

REFINEMENT PLANS And STUDIES

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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. Light rail in the Interstate corridor will extend to the Exposition Center in the near future. 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 I-5 Transportation and Trade Partnership Project is evaluating multiple options to address many of these elements. The options under consideration include:

- Express bus to the Exposition Center in HOV lanes, and additional arterial river crossing capacity
- Light rail transit to Clark County, with and without additional freeway capacity
- Regional commuter rail

- Express bus with additional corridor freeway capacity
- New arterial road with a Columbia River crossing
- Transit and transportation demand management (TDM)

These options are being evaluated as alternatives to existing conditions and as alternatives to transportation projects identified for the corridor in the RTP.

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: Study the potential for high-capacity transit between the Ross Island Bridge and Damascus, capacity improvements, local street connections, and system management.

Areas added to the urban growth boundary (UGB) in Clackamas County and southeast Multnomah County will place heavy traffic demands on the street system that links these areas with employment centers in Portland and Multnomah County. The Foster/Powell corridor will be the most heavily impacted, and physical constraints (slopes and Johnson Creek) make additions to motor vehicle capacity difficult. Inner Foster and Powell are also constrained by existing development and the capacity of the Ross Island Bridge.

A refinement plan is needed to explore the potential for high-capacity transit to provide access from the Pleasant Valley and Damascus areas to employment locations in the Foster/Powell corridor, Gresham regional center, Columbia South Shore industrial area, and Central City. The plan should consider the following transportation approaches:

- Transit improvements, including rapid bus service (Metro’s designation for transit that emulates light rail service in speed and frequency) from the Central City to the Damascus town center via Powell and Foster, and regional bus service (Metro’s designation for

high-quality transit service at approximately 15-minute intervals) on 172nd and to the Gresham regional center, eastside MAX, and Columbia South Shore

- Added capacity from two to three lanes on Foster from 122nd to 172nd and from two to five lanes from 172nd to Highway 212, phased and coordinated with capacity expansions on Powell between I-205 and Eastman Parkway
- Additional street connections in the Mount Scott and Pleasant Valley areas to reduce local travel demand on Foster and Powell and improve access between these areas and east Multnomah County and northeast Clackamas County
- Intelligent transportation system management measures to better accommodate anticipated traffic growth in southeast Portland, east Multnomah County, and Clackamas County

Modeling conducted for the RTP indicates significant increases in motor vehicle volumes along Powell Boulevard over the 20-year planning period. This will likely warrant widening the roadway from its current configuration by adding travel lanes in many segments between I-205 and the city limits to accommodate the future corridor travel demand. The RTP Priority System Project List identifies a street-widening improvement for this section of Powell, consisting of five motor vehicle lanes, sidewalks, and bike lanes. The five-lane street improvement project is a proposed response to growth in travel demand in the corridor, given the assumptions regarding growth and development in outer southeast Portland, Gresham, and other emerging urban areas. The land use and transportation issues in the corridor are complex and continue to evolve as planning studies continue for Pleasant Valley, Damascus, and elsewhere. The RTP modeling leading to the recommended five-lane improvement was conducted at the 20-year system level. The corridor study is an opportunity to investigate proposed improvements at a finer level of detail, with identified segment phasing priorities and corridor management strategies.

The TSP acknowledges that providing additional travel lanes along Powell may be a solution to respond to the corridor travel demand, but the impacts and costs will be substantial for acquiring and improving a continuous right-of-way of this magnitude. For this reason, the TSP recommends that right-of-way dedications and improvements undertaken as part of land use actions should maintain current practices and requirements until Metro completes its of the Foster Road/ Powell Boulevard Corridor Transportation Plan. The corridor study is an opportunity to investigate proposed improvements at a finer level of detail, with identified segment phasing priorities and corridor management strategies.

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/Taylors 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 River Channel Deepening Study

Purpose: Evaluate the feasibility and environmental impacts of deepening the Columbia River channel to 43 feet from the mouth of the river in Astoria to Portland (2000-2005).

Deepening the Columbia River channel from 40 feet to 43 feet will help Portland maintain its ability to compete in international trade and freight movement. The shipping industry is using increasingly larger vessels – panamax bulk vessels and panamax container vessels – to transport goods, reflecting the efficiency of carrying more cargo on any one vessel. Because of the existing channel depth, these larger ships must often travel the Columbia River with only partial loads, reducing Portland's efficiency as an international port. However, this critical economic consideration must be balanced with the potential environmental consequences of deepening the channel, which may include disturbance of metals, chemicals, or other pollutants in the river channel. An independent scientific review of these environmental issues is currently underway. A 'biological assessment' was completed in December 2001, and a 'biological opinion' is expected in Summer 2002.

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.

Freight Mobility Study (St. Johns Truck Strategy)

Purpose: Identify improvements to North Lombard Street to provide better truck access to Rivergate and protect adjacent neighborhoods from freight truck traffic (2000-2005).

This study grew out of the 1992 update of the Transportation Element of the Comprehensive Plan. At the time of the update, North Portland citizens requested the study to solve the

negative impacts of truck traffic on their neighborhoods. City Council directed the Portland Office of Transportation (PDOT) to look at ways to improve freight movement around residential neighborhoods and through St. Johns. The St. Johns Truck Strategy began in 1999 with an 18-person advisory committee. The study's mission statement was to:

Evaluate and recommend to City Council appropriate transportation solutions that address freight movement needs of the North Portland industrial areas and protect the St. Johns residential and commercial hub from through-truck infiltration. The recommended solutions will recognize the contribution of freight movement to the local, regional, and state economies, and that a significant portion of that freight is moved to and from the industrial areas of North, Northeast, and Northwest Portland.

The study resulted in a series of recommendations, summarized below and in the Freight Modal Plan in Chapter 5 of the TSP. (See the St. Johns Truck Strategy, 2000, for complete details.)

- Traffic calming on:
 - Lombard (between Pier Park and St. Louis)
 - Fessenden (between Columbia Way and St. Louis)
 - St. Louis (between Fessenden and Lombard)
- Bicycle/pedestrian safety projects for portions of Columbia Boulevard
- Redesign and reconstruction of intersections to facilitate vehicle movement between the St. Johns Bridge and Columbia Boulevard and/or Rivergate at:
 - Lombard/St. Louis/Ivanhoe/Philadelphia
 - Columbia Boulevard/Portland/Columbia Way
- Redesign and reconstruction of the street segment of Burgard and Lombard from the Rivergate entrance to Terminal Road

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.

Red Electric Line Trail

Purpose: *Evaluate the feasibility of constructing a multi use path from Willamette Park to Oleson Road (2000-2005).*

This path would be approximately 2.8 miles long and would provide a key east-west recreational and transportation route in Southwest Portland for pedestrians and bicyclists. It would also create a regional link to the Fanno Creek Greenway Trail that will travel through Beaverton, Tigard, Durham, and Tualatin. The 2000 Southwest Urban Trails Plan identified the path as ‘conceptual’ because the alignment would cross private property. A study is needed to evaluate potential alignments and strategies to create a continuous pathway.

St. Johns/Lombard Plan

Purpose: *Identify long-term land use and transportation needs for motor vehicles, trucks, bicycles, pedestrians, and transit service in the St. Johns town center and the Lombard main street (2000-2005).*

This is a joint PDOT and Bureau of Planning study to consider tools, such as zoning changes and other regulations, to support and implement the 2040 town center and main street concepts for St. Johns and Lombard. Access and circulation issues exist for bicyclists, pedestrians, transit users, and motorists. The study will address the needs of alternative mode users by designing appropriate street cross-sections and intersections and identifying street crossing opportunities. The study products will be:

- A 20-year community vision and an urban design concept
- Transportation and land use alternatives, including transportation impacts
- An economic analysis of development feasibility
- Policies, objectives, and accompanying implementation strategies

The study will be coordinated with a number of current planning efforts that affect the study area, including the I-5 Trade and Transportation Study, Willamette Greenway update, Portsmouth Neighborhood Plan, North Interstate Urban Renewal Plan, and recently completed St. Johns Truck Strategy.

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.

Willamette River Greenway

Purpose: Study the feasibility of a greenway corridor from the Sellwood Bridge to Lake Oswego. Study access to the Greenway Trail, including a pedestrian/bicycle bridge connection to the Greenway Trail at North Fremont (2000-2005).

This study would determine the mode and alignment of a dual rail and bicycle corridor between the Sellwood Bridge and Lake Oswego. The project would involve a consortium of jurisdictions, including Metro, the City of Portland, Multnomah County, and Lake Oswego. Constraints include the rail tunnel and other ‘pinch points’ along the existing rail alignment.

Eastside Streetcar Feasibility Study

Purpose: Study the feasibility of streetcar service in Portland neighborhoods (2006-2010).

A number of neighborhoods are interested in studying the feasibility of additional streetcar lines in Portland, particularly along streets that had streetcar service in the past and were developed as ‘streetcar suburbs’. Potential corridors are Hawthorne, Martin Luther King, Jr./Grand, Sandy, Fremont, and the Creston-Kennilworth neighborhood.

The Central City Plan envisioned an ‘eastside connector’ (possibly on Grand Avenue), but did not specify a mode. The Central City Plan states:

A transit loop will be an essential component in improving the vitality and attractiveness of the Portland’s central eastside. The loop will assist in creating a two-sided City embracing the river and making it the City’s focus. The Transit Mall has made a dramatic change to the Downtown, from the substantial improvement in air quality to the attractive mall and retail center. However, it is not intended that the loop would expand the Downtown to the eastside. Rather, it is intended to enhance the character of the Union and Grand corridors and to improve the transportation system with the Central City. The use of these streets solely for transit and converting the other to a two-way traffic street will require further study.

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.

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 determinate 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.*

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.

Swan Island Pedestrian Plan

Purpose: *Identify pedestrian improvements and implementation strategies on Swan Island and connections on and off Swan Island.*

PDOT, the Port of Portland, Swan Island property owners, the Swan Island Business Association, and nearby neighborhood associations will work together to develop a Swan Island Pedestrian Plan. The 1998 Pedestrian Master Plan identifies the need for this plan.

Truck Access and Circulation Study

Purpose: *Develop strategies to address the relationship, conflicts, and needs for freight movement and local goods delivery within and between industrial areas, intermodal and terminal facilities, 2040 centers and main streets, and at the interface of residential neighborhoods and freight districts.*

This study will focus on the identification of system needs and deficiencies, rather than new projects, project design resolution or additional studies. Policy amendments may include review of the current freight street classifications, and potential expansion of those classifications to include streets within freight districts, rather than overall reconsideration of the TSP freight policies. Revised or new procedural and operational guidelines may also be considered, depending on the final scope and budget approval for implementation.

Most of the region's freight centers that generate significant local and regional truck traffic are located within Portland and are in close proximity to residential neighborhoods. This proximity creates potential conflicts between neighborhood livability and truck movement needs. At the same time, the important role that trucks and freight movement play in the City's economy needs to be protected. Area plans and strategies to implement 2040 priority areas should address these issues.

The Central City Transportation Management Plan (CCTMP) includes two strategies that relate to a West Clinton Area study. Strategy 6.1 under Central Eastside Circulation states: "Re-examine the effectiveness of the Western Edge Project on reducing non-local and industrial traffic infiltrating the residential neighborhoods in the vicinity of SE 12th Avenue. Identify additional measures if needed." Strategy 6.3 in the same section of the CCTMP states: "Develop a truck access plan for industrial land uses in the Central Eastside which improves connections to the regional traffic network and reduces conflicts with non-industrial land uses."

The 1996 Outer Southeast Community Plan identifies the need for a study of circulation and access issues for industrial traffic in the vicinity of the Lents town center. An adopted objective under the Transportation Policy states: "Ensure adequate truck access to industrial sites so that raw materials can be delivered and products shipped. However, keep truck traffic out of residential areas when possible."

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.

Southeast Division Street Land Use and Transportation Study

Purpose: *Develop a coordinated land use and transportation plan for SE Division between SE 12th and SE 60th.*

The 2040 Growth Concept designates SE Division as a main street between SE 12th and 60th. This segment of SE Division has several zoning designations that discourage mixed-use development and can result in suburban, auto-oriented development. The neighborhoods and businesses have been working together on a 'Division Vision' and are interested in changing zoning and street designations to reflect Division's main street designation. They are also interested in incorporating 'Green Streets' concepts as adopted by Metro and the City.

The TSP classifies Division as a 'Community Main Street' for street design purposes only between SE 33rd and 50th consistent with the existing zoning pattern. The RTP classifies the entire length of Division as a 'Community Street'.

This land use/transportation study should consider new zoning designations and street use and design recommendations that would support an extended application of the Community Main Street designation along this segment of Division. The transportation element of the study would consider improvements that enhance access to transit, improved safety and streetscape enhancements such as traffic signals, alternative vehicle lane and on-street parking configurations, innovative stormwater management facilities, light, bus shelters, benches, and crossings.

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.