The intent of the amendments is to provide some simplification by reducing the number of words or phrases used. Reliance is placed most heavily on the term 'movement' as a function, modified by 'access' or 'through' when necessary; on terms applying to facilities, such as 'way', 'street', and 'road', and upon terms applying to the user of a facility, such as 'traffic', 'vehicle' (including bicycle), 'pedestrian', and 'goods'.

The definitions modified, deleted, or added to Title 16 are listed below:

16.90 Definitions

Alley (revised)
Bicycle Boulevard (new)
Bicycle Lane (revised)
Bicycle Path (deleted)
Bicycle Trail (deleted)
Bikeway, Shoulder (new)
Bikeway, Extra Width Curb Lane (new)
Bikeway, Off-Street Path (new)
Bikeway, Signed Connection (new)
Pedestrian (revised)
Pedestrian Way (revised)
Public Right-of-Way (revised)
Roadway (revised)
Street or Highway (revised)
Traffic (revised)
Traffic Lane (revised)
Vehicle (revised)
Way (new)

Title 17: Public Improvements Amendments

Title 17 gives the City Engineer authority to regulate activities in the right-of-way and to require new streets. Changes to Title 17 were made to ensure that as areas develop or redevelop, new street connections will be created and street improvements will be made to support the development. The requirements for connectivity mirror the language in the land division chapters of Title 33: Planning and Zoning.

The amendments to Title 17 are listed below:

Minor Wording Revisions

The changes listed below generally do not include major content change. For example, it updates zoning designations consistent with those in use in Title 33.

- 17.08.030 Scope of Improvements
- 17.24.230 Design Standards
- 17.26 Sidewalk Vendors
- 17.92.030 Designation of Streets, Avenues, Boulevards and Drives

Content Changes

The changes listed below involve technical changes, for example, expanding the transit mall to include the area north of Burnside, and content changes, for example, adding connectivity standards.

- 17.25 Sidewalk Cafes
 - 17.25.020 Definitions – Change mall boundaries
 - 17.25.030 Permit Fee – Take fees for sidewalk cafes out of Title 17
- 17.27 Kiosks
 - 17.27.020 Definitions – Change mall boundaries
- 17.28 Sidewalks, Curbs and Driveways
 - 17.28.065 Bicycle Parking – City Engineer may require bike parking as part of frontage improvements
 - 17.28.110 Driveways – Permits and Conditions –Reduce driveway widths to match Title 33; City Engineer may require shared driveways
- 17.45 Banner Standards – Change mall boundaries
- 17.52 Trees – Update street types
- 17.72 Parking Lots – Delete entire chapter
- 17.88 Street Access
 - 17.88.100 Purpose – Purpose statement added
 - 17.88.010 Definitions – Add definitions for ‘Exceptional Habitat Quality’, ‘Mixed-Use Area’, ‘Significant Alterations’
 - 17.88.020 For Buildings and Planning Actions – City Engineer may require frontage improvements for ‘significant alterations’
 - 17.88.030 Through Streets – Add connectivity standards to match Title 33; modified connectivity in areas of ‘exceptional habitat quality’
 - 17.88.050 Transportation Impact Study – Add section to allow City Engineer to require transportation impact studies and establish thresholds for an impact study (previously in the 1996 TE and Title 33);

Title 33: Planning and Zoning, Amendments

Title 33: Planning and Zoning, is intended to implement Portland’s Comprehensive Plan and related land use plans in a manner that protects the health, safety, and general welfare of the citizens of Portland. Title 33 applies to all land and water within the City, with some exceptions.

A number of changes to Title 33 have been made in the years since the TPR was first adopted in 1991. The changes in this chapter refine those changes as needed and include additional amendments to address requirements that were added to the TPR and RTP since that time.

The previous Title 33 amendments include:

1996 Amendments

- Setbacks from transit streets
- Main entrance orientation
- Ground floor window requirements
- Short-term and long-term bicycle parking
- Carpool parking
- Onsite pedestrian circulation
- Transit-supportive plazas substituting for required parking
- Limiting parking between buildings and transit streets

2000 Amendments

- Minimum and maximum parking ratios

2001-2002 Amendments

- Street connectivity in land divisions
- Pedestrian connectivity in land divisions

The amendments to Title 33 are listed below:

Update Terms

The changes made to provisions listed below typically update terms to match terms in Chapter 2 of this document. For example, the term 'light rail stop' changes to 'Transit Station' and 'pedestrian path' changes to 'City Walkway'.

33.120.030 Characteristics of the Zones
33.120.100 Primary Uses
33.130.230 Ground Floor Windows
33.130.260 Drive-Through Facilities – CN2 zonze
33.218.140 Community Design Standards
Table 266-3
33.410.030 Buffer Zone
33.505 Albina Community Plan District
33.510 Central City Plan District
33.526 Gateway Plan District
33.535 Johnson Creek Plan District
33.815.100 Uses in the Open Space Zone
33.840 Hazardous Substances Review
33.855.050 Zoning Map Amendments

Minor Changes

The changes made to provisions listed below typically are minor change to content but not to the policy intent of the provision. For example, the list of functions for open space zones is expanded to include providing pedestrian and bicycle connections consistent with pedestrian and bicycle classifications in parks.

33.100 Open Space Zone – Add new function to list
33.110.245 Development Standards for Institutions – Delete transit setback and refer to 33.130 for regulations

- 33.120.275 Development Standards for Institutions – Delete transit setback and use base zone standards in 33.130 for regulations
- 33.130 Characteristics of the Zones – Add orientation to pedestrians along transit streets and in Pedestrian Districts consistent with existing regulations
- 33.254.050 Mining and Waste-Related Uses – Add ‘hours of operation’ to information for a traffic study
- 33.258 Nonconforming Situations – Refer to applicable ‘pedestrian standards’ rather than ‘base zone’ standards
- Map 510-9 Parking Access Restricted Streets - Delete SW Columbia between SW 5th and Jefferson
- 33.654 Rights-of-Way - Add reference to consider master street plans in connectivity requirements
- 33.805 Adjustments – Add consideration of classification of adjacent streets for adjustments in non-residential zones
- 33.815 Conditional Use Master Plans – Add events and TDM strategies to transportation impacts
- 33.830 Excavations and Fills – Add truck routing plan to approval criteria
- 33.910.030 Definitions
- Arterial (revised)
 - Bus Stop (new)
 - Light Rail Line (revised)
 - Light Rail Alignment (revised)
 - Preferred Alternative Light Rail Alignment (revised)
 - Transit Station (new)
 - Transit Street (revised)
- 33.930.030 Measuring Distances – Add how to measure distance from bus stop or transit station

Substantive Changes

Transit and Pedestrian District Setbacks (33.110.245, Table 110-7, 33.120.220, Table 120-3, Figures 120-2, Figure 120-4, Table 120-5, 33.130.215, Table 130-3, Table 130-5, Figure 130-2, Figure 130-4, 33.140.215, Table 140-3, Table 140-5, Figure 140-2, Figure 140-4)

- No minimum setback
- Measure from property line rather than curb
- Add second standard to be met to have 100% of building facade within the maximum setback in some circumstances
- Add orientation to City Walkway where there are two non-intersecting transit streets and a street classified as a City Walkway
- ‘Create’ corners in Pedestrian Districts with orientation to intersecting streets

Alternative Maximum Setback Option for Large Retailers (33.130.215, 33.140.215)

- Add to purpose statement
- Create ‘street-like features’ rather than driveways

Pedestrian Standards (33.130.240, 33.140.240)

- Clarify that area between building and lot line be landscaped or hard-surfaced for pedestrian use in all C and EG1 and EX zones (except for parking areas)

Transit Street Main Entrance (33.130.242, 33.140.242)

- Require each tenant within transit street or Pedestrian District setback to have main entrance facing street

Drive-Through Facilities (33.130.260)

- Prohibit drive-through facilities in the CX zone (outside the Central City)
- Prohibit drive-through facilities in the EX zone (citywide)

Connectivity in Manufactured Homes and Mobile Home Parks (33.251.030)

- Require pedestrian circulation system in mobile home parks

Parking and Loading (33.266.110, 33.266.115, 33.266.130, 33.266.220)

- Eliminate minimum parking on sites within 500 feet of streets with 'high-quality' transit service (20-minute peak hour or better service)
- Add specificity to substitution of transit-supportive plazas for required parking (i.e., access easement; 5 feet of linear seating area; Tri-Met approval of shelter design)
- Small amount of motorcycle parking can substitute for some required auto parking
- Treat bus service and streetcar service the same for exceptions to maximum parking ratios
- Create 'street-like features' in parking lots over three acres in size in R, C, E, and IR zones
- Allow a connecting driveway between two sites in lieu of landscaping
- Change distance long-term bicycle parking can be located from site to 300 feet to same as auto parking

Park-and-Ride Facilities (33.10, Table 266-6, 33.815.222, 33.920)

- Treat park-and-ride facilities the same for land use review purposes whether on private property or in right-of-way
- Add approval criteria to conditional use chapter for park-and-ride facilities (33.815.222)
- Move park-and-ride facilities from Basic Utility to Community Service use category

Superblocks (33.293)

- Increase width of walkways to 12 feet
- Require access easement

Transportation Impacts (33.641)

- Move transportation impact study thresholds and elements to Title 17

Conditional Use Approval Criteria

- Revise approval criteria for transportation adequacy to be consistent and add in consideration of performance measures; connectivity; impacts on pedestrian, bicycle, and transit circulation; and demand management strategies (33.815.100, .105, .120, .121, .125, .126, .127, .128, .130, .140, .200, .205, .215, .220, .223, .230, .300, .301, .302, .303, .305, .310)
- Add transportation adequacy as approval criterion (33.815.110, .115)

Impact Mitigation Plans (33.848)

- Add requirement for on-site circulation system that meets connectivity standards
- Add parking mitigation requirement

Other Changes

Since 1992, the Transportation Goal (Goal 6) and its policies, district policies, the classification descriptions, and the classification maps have been used as approval criteria in the adoption, amendment or repeal of legislative land use decisions and in land use reviews processed as Goal Exceptions, Comprehensive Plan Map amendments, zone changes in compliance with the Comprehensive Plan, conditional uses and master plans. The TSP updates the approval criteria for adjustments, conditional uses, conditional use master plans, excavation and fill reviews, hazardous substances review, impact mitigation plans, and zoning map amendments to incorporate relevant transportation criteria. The relevant approval criteria for each review now incorporate the appropriate transportation policy issues.

The Transportation Goal, policies and objectives will continue to be used as approval criteria in legislative Comprehensive Plan text and map amendments, amendments to the zoning code (Title 33), neighborhood and area plans, and Statewide Planning Goal exceptions.

COMPREHENSIVE PLAN AMENDMENTS

Minor text changes were made to a limited number of Comprehensive Plan objectives. The intent of the changes is to update and clarify terms.

Chapter 2: Transportation Element of the Comprehensive Plan of the TSP documents the major changes being made to the Comprehensive Plan. Goals 6 and 11B are substantially rewritten, consistent with the TPR and the 2000 RTP. The Central City Transportation Management Plan (CCTMP) goal, policies, and objectives are not being rewritten at this time, but are included in Chapter 2. The CCTMP classification descriptions and maps are being revised and are also included in Chapter 2.

Other parts of the Comprehensive Plan, particularly the adopted neighborhood plans, contain references to Transportation Element classifications and terms. Changes to those plans are not being made as part of the TSP.

The amendments are listed below:

Goal 2 Urban Development

- Policy 2.12 Transit Corridors (update terms)
- Policy 2.13 Auto-Oriented Commercial Development (update terms)
- Policy 2.17 Transit Stations and Transit Centers (update terms)

Goal 5 Economic Development

- Policy 5.4 Transportation System, Objective D (update terms)
- Policy 5.7 Business Environment Within Designated Commercial Areas Objective E (update terms)
- Policy 5.10 Columbia South Shore, Objective F (change wording to make the objective consistent with the zoning code and the TSP)

Goal 12 Urban Design

- Policy 12.1 Portland's Character, Objective A (update terms)
- Policy 12.8 Community Planning, Objective A (update terms)

Appendix B Glossary

- Arterial Streets Classification Policy (delete)
- Local Improvement Districts (delete)
- Major City Traffic Streets (delete)

PROJECT DEVELOPMENT

Development and implementation of transportation improvement projects within Portland's boundary falls into three categories of responsibility: private, regional, and local. Private development builds a substantial share of Portland's transportation system through the permit process. PDOT approves and oversees construction of these projects, but is not directly responsible for the project development process. ODOT or Tri-Met manages transportation improvements to the regional system, such as freeways, highways and light rail. PDOT participates in the project development process, but does not directly manage these projects. Local projects occur in right-of-way owned by the City. PDOT is responsible for the implementation of these projects.

This section describes PDOT's process for developing and implementing local projects. PDOT formalized a project delivery system to provide a consistent process for implementing capital transportation improvement projects. The benefits include a well-understood process that engages citizens, improves communication, and ensures a project that meets the needs of its users. The process described below applies to major transportation projects and may be modified for smaller projects or those that do not have a planning component.

Policy Review

Transportation improvement projects are intended to support the City's Comprehensive Plan and the region's 2040 Growth Concept. It is therefore important for the project development process to be undertaken as a policy implementation tool. A project scope refers to the range of issues the project will be designed to address. A project's initial scope is guided by the existing policies specific to the facility being planned for improvement and to the project's study area. These policies either provide the desired functional and basic design characteristics of the study area's transportation system, or identify specific issues that need to be addressed through the project development process.

Policies 6.4 through 6.11 (Street Classification and Description policies) of the Transportation Element of the Comprehensive Plan establish the functional design characteristics of each street within the study area. The project must be consistent with the functional intent of the street classifications. It may also be necessary to fulfill some or all of the provisions of the 2000 RTP's Project Development Requirements section.

Other adopted policies, contained within either the Transportation Element, neighborhood plans, plan districts, or area planning documents, often require a specific issue, or set of issues, to be resolved as part of the project development process. Together, these street classifications and area-specific policies establish the preliminary scope of the project and a preliminary set of objectives for the plan development process to consider.

A number of planning documents also serve as guidelines for developing specific project design recommendations. These guidelines and standards refine the range of design options the project should consider. Documents that provide design guidance for project development include:

- Pedestrian Design Guide
- Bicycle Master Plan- Appendix A

- Design Guide for Public Street Improvements
- Transit Preferential Streets Sourcebook
- Creating Livable Street: Street Design for 2040
- Green Streets: Innovative Solutions for Stormwater and Street Crossings
- Trees for Green Streets: an Illustrated Guide
- AASHTO Traffic Engineering Design Guidelines
- Design Guide for Public Street Improvements

Project Development Process

PDOT's Transportation Planning and the Project Management Divisions share responsibility for project development, based primarily on the project's lifecycle stage. The Transportation Planning division is responsible for developing the basic plan framework from which specific projects are identified. These include planning projects that cover large subareas of the City's transportation system. The plans establish a comprehensive policy and conceptual design framework for the transportation system and its relationship to the land uses it serves. This planning process also identifies the need for specific transportation improvement projects.

Once a specific transportation improvement project has been identified, the Project Management Division is responsible for 'cradle-to-grave' implementation. This includes all subsequent steps necessary to complete the project: developing specific design recommendations, design engineering, and final construction through a single project manager or management team.

Key elements of a successful project development process include:

- **Comprehensiveness**

The project development process uses a multidisciplinary approach that typically draws from the fields of economics, urban design, and transportation engineering to better understand the relationships between land use and transportation issues. The process is also based on a multimodal approach that seeks to develop an overall balanced transportation system that provides choices and serves all users.

- **Coordination**

Interagency coordination is ensured through a technical advisory committee made up of State, regional, and local agency representatives. The technical advisory committee (TAC) is responsible for monitoring the project development process. TAC participation depends on the scale of the project, types of issues to be addressed, and potential impacts that extend beyond the operation of the transportation system.

- **Public involvement**

The project development process heavily relies on public involvement to ensure the project meets the needs of the residents and businesses it is intended to serve. A variety of public involvement approaches is used throughout the project development process. The citizens advisory committee (CAC) is a fundamental component. Along with the TAC, the CAC directly oversees the project development process and assists in decision making.

Project Delivery System Process

The Project Management Division uses a basic five-step process for delivering projects to a successful completion. The process can take anywhere from 6 months to over 2 years of study and deliberation with the community. The process varies, based on the needs and complexity of each project. The five basic steps include chartering, planning, endorsement, selection of a preferred alternative, and project approval, as described below.

1. Chartering

Chartering refers to the initial process of building consensus with all the key stakeholders around the project's specific goal and objectives. The initial foundation for building consensus relies on existing policies contained within the Transportation Element of the Comprehensive Plan, neighborhood plans, and other policy documents that define transportation issues and preferred courses of action. The process expands on the level and detail of knowledge about the issues specific to the study area by collecting and analyzing technical data, such as traffic volumes, turn counts, and accident histories. The public involvement process provides an understanding of how the existing system relates to the community's desires and expectations of how the system should function.

These inputs are then refined into a set of project-specific goals and objectives, which serve as the basic guiding design directives for all subsequent steps in the process. Chartering is complete when the project objectives have been established, a project team with the requisite skills has been assembled, with the team's roles and responsibilities within the project development process have been defined.

2. Planning the Project

Once the project has been chartered, the next step is develop a detailed work program for successfully completing the project. The work program outlines all the essential inputs needed for decision making along the way and the roles and responsibilities of the project team. The work program traditionally includes three general products:

- Existing Conditions Report

Typically, an existing conditions report is prepared to document land use, environmental, demographic, and economic conditions, as well as the physical and operational conditions of the transportation system within the study area. The data provide a common technical understanding of how the transportation system currently functions and relates to the physical and social environment around it.

- Alternatives Development

With an understanding of the issues and objectives established, a broad range of conceptual design alternatives is developed. The alternatives development step allows consideration of creative and innovative design solutions to address the project objectives. The range of alternatives is refined to create a core set of design options that merit more detailed evaluation.

- Alternatives Evaluation

This step evaluates the relative performance of each alternative, using policy and the project objectives as evaluation criteria. A 'No Build' alternative is also analyzed for comparison purposes. The multidisciplinary approach continues to be used to look at how each alternative addresses land use and multimodal transportation issues. Traffic operations are typically modeled, using 20-year traffic volume forecasts. Economics and urban design perspectives look at how each alternative potentially supports the land use vision for the project's study area. The evaluation also reviews compliance with applicable policies, impacts to the transportation system that surrounds the study area, potential environmental impacts, and, in many cases, order-of-magnitude cost comparisons.

3. Endorsement

Endorsement secures the collective commitment of stakeholders to actively support the project work program and work towards its successful completion. It is an ongoing process of developing and maintaining working relationships with stakeholders, the community, and staff. The public involvement process is a key component of project endorsement. It ensures the delivered project meets the needs of its users and the community it is intended to serve. Special attention is given to reaching out to those portions of the community that usually do not participate or have unique needs. PDOT uses a variety of forums and techniques to encourage broad public participation and comment on the development of its projects. These techniques generally include:

- Citizen Advisory Committee (CAC)

The CAC plays a central role in overseeing the project development process. Made up out of a broad range stakeholders from the community (e.g., residents, businesses, neighborhood and business associations, special interest groups), the CAC regularly meets with staff throughout the project development process to offer input and help guide decision making.

- Public Events (e.g., open houses, workshops)

To gather public input from beyond the CAC, most projects typically hold events, such as open houses and workshops, where the general public is invited to learn more about the project and offer feedback. The design and function of these events can vary from purely informational to very hands-on. The purpose is to both raise awareness about the project and give people a chance for meaningful participation without the time and energy commitment to a CAC. Notification is often through direct mail to residents and businesses within the project's study area and press releases to community organizations and local media outlets. Most projects hold a number of these public events at key decision-making points throughout the project development process.

- Surveys

Surveys are another tool for expanding the range of public comment and participation. People who do not typically have the time to attend a public open house or workshop appreciate the ability to comment without leaving their homes or businesses. Surveys are typically used in the early stages of the plan development process to gauge public consensus on issues. Options include direct mail and door-to-door surveys.

- Neighborhood and Business Associations

The City's network of neighborhood and business associations serves as an important working link between PDOT and the community and facilitates broad dissemination of project information. PDOT regularly briefs the relevant associations and asks them to participate on the CAC. .

- Other

Press releases and project newsletters are other tools used to disseminate project information and updates to the public. PDOT is increasingly using the internet to provide easy access to project information, documents, and schedules of upcoming events and to obtain public comment.

4. Selection of a Preferred Alternative

Based on the results of the alternatives evaluation and public comment, a preferred alternative is recommended. The preferred alternative is then further refined to resolve or mitigate remaining issues identified in the evaluation process. A cost estimate is then developed. An implementation strategy is typically also included, along with recommended priorities and timing (phasing) of individual project elements as the project is constructed.

5. Project Approval

For most projects, the preferred alternative is presented at a public hearing before City Council for approval by some form of action, such as adoption by resolution or report to Council. Projects developed from previously adopted plans (e.g., the Bicycle Master Plan or Pedestrian Master Plan) are not presented to City Council. The City Engineer can approve smaller, less complex projects for construction.

Implementation

The final steps in the project development process lead to construction of the adopted project recommendations. Once construction funding has been secured, preliminary and final design engineering of the project occurs before actual construction. The engineering phases prepare the construction-ready plans and documentation necessary for contracting and final construction.

- Construction Funding

A variety of potential funding sources exist for implementation of a transportation improvement project. Some funding sources are limited to certain types of projects. For example, urban renewal funds may be applied only to projects that support designated urban renewal districts. Given the current fiscal climate, projects typically need to rely on a phased approach and more than one source of funding before they are completed. Chapter 14: Financial Plan, of the TSP describes the sources of funding available for transportation improvement projects.

The Capital Improvement Program (CIP) developed by PDOT is the primary organizing document for the allocation of funds for transportation capital improvement projects. In most cases, projects must be identified in the CIP to be eligible for funding.

- Preliminary and Final Design Engineering

Detailed civil engineering drawings are prepared at this step. The project street is surveyed, and many of the final design details, such as storm drainage, landscaping, signage, and striping, are resolved. A traffic management plan for the construction phase, bid documents (if necessary), and final cost estimates are also prepared.

- Construction

Two basic options exist for constructing transportation improvement projects: using a private contractor or the City's Bureau of Maintenance (BOM). Most projects go to public bid for private contractors, using a competitive bidding process. BOM usually constructs smaller capital improvement projects (typically under \$100,000), such as speed bumps and related traffic calming devices. PDOT's Project Management Division continues to oversee construction until the project is completed.

- Monitoring and Evaluation

If the project could potentially have significant impacts on adjacent streets, PDOT may conduct performance monitoring over several months. For example, PDOT typically takes traffic counts for traffic calming projects to assess changes in traffic patterns and the potential for diversion. Adjustments to signal timing, striping, and signage can be made to fine-tune operations and safety on the project street.

- Closeout

PDOT conducts a final inspection of the constructed project to close out the construction contract. 'As built' drawings are prepared and entered into the City's geographic information system (GIS) database. Final costs and billings are reconciled. Finally, the project files are archived.

STREET STANDARDS AND GUIDELINES

Private development in the City of Portland may improve existing streets and/or create new streets. The Development Services division of the Bureau of Transportation, Engineering, and Development has the task of ensuring that the transportation network is developed appropriately.

The handbook, *Creating Public Streets and Pedestrian Connections through the Land Use and Building Permit Process*, provides design information and practices that support public street design through the land use and building permit process. The Development Services division uses this information to establish street improvement requirements for land use reviews and building permits. Information in the handbook is based largely on existing documents and adopted practices. The documents and practices referenced in the handbook are the basis for decision making.

The handbook contains the following four sections:

- Section I – Connectivity and street improvements
- Section II - Criteria for determining street/pedestrian width and improvements
- Section III – Documents Summary
- Section IV – Administrative review process for technical decisions made under the authority of the City Engineer

The handbook contains street standards that meet or exceed the TPR and 2000 RTP requirements for incorporating ‘skinny streets’ into local ordinances. ‘Skinny streets’ are local streets that are narrower (especially in width of pavement) than is common in most parts of this country. According to the 2000 RTP, ‘skinny streets’ include no more than 46 feet of total right-of-way, with pavement widths of no more than 28 feet. Most streets built in Portland in the RF through R5 zones meet the ‘skinny street’ requirements. Some streets in other zones are also built with pavement widths of 28 feet or less. The density and intensity of development, as well as emergency access needs, are taken into consideration.

Connectivity and Street Improvements

Connections should create short blocks, particularly in mixed-use areas of planned high-density development. Streets and pedestrian/bicycle accessways (where streets are not feasible) should connect to transit routes, schools, parks, and between and within residential neighborhoods and other activity centers. Metro’s adopted spacing standards are a maximum of 530 feet for streets and 330 feet for pedestrian/bicycleways where streets are not possible. In some parts of the City, street master plans provide further guidance on connectivity.

Connectivity is considered when a site is reviewed through the land use or building permit process. A new street or street extension may be required as a condition of approval.

In addition, a site may have frontage on a street that is not improved to current standards. Adjacent properties are responsible for their frontage improvements (per Title 17.88.010). Where the right-of-way width is not sufficient, a dedication may be required. Where improvements are not up to standard, the developer may be required to obtain a street improvement permit and complete frontage improvements prior to building occupancy.

Street Improvements and Right-of-Way Width for Public Streets

The following tables summarize the most common criteria affecting street design elements. Elements are those items that require horizontal space, and therefore, establish the amount of width needed for the public right-of-way. The public right-of-way is land dedicated to the public for street purposes. Right-of-way widths shown in the tables are the needed width for the full street improvement.

Information is presented based on land use zoning. Zoning is identified in the City's Official Zoning Maps. Classifications (traffic, pedestrian, bicycle) are listed in the Transportation Element of the Comprehensive Plan.

The following tables cover only the most common cases. Exceptions may be made where there are topographic or existing development constraints, or where proposed improvements should match or transition to existing facilities. The City Engineer makes the final determination of elements and widths within the public right-of-way, but such determinations are not intended to support pavement widths that are wider than described in the handbook.

**Table 6.1
Through-Street Street Standards: RF – R7 Zones
(OR dead-end less than 300' in length)**

<i>Traffic Classification</i>	<i>On-street Parking</i>	<i>Roadway Width¹</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width*</i>
Local Service Street	None or one lane	20'	Local Service Street not in a Pedestrian District	10' each frontage	40'
Local Service Street	None or one lane	20'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	44'
Local Service Street	Two lanes	26'	Local Service Street not in a Pedestrian District	10' each frontage	46'
Local Service Street	Two lanes	26'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	50'
¹ Additional width for bicycle lanes in the roadway					
<i>Traffic Classification</i>		<i>Bicycle Classification</i>		<i>ADT</i>	<i>Additional Right-of-way Needed</i>
Local Service Street		City Bikeway		< 3000	No additional width
Local Service Street		City Bikeway		≥ 3000	5' each bike lane
Additional pavement width to accommodate bicycle lanes shall be determined on a case-by-case basis. Existing parking patterns and street width, and the extent to which additional offsite right-of-way may be obtained, will be considered.					
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Other cases not listed above are designed on an individual basis.					

**Table 6.2
Dead-End Street Standards: RF – R7 Zones
(300' or more in length)**

<i>Traffic Classification</i>	<i>On-street Parking</i>	<i>Roadway Width</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width*</i>
Local Service Street	No on-street parking	20'	Local Service Street not in a Pedestrian District	10' each frontage	40'
Local Service Street	No on-street parking	20'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	44'
Local Service Street	One lane	28'	Local Service Street not in a Pedestrian District	10' each frontage	48'
Local Service Street	One lane	28'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	52'
Local Service Street	Two lanes	32'	Local Service Street not in a Pedestrian District	10' each frontage	52'
Local Service Street	Two lanes	32'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	56'
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Other cases not listed above are designed on a case-by-case basis.					

**Table 6.3
Cul-de-Sac Street Standards: RF – R7 Zones
(turnaround on a dead-end street)**

<i>Traffic Classification</i>	<i>Connecting Street Length</i>	<i>Pavement Diameter</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width (diam.)*</i>
Local Service Street	300' or greater	70'	Local Service Street not in a Pedestrian District	6.5' combination curb/sidewalk with 5' clear zone at the back of walk	83'
Local Service Street	300' or greater	70'	Local Service Street in a Pedestrian District	12' sidewalk corridor	94'
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street not in a Pedestrian District	6.5' combination curb/sidewalk with 5' clear zone at the back of walk	49'***
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street in a Pedestrian District	12' sidewalk corridor	60'***
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
** Width is determined on a case-by-case basis					
Any other case not listed above is designed on a case-by-case basis.					

**Table 6.4
Alleys and Other Street Types: RF – R7 Zones**

Alley			
<i>Travelways</i>	<i>Parking</i>	<i>Full Alley Width</i>	<i>ROW Width*</i>
Two-way	No parking allowed	18' + 1' for curbs and/or buffer on each side	20'
One-way	No parking allowed	10' + 1' for curbs and/or buffer on each side	12'
Other Street Types			
Public streets, including but not limited to substandard improvements, scenic drives, and green streets, are designed on a case-by case basis, with elements and widths determined by the City Engineer.			
Partial Width Streets			
Partial width streets typically occur when only a single frontage or portion of frontage can be developed at one time. The partial width street components and resulting right-of-way width should be based on the appropriate parts of tables above. Exceptions may occur where portions of the partial width street have already been built or where widths should more appropriately reflect adjacent existing street segments (as determined by the City Engineer).			
Pedestrian Connections			
<i>Zone</i>	<i>Sidewalk (Walkway) Width</i>	<i>Buffer width (edge of walkway to property line)</i>	<i>Right-of-Way Width*</i>
RF– R7	6'	4.5' each side	15'
For all zoning categories, care must be taken to ensure that the proposed alignment for a public pedestrian connection provides clear visibility through the length of the connection.			
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.			

**Table 6.5
Through-Street Standards: R5 Zone
(OR dead-end less than 300' in length)**

<i>Traffic Classification</i>	<i>Onstreet Parking</i>	<i>Road-way Width¹</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way width*</i>
Local Service Street	None or one lane	20'	Local Service Street not in a Pedestrian District	11' each frontage	42'
Local Service Street	None or one lane	20'	City Walkway –OR- Local Service Street in a Pedestrian District	12' each frontage	44"
Local Service Street	Two lanes	26'	Local Service Street not in a Pedestrian District	11' each frontage	48'
Local Service Street	Two lanes	26'	City Walkway –OR- Local Service Street in a Pedestrian District	12' each frontage	50'
¹ Additional width for bicycle lanes in the roadway					
<i>Traffic Classification</i>			<i>Bicycle Classification</i>	<i>ADT</i>	<i>Additional Right-of-way needed</i>
Local Service Street, Neighborhood Collector, District Collector, Major City Traffic Street					
Neighborhood Collector, District Collector, Major City Traffic Street			City Bikeway	< 3000	No additional width
Neighborhood Collector, District Collector, Major City Traffic Street			City Bikeway	≥ 3000	5' each bike lane
Additional pavement width to accommodate bicycle lanes shall be determined on a case-by-case basis. Existing parking patterns and street width and the extent to which additional off-site right-of-way may be obtained will be considered					
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Other cases not listed above are designed on a case-by-case.					

Table 6.6
Dead-End Street Standard: R5 Zone
(300' or more in length)

<i>Traffic Classification</i>	<i>On-street Parking</i>	<i>Roadway Width</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way width*</i>
Local Service Street	No on-street parking	20'	Local Service Street not in a Pedestrian District	11' each frontage	42'
Local Service Street	No on-street parking	20'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	44'
Local Service Street	One lane	28'	Local Service Street not in a Pedestrian District	11' each frontage	50'
Local Service Street	One lane	28'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	52'
Local Service Street	Two lanes	32'	Local Service Street not in a Pedestrian District	11' each frontage	54'
Local Service Street	Two lanes	32'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	56'
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Other cases not listed above are designed on a case-by-case basis.					

Table 6.7
Cul-de-Sac Street Standard: R5 Zone
(turnaround on a dead-end street)

<i>Traffic Classification</i>	<i>Connecting Street Length</i>	<i>Pavement Diameter</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width (diam.)</i>
Local Service Street	300' or greater	70'	Local Service Street not in a Pedestrian District	11'	92'
Local Service Street	300' or greater	70'	Local Service Street in a Pedestrian District	12'	94'
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street not in a Pedestrian District	11'	58**
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street in a Pedestrian District	12'	60**
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Any other case not listed above is designed on a case-by-case basis.					
**Width is determined on a case-by-case basis					

**Table 6.8
Alleys and Other Street Types: R5 Zone**

Alley			
<i>Travel Direction</i>	<i>Parking</i>	<i>Full Alley Width</i>	<i>ROW Width*</i>
Two-way	No parking allowed	18' + 1' for curbs and/or buffer on each side	20'
One-way	No parking allowed	10' + 1' for curbs and/or buffer on each side	12'
Other Street Types			
Public streets, including but not limited to substandard improvements, scenic drives and green streets, are designed on a case-by case basis, with elements and widths determined by the City Engineer			
Partial Width Streets			
Partial width streets typically occur when only a single frontage or portion of frontage can be developed at one time. The partial width street components and resulting right-of-way width should be based on the appropriate parts of charts above. Exceptions may occur where portions of the partial width street have already been built or where widths should more appropriately reflect adjacent existing street segments (as determined by the City Engineer).			
Pedestrian Connections			
<i>Zone</i>	<i>Sidewalk (Walkway) Width</i>	<i>Buffer Width (edge of walkway to property line)</i>	<i>Right-of-Way Width*</i>
R5	6'	4.5' each side	15'
For all zoning categories, care must be taken to ensure that the proposed alignment for a public pedestrian connection provides clear visibility through the length of the connection.			
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.			

**Table 6.9
Through-Street Street Standards: R3 – RX Zones
(OR dead-end street)**

<i>Traffic Classification</i>	<i>On-street Parking</i>	<i>Roadway Width¹</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width****</i>
Local Service Street	None	28' **	Local Service Street not in a Pedestrian District	11' each frontage ***	*
Local Service Street	One lane	28'	Local Service Street not in a Pedestrian District	11' each frontage ***	50'
Local Service Street	Two lanes	32'	Local Service Street not in a Pedestrian District	11' each frontage ***	54'
Local Service Street	None	28'**	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	*
Local Service Street	One lane	28'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	52'
Local Service Street	Two lanes	32'	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	56'
¹ Additional width for bicycle lanes in the roadway					
<i>Traffic Classification</i>		<i>Bicycle Classification</i>	<i>ADT</i>	<i>Additional Right-of-way Needed</i>	
Local Service Street		City Bikeway	< 3000	No additional width	
Local Service Street		City Bikeway	≥ 3000	5' each bike lane	
Additional pavement width to accommodate bicycle lanes shall be determined on a case-by-case basis. Existing parking patterns and street width and the extent to which additional offsite right-of-way may be obtained will be considered.					
*Width is determined on a case-by-case basis.					
**In some cases, it may be feasible to reduce the listed street width if parking is not needed and the Fire Bureau requirements are accommodated.					
*** For RH, RX, CN1, CM, CS, CX or EX zoning where the site has frontage on a Neighborhood Collector, District Collector, or Major City Traffic street, and the Local Service Street intersects with the Traffic Street listed here, the sidewalk corridor width on the Local Service Street frontage is 12'.					
****For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Other cases not listed above are designed on a case-by-case basis.					

**Table 6.10
Cul-de-Sac Street Standards: R3 – RX Zones**

<i>Traffic Classification</i>	<i>Connecting Street Length</i>	<i>Pavement Diameter</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width (diam.)*</i>
Local Service Street	300' or greater	70'	Local Service Street not in a Pedestrian District	11'	92'
Local Service Street	300' or greater	70'	Local Service Street in a Pedestrian District	12'	94'
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street not in a Pedestrian District	11'	58'**
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street in a Pedestrian District	12'	60'**

*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.

**Any other case not listed above is designed on a case-by-case basis.

**Table 6.11
Alleys and Other Street Types: R3 – RX Zones**

Alleys			
<i>Travel ways</i>	<i>Parking</i>	<i>Full Alley Width</i>	<i>ROW Width*</i>
Two-way	No parking allowed	18' + 1' for curbs and/or buffer on each side	20'
One-way	No parking allowed	10' + 1' for curbs and/or buffer on each side	12'
Other Street Types			
Public streets, including but not limited to substandard improvements, scenic drives and green streets, are designed on a case-by case basis, with elements and widths determined by the City Engineer.			
Partial Width Streets			
Partial width streets typically occur when only a single frontage or portion of frontage can be developed at one time. The partial width street components and resulting right-of-way width should be based on the appropriate parts of charts above. Exceptions may occur where portions of the partial width street have already been built or where widths should more appropriately reflect adjacent existing street segments (as determined by the City Engineer).			
Pedestrian Connections			
<i>Zone</i>	<i>Sidewalk (Walkway) Width</i>	<i>Buffer Width (edge of walkway to property line)</i>	<i>Right-of-Way Width*</i>
R3 – RH	6'	4.5' each side	15'
RX	Generally 8' – 20' but designed on a case-by-case basis	Minimum 5' each side	18' – 30'

For all zoning categories, care must be taken to ensure that the proposed alignment for a public pedestrian connection provides clear visibility through the length of the connection.

*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.

**Table 6.12
Through-Street Street Standard: Zones other than RF – RX
(OR dead-end)**

<i>Traffic Classification</i>	<i>On-street Parking</i>	<i>Roadway Width¹</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way width****</i>
Local Service Street	None	28' **	Local Service Street not in a Pedestrian District	11' each frontage ***	*
Local Service Street	One lane	28' minimum	Local Service Street not in a Pedestrian District	11' each frontage ***	*
Local Service Street	Two lanes	32' minimum	Local Service Street not in a Pedestrian District	11' each frontage ***	*
Local Service Street	None	28' **	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	*
Local Service Street	One lane	28' minimum	City Walkway -OR- Local Service Street in a Pedestrian District	12' each frontage	*
Local Service Street	Two lanes	32' minimum	Local Service Street not in a Pedestrian District	12' each frontage	*
¹ Additional width for bicycle lanes in the roadway					
	<i>Traffic Classification</i>	<i>Bicycle Classification</i>	<i>ADT</i>	<i>Additional Right-of-Way Needed</i>	
	Local Service Street	City Bikeway	< 3000	No additional width	
	Local Service Street	City Bikeway	≥ 3000	5' each bike lane*	
Additional pavement width to accommodate bicycle lanes shall be determined on a case-by-case basis. Existing parking patterns, street width, and the extent to which additional off-site right-of-way may be obtained, will be considered.					
Other cases not listed above are designed on a case-by-case basis.					
* Width is determined on a case-by-case basis.					
** In some cases, it may be feasible to reduce the listed street width if parking is not needed and the Fire Bureau requirements are accommodated.					
*** For RH, RX, CN1, CM , CS, CX or EX zoning where the site has frontage on a Neighborhood Collector, District Collector, or Major City Traffic street, and the Local Service Street intersects with the Traffic Street listed here, the sidewalk corridor width on the Local Service Street frontage is 12'.					
****For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					

**Table 6.13
Cul-de-Sac Street Standards: Zones other than RF – RX**

<i>Traffic Classification</i>	<i>Connecting Street Length</i>	<i>Pavement Diameter</i>	<i>Pedestrian Classification</i>	<i>Sidewalk Corridor Width</i>	<i>Right-of-way Width (diam.)*</i>
Local Service Street	300' or greater	70'	Local Service Street not in a Pedestrian District	11'	92'
Local Service Street	300' or greater	70'	Local Service Street in a Pedestrian District	12'	94'
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street not in a Pedestrian District	11'	58'*
Local Service Street	Less than 300'	Typ. 36' in diameter, but designed on a case-by case basis	Local Service Street in a Pedestrian District	12'	60'*
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.					
Any other case not listed above is designed on a case-by-case basis.					

**Table 6.14
Alleys and Other Street Types: Zones other than RF – RX**

Alleys			
<i>Travel ways</i>	<i>Parking</i>	<i>Full Alley Width</i>	<i>ROW Width*</i>
Two-way	No parking allowed	18' + 1' for curbs and/or buffer on each side	20'
One-way	No parking allowed	10' + 1' for curbs and/or buffer on each side	12'
Other Street Types			
Public streets, including but not limited to substandard improvements, scenic drives and green streets, are designed on a case-by case basis, with elements and widths determined by the City Engineer.			
Partial Width Streets			
Partial width streets typically occur when only a single frontage or portion of frontage can be developed at one time. The partial width street components and resulting right-of-way width should be based on the appropriate parts of charts above. Exceptions may occur where portions of the partial width street have already been built or where widths should more appropriately reflect adjacent existing street segments (as determined by the City Engineer).			
Pedestrian Connections			
<i>Zone</i>	<i>Sidewalk (Walkway) Width</i>	<i>Buffer width (edge of walkway to property line)</i>	<i>Right-of-way Width*</i>
CN1, CM CS, or CX	Generally 8' – 20', but designed on a case-by-case basis	Minimum 5' each side	18' – 30'*
Other	Designed on a case-by-case basis		
*For cases in which swales are required for stormwater management, a greater right-of-way width dedication will be needed. See the section, Other Technical Information.			

Other Technical Information

If swales are required for stormwater management, the actual right-of-way dedication requires specific review. To determine the additional approximate width needed, take the swale width minus 4 feet. Swales may or may not be allowed and must receive approval from

the City Engineer and Bureau of Environmental Services before they are incorporated into the right-of-way.

Codes, Manuals, and Documents Used in the Street Design Process

The following codes, manuals, and documents are used in the street design process:

- A Policy on Geometric Design of Highways and Streets (American Association of State Highway and Transportation Officials)
Geometric design policy for streets, considering function, design controls, design and cross section elements, and intersections.
- AASHTO Guide for Design of Pavement Structures (American Association of State Highway and Transportation Officials)
Design policy for determining pavement sections for roadways.
- Bicycle Master Plan (City of Portland, 1998)
City policies and objectives regarding bicycles, recommended bikeway network, and end-of-trip facilities.
- Central City Transportation Management Plan (City of Portland, 1995)
Transportation goals and policies for the Central City, including district strategies and street classifications.
- Design Guide for Public Street Improvements (City of Portland, 1993)
Guide for consulting engineers, containing basic design and submittal information for street improvements, including review process, traffic design, street design, and cost estimates.
- Manual on Uniform Traffic Control Devices (Federal Highway Administration)
Design and usage guide for traffic signs signals and pavement markings. This document is supplemented with the City of Portland Sign Library.
- Pedestrian Master Plan (City of Portland, 1998)
Policies for pedestrian travel, improvement projects, and priorities.
- Pedestrian Design Guide (City of Portland, 1998)
Guidelines for public sidewalk corridors, crosswalks, pathways, and stairs.
- Standard Construction Specifications (City of Portland)
Standard construction specifications for use when designing and constructing civil infrastructure, including contract and technical requirements, streets, sewer and water, and standard drawings.
- Title 17 of the City Code – Public Improvements
Authority for various regulations and improvements under the City Engineer (and the Chief Engineer for Environmental Services), including local improvements; permits; sidewalks, curbs, and driveways; street improvements; sewer and stormwater regulations; public utilities; and others.

- **Transportation Element of the Comprehensive Plan (City of Portland)**
Part of the City's Comprehensive Plan, it includes transportation policy, street classifications, and district policies.
- **Creating Livable Streets: Street Design Guidelines for 2040 (Metro, 2nd edition 2002)**
A handbook developed to implement the Street Design classifications in the RTP. Local jurisdictions must consider the guidelines for regionally-significant streets and they are optional for locally funded projects.
- **Green Streets: Innovative Solutions for Stormwater and Street Crossings (Metro, 2002)**
Recently completed handbook that provides guidance for incorporating sustainable practices into the design and construction of all types of streets. Local jurisdictions must consider the guidelines for regionally-significant streets and they are optional for locally funded projects.
- **Trees for Green Streets: an Illustrated Guide (Metro, 2002)**
Recently completed guide to appropriate street trees for Green Streets. Local jurisdictions must consider the guide for regionally-significant streets and it is optional for locally funded projects.
- **Others**

Various street master plans and street improvement plans, including but not limited to:

- SW and Far SE Master Street Plans
- River District Right-of-Way Framework Plans
- Barbur Boulevard Streetscape Plan
- NE Martin Luther King Jr. Boulevard Transportation Project
- Capitol Highway Plan
- Multnomah County Street Plans
- Airport Way Secondary Infrastructure Plan
- Lloyd District Transportation Design Criteria
- Russell Street Improvements Planning Project
- Killingsworth Improvements Planning Project
- South Waterfront District Street Plan, Criteria and Standards
- Foster Road Transportation and Streetscape Plan

Administrative Review Process for Technical Decisions for Street Design

This section of the Creating Public Streets and Pedestrian Connections through the Land Use and Building Permit Process handbook describes the process for commenting on technical decisions made by PDOT's Development Review staff. The Development Services Manager reviews comments. The City Engineer has the authority to make final determinations on the application of street standards to specific development projects.

SUSTAINABLE INFRASTRUCTURE

The following discussion is taken from two recent documents: Sustainable Infrastructure Report (prepared by PDOT, the Bureau of Environmental Services, and the Water Bureau, December 2001) and Sustainable Infrastructure Supplemental Report (December 2001). The excerpts below focus on PDOT's efforts to achieve the City's goals for sustainability. The other participating bureaus' efforts are described in the documents cited above.

Developing infrastructure that is sustainable means thinking differently about how we build, what we build, and whether we build at all. It means designing and maintaining buildings, structures, and streets with an eye to resource conservation over the life of the project. It means testing new materials and practices that leave lighter impacts on the environment, yet are effective.

The goal is to encourage the bureaus to take advantage of opportunities for greener ways of doing business, and to create a place where new ideas, materials, and methods can be discussed and tested and where experts in sustainable practices can participate and help the City make good decisions.

The City's 'green building policy' directed the three infrastructure bureaus to document current and ongoing practices that minimize the use of natural resources and review opportunities for improvement in sustainable practices. The bureaus were also asked to determine the need for a rating system or set of guidelines that would provide for greener practices for infrastructure improvements.

The following text identifies actions and changes that PDOT bureaus and sections have implemented in order to operate more sustainably.

Bureau of Maintenance (BOM)

Catch Basin Inserts

While working in the street, maintenance crews are now using catch basin inserts and other products to keep asphalt grindings and other debris from entering the sewer system. Catch basin inserts are placed in the catch basins, and bio-bags are placed around the inlets. Both of these products reduce the need to clean the catch basins, and reduce harm to fish. In the past, clogged basins would need to be cleaned out by the sewer cleaning crews. BOM cleans the asphalt grinder several times per week and captures about 50 cubic yards of grinding debris per year.

Environmentally Friendly Releasing Agents

Instead of using petroleum-based diesel, crews now use environmentally friendly releasing agents to keep hot asphalt from sticking to truck beds and hand tools. The releasing agents are biodegradable and much safer for the environment.

Erosion Control

In response to the City Code Title 10, the federal listing of salmonids as endangered species, and the City's passage of Title 10, BOM has developed erosion control measures when doing any ground-disturbing activities. These measures are intended to reduce the amount of sediment that runs off the banks into streams, where it negatively affects water quality and harms fish habitat. BOM continues to test new products, try new techniques, and implement best management practices. Examples include applying various types of mulch, installing straw wattles, and using bio-bags to prevent sediment from leaving the worksite.

Reuse of Cold Milled Asphalt Grindings

Crews currently cold mill streets to remove the excessive crowns, restore curb exposure, or simply remove the deteriorated asphalt and resurface the street. In the past, BOM disposed of a large amount of this material in landfills. BOM now sells the grindings back to the asphalt plants instead of landfilling them and using up ever-decreasing landfill space. Approximately 75,000 cubic yards of grindings are recycled and sold back to the asphalt plants. The asphalt plants use the grindings as part of their new asphalt mix. City trucks are able to deliver grindings to the plants and immediately pick up fresh asphalt to take back to the job, reducing hauling and fuel costs.

Spill Response Measures

The Clean Water Act mandates that spills be cleaned up to protect fish and water quality. Crew trucks are now equipped with spill kits to respond to emergency spills and leaks. The most common fluids are antifreeze, hydraulic fluid, oil, and brake fluid. The spill kits contain absorbent materials, plastic ties, drip pans, goggles, and gloves.

Turning Off Truck Engines

In the past, drivers would routinely drive to jobs, park, and leave the engines running, causing unnecessary gas emissions and fuel consumption. With the development of practices for clean air action days, crews are now more aware of their impact on air quality, and turn engines off when possible.

Aerosol Can Recycling

BOM has implemented a program to recycle the approximately 18,000 aerosol cans it uses per year. A special area has been set up with a puncturing device to drain any remaining can contents. The contents are collected in a barrel. When the barrel is full, it is manifested and disposed of properly. The fully aspirated can may then be crushed and recycled as scrap metal.

Use Of Environmentally Safe Cleaning Products

Instead of using heavy-duty institutional cleaning products, BOM now uses citrus-based cleaners. In addition, BOM has been working with the custodial contractor to use less caustic and more environmentally preferable cleaners. BOM uses unbleached towels with high-recycled fiber content.

Use Of Environmentally Safe Oils And Fluids

BOM uses vegetable-based oil instead of WD-40 to facilitate sewer repair work in its use of trenchless technology. The vegetable oil eases the inversion of the sewer pipe liner into the old sewer pipes. It is environmentally preferable to petroleum-based oil products because it is less toxic, renewable, and biodegradable.

No-Dig Pipe Maintenance

Crews now have the option to use trenchless technologies to repair sewer lines. The method BOM currently employs uses oil to slip a polyurethane-impregnated felt liner into a broken pipe. Once inverted and cured, the liner becomes a permanent part of the pipe. This eliminates the need to excavate the sewer and saves time, money, and materials. It also reduces the amount of ground-disturbing activity.

BOM Buildings and Grounds

BOM regularly sweeps and maintains the areas around Albina yard and the Kerby building. This minimizes the amount of airborne dust, stormwater pollution, and runoff into the sewer system.

Reuse Of Barricades

Various sections within BOM use barricades in their daily operations. When possible, BOM repairs and reuses the several thousand barricades it owns. About 500-600 of the barricades are repaired and reused per year. Some of the flashing barricades now have solar-powered light heads, reducing the demand for conventional power and disposing of fewer batteries.

Reuse Of Concrete Form Lumber

BOM's Sidewalk section creates concrete forms from lumber when installing or repairing sidewalks. BOM now reuses these forms. When the forms can no longer be reused, the wood is recycled and used for fuel at a nearby paper mill.

Dechlorinated Water For Bridge Washing

BOM is responsible for maintaining and washing bridges and other structures, such as stairs, retaining walls, and pedestrian overpasses. It now uses dechlorination tablets to reduce the chlorine in the discharge water. This reduces the negative impact on water quality.

Concrete and Asphalt Recycling

Each year, crews remove tons of cement and asphalt concrete from street maintenance and sidewalk repair projects. In the past, all this material was disposed of in landfills. Now, all concrete and asphalt rubble is screened, crushed, and recycled into an aggregate base material. This material is reused for a variety of purposes, such as base aggregate for street

maintenance activities, backfill in sewer trenches, and road shoulder maintenance. During 2000, almost 16,000 cubic yards of concrete and asphalt were crushed and reused.

Recycling Aluminum Signs

Most of the traffic control signs BOM uses are made of aluminum. When signs become dented or need to be replaced, they are sold back to the sign manufacturer for reuse instead of being put into the dumpster for disposal. This reduces both the amount and cost of disposal. About 2.6 tons of damaged aluminum signs were recycled during 2000.

Paint

BOM tries to use low volatile organic compound (VOC) paint and less toxic solvents. BOM also has a sand blasting booth and a paint booth, where items can be painted or sand blasted in a controlled environment. This prevents the spread of noxious fumes and paint chips. BOM is also using more brushes instead of sprayers to control paint flow. Some items, such as bridge rails, that used to be painted in the field are now brought to the yard for painting.

Sidewalk Repair Work

In the past, BOM and its contractors would dry-sawcut areas to be repaired. This process would generate a lot of dust. BOM crews now make wet cuts, and contractors are asked to adapt a wet cut and slurry sediment capture process. This includes using bio-bags, rock socks, catch basin inserts, and wet/dry vacuuming. Contractors are also asked to put up silt fences along the outer edge of the sidewalks to contain sediment and reduce runoff of dirt-laden water. Where possible, crews are also recycling bricks.

Slurry Recovery System

BOM staff has developed a slurry recovery system for handheld chainsaws while cutting concrete. The system includes a hydraulic power unit, a pump-vacuum system to provide water for cooling and lubricating, and a vacuum hose to vacuum slurry-laden water. Instead of draining into the stormwater system, the water is vacuumed into a metal bucket and filtered. The filtered water can be reused in the concrete cutting saw. This system has significantly decreased total water usage and the amount of concrete slurry going to the storm sewer system.

Plantings

Where possible, BOM crews save native plantings and replant them after digs. Crews are also moving toward using native species in new roadside plantings. BOM is using more drip irrigation systems and conservation-type watering systems in order to reduce water usage. Crews are also doing more handwork instead of using large pieces of equipment, resulting in less ground disturbance. Invasive plants, such as blackberry vines and ivy, are removed when possible.

Solar-Powered Investigation Van

BOM has five environmental emergency investigation trucks, one of which is equipped with solar power. The truck engine still runs on gas, but the truck is 100 percent solar powered once onsite. Solar panels replace the old gas-powered generator. Solar energy powers the onboard equipment, including the robotic cameras used to investigate sewer lines, computer monitors, printers, VCR, van flashers, vehicle lighting, heating, and air conditioning system. While conducting investigations, the vehicle has no emissions and makes no sound. It is plugged into an electrical outlet at the end of the day. The truck is taken out of service for one day a year for servicing and preventative maintenance.

Solar-Powered Meter Truck

BOM has designed and put into service a parking meter repair truck with a solar-powered generator. The truck continues to use gasoline to get to the job site, but once it arrives on the job, crews can turn off the engine to reduce emissions and noise. Crews can run electrical tools, lighting, and a heating and cooling system with the solar generator.

Ice Prevention Program

BOM now uses calcium magnesium acetate (CMA) to prevent ice from bonding to the road surface during inclement weather. CMA is a non-hazardous material and has few of the negative environmental impacts associated with salt.

Absorbent Blankets To Contain Leaks

At job sites, crews now place absorbent blankets under trailers to contain and control the spread of equipment leaks. In the past, any leaking fluid would be washed down the storm sewer. Leaking fluids are now captured and kept out of the storm sewer system.

Erosion Control Trailer

BOM's Stormwater Maintenance Section has an erosion control trailer that is taken to sites as needed. The trailer carries everything needed to control erosion, and allows crews to take enough products to deal with any problem immediately. Without the trailer in the past, the supervisor would need to send someone back to the yard to retrieve materials, delaying response to the erosion problem.

Shoring

In the past, crews used wood to shore up sewer excavations. They would need to cut timbers to fit and could use them only one or two times, per OSHA regulations. Crews now use reusable aluminum hydraulic shoring (shields) to reinforce the trenches for most projects. The shields come in many sizes and can be reused repeatedly. Crews have reduced the amount of wood used on larger, deeper projects with reusable steel beams and hydraulic cross bracing. The shields are placed in the trench and hydraulically energized until the shield sides make solid contact with the trench walls. In addition, the crews mix environmentally friendly antifreeze with shoring fluid to prevent freezing in the winter.

Retrofitting Injection Wells

Crews are adding injection wells with sediment manholes. The manholes separate oil and debris from stormwater that flows into the inlets. The sediment manholes keep the sumps cleaner and reduce the amount of oil and other debris that may permeate back into the groundwater aquifer.

Sump Debris

Debris removed from ditches, culverts, and sumps is taken to a facility where it is screened and separated into rock, sand, and foreign matter. The material is then burned, effectively removing any petroleum-based products. Once burned, the material is safe enough for reuse and can serve as medium-grade fill for certain projects.

Recycled Meter Parts

BOM manages and maintains 7,000 parking meters around the City. Each meter is powered by a 9-volt battery, which is replaced each year. BOM recycles these batteries as part of its battery recycling program. Spare meter parts are also cleaned and reused.

Street Sweeping

Frequent sweeping decreases street degradation and reduces the amount of debris that goes into the storm and sanitary sewer systems. BOM uses a type of street sweeper that makes less noise and has a regenerative air flow system (vacuum). With this system of sweeping and flushing, debris is removed with fewer particulates becoming airborne.

Composting Street Sweeping Debris

Instead of disposing street sweeping debris into a landfill, the debris is put through a trommell screen. This separates trash such as paper and plastic from the sand and dirt. The organic sweeper debris is separated after screening and taken to a composting facility. This reduces the amount of organic material that goes into the landfill. About 4,200 cubic yards of screened street sweeping debris is diverted for composting each year.

Leaf Recycling

Historically, BOM landfilled any leaves it swept up. BOM now begins its annual leaf recycling program in the fall. It collects leaves from streets in heavy leaf areas around the City. In addition, it has a leaf collection program and designates depots where the public can bring its leaves. The leaves are taken to a facility off NE Sunderland Avenue where they are processed during the winter months and turned into compost. During fiscal year 1999-2000, 13,000 cubic yards of leaves generated over 4,000 cubic yards of compost for use on BOM projects or resale to the public.

Flusher Using Recycled Water

The flusher is a truck with a water tank that washes dirt up against the curb before the street sweeper cleans along the curb. The flusher provides a high-pressure water spray across the

road to ensure that debris is moved to the curb. BOM has developed a flusher water conservation plan to be implemented during times of drought. The plan states that instead of using clean water from a hydrant, crews will fill the flusher with non-chlorinated, non-potable water from the wastewater treatment plant.

Office Recycling

BOM has set up several areas for recycling of various types of office paper, newspaper, plastic, glass, cardboard, and computer parts. BOM also donates pop cans and obsolete office supplies to neighboring schools. It has set up a recycling program for both rechargeable and non-rechargeable batteries, and recycled almost 1,000 pounds of batteries during 2000. BOM recently added a program to recycle styrofoam packing peanuts.

Lamp Recycling

BOM sells its fluorescent lamps and high intensity discharge (HID) lamps containing mercury to a vendor who separates the metals. These include building lights and street lamps. The mercury and other metals are kept out of the landfill. BOM recycled over one ton of lamps and lights during 2000.

Metals Recycling

BOM has made an extensive effort to implement recycling programs for many types of metals. Much of this material used to end up in the landfill. BOM now has designated drop-boxes and drums around the maintenance yard for recycling. The recycled metals include aluminum, aluminum guardrails and handrails, yellow brass, light copper and copper wire, mixed non-ferrous metals, steel, and cast iron. During 2000, BOM saved and recycled almost 50 tons of metals.

Portable Sewer Pump Station

BOM is in the process of designing a portable solar-powered pump station to use when assisting with sewer repairs in business or residential areas. This solar-powered system would improve on using a noisy pump or diesel generator by reducing fueling requirements and send noise upwards, reducing noise pollution.

Docking Station

BOM is designing a docking station for the solar-powered generators used on the portable sewer pump station, parking meter truck, and inspection van. During non-work hours, these pieces of equipment would be attached to the docking station and provide green power to the building and the utility grid.

Wind Turbine

BOM is preparing a permit application to the Federal Aviation Administration to construct a wind turbine at the Sunderland Recycling Facility. Adequate power would be generated to power the Sunderland office building, with excess power going to the grid. In addition to the

solar-powered machinery described previously, BOM plans to continue evaluating the use of solar power for other applications.

Yard Cleanup

BOM is looking into the installation and maintenance of catch basin inserts around the BOM yard. These inserts would reduce the amount of debris and materials that flow into the stormwater system. In addition, BOM would like to install a truck-washing facility that uses bioswale technology to capture and filter the flow of sediment-laden water and keep it out of the stormwater system.

Use of Recycled Paint

BOM currently paints over graffiti on concrete structures, bridge abutments, and columns. Instead of buying new paint for this purpose, BOM is evaluating the use of recycled latex paint available through Metro's paint program. Metro collects surplus latex paints from households and businesses and blends the leftover paints. This would make use of an otherwise useless product and cost less money.

Use Of Environmentally Friendly Products

BOM continues to explore the use of environmentally friendly products in its day-to-day operations. As more products become available, BOM will continue to test and try them.

Signals and Street Lighting

Refurbishment and Reuse Of Signals and Street Lighting Hardware

Electrical maintenance crews bring old, used equipment that is removed from the field back to the maintenance facility. Staff members analyze each item and determine if it can be refurbished/reused, recycled, or (as the last resort) thrown away. This program has kept many tons of material out of the dumpster over the years it has been in place.

Street Lighting Energy Savings

The City converted nearly all streetlights from mercury vapor to high-pressure sodium light sources in the mid-1980s. The sodium vapor lights are basically twice as energy efficient as mercury vapor. This conversion is currently saving an estimated 40 million kilowatts of energy per year.

Retiming Traffic Signals

Retiming traffic signals reduces stops and delays for vehicles, which in turn reduces fuel usage and harmful air emissions. The following examples of retiming projects over the last 10 years show the annual savings that are achieved.

ARTERIAL	NUMBER OF SIGNALS	FUEL SAVED (gal/year)	CO ₂ REDUCTION (tons/year)	CO REDUCTION (tons/year)
W Burnside St.	11	41,000	362	35
SW Front Ave.	15	50,000	443	44
NE MLK Blvd.	14	20,000	181	39
SE/NE 82 nd Ave.	27	136,000	1,197	100
SE/NE 122 nd Ave.	9	86,000	757	

Traffic Signal Energy Savings

Most pedestrian signals have been converted from incandescent to neon light sources. The annual energy savings are estimated at more than 3 million kilowatt-hours. The savings from converting traffic signals from incandescent to LED light sources is saving the City an estimated 5.3 million kilowatt hours of energy per year.

Transportation Options

PDOT's Transportation Options section works to increase biking, walking, taking transit, carpooling, teleworking, and smart use of the car. Many Transportation Options programs support sustainable infrastructure. These programs are detailed in Chapter 5: Transportation Demand Management, of the TSP.

Summary

Achieving 'sustainable infrastructure' is an ongoing process and a long-term commitment. Identifying the most sustainable product, practice, or policy takes time and changes as new information becomes available. Changes range from the type of infrastructure projects the City invests in (such as the Portland Streetcar rather than new road capacity) to small, but ecologically significant, changes in products used to clean equipment.

In conjunction with local jurisdictions, Metro has produced a Green Streets handbook that incorporates many sustainable concepts for building streets. The City will use this handbook for public and private street projects. Pilot projects are now underway to test the concepts of the Green Streets handbook.