

Lake Oswego to Portland Transit Project

Land Use and Planning Technical Report

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TriMet and Metro

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TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Project Background.....	1
1.2 Purpose and Need	1
1.3 Alternatives/Options Considered.....	2
1.3.1 Alternatives Analysis	2
1.3.2 Scoping/Project Refinement Study	3
1.4 Description of Alternatives Analyzed in this Technical Report and the DEIS	4
1.4.1 No-Build Alternative	4
1.4.1.1 Capital Improvements.....	4
1.4.1.2 Transit Operations.....	9
1.4.2 Enhanced Bus Alternative.....	10
1.4.2.1 Capital Improvements.....	10
1.4.2.2 Transit Operations.....	11
1.4.3 Streetcar Alternative	11
1.4.3.1 Capital Improvements.....	11
1.4.3.2 Transit Operations.....	22
1.4.3.3 Construction Phasing Options.....	22
2. EVALUATION METHODS	25
2.1 Related Laws and Regulations.....	25
2.3 Methodology for Affected Environment Profile	26
2.4 Methodology for Impact Assessment	26
2.4.1 Direct Impacts	26
2.4.2 Indirect Impacts	26
2.4.3 Cumulative Impacts	28
2.5 Methodology for Identifying Potential Mitigation Measures	28
2.6 Compliance with Plans and Policies.....	29
3. CONTACTS, COORDINATION, AND CONSULTATION	30
4. EXISTING AND PLANNED LAND USE AND LAND USE IMPACTS	31
4.1 Segment 1, Downtown Portland.....	31
4.2 Segment 2, South Waterfront.....	31
4.2.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions	31
4.2.2 Impacts of the No-Build Alternative.....	35
4.2.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures.....	35
4.2.4 Impacts of the Streetcar Alternative and MOS Phasing Option, Including Options, and Potential Mitigation Measures	35
4.2.4.1 Direct Impacts	36
4.2.4.2 Indirect Impacts	36
4.2.4.3 Cumulative Impacts	43
4.2.4.4 Potential Mitigation Measures	43
4.3 Segment 3, Johns Landing	44
4.3.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions	44
4.3.2 Impacts of the No-Build Alternative.....	44
4.3.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures.....	44

4.3.4 Impacts of the Streetcar Alternative, Including Options, and Potential Mitigation Measures	44
4.3.4.1 Direct Impacts	44
4.3.4.2 Indirect Impacts	44
4.3.4.3 Cumulative Impacts	48
4.3.4.4 Potential Mitigation Measures	48
4.4 Segment 4, Sellwood Bridge	48
4.4.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions	48
4.4.2 Impacts of the No-Build Alternative.....	48
4.4.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures.....	49
4.4.4 Impacts of Streetcar Alternative and the MOS Phasing Option, Including Design Options, and Potential Mitigation Measures	49
4.4.4.1 Direct Impacts.....	49
4.4.4.3 Cumulative Impacts	49
4.4.4.4 Potential Mitigation Measures	50
4.5 Segment 5, Dunthorpe/Riverdale.....	50
4.5.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions	50
4.5.2 Impacts of the No-Build Alternative.....	50
4.5.3 Impacts of the Enhanced Bus Alternative.....	50
4.5.4 Impacts of the Streetcar Alternative, Including Options, and Potential Mitigation Measures	50
4.5.4.1 Direct Impacts.....	50
4.5.4.2 Indirect Impacts	50
4.5.4.3 Cumulative Impacts	51
4.5.4.4 Potential Mitigation Measures	51
4.6 Segment 6, Lake Oswego	51
4.6.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions	51
4.6.2 Impacts of the No-Build Alternative.....	52
4.6.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures.....	52
4.6.3.1 Direct Impacts.....	52
4.6.3.2 Indirect and Cumulative Impacts and Potential Mitigation Measures.....	52
4.6.4 Impacts of the Streetcar Alternative, Including Options, and Potential Mitigation Measures	52
4.6.4.1 Direct Impacts.....	52
4.6.4.2 Indirect Impacts	52
4.6.4.4 Potential Mitigation Measures	56
4.7 Summary Comparison of Alternatives	56
4.7.1 Direct Impacts of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option.....	56
4.7.2 Indirect Impacts of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option.....	56
4.7.3 Cumulative Impacts of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option.....	56
4.7.4 Potential Mitigation Measures of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option	57

5. COMPLIANCE WITH PLANS AND POLICIES	58
5.1 Oregon Statewide Planning Program Requirements	58
5.2 State Transportation System Plan	58
5.2.1 Oregon Transportation Plan	58
5.2.2 Oregon Public Transportation Plan	59
5.2.3 Oregon Rail Plan	60
5.2.4 Oregon Highway Plan	60
5.2.5 Oregon Bicycle and Pedestrian Plan and Oregon Revised Statutes Section 366.514	61
5.3 Regional Plans	62
5.3.2 2035 Regional Transportation Plan	62
5.3.2.1 Applicable Provisions and Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative	62
5.3.2.2 Potential Changes to Project Alternatives to Achieve or Improve Compliance	65
5.3.2.3 Potential Changes to Policies Needed to Achieve Compliance	66
5.3.3 2040 Growth Concept	66
5.4 Clackamas County Plans	69
5.4.1 Applicable Provisions	69
General Transportation Goals	69
Transportation Demand Management Goals	69
Transit Goals	69
5.3.2 Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative	70
5.5 Multnomah County Plans	70
5.5.1 Applicable Provisions	70
5.5.2 Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative	72
5.6 City of Lake Oswego Plans	72
5.6.1 Applicable Provisions	72
5.6.2 Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative	73
5.6.3 Potential Changes to Project Alternatives Needed to Achieve Compliance	74
5.6.4 Potential Changes to Policies Needed to Achieve Compliance	74
5.7 City of Portland Plans	74
5.7.1 Applicable Provisions and Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative	74
5.7.1.1 Transportation System Plan	74
5.7.1.2 South Waterfront Plan	86
5.7.1.3 North Macadam Transportation Development Strategy	87
5.7.1.4 Portland Streetcar System Concept Plan	90
5.7.1.5 Willamette Greenway Plan	90
5.7.1.6 Other Components of Portland’s Comprehensive Plan	90
6. REQUIRED LAND USE PERMITS	92
6.1 Multnomah County	92
6.2 Clackamas County	92
6.3 City of Portland	92
6.4 City of Lake Oswego	92
REFERENCES	96
LIST OF PREPARERS	98

List of Tables

Table 1-1 Transit Capital Improvements for the No-Build, Enhanced Bus, and Streetcar Alternatives (2035).....	5
Table 1-2 Streetcar and Bus Network Operating Characteristics of No-Build, Enhanced Bus, and Streetcar ¹ Alternatives (2035).....	6
Table 4-1 Conversion of Land to Transportation Use by Existing Use.....	37
Table 4-2 Conversion of Land to Transportation Use by Comprehensive Plan Designation Category	37
Table 4-3 Conversion of Land to Transportation Use by Zoning Category	38
Table 4-4 Station Area Redevelopment Potential.....	39

List of Figures

Figure 1-1 No-Build Alternative Transportation Network and Facilities.....	7
Figure 1-2 Enhanced Bus Alternative Transportation Network	12
Figure 1-3 Streetcar Alternative Transportation Network	13
Figure 1-4 Streetcar Alternative Design Option Locations	17
Figure 1-5 Streetcar and Enhanced Bus Alternatives and Design Options	18
Figure 1-6 Streetcar Alternative Design Option Details.....	20
Figure 4-1 Existing Land Use	32
Figure 4-2 Generalized Comprehensive Plan Designations	33
Figure 4-3 Generalized Zoning.....	33
Figure 4-4 Unused Allowed Floor Area, Bancroft, Hamilton, and Boundary Station Areas	40
Figure 4-5 Ratio of Improvement Value to Land Value, Bancroft, Hamilton, and Boundary Station Areas	41
Figure 4-6 Unused Allowed Floor Area, Carolina, Nebraska, Nevada, and Sellwood Station Areas	46
Figure 4-7 Ratio of Improvement Value to Land Value, Carolina, Nebraska, Nevada, and Sellwood Station Areas.....	47
Figure 4-8 Unused Allowed Floor Area, B Avenue and Lake Oswego Terminus Stations	54
Figure 4-9 Ratio of Improvement Value to Land Value, B Avenue and Lake Oswego Terminus Stations.....	55
Figure 5-1 2035 Regional Transportation Plan Figure 2.15, Regional Transit Network	67
Figure 5-2 South Waterfront Concept Street Plan	89
Figure 6-1 Lake Oswego Zoning Map with Enhanced Bus Alternative.....	93
Figure 6-2 Lake Oswego Zoning Map With Streetcar Alternative, Foothills Option	94
Figure 6-3 Lake Oswego Zoning Map with Streetcar Alternative, UPRR Option.....	95

1. INTRODUCTION

This report contains the detailed analysis and documentation that is the basis for Chapter 3, section 3.1 on land use and planning in the Lake Oswego to Portland Transit Project (LOPT) Draft Environmental Impact Statement (DEIS) published by the Federal Transit Administration in December 2010. This chapter of the report includes a summary of the project background, Purpose and Need, alternatives/options considered and description of the alternatives analyzed.

1.1 Project Background

Transit improvements in the Lake Oswego to Portland corridor have been studied several times in recent history. In the 1970s and 80s, a light rail alignment through Johns Landing was studied as part of the Westside Corridor Alternatives Analysis, and in the 1990s potential light rail alignments through Johns Landing were studied as part of the South/North Corridor Study.

The Willamette Shore Line right of way was first established in 1885-1887 as the Portland and Willamette Valley Railroad, which began operation in July 1887. The Southern Pacific Railroad (SPRR) later purchased the railway in 1914. The railroad had a major impact on the development of southwest Portland. Initially, 14 trains operated between Portland and Oswego (as it then was known), and it became the main transportation link for developing residential communities along the route. The line was electrified in 1914 and passenger traffic hit its peak in 1920 with SPRR running 64 daily trains between Portland and Oswego. Passenger service ended on October 5, 1929, while freight service continued until 1983.

In August of 1984, the Interstate Commerce Commission granted SPRR permission to abandon the line. In 1988, the Willamette Shore Line Consortium (the Consortium) purchased the 6.3-mile-long line from SPRR for approximately \$2 million. The Consortium, comprised of the City of Lake Oswego, City of Portland, Oregon Department of Transportation (ODOT), Clackamas County, Multnomah County, Metro, and TriMet, purchased the line to preserve it for future passenger rail transit use. TriMet holds title for the Consortium and the City of Lake Oswego provides maintenance services funded by the Consortium.

In 2005, with the endorsement of the Joint Policy Advisory Committee on Transportation, the Metro Council directed staff to initiate the Lake Oswego to Portland Transit and Trail Alternatives Analysis. The alternatives analysis focused on improving the ability to serve travel demand in the corridor through improved transit service and development of a multi-use pathway.

1.2 Purpose and Need

The **Purpose** of the project is to optimize the regional transit system by improving transit within the Lake Oswego to Portland transit corridor, while being fiscally responsive and supporting regional and local land use goals. The project should maximize, to the extent possible, regional resources and economic development opportunities, and garner broad public support. The project should build on previous corridor transit studies, analyses, and conclusions and should be environmentally sensitive.

The **Need** for the project results from:

- Historic and projected increases in traffic congestion in the Lake Oswego to Portland corridor due to increases in regional and corridor population and employment;

- Lengthy and increasing transit travel times and deteriorating public transportation reliability in the corridor due to growing traffic congestion;
- Increasing operating expenses, combined with increasingly scarce operating resources and the demand for more efficient public transportation operations;
- Local and regional land use and development plans, goals, and objectives that target the corridor for residential, commercial, retail, and mixed-use development to help accommodate forecast regional population and employment growth, and previous corridor transit studies, analyses, and conclusions;
- The region's growing reliance on public transportation to meet future growth in travel demand in the corridor;
- The topographic, geographic, and built-environment constraints within the corridor that limit the ability of the region to expand the highway and arterial infrastructure in the corridor; and
- Limited options for transportation improvements in the corridor caused by the identification and protection of important natural, built, and socioeconomic environmental resources in the corridor.

1.3 Alternatives/Options Considered

Metro's 2004 Regional Transportation Plan (RTP) identified the need for a refinement plan for a high capacity transit option for the corridor, which included an analysis of several modal alternatives. Metro initiated the corridor refinement plan in July 2005 and issued the *Lake Oswego to Portland Transit and Trail Alternatives Analysis Evaluation Summary Public Review Draft* in June 2007.

On December 13, 2007, after reviewing and considering the alternatives analysis report, public comment, and recommendations from the Lake Oswego to Portland Transit and Trail Project Citizen Advisory Committee (CAC), the Lake Oswego to Portland Transit and Trail Project Management Group (PMG), Steering Committee, and partner jurisdictions and agencies, the Metro Council approved Resolution No. 07-3887A. The resolution adopted the *Lake Oswego to Portland Transit and Trail Alternatives Analysis: Alternatives to be Advanced into a Draft Environmental Impact Statement and Work Program Considerations* (December 13, 2007). (See Section 2.1 for additional detail on the process used to identify and narrow alternatives.) It also selected the No-Build, Enhanced Bus, and Streetcar alternatives to advance into the project's DEIS for further study, and directed staff to conduct a refinement study to identify design options in the Johns Landing Area and terminus options to advance into the project's DEIS. The resolution called for further refinement of the trail component to move forward as a separate process.

1.3.1 Alternatives Analysis

The project's alternatives analysis process developed a wide range of alternatives for evaluation and early screening, which included: a no-build alternative, widening of Highway 43, reversible lanes on Highway 43, river transit (three options), bus rapid transit (BRT) (three options), commuter rail, light rail, and streetcar (a wide range of alignment alternatives and terminus alternatives and options).

Through a screening process that assessed the ability of the alternatives to meet the project's Purpose and Need, the initial range of possible alternatives was narrowed. Appendix C of the DEIS provides a summary of the technical evaluation of the alternatives and options considered during the alternatives analysis phase.

The following alternatives were selected for further study through the alternatives analysis phase: 1) No-Build Alternative, 2) BRT Alternative, and 3) Streetcar Alternative. Following is a description of those alternatives as they were studied in the alternatives analysis (see the *Lake Oswego to Portland Transit and Trail Study Evaluation Summary Public Review Draft* for more information).

- **No-Build Alternative.** Similar to the project's current No-Build Alternative, described in Section 1.4.1.
- **BRT Alternative.** The BRT Alternative would operate frequent bus service with Line 35 on Highway 43 between downtown Portland and downtown Lake Oswego, generally in mixed traffic, with bus station spacing that would be longer than TriMet typically provides for fixed-route bus service. Transit queue bypass lanes would be constructed at congested intersections, where feasible.
- **Streetcar Alternative.** The Streetcar Alternative would extend the existing Portland Streetcar line, which currently operates between NW 23rd Avenue and SW Lowell Street, to downtown Lake Oswego. Study of this alternative includes an evaluation of whether the Willamette Shore Line right of way would be used exclusively or whether it would be used in combination with SW Macadam Avenue or other adjacent roadways.

1.3.2 Scoping/Project Refinement Study

This section describes the alignment and terminus options developed, evaluated, and screened in 2009 as a part of the project's scoping and refinement study phase. In November 2010, Metro published the *Lake Oswego to Portland Transit Project Refinement Report*, which detailed the study's results and summarized public comment. This phase focused on refinements in two areas: 1) alignment options for the Johns Landing area; and 2) terminus options in the Lake Oswego area. In summary, the project's Purpose Statement during the refinement phase was to:

- Optimize the regional transit system;
- Be fiscally responsive and maximize regional resources;
- Maximize the economic development potential of the project;
- Be sensitive to the built and social environments; and
- Be sensitive to the natural environment.

The options, evaluation measures, and results of the Johns Landing streetcar alignment refinement process and the Lake Oswego terminus refinement processes are summarized below.

A. Johns Landing Streetcar Alignment Refinement. For the refinement of streetcar design options within the Johns Landing area, the project used the following criteria: streetcar operations, streetcar performance, financial feasibility, traffic operations, accessibility and development potential, neighborhood sustainability, and adverse impacts to the natural environment. Measures for each of the criteria were developed and applied to each of the alignment options studied, which included:

- Hybrid 1: Macadam Avenue In-Street
- Hybrid 2: East Side Exclusive
- Hybrid 3: Macadam Avenue with New Northbound Lane

- Willamette Shore Line
- Full Macadam In-Street

B. Lake Oswego Terminus Option Refinement. For the refinement of terminus options in the Lake Oswego area, the project used the following criteria: expansion potential and regional context, streetcar operations, streetcar performance, financial feasibility, traffic operations, accessibility and development potential, and neighborhood sustainability. Measures for each of the criteria were developed and applied to each of the alignment options studied, which included: a) Safeway Terminus Option; b) Albertsons Terminus Option; and c) Trolley Terminus Option.

On June 1, 2009, in consultation with FTA and based on the findings of the analysis, public and agency comment and recommendations from the Lake Oswego to Portland Project Management Group, the Lake Oswego to Portland Transit Project Steering Committee selected the following options in the Johns Landing area to advance into the DEIS: Willamette Shore Line; Hybrid 1 – Macadam Avenue In Street (Boundary Street to Carolina Street); and Hybrid 3: Macadam Avenue with New Northbound Lane (Boundary Street to Carolina Street).

1.4 Description of Alternatives Analyzed in this Technical Report and the DEIS

This section summarizes the roadway and transit capital improvements and transit operating characteristics for the No-Build, Enhanced Bus, and Streetcar alternatives. Table 1-1 provides a summary of the transit capital improvements associated with the three alternatives, and Table 1-2 summarizes the operating characteristics of the alternatives. A more detailed description of the alternatives may be found in the *Lake Oswego to Portland Transit Project Detailed Definition of Alternatives Report* (Metro/TriMet: January 2010). Detailed drawings of the Streetcar Alternative, including the various design options, can be found in the *Streetcar Plan Set*, November 2009.

1.4.1 No-Build Alternative

This section describes the No-Build Alternative, which serves as a reference point to gauge the benefits, costs, and effects of the Enhanced Bus and Streetcar Alternatives. In describing the No-Build Alternative, this section focuses on: 1) the alternative’s roadway, bicycle and pedestrian, and transit capital improvements; and 2) the alternative’s transit operating characteristics. This description of the No-Build Alternative is based on conditions in 2035, the project’s environmental forecast year.

1.4.1.1 Capital Improvements

Following is a brief description of the roadway, bicycle and pedestrian, and transit capital improvements that would occur under the No-Build Alternative (see Table 1-1). Figure 1-1 illustrates the location of those improvements.

- **Roadway Capital Improvements.** The No-Build Alternative includes the existing roadway network in the corridor, with the addition of roadway capital improvements that are listed in the financially constrained road network of Metro’s 2035 RTP.¹ Following is a list of the roadway projects that would occur within the corridor by 2035.

¹ Metro, 2035 Regional Transportation Plan, approved Dec. 13, 2007.

**Table 1-1 Transit Capital Improvements for the
No-Build, Enhanced Bus, and Streetcar Alternatives (2035)**

Capital Improvements	No-Build	Enhanced Bus	Streetcar¹
<i>New Streetcar Alignment Length²</i>	N/A	N/A	5.9 to 6.0
<i>One-Way Streetcar Track Miles</i>			
Portland Streetcar System	15.7	15.7	26.2 to 27.0
Proposed Lake Oswego to Portland Project	0	0	10.5 to 11.3
<i>Streetcar Stations</i>			
Portland Streetcar System	69	69	79
Proposed Lake Oswego to Portland Project	0	0	10 ³
<i>Streetcars (in service/spares/total)</i>			
Portland Streetcar System	17/5/22	17/5/22	27/6/33
Proposed Lake Oswego to Portland Project	N/A	N/A	10/1/11
<i>Streetcar Operations and Maintenance (O&M) Facilities</i>			
Number of Facilities ⁴	1	1	2
Maintenance Capacity (number of Streetcars)	36	36	36
Storage Capacity (number of Streetcars)	25	25	33
Line 35 Bus Stops			
<i>Line 35 Bus Stops (Lake Oswego to SW Bancroft St.)</i>	26	13	0
<i>Buses (in service/spares)</i>			
TriMet Systemwide	607/712	619/725	601/704
Difference from No-Build Alternative	N/A	13	- 8
Transit Centers⁵	1	1	1
Park-and-Ride Facilities			
Joint Use Surface – Lots/Spaces	3/76	3/76	3/76
Surface – Lots/Spaces	0/0	0/0	1/100
Structured – Lots/Spaces	0/0	1/300	1/300

Note: LO = Lake Oswego; O&M = operating and maintenance.

¹ The transit capital improvements of the Streetcar Alternative summarized in this table would not vary by design option, except when shown as a range and as noted for new streetcar alignment length and one-way track miles. The first number listed is under the Willamette Shore Line design option and the second number listed is under the Macadam design options (in the Johns Landing Segment).

² Under the No-Build and Enhanced Bus alternatives, the Portland Streetcar System would include two streetcar lines: a) the existing Portland Streetcar Line, between NW 23rd Avenue and SW Bancroft Street, and b) the Portland Streetcar Loop, which is currently under construction and will be completed when the Milwaukie Light Rail and Streetcar Close the Loop project are constructed. The Streetcar Alternative would extend the existing Portland Streetcar line south, from SW Bancroft Street to Lake Oswego. One-way track miles are calculated by multiplying the mileage of double-tracked sections and adding that to the mileage of single-track sections. Alignment length and one-way track miles are presented as a range, because they would vary by design option. The number of streetcar stations, streetcars in service or as spares and the number and size of streetcar O&M facilities would not change by streetcar design option.

³ Two optional stations are also being considered for inclusion in the Streetcar Alternative (see Figure 1-5 and Figure 1-6): 1) the Pendleton Station under the Macadam In-Street and Macadam Additional Lane design options in the Johns Landing Segment; and the E Avenue Station in the Lake Oswego Segment.

⁴ There is an existing streetcar operations and maintenance (O&M) facility at NW 16th Avenue, between NW Marshall and NW Northrup streets; under the Streetcar Alternative, additional storage for eight vehicles would be provided along the streetcar alignment under the Marquam Bridge. There would be no change in the number or size of bus O&M facilities under any of the alternatives or design options. Bus stops are those that would be served exclusively by Line 35 between Lake Oswego and SW Bancroft Street

⁵ Under the No-Build and Enhanced Bus alternative, the Lake Oswego Transit Center would remain at its current location (on 4th Street, between A and B avenues); under the Streetcar Alternative, the transit center would be moved to be adjacent to the Lake Oswego Terminus Station.

Source: TriMet, January 2010.

Table 1-2 Streetcar and Bus Network Operating Characteristics of No-Build, Enhanced Bus, and Streetcar¹ Alternatives (2035)

Operating Characteristics by Vehicle Mode	No-Build	Enhanced Bus	Streetcar
Streetcar Network Operating Characteristics¹			
<i>Weekday Streetcar Vehicle Miles Traveled</i>			
Systemwide	2,180	2,180	3,200 or 3,230
Difference from No-Build Alternative	N/A	0	1,020 or 1,050
<i>Weekday Streetcar Revenue Hours</i>			
Systemwide	267	267	326 or 332
Difference from No-Build Alternative	N/A	0	59 or 65
<i>Corridor Weekday Streetcar Place Miles²</i>	N/A	N/A	89,000 or 91,320
<i>Corridor Streetcar Round-Trip Time³</i>	N/A	N/A	37 or 44 minutes
<i>Corridor Streetcar Headways⁴</i>			
Lake Oswego to PSU	N/A	N/A	7.5 / 7.5 minutes
Bus Network Operating Characteristics			
<i>Weekday Bus Miles Traveled</i>			
Systemwide	76,560	77,560	75,520
Difference from No-Build Alternative	N/A	1,000	-1,040
<i>Weekday Bus Revenue Hours</i>			
Systemwide	5,300	5,400	5,210
Difference from No-Build Alternative	N/A	100	-90
<i>Line 35 (bus) Weekday Place Miles²</i>	37,000	57,840	0
<i>Line 35 (bus) Headways⁴</i>			
Lake Oswego to Downtown Portland	15 / 15 min.	6 / 15 min.	N/A
Oregon City to Lake Oswego	15/15 min.	15/15 min.	15/15 min.

Note: N/A = not applicable; LO = Lake Oswego; O&M = operating and maintenance; PSU = Portland State University.

¹ The operating characteristics of the Streetcar Alternative summarized in this table would not vary by design option, except when shown as a range and as noted for streetcar vehicle miles traveled, place miles, and round-trip time. The first number listed is under the Willamette Shore Line Design Option and the second number listed is under the Macadam design options (in the Johns Landing Segment).

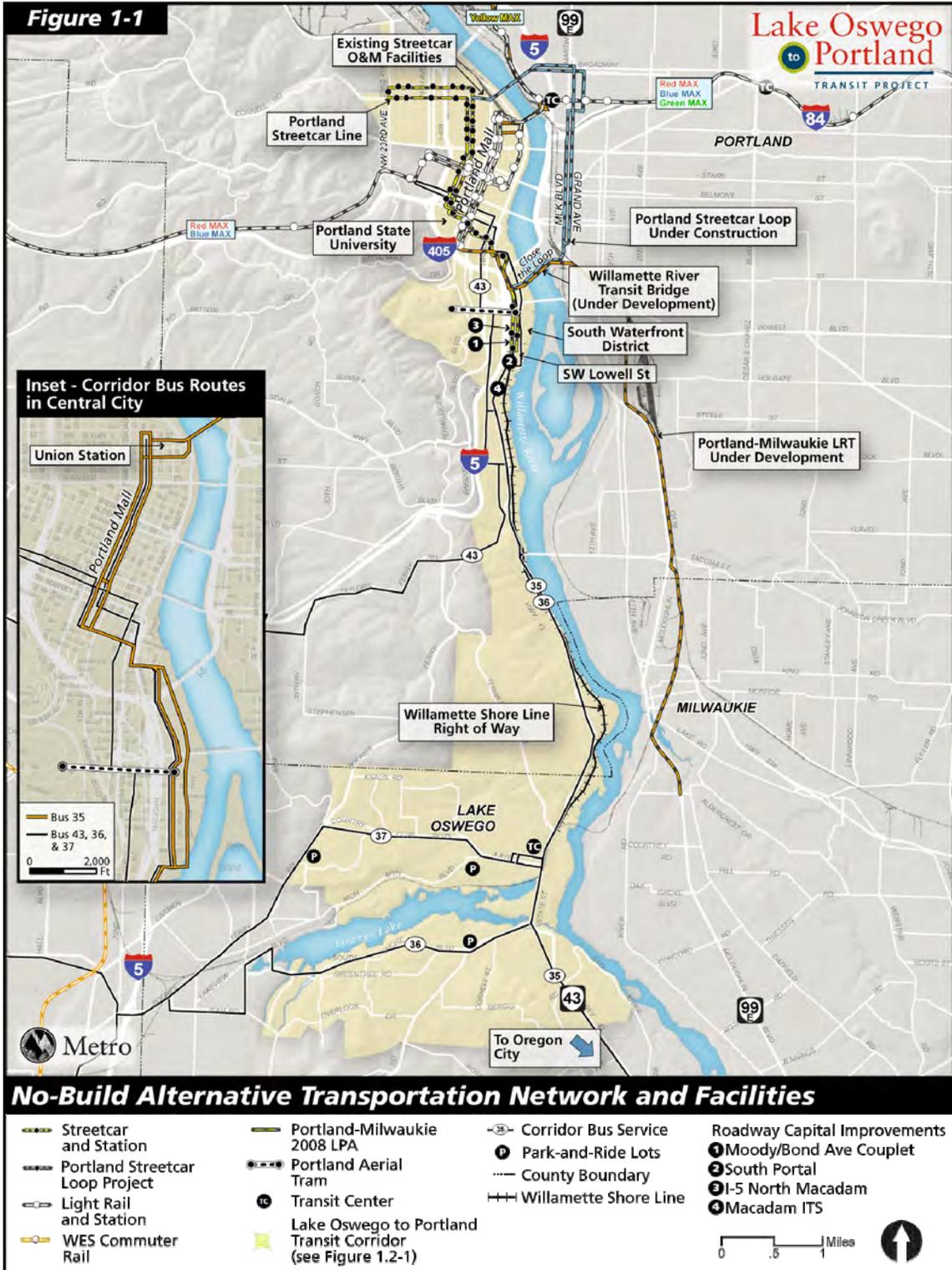
² Place miles are a measure of the passenger carrying capacities of the alternatives, similar to airline seat miles. Place miles = transit vehicle capacity (seated and standing) of a vehicle type, multiplied by the number vehicle miles traveled for that vehicle type, summed across all vehicle types. The No-Build Alternative bus place miles are based on lines 35 and 36.

³ Round-trip run time for the proposed streetcar line would include in-vehicle running time from SW Bancroft Street to the Lake Oswego Terminus Station and back to SW Bancroft Street; it does not include layover time at the terminus.

⁴ Headways are the average time between transit vehicles per hour within the given time period that would pass by a given point in the same direction, which is inversely related to frequency (the average number of vehicles per hour in the given time period that would pass by a given point in the same direction). Weekday peak is generally defined as 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.; weekday off-peak is generally defined as 5:00 to 7:00 a.m., 9:00 a.m. to 4:00 p.m. and 6:00 p.m. to 1:00 a.m. There would be streetcar service every 12 minutes between SW Bancroft Street and the Pearl District (via PSU) under the No-Build and Enhanced Bus alternatives. The peak headways shown for the No-Build Alternative are the composite headways for Lines 35 and 36.

Source: TriMet – January 2010.

- *Moody/Bond Avenue Couplet* (create couplet with two lanes northbound on SW Bond Avenue and two lanes southbound on SW Moody Avenue);
- *South Portal* (Phases I and II to extend the SW Moody Avenue/SW Bond Avenue couplet to SW Hamilton Street and realign SW Hood Avenue to connect with SW Macadam Avenue at SW Hamilton Street);
- *I-5 North Macadam* (construct improvements in the South Waterfront District to improve safety and access); and
- *Macadam Intelligent Transportation Systems* (install system and devices in the SW Macadam Avenue corridor to improve traffic flow).



- **Bicycle and Pedestrian Improvements.** The No-Build Alternative includes the existing bicycle and pedestrian network in the corridor, with the addition of bicycle and pedestrian capital improvements that are listed in the financially constrained road network of Metro’s 2035 RTP. Following is a list of the bicycle and pedestrian projects that pedestrian projects proposed to occur within the corridor by 2035.
 - *Lake Oswego to Portland Trail* (extension of a multiuse path between Lake Oswego and Portland);
 - *I-5 at Gibbs Pedestrian/Bicycle Overcrossing* (construct a bicycle and pedestrian bridge over I-5 in the vicinity of SW Gibbs Street); and
 - *Tryon Creek Bridge* (construct a new pedestrian/bicycle bridge near the mouth of Tryon Creek).

- **Bus Capital Improvements.** There are currently two primary bus capital facilities in the corridor: *Lake Oswego Transit Center* (on 4th Street, between A and B avenues); and *Portland Mall* (bus and light rail lanes and shelters on NW/SW 5th and 6th avenues between NW Glisan Street and SW Jackson Street). These bus facilities would remain as-is under the No-Build Alternative. (The financially constrained transit project list of the RTP includes relocation of the Lake Oswego Transit Center to be adjacent to the Lake Oswego to Portland Streetcar alignment, which is also in the financially constrained project list. Neither would occur under the No-Build Alternative.) No additional bus capital improvements are planned for the corridor under the No-Build Alternative by 2035.

- **Light Rail Capital Improvements.** Under the No-Build Alternative, TriMet’s existing Yellow Line light rail service would continue to operate on the Portland Mall (with a station at PSU added), across the Steel Bridge and into North Portland. Yellow Line facilities and service would be extended north from the existing Expo Center Station, across the Columbia River into Vancouver, Washington, and south from the Portland Mall, generally via SW Lincoln Street, across the Willamette River to Milwaukie, Oregon. In addition, downtown Portland would be served by the following TriMet light rail lines: Blue Line (Gresham to Hillsboro); Red Line (Beaverton to Portland International Airport); and Green Line (downtown Portland to Clackamas Town Center).

- **Excursion Trolley Capital Facilities.** Under the No-Build Alternative there would be no changes to the existing excursion trolley capital facilities that are located or operate within the corridor. Those excursion trolley capital facilities include approximately six miles of single-tracked Willamette Shore Line tracks and related facilities; stations at SW Bancroft and Moody streets and at N State Street at A Avenue; a trolley barn at approximately N State Street at A Avenue; and typically one vintage and/or other trolley vehicle propelled by externally attached diesel units.

- **Streetcar Improvements and Vehicles.** Under the No-Build Alternative, the existing Portland Streetcar Line would continue to operate between NW 23rd Avenue and SW Lowell Street. In addition, the No-Build Alternative includes the Eastside Streetcar Project (currently under construction), which would extend streetcar tracks and stations across the Broadway Bridge, serving NE and SE Portland on N and NE Broadway and NE and SE Martin Luther King Boulevard and Grand Avenue to OMSI. With the Close the Loop Project, the Eastside Streetcar will be extended across the Willamette River, to complete the planned Streetcar Loop, via a new

transit, bicycle, and pedestrian bridge to be constructed under the Milwaukie Light Rail Project, connecting to the Streetcar line in the South Waterfront District. Under the No-Build Alternative in 2035, there would be 22 streetcars in the transit system (including spares), an increase of 11 compared to existing conditions.

- **Park-and-Ride Facilities.** Under the No-Build Alternative, the park-and-ride facilities in the corridor would be those that currently exist: a shared-use 30-space park-and-ride lot at Christ Church (1060 SW Chandler Road); a shared-use 34-space park-and-ride lot at Lake Oswego United Methodist Church (1855 South Shore Boulevard); and a shared use 12-space park-and-ride lot at Hope Church (14790 SW Boones Ferry Road).
- **Operations and Maintenance Facilities.** Under the No-Build Alternative, there would be one operations and maintenance facility within the corridor, which would be the existing streetcar maintenance building and storage yard on NW 16th Avenue under I-405. With the Streetcar Loop and Close the Loop Projects, the storage yard could accommodate 25 streetcars and the maintenance facility would have the capacity to service 36 streetcars (an increase in capacity of 13 and 18 vehicles, compared to existing conditions, respectively).

1.4.1.2 Transit Operations

This section summarizes the transit operating characteristics that would occur under the No-Build Alternative, focusing on bus and streetcar operations (see Table 1-2). Figure 1-1 illustrates the transit network for the No-Build Alternative in the vicinity of the corridor.

- **Bus Operations.** Bus operations under the No-Build Alternative would be similar to TriMet's existing fixed-route bus network with the addition of improvements included in the 2035 RTP's 20-year financially constrained transportation system (see Figure 1-1). Transit service improvements within the No-Build Alternative would be limited to those that could be funded using existing and readily-foreseeable revenue sources. Systemwide, those bus operations improvements would include: 1) increases in TriMet bus route frequency to avoid peak overloads and/or maintain schedule reliability; 2) increases in run times to maintain schedule reliability; and 3) incremental increases in TriMet systemwide bus service hours consistent with available revenue sources and consistent with the 2035 RTP's 20-year financially-constrained transit network, resulting in annual increases in service hours of approximately 0.5 percent per year. Specifically, the No-Build Alternative would include the operation of the TriMet bus route Line 35 between downtown Portland and Lake Oswego (continuing south to Oregon City).
- **Streetcar Operating Characteristics.** Under the No-Build Alternative, the City of Portland, through an operating agreement with the Portland Streetcar, Inc., would continue to operate the existing Portland Streetcar line between Northwest Portland and the South Waterfront District, via downtown Portland (see Figure 1-1). On average weekdays in 2035, the Streetcar line would operate every 12 minutes during the peak and off-peak periods. Further, the City of Portland would operate the Streetcar Loop Project, serving downtown Portland, the Pearl District, northeast and southeast Portland, OMSI and the South Waterfront District. Frequency on the line for an average weekday in 2035 would be every 12 minutes during the peak and off-peak periods.

1.4.2 Enhanced Bus Alternative

This section describes the roadway, bicycle and pedestrian, and transit capital improvements and transit operating characteristics under the Enhanced Bus Alternative, generally compared to the No-Build Alternative. The intent of the Enhanced Bus Alternative is to address the project's Purpose and Need without a major transit capital investment.

1.4.2.1 Capital Improvements

This section summarizes the transit, bicycle and pedestrian, and transit capital improvements that would occur under the Enhanced Bus Alternative, compared to the No-Build Alternative (see Table 1-1 and Figure 1-2).

- **Roadway Capital Improvements.** Except for the addition of a two-way roadway connection between the proposed 300-space park-and-ride lot and Foothills Road, there would be no change in roadway improvements under the Enhanced Bus Alternative, compared to the No-Build Alternative.
- **Bicycle and Pedestrian Improvements.** There would be no change in bicycle and pedestrian improvements under the Enhanced Bus Alternative, compared to the No-Build Alternative.
- **Bus Capital Improvements.** Under the Enhanced Bus Alternative, the 26 bus stops that would be served by Line 35 between downtown Lake Oswego and SW Bancroft under the No-Build Alternative would be consolidated into 13 bus stops, which would continue to be served by Line 35 (the other 13 bus stops would be removed). The bus stops served by Line 35 between Lake Oswego and Oregon City would be unchanged under the Enhanced Bus Alternative, compared to the No-Build Alternative.
- **Light Rail Capital Improvements.** There would be no change in light rail capital improvements under the Enhanced Bus Alternative, compared to the No-Build Alternative.
- **Excursion Trolley Capital Improvements.** There would be no change in excursion trolley capital improvements under the Enhanced Bus Alternative, from the No-Build Alternative.
- **Streetcar Improvements and Vehicles.** There would be no change in streetcar improvements and vehicles under the Enhanced Bus Alternative, compared to the No-Build Alternative.
- **Park-and-Ride Facilities.** In addition to the park-and-ride facilities included under the No-Build Alternative, the Enhanced Bus Alternative would include a 300-space structured park-and-ride lot that would be located at Oswego Village Shopping Center on Highway 43 in downtown Lake Oswego. The park-and-ride lot would be served by Lines 35 and 36.
- **Operations and Maintenance Facilities.** There would be no changes to the region's operations and maintenance facilities under the Enhanced Bus Alternative, compared to the No-Build Alternative, except that the capacity of TriMet's bus operating and maintenance facilities at either the Center or Powell facility would be expanded to accommodate the additional 13 buses under the Enhanced Bus Alternative (see the *Detailed Definition of Alternatives Report* for additional information).

1.4.2.2 Transit Operations

This section summarizes the corridor's transit operations under the Enhanced Bus Alternative, focusing on bus and streetcar operations. Figure 1-2 illustrates the transit network for the Enhanced Bus Alternative in the vicinity of the corridor.

- **Bus Operations.** Except for changes to the routing, frequency, and number of stops of Line 35 and the elimination of Line 36 service between downtown Portland and downtown Lake Oswego, bus operations under the Enhanced Bus Alternative would be identical to the bus operations under the No-Build Alternative. Under the Enhanced Bus Alternative, Line 35's routing between Oregon City and Lake Oswego would remain unchanged relative to the No-Build Alternative. Further, between Lake Oswego and downtown Portland there would be two routing changes to Line 35, compared to the No-Build Alternative: 1) the bus would be rerouted to serve the new park-and-ride lot at the Oswego Village Shopping Center; and, 2) in downtown Portland, Line 35 would be rerouted to serve SW and NW 10th and 11th avenues, generally between SW Market and Clay streets and NW Lovejoy Street/Union Station to address the travel markets.
- **Streetcar Operating Characteristics.** Under the Enhanced Bus Alternative, there would be no change in streetcar operating characteristics, compared to the No-Build Alternative.

1.4.3 Streetcar Alternative

This section describes the roadway, bicycle and pedestrian, and transit capital improvements and transit operating characteristics under the Streetcar Alternative, generally compared to the No-Build Alternative.

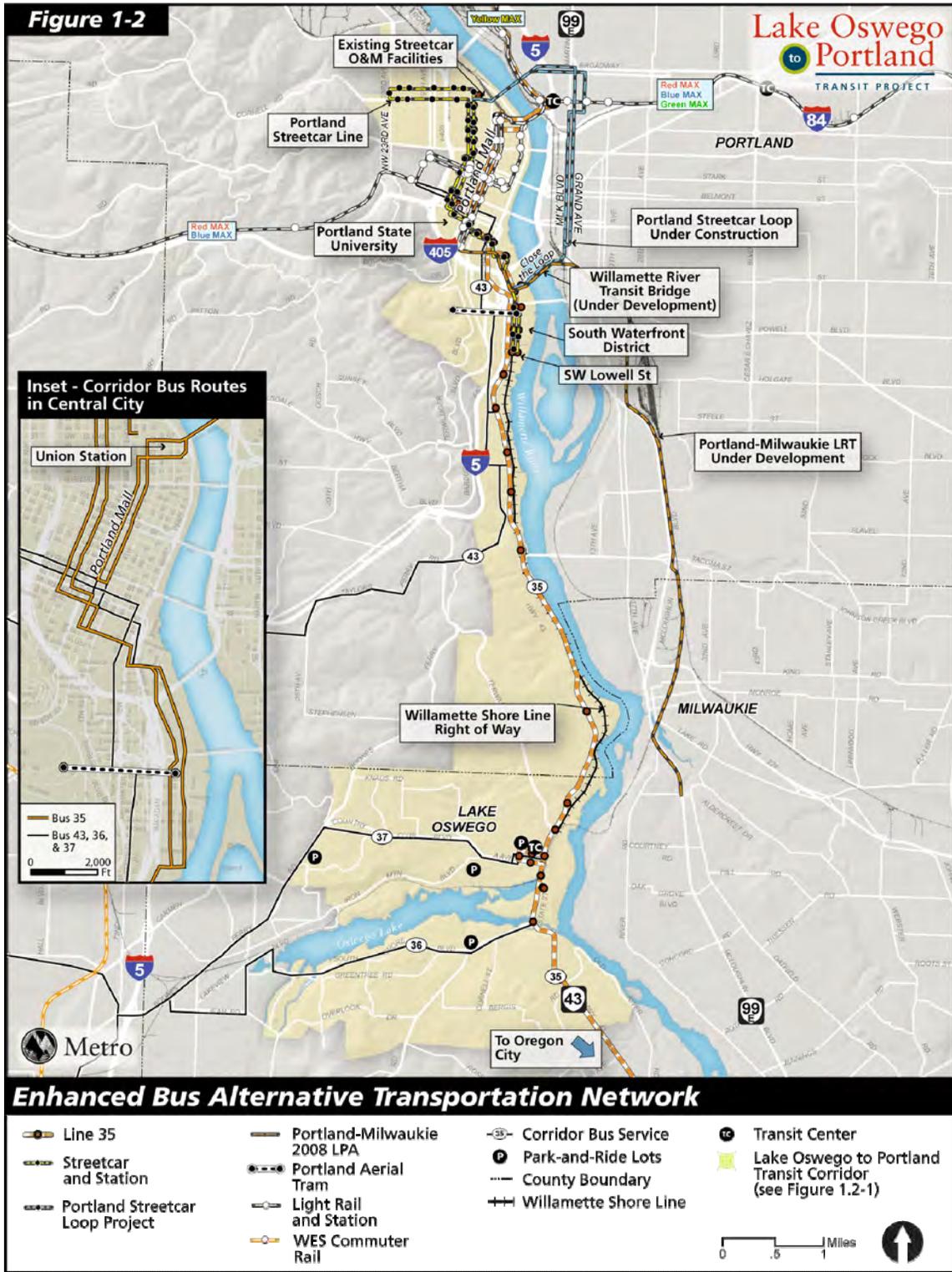
1.4.3.1 Capital Improvements

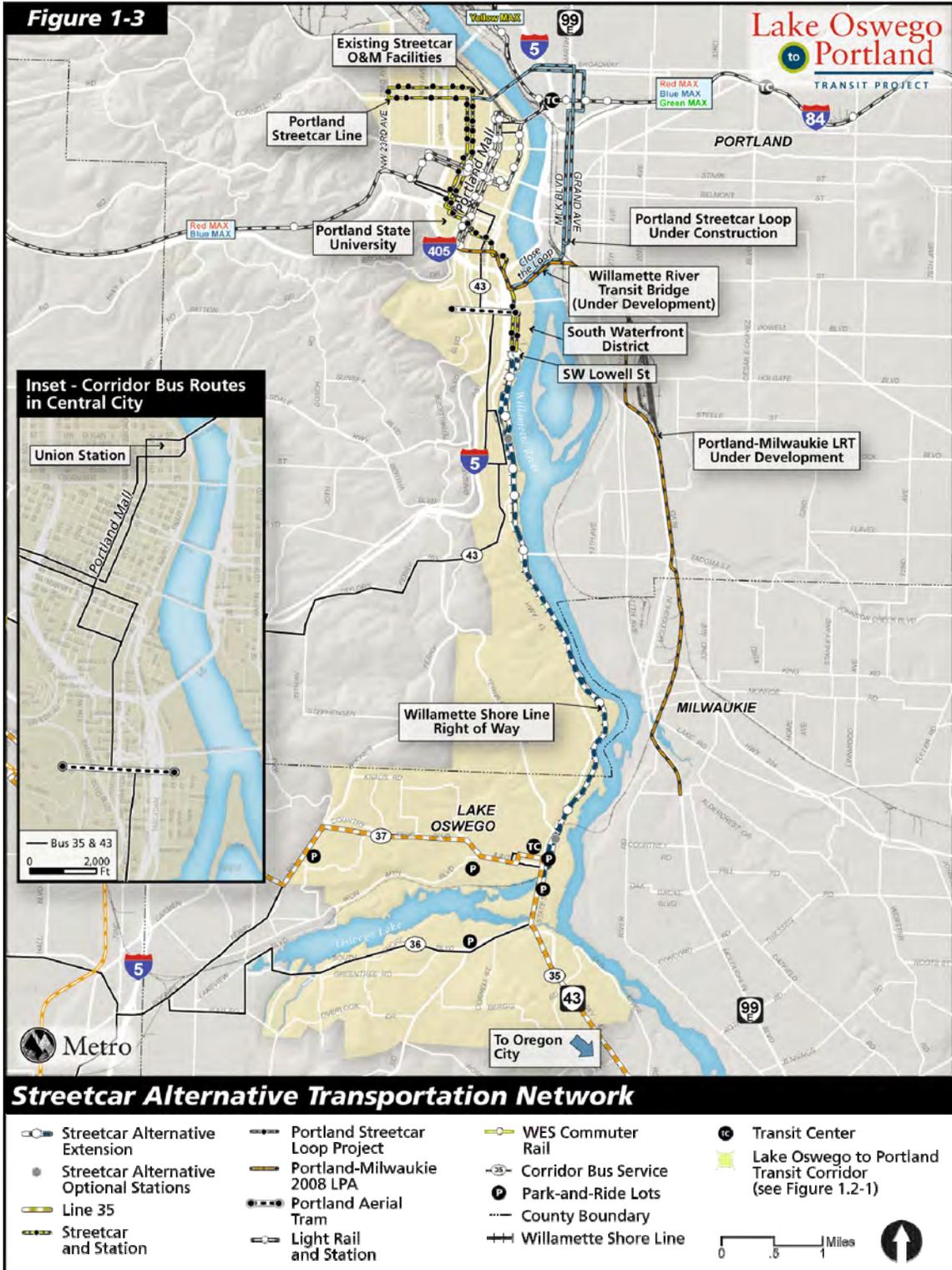
This section summarizes the transit, bicycle and pedestrian, and transit capital improvements that would occur under the Streetcar Alternative, generally compared to the No-Build Alternative (see Table 1-1 and Figure 1-3). This section provides a general description of the capital improvements that would occur under the Streetcar Alternative, independent of design option, and it highlights the differences between design options within three of the corridor's segments.

A. Summary Description

Following is a general description of the roadway, bicycle and pedestrian, and transit improvements that would occur under the Streetcar Alternative. The next section provides a description of differences in capital improvements for design options that are under consideration in three of the project's six segments. See Figure 1-4 for an illustration of the project segments and the design options under consideration.

- **Roadway Capital Improvements.** There would be no roadway improvements under the Streetcar Alternative in the following corridor segments: 1) Downtown Portland; and 2) South Waterfront. The roadway capital improvements that would occur in the other corridor segments are described below for those segments. Changes to traffic controls at signalized and non-signalized intersections would occur throughout the corridor to accommodate the safe and efficient operation of the streetcar and local traffic. The *Detailed Definition of Alternatives*





Report and the *Streetcar Plan Set* provide additional details on changes to traffic operations at intersections under the Streetcar Alternative.

- **Bicycle and Pedestrian Improvements.** There would be no change in bicycle and pedestrian improvements under the Streetcar Alternative, compared to the No-Build Alternative, except as noted in the following segment-by-segment description.
- **Bus Capital Improvements.** Under the Streetcar Alternative, all 26 bus stops that would be served by Line 35 on Highway 43 between downtown Lake Oswego and the Sellwood Bridge and on SW Macadam Boulevard north of SW Corbett Street under the No-Build Alternative would be removed, because Line 35 service would be replaced in the corridor by streetcar service. The bus stops served by Line 35 between Lake Oswego and Oregon City would be unchanged under the Streetcar Alternative, compared to the No-Build Alternative. In addition, under the Streetcar Alternative, the Lake Oswego Transit Center would be relocated to be adjacent to the Lake Oswego Terminus Station, from its existing location on 4th Street, between A and B avenues. The changes to the bus capital improvements under the Streetcar Alternative would not vary by any of the design options under consideration.
- **Light Rail Capital Improvements.** There would be no change in light rail capital improvements under the Streetcar Alternative, compared to the No-Build Alternative.
- **Interim Excursion Trolley Capital Improvements.** Under the Streetcar Alternative, there would no longer be an operating and maintenance agreement between the City of Lake Oswego and the Willamette Shore Line Consortium that would allow for the operations of the excursion trolley between SW Bancroft Street and Lake Oswego. Further, the Oregon Electric Railway Historical Society would no longer operate the vintage excursion trolley on the Willamette Shore Line alignment under agreement with the City of Lake Oswego, as they currently do and as they would under the No-Build and Enhanced Bus Alternatives.
- **Streetcar Improvements and Vehicles.** The Streetcar Alternative would extend streetcar tracks and stations south from the existing Portland Streetcar line that operates between NW 23rd Avenue and SW Bancroft Street. Compared to existing conditions and the No-Build Alternative, the Streetcar Alternative would add approximately 5.9 to 6.0 one-way miles of new streetcar tracks and catenary (overhead electrical wiring and support) and ten new streetcar stations between SW Bancroft Street and Lake Oswego. Except when crossing over waterways, roadways, or freight rail lines or through an existing tunnel, the new streetcar line would generally be at the same grade as existing surface streets. Of the approximately six miles of new streetcar tracks, 5.3 miles would be double-tracked (i.e., two one-way tracks) and 0.7 miles would be single-tracked (i.e., inbound and outbound streetcars would operate on the same tracks; see Figure 1-4 for an illustration of the location of single and double-track segments). The new streetcar stations would be of a design similar to the existing streetcar stations in downtown Portland and the Pearl District.
- **Park-and-Ride Facilities.** In addition to the park-and-ride facilities included under the No-Build Alternative, the Streetcar Alternative would include: a) a 100-space surface park-and-ride lot served by the proposed streetcar line at the B Avenue Station; and b) a 300-space structured park-and-ride lot that would be served by the proposed streetcar line at the Lake Oswego

Terminus Station. The size and location of these park-and-ride lots would not vary by any of the design options under consideration.

- **Operations and Maintenance Facilities.** With the Streetcar Alternative, a new storage facility that would accommodate eight streetcars would be located adjacent to the streetcar alignment under the Marquam Bridge. The size and location of the streetcar operating and maintenance facilities would not vary by any of the design options under consideration.

B. Segment by Segment Description and Design Option Differences

For the purposes of description and analysis, the Lake Oswego to Portland Corridor has been divided into six segments for the Streetcar Alternative – those segments and design options within three of the segments are illustrated schematically in Figure 1-4. Figure 1-3 illustrates the proposed roadway improvements, streetcar alignment, stations, and park-and-ride lots that would occur in the corridor under the Streetcar Alternative. Figures 1-5 and 1-6 provide more detailed illustrations of the streetcar design options currently under study.

1. Downtown Portland Segment. There would be no roadway or bicycle and pedestrian improvements within the Downtown Portland Segment under the Streetcar Alternative, compared to the No-Build Alternative. Under the Streetcar Alternative, a connection would be added between westbound streetcar tracks on SW Market Street to southbound tracks on W 10th Avenue, which would allow inbound streetcars from Lake Oswego to turn back toward Lake Oswego, providing increased operational flexibility. There are no streetcar alignment design options within this segment and there would be no new streetcar stations within this segment.

2. South Waterfront Segment. The South Waterfront Segment extends between SW Lowell Street to SW Hamilton Court. Streetcar tracks would be extended south of their existing southern terminus at SW Lowell Street, within the right of way of the planned Moody/Bond Couplet extension, to SW Hamilton Street. There would be two new streetcar stations within this segment (Bancroft and Hamilton stations).

3. Johns Landing Segment. The Johns Landing Segment extends between SW Hamilton Court to SW Miles Street. This segment includes three design options: Willamette Shore Line; Macadam In-Street; and Macadam Additional Lane. Under all options, the streetcar alignment would extend south from SW Hamilton to near SW Julia Street, generally within the existing Willamette Shore Line right of way. The three design options would include two new streetcar stations at varying locations, described below. To the south, all three options would share a common alignment between SW Carolina and SW Miles Street, generally via the existing Willamette Shore Line right of way, and they would share one common station at SW Nevada. Following is a description of how the design options would differ:

- a. *The Willamette Shore Line Design Option*** would continue the extension of streetcar tracks south within the existing Willamette Shore Line right of way from SW Julia Street to SW Carolina Street (extending to SW Miles Street). There would be three new streetcar stations (Boundary, Nebraska, and Nevada stations).
- b. *The Macadam In-Street Design Option*** would locate the new streetcar tracks generally within the existing outside lanes of SW Macadam Avenue, approximately between SW Boundary and Carolina streets. Between approximately SW Julia and Boundary streets, the

streetcar alignment would be within the right of way of SW Landing Drive, which would be converted from a private to a public street. There would be three new streetcar stations (Boundary, Carolina, and Nevada stations). An optional station at Pendleton Street is also under consideration.

Segments

Design Options

Single-Track Sections
(All others are double-track sections)

Yellow = Short-Term Single Track
Red = Long-Term Single Track

1 - Downtown Portland

2 - South Waterfront

3 - Johns Landing

Willamette Shore Line
Macadam Additional Lane
Macadam In-Street

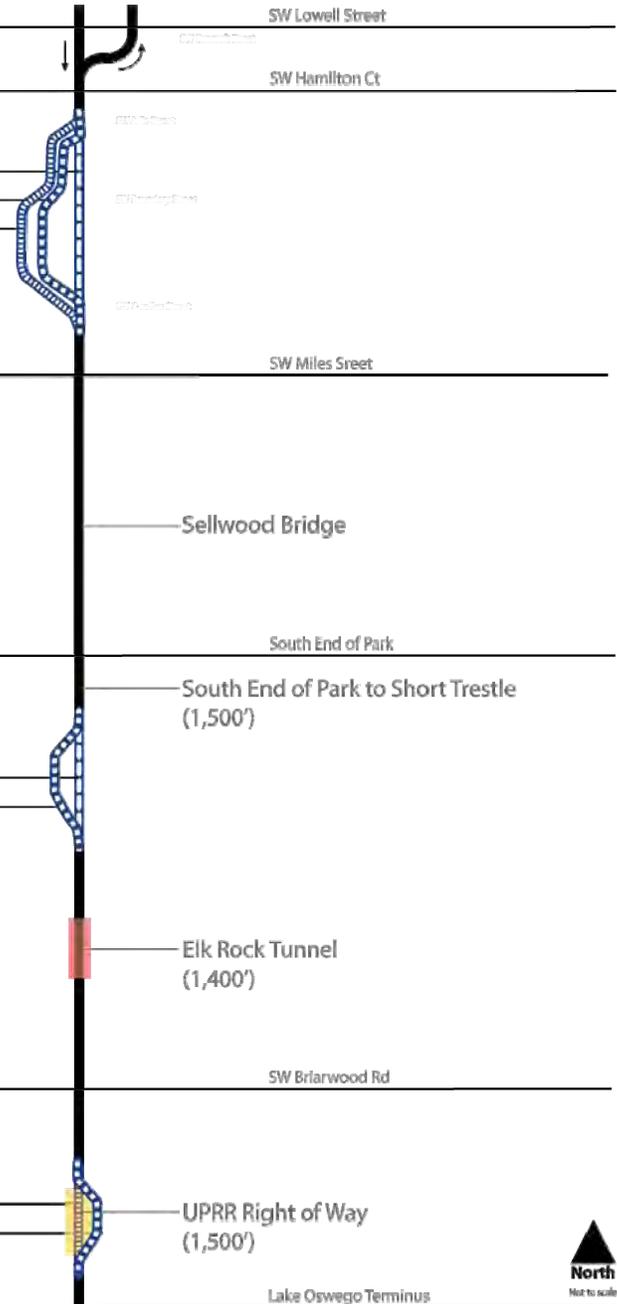
4 - Sellwood Bridge

5 - Dunthorpe/Riverdale

Willamette Shore Line
Riverwood

6 - Lake Oswego

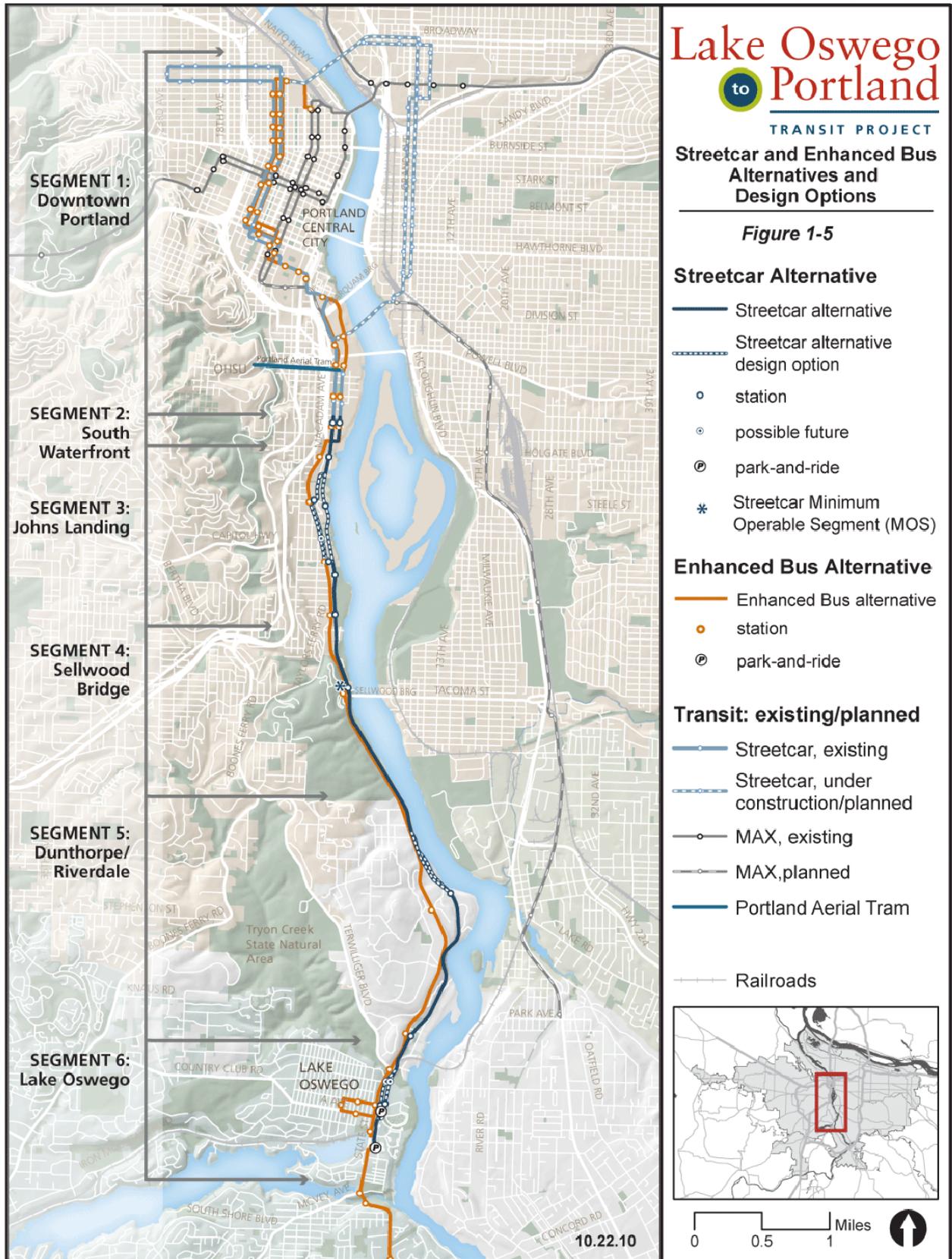
UPRR Right of Way
Foothills



Streetcar Alternative Design Option Locations

Figure 1-4

- c. *The Macadam Additional Lane Design Option* would be similar to the Macadam In-Street Design Option, except that the new northbound streetcar tracks would be located within a new traffic lane just east of the existing general purpose lanes – streetcars would share the new lane with right-turning vehicles. Between approximately SW Julia and Boundary streets, the streetcar alignment would be within the right of way of SW Landing Drive, which would be converted from a private to a public street. There would be three new streetcar stations (Boundary, Carolina, and Nevada stations). An optional station at Pendleton Street is also under consideration.



Streetcar Alternative
Design Option Details

Figure 1-6

Johns Landing Design Options

- Willamette Shore Line
- Macadam In-Street
- Macadam Additional Lane

Dunthorpe/Riverdale Design Options

- Willamette Shore Line
- Riverwood

Lake Oswego Design Options

- UPRR Right of Way
- Foothills

- Streetcar alignment common for all options
- Streetcar design options
- ⊙ P Streetcar station park and ride
- ⊙ Optional station
- ⊙ TC Transit Center

Map Index



JOHNS LANDING



DUNTHORPE/RIVERDALE



LAKE OSWEGO



Oct 22, 2010

4. Sellwood Bridge Segment. The Sellwood Bridge Segment extends from Miles Street to the southern end of Powers Marine Park. Generally, the streetcar alignment would be located in the Willamette Shore Line right of way, except for the area between Stephens Creek and approximately 1,200 feet south of the Sellwood Bridge. In this area, the streetcar alignment would be constructed in conjunction with the planned west interchange improvements with the Sellwood Bridge. The streetcar would be located slightly east of the existing Willamette Shore Line right of way. The design and construction of the streetcar alignment under this design option would be coordinated with the design and construction of the new interchange for the Sellwood Bridge. There would be one new streetcar station within this segment (the Sellwood Bridge Station).

5. Dunthorpe/Riverdale Segment. The Dunthorpe/Riverdale Segment extends between the southern end of Powers Marine Park and SW Briarwood Road. There are two design options in this segment: Willamette Shore Line Design Option and Riverwood In-Street Design Option. Both options would share a common alignment within the Willamette Shore Line right of way, generally north of where SW Riverwood Road intersects with Highway 43 and generally south of the intersection of SW Military Road and SW Riverwood Road. One streetcar station is proposed within this segment, generally common to both design options (the Riverwood Station). Following is a description of how the design options would differ:

- a. ***The Willamette Shore Line Design Option*** would generally locate the new streetcar alignment in the existing Willamette Shore Line right of way between the intersections of SW Riverwood Road and Highway 43 and SW Riverwood Road and SW Military Road.
- b. ***The Riverwood Design Option*** would locate the new streetcar alignment generally adjacent to Highway 43, north of SW Riverwood Road, and within the right of way of SW Riverwood Road, generally between where it intersects with Highway 43 (that intersection would be closed) and where it intersects SW Military Road. Except for the closure of the Highway 43 and SW Riverwood Road intersection, SW Riverwood Road would remain open to traffic, with joint operation with streetcars.

6. Lake Oswego Segment. The Lake Oswego Segment extends between SW Briarwood Road and the Lake Oswego Terminus Station. There are two design options within this segment: the UPRR Right of Way (UPRR ROW) Design Option and the Foothills Design Option. Both options would generally be the same in two sections: 1) the new streetcar line alignment would extend south from SW Briarwood Road to where the alignment would cross under the existing UPRR tracks; and 2) the new streetcar alignment would be located within a new roadway that would extend south from SW A Avenue to the alignment's terminus near the intersection of N State Street and Northshore Road. Both options would provide for a new bicycle and pedestrian connection under the existing UPRR tracks. There would be two stations within this segment, one that would be common to the two design options (Lake Oswego Terminus Station). An optional station at E Avenue is also under consideration.

This segment would include two park-and-ride lots, both of which would be generally common to the two design options. Following is a description of how the design options would differ:

- a. ***The UPRR ROW Design Option*** would extend the streetcar alignment south, generally in the UPRR right of way, from its under crossing of the existing UPRR tracks to SW A Avenue.

The B Avenue Station would be located on the west side of the 100-space surface park-and-ride lot.

- b. ***The Foothills Design Option*** would extend the streetcar alignment south from its under crossing of the UPRR tracks to SW A Avenue generally within the right of way of a new general purpose roadway (Foothills Road), which would be built as part of the Streetcar Alternative.

1.4.3.2 Transit Operations

This section describes transit operations under the Streetcar Alternative, generally compared to the No-Build Alternative (see Table 1-2). Figure 1-3 provides an illustration of the transit lines in the vicinity of the corridor under the Streetcar Alternative. There would be no difference in transit operations under any of the design options under consideration.

The Streetcar Alternative would extend the existing Portland Streetcar line from its current southern terminus at Lowell Street to the Lake Oswego Terminus Station in downtown Lake Oswego, expanding the streetcar length from 4 miles to 9.9 to 10 miles (depending on design option). The total round trip running time of the streetcar line between 23rd Avenue and downtown Lake Oswego (10 miles) in 2035 would be 105 or 112 minutes, excluding layover (based on the Willamette Shore Line and Macadam design options in the Johns Landing Segment, respectively). In comparison, under the No-Build Alternative the round trip running time for the streetcar line between 23rd Avenue and Lowell Street (4 miles) would be 68 minutes.

With the extension of streetcar service to Lake Oswego, Line 35 service between Lake Oswego and downtown Portland would be eliminated. The remainder of Line 35 between Oregon City and Lake Oswego would be combined with Line 78, in effect to create a new route between Oregon City and Beaverton. The new bus route and other TriMet transit routes serving downtown Lake Oswego would be rerouted to serve the relocated Lake Oswego Transit Center, which would be adjacent to Lake Oswego Terminus Station.

1.4.3.3 Construction Phasing Options

This section summarizes Streetcar Alternative construction phasing options currently under consideration – neither the No-Build Alternative nor the Enhanced Bus Alternative include construction phasing options. Currently, there are two types of construction phasing options or scenarios under consideration: 1) finance-related and 2) external project related. The Streetcar Alternative evaluated in this Technical Report and the DEIS is as Full-Project Construction. Should the Streetcar Alternative with phasing be selected as the Locally Preferred Alternative, during preliminary engineering (PE) additional analysis of environmental impacts resulting from the interim project alignment (as opposed to Full-Project Construction) will be conducted and additional opportunity for public review and comment may be required.

A. Finance-Related Phasing Options

Following is a description of the two finance-related phasing options currently under consideration.

- **Full-Project Construction.** Under the first construction phasing option, the project would be constructed and opened in its entirety as described within Section 2.2.2.
- **Sellwood Bridge Minimum Operable Segment (MOS).** Under the Sellwood Bridge MOS phasing option, the Streetcar Alternative would be initially constructed between SW Lowell Street and the Sellwood Bridge, with a second construction phase between the Sellwood Bridge and the Lake Oswego Terminus Station occurring prior to 2035. Under this construction phasing option, there would be no additional park-and-ride facilities in the corridor, compared to existing conditions. Under this phasing option, Line 35 would operate between Oregon City and the Nevada Street Station; frequencies would be adjusted to meet demand. Service and bus stops served exclusively by Line 35 would be deleted between the Nevada Station and downtown Portland.

B. External Project Coordination Related Phasing Options

Following is a description of phasing options related to the coordination of the Streetcar Alternative, if it is selected as the LPA, and other external projects. These external project coordination related phasing options represent interim steps in the construction process that would be taken to implement the Streetcar Alternative.

- **South Waterfront Segment Phasing Options.** If the planned and programmed South Portal roadway improvements are not in place or would not be constructed concurrently with the Streetcar Alternative, there would be two options for proceeding with construction of the streetcar alignment in the segment: 1) a different streetcar alignment using the Willamette Shore Line right of way would be initially constructed within the South Waterfront Segment; or 2) the streetcar alignment and its required infrastructure improvements would be constructed consistent with the alignment under the Full-Project Construction phasing option, but other non-project roadway improvements would be constructed at a later date by others. If the Willamette Shore Line right of way were to be used, then, when the South Portal roadway improvements were made, the streetcar alignment would be reconstructed consistent. The transit operating characteristics of the Streetcar Alternative would not be affected by this phasing option.
- **Sellwood Bridge Segment Phasing Options.** The Sellwood Bridge Segment includes two phasing options for the Streetcar Alternative that reflect two potential phasing options or scenarios for construction of the project in relationship to construction of a proposed new interchange that is planned to occur with the Sellwood Bridge replacement project. If the new interchange is constructed prior to or concurrently with the Streetcar Alternative, the initial and long-term streetcar alignment would be based on the new interchange design. The new interchange design is the basis for the analysis in this technical report and the DEIS. If the proposed interchange is constructed after the Streetcar Alternative, then the initial streetcar alignment to be constructed would be in the Willamette Shore Line right of way. Subsequently, when the proposed interchange is constructed, the Sellwood Bridge replacement project would relocate the streetcar alignment with the new interchange design. Therefore, the long-term streetcar alignment would be the new interchange and the Willamette Shore Line phasing option would only be implemented as an interim alignment. Therefore, the two design options in this

segment do not constitute a choice of alignments – instead they represent two construction phasing scenarios, dependent upon how external conditions transpire.

- The Foothills Design Option. The Foothills design option of the Streetcar Alternative is based on roadway improvements that would occur under the City of Lake Oswego’s Foothills redevelopment project. If those roadway improvements are not constructed prior to or concurrently with construction of the streetcar alignment, then the Lake Oswego to Portland Transit Project would construct the streetcar alignment and required infrastructure improvements using the same alignment and the roadway improvements would be added at a later date by others.

2. EVALUATION METHODS

2.1 Related Laws and Regulations

This technical report prepared as part of compliance with the National Environmental Policy Act of 1969² the Federal Transit Administration's implementing regulations,³ and applicable regulations of the Council on Environmental Quality.⁴ The statutes and administrative rules that comprise the Oregon Statewide Planning Program apply to the sponsors of the LOPT and to other jurisdictions within which it would be built. A build alternative would need to be included in Metro's regional transportation plan (RTP), the transportation system plans (TSPs) of Lake Oswego, Portland, Clackamas County, and Multnomah County, and TriMet's Transit Investment Plan. The Transportation Planning Rule (TPR),⁵ part of the Statewide Planning Program, applies to these plans. Specifically:

- TPR Section 660-012-0015(2)(c) states, "Metropolitan service districts shall adopt a regional TSP for areas within their jurisdiction. . ." Metro is a metropolitan service district.
- Regarding cities and counties, which include Lake Oswego, Portland, Clackamas County, and Multnomah County, TPR Section 660-012-0015(3) states:

Cities and counties shall prepare, adopt and amend local TSPs for lands within their planning jurisdiction in compliance with this division:

- (a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP;
 - (b) Where the regional TSP or elements of the state TSP have not been adopted, the city or county shall coordinate the preparation of the local TSP with the regional transportation planning body and ODOT to assure that regional and state transportation needs are accommodated.
- Regarding mass transit districts, which include TriMet, TPR Section 660-012-0015(6) states:

Mass transit, transportation, airport and port districts shall participate in the development of TSPs for those transportation facilities and services they provide. These districts shall prepare and adopt plans for transportation facilities and services they provide. Such plans shall be consistent with and adequate to carry out relevant portions of applicable regional and local TSPs.

Other relevant laws are:

1. Oregon Revised Statute (ORS) 268.390(4), which authorizes Metro, the Portland regional government, to "recommend or require cities and counties, as it considers necessary, to make

² 42 U.S.C. 4321 et seq.

³ Environmental Impact and Related Procedures, 23 CFR part 771.

⁴ Regulations for Implementing NEPA, Part 1506.

⁵ Oregon Administrative Rules Chapter 660, Division 12.

changes in any plan to ensure that the plan and any actions taken under the plan substantially comply with the district's functional plans . . .”

2. ORS 268.390(5)(a), which authorizes Metro to “Require local comprehensive plans and implementing regulations to substantially comply with the regional framework plan . . .” This requires the Cities of Lake Oswego and Portland, which are project sponsors, to comply with the region's transportation plan.
3. ORS 197.175, which requires cities and counties to adopt comprehensive plans and comply with them.

2.3 Methodology for Affected Environment Profile

The method was to:

- Map existing land use, comprehensive plan designations, and zoning in the area of the project alternatives. The source of the mapped information was the Regional Land Information System of Metro's Data Center. Project team members corrected errors in the existing land use data. They mapping used generalized categories of comprehensive plan designations and zone districts because four different comprehensive plans and three zoning codes apply to the project area, Portland's, Multnomah County's, Clackamas County's, and Lake Oswego's (Portland's zoning code applies to the Multnomah County portion of the project area). Distinguishing among the designations and zone districts would have made the maps too complex to be useful. The resulting maps are Figures 1, 2, and 3, on pages 32, 33, and 33.
- Interview staff of the Cities of Lake Oswego and Portland to check the accuracy of the land use, plan designation, and zoning maps referenced above; verify what plan documents are applicable to project alternatives; and learn of pending plan amendments, planned urban renewal actions, planned roadway improvements, and possible development projects.

2.4 Methodology for Impact Assessment

2.4.1 Direct Impacts

Direct land use impacts are conversions of land to project use. The method was to:

- identify the land that the project would use permanently, based on project plans;
- estimate its acreage by current use, comprehensive plan designation, and zoning; and
- tabulate the results by alternative and option. The tables are on pages 37 and 38.

2.4.2 Indirect Impacts

For this project, indirect land use impacts are defined as changes in land use resulting from how alternatives affect the likelihood that land would be redeveloped. The method was to:

- Identify and review studies of the effects of streetcar lines on land development. Only two such studies were found. One was a 2005 study of the development impacts of the original Portland

Streetcar project.⁶ The other was a 2008 study of the relationship between streetcar lines and development in the Twin Cities area of Minnesota from 1900 to 1930.⁷

- Map and tabulate the amount of unused allowed floor area in the area within the “redevelopment potential measurement areas” (RPMAs) for each of the stations proposed as part of the Streetcar Alternative. Figures 4-4, 4-6, and 4-8 in pages 44, 46, 54 show the boundaries of these RPMAs. The RPMA boundaries were determined by drawing a circle with an 800-foot radius from each station (or the center point between stations near each other), then drawing the boundaries to follow property boundaries near the circles. In addition, the boundaries were drawn to exclude land west of Interstate-5 and land used and zoned for single-family use, parks, and other land in public ownership or otherwise unlikely to be redeveloped. The 800-foot radius balanced two considerations. The first was that most of the redevelopment impact of the original Portland Streetcar project occurred within one block of its route, which equates to a distance of about 400 feet. The second was that limiting the measurement area to one block or 400 feet would exclude redevelopment potential located further away. The reach of the impacts on redevelopment of the Streetcar Alternative is expected to be greater because the distance between stations is greater than the distance between stations of the original Portland Streetcar project and there is less of a grid street pattern along the Streetcar Alternative’s route.

Metro’s Data Center provided the mapped floor area data. The data for the Portland stations originally came from the development capacity model of the City of Portland Bureau of Planning (now the Bureau of Planning and Sustainability). The model’s designer described how it works as follows.

For estimating building square footage from the 3D model:

The 3D model was constructed using aerial photographs to identify the building location, and stereo aerial photographs, LiDAR data, or 3D models provided by the building developer as the building height reference. We divide the height of each "piece" of every 3D building by an estimated floor height (12' residential, 15' commercial, and 19' industrial). The result is truncated to get the estimated number of floors. The number of floors is multiplied by the base area (or "footprint") of each piece of the building to get the total gross square footage of that piece of the building. The total estimated square footage of the building is the sum of the square footages of all the building pieces. The square footages are then assigned to individual parcels based on the percentage of a given building or buildings within each parcel.

Amount of square footage the zoning allows on a parcel:

This is calculated . . . by multiplying the area of a parcel (or portion of a parcel) by the FAR allowed on the parcel (or portion of a parcel).⁸

⁶ E.D. Hovee & Company, LLC, Portland Streetcar Development Impacts, November 2005.

⁷ Feng Xie and David Levinson, How Streetcars Shaped Suburbanization: A Granger-Causality Analysis of Land Use and Transit in The Twin Cities, July 28, 2008.

⁸ E-mail from Kevin Martin, City of Portland Bureau of Planning, June 22, 2006.

Unused allowed floor area is the difference between the amount of square footage the zoning allows and the estimated existing square footage.

Metro's Data Center produced the data for the City of Lake Oswego stations using the City of Portland methodology.

Table 4-4 on page 39 contains the tabulations of the unused floor area data.

- Map and tabulate the ratio of the value of improvements to the value of land in the same RPMAs. The values came from property tax assessment records. The Segment 2, 3, and 4 values are for 2008 and the Segment 6 values are for 2009. Table 4-4 on page 39 contains the tabulations of the value ratio data. See the Table 4-4 footnotes for additional details.
- Review City of Lake Oswego redevelopment plans for the areas near the Streetcar Alternative stations and City of Portland redevelopment plans for the areas near the Streetcar Alternative stations in the South Waterfront area (there are no such plans for the areas near the other proposed stations).

2.4.3 Cumulative Impacts

The method was to identify other projects, plans, policies, or trends that could combine with the Enhanced Bus and Streetcar Alternatives in a way that would materially alter their land use impacts, then assess in qualitative terms the combined impacts. In Lake Oswego, the Streetcar Alternative would be one element of a City strategy to redevelop the areas near the stations. Similarly, streetcar construction is one element of the City of Portland's redevelopment strategy in the South Waterfront area. The analysis treats the other elements of these strategies partly under indirect impacts and partly under cumulative impacts. The intent was to avoid a rigorous parsing of what is an indirect vs. cumulative impact obscuring a comparison of how the impacts of the alternatives and options compare with each other.

2.5 Methodology for Identifying Potential Mitigation Measures

Adverse land use impacts of transportation projects like the LOPT are direct land use impacts that create a shortage of land for particular uses or changes in land use caused indirectly that are inconsistent with applicable land use plans. Because of the small size of direct impacts of project alternatives relative to the local and regional land supplies, they would not cause land supply shortages and mitigation of direct impacts is not considered in this report. Projects in Oregon normally do not have adverse land use impacts because land use plans prevail over project impacts on the use of land. Therefore, the need for mitigation is rare and no such needs were identified for the project alternatives.

2.6 Compliance with Plans and Policies

The method was to:

- Identify and compile the plans and policies applicable to project alternatives from the state transportation system plan, RTP, and the comprehensive plans of the City of Lake Oswego, City of Portland, Multnomah County, and Clackamas County.
- Analyze the compliance of the alternatives with the plans and policies.
- Identify the land use permits each jurisdiction would require for the build alternatives.

3. CONTACTS, COORDINATION, AND CONSULTATION

There are no specific, legal requirements for coordination in the preparation of the land use and planning technical report. There are coordination requirements that will apply if it is necessary to amend the RTP, TSPs, and comprehensive plans referenced above to include a LOTP build alternative or achieve compliance with plan policies. TPR Section 660-012-0015(5) states, “The preparation of TSPs shall be coordinated with affected state and federal agencies, local governments, special districts, and private providers of transportation services.” This applies to the amendment of TSPs.

In preparing this report, the author consulted with the following staff members of the Cities of Lake Oswego and Portland:

City of Lake Oswego

Dennis Egner, Long-Range Planning Manager
Robert Gallante, Redevelopment Director
Brant Williams, Director of Economic & Capital Development

City of Portland

Troy Doss, Senior Planner, Central City Team, Bureau of Planning and Sustainability
Joan Frederiksen, Southwest District Liaison, Bureau of Planning and Sustainability
Art Pearce, Project Manager, Portland Bureau of Transportation
Mark Raggett, Urban Design Studio, Bureau of Planning and Sustainability
Jody Yates, South Waterfront Projects Manager, Portland Bureau of Transportation

4. EXISTING AND PLANNED LAND USE AND LAND USE IMPACTS

This section addresses direct, indirect, and cumulative land use impacts. Direct impacts are defined as converting land from its existing use to use by the project. Indirect land use impacts are defined as changes in the use of land resulting from how alternatives affect the likelihood that land would be redeveloped. Cumulative impacts are indirect impacts caused in combination with other projects, policies, or actions.

4.1 Segment 1, Downtown Portland

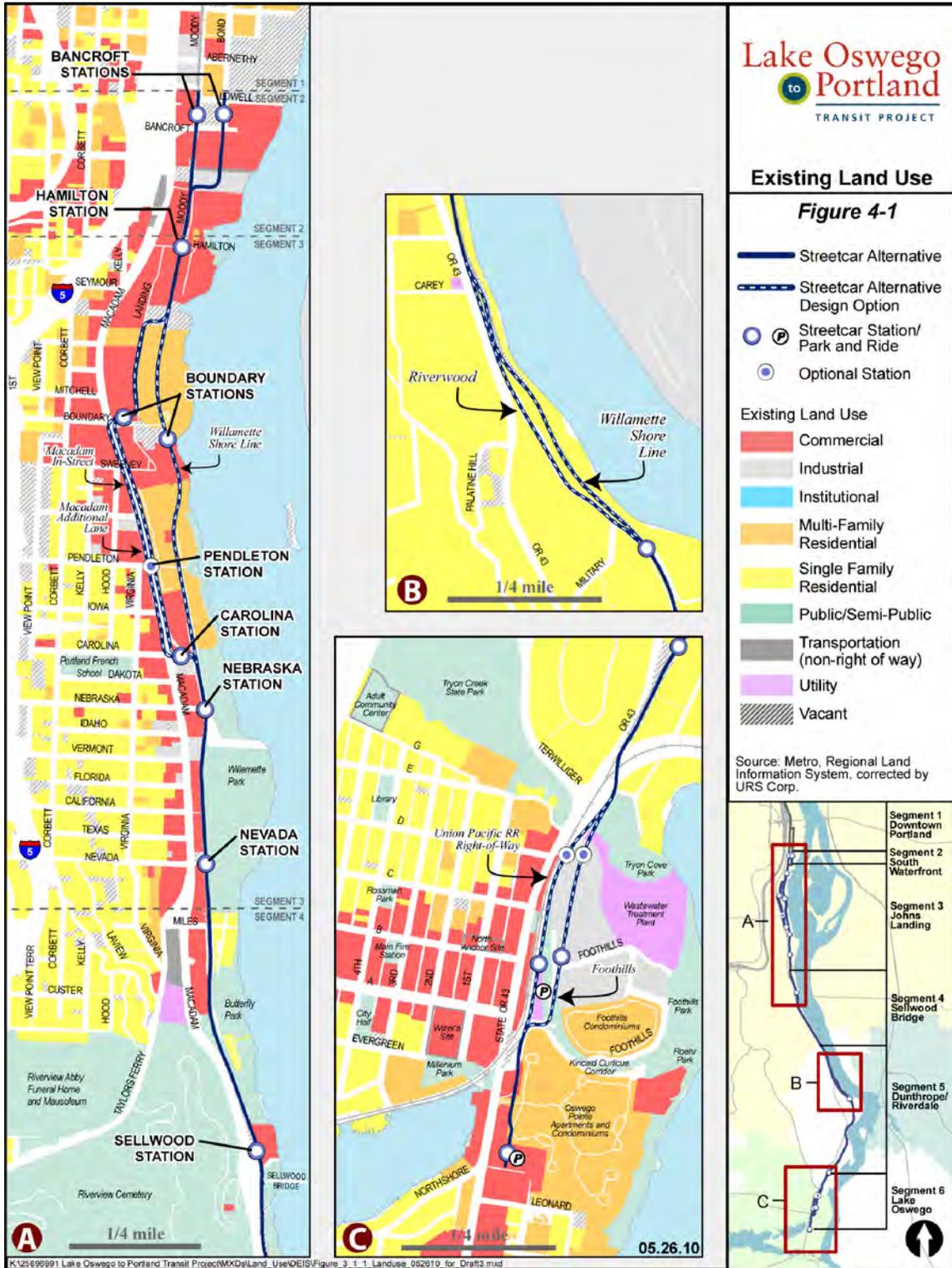
The report does not address land use impacts in Segment 1 because the project would include only very minor improvements there that would not have any land use impacts.

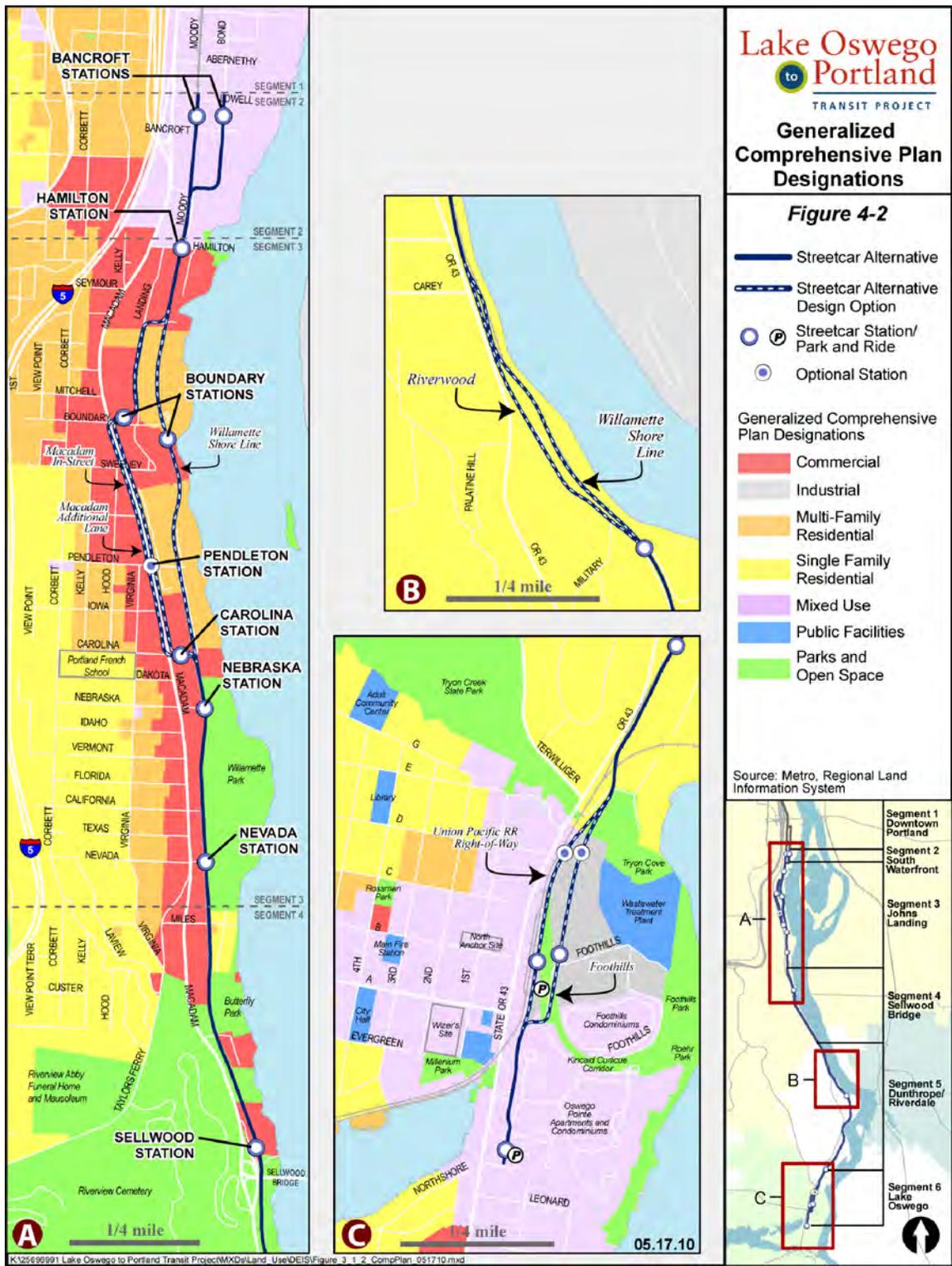
4.2 Segment 2, South Waterfront

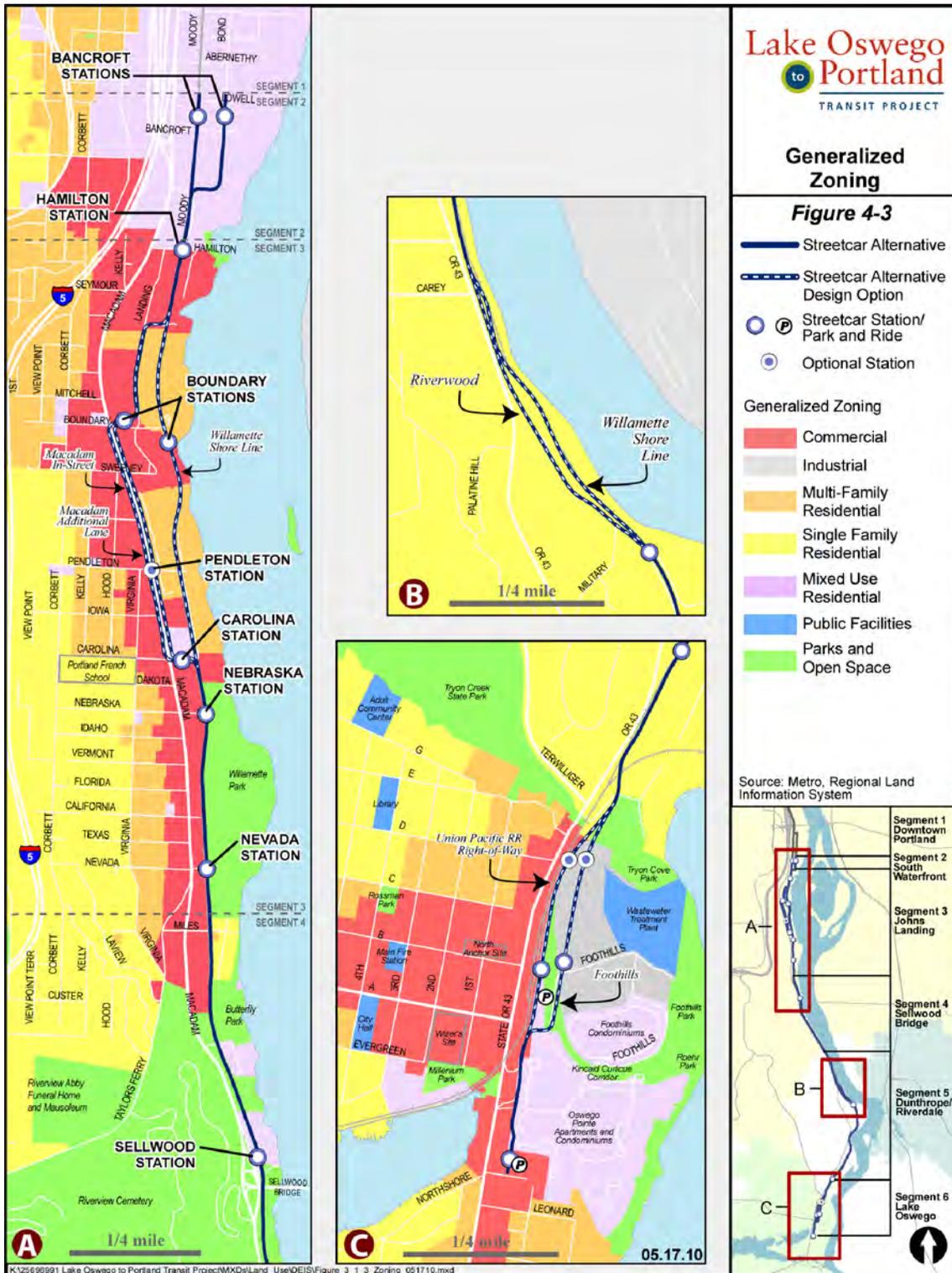
4.2.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions

Figure 4-1 shows existing land use in Segment 2, South Waterfront. Figure 4-2 shows generalized comprehensive plan designations and Figure 4-3 generalized zoning.⁹ Segment 2 is toward the south end of Portland's South Waterfront area, which has seen extensive redevelopment since 2000. This redevelopment has included an office and health services tower that is part of Oregon Health Sciences University (OHSU), a tram linking the tower to the main OHSU campus on the hilltop to the west, five high-rise condominium and apartment buildings, a new local street network, and the extension of the original Portland Streetcar from downtown Portland. The redevelopment resulted from a collaboration among landowners, land developers, the City of Portland, and other parties. The City's role has included creation and use of the North Macadam Urban Renewal District to assemble properties and fund and build public improvements. While the 2008/2009 economic recession

⁹ "Generalized" means that the figures do not show the actual comprehensive plan designation and zoning districts of the City of Portland. Instead, they show categories to which Metro has assigned the City's plan designations and zoning districts. The figures use generalized categories because four different comprehensive plans and zoning codes apply to the project area, the City of Portland's, Multnomah County's, Clackamas County's, and the City of Lake Oswego's.







slowed development, several projects are under construction or pending. The Matisse, which consists of 270 market-rate apartments and about 15,500 square feet of ground-floor commercial space, is under construction on the block bounded by Moody Avenue, Bond Avenue, Lowell Street, and Abernethy Street. The Mirabella, a high-rise retirement center, is under construction north of the area the figures cover. The City of Portland is seeking to build 40 units of housing for low-income veterans on the block bounded by Moody Avenue, Bond Avenue, Lowell Street, and Bancroft Street. A school is considering redevelopment of the block immediately to the south and the school and U.S. General Services Administration are both considering development on the south side of the parcel between Moody and Macadam Avenues south of Bancroft Street. The City plans to extend Moody Avenue south to the vicinity of the proposed Hamilton Station, as shown on Figure 4-1. It also plans to connect the extended street to Macadam Avenue at a new intersection, referred to as the “South Portal.” The intersection is intended provide safer access between the South Waterfront area and Macadam Avenue than the existing intersection at Bancroft Street.

There are no pending amendments to the South Waterfront Plan, other than the amendments adopted informally, as discussed in footnotes 118 and 120. The City expects to continue to administer the North Macadam Urban Renewal District to facilitate redevelopment.

4.2.2 Impacts of the No-Build Alternative

The No-Build Alternative would not have any direct, indirect, or cumulative land use impacts. Development of the vacant land north of Bancroft Street would occur over time because of the coordinated efforts to promote redevelopment in the South Waterfront area described above. These efforts included the extension of the streetcar system to its existing terminus near Lowell Street. Redevelopment of land south of Bancroft Street would also occur, because of the City of Portland’s plans to extend Moody Street south and build the South Portal, described above, and because, like the rest of the South Waterfront area, it is centrally located in the region.

4.2.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures

The Enhanced Bus Alternative would have no direct land use impacts in Segment 2 because it does not include stations or otherwise require the acquisition of land in Segment 2. There would be no indirect or cumulative impacts, because land development in Segment 2 would be the same as under the No-Build Alternative. This is because Segment 2 already has excellent regional access. While the Enhanced Bus Alternative would improve access from the project’s transportation corridor to the south, this corridor is only a fraction of the entire region. Because the Enhanced Bus Alternative would not have any land use impacts, including adverse impacts, there would be no need for mitigation measures.

4.2.4 Impacts of the Streetcar Alternative and MOS Phasing Option, Including Options, and Potential Mitigation Measures

The land use impacts of the Streetcar Alternative and MOS phasing option in Segment 2 would be the same, for two reasons. First, project improvements in Segment 2 would be the same under both alternatives. Second, as noted above, the improvement in access from the project’s transportation corridor to the south under the Streetcar Alternative would be marginal, relative to the area’s already excellent regional access.

4.2.4.1 Direct Impacts

Tables 4-1, 4-2, and 4-3 show the direct impacts of the Segment 2 options by existing land use, comprehensive plan designation, and zoning, respectively. The direct impacts result from the acquisition of property for the Streetcar Alternative. As the tables show, the direct impacts in Segment 2 are minor. The property acquisition figures in the Community Impacts Technical Report for the Lake Oswego to Portland Transit Project show the location of the direct impacts.

4.2.4.2 Indirect Impacts

The indirect land use impacts of the WSL and Couplet Extension Options would be the same because the station locations would be the same. Under both options, the Streetcar Alternative would likely result in more land redevelopment, redevelopment to more intense uses, and redevelopment sooner than under the No-Build Alternative in the south half of Segment 2. The effect on the north half would be marginal because it already benefits from existing streetcar system; the proposed Bancroft Stations are very close to the existing station adjoining Lowell Street. The reasons for the effects on the south half of Segment 2 are:

1. As a public infrastructure investment, Portland's experience with the original Westside Streetcar project was that it encouraged redevelopment and more intense redeveloped uses. Starting after streetcar funding was committed in 1997 until 2004, the amount of square footage of new development within one block of the Westside Streetcar, as a percentage of existing building square footage, was 46 percent.¹⁰ This compared to 14 percent within two blocks and 8 percent within three blocks. Also, the percentage of allowed square footage developed from 1997 to 2004 within one block of the Westside Streetcar was over 50 percent, compared to about 10 percent within two and three blocks.¹¹ Some of this redevelopment can be attributed to public infrastructure investments other than the streetcar, especially street improvements and parks in the Pearl District, and to strong market demand. In addition, the Westside Streetcar was routed in part to be close to property slated for redevelopment. Similarly, all of Segment 2, including its south half, is within the North Macadam Urban Renewal District, which the City of Portland has used to make infrastructure investments in the project area. Little redevelopment occurred west of I-405, which is attributable in part to the scarcity of redevelopment opportunities and absence of other new infrastructure investments there. However, this contrasts with Segment 2, as described in the next two items.
2. There is a large amount of capacity for redevelopment in the south half of Segment 2. Table 4-4 shows the amount of unused allowed square footage of development within the Hamilton Station area. Allowed floor area is the amount of square footage allowed by applicable zoning regulations. Unused allowed floor area is the difference between allowed and existing floor area. Figure 4-4 maps unused allowed square footage. Eight-six percent of the allowed square footage within the Hamilton station area is unused.

¹⁰ E.D. Hovee & Company, LLC, Portland Streetcar Development Impacts, November 2005, p. 9.

¹¹ Ibid., pp. 9, 12

Table 4-3 Conversion of Land to Transportation Use by Zoning Category

Alternative, Segment, and Option	Acres						Total
	Commer- cial	Indus- trial	Mixed-Use Residen-tial	Multi-Family Residen-tial	Single Family Residen-tial	Parks and Open Space	
Streetcar Alternative							
2. South Waterfront							
3. Johns Landing							
Willamette Shore Line			0.2	0.1			0.2
Macadam In-Street			1.7	0.5			2.2
Macadam Additional Lane			2.9	0.6			3.6
4. Sellwood Bridge							
5. Dunthorpe/Riverdale							
Willamette Shore Line							
Riverwood In-Street					0.7		0.7
6. Lake Oswego							
UPRR ROW	1.0	0.1	0.9		0.0	1.3	3.3
Foothills	1.0	11.2	0.9		0.0	1.7	14.8
Total, Streetcar Alt.							
From	1.0	0.1	1.2	0.1	0.0	1.3	3.5
To	1.0	11.2	3.9	0.6	0.7	1.7	19.1
Total, MOS Phasing Option							
From			0.7				0.2
To			0.6				3.7
Enhanced Bus Alternative							
6. Lake Oswego	0.5		0.5				1.0

Note: Zoning categories are generalized and come from the Metro Data Center Regional Land Information System.

The number 0.0 in a table cell indicates a quantity less than .05 acre. No number in a table cell indicates that the quantity is zero.

¹ Totals do not add across to because the column totals sum ranges.

Source: Prepared by URS Corp. with data from Metro Data Center and GIS analysis by David Evans and Associates.

- At many properties in the project area, the ratio of the value of improvements to the value of the land is low, which suggests that many properties are ripe for redevelopment. Table 4-4 shows the percentage of properties by range of this ratio in the Hamilton Station area and Figure 4-5 maps this information. The ratio of improvement value to land value is used to indicate likelihood of redevelopment.¹² In central city locations like Segment 2, it can be cost-effective to redevelop properties with ratios as high as four to one.¹³ As Table 4-4 shows, 75 percent of properties in the Hamilton Station area have ratios under four to one. Almost half the properties have ratios under one to one.

¹² See, for example, Anne Vernez Moudon and Michael Hubner, eds., *Monitoring Land Supply with Geographic Information Systems*, 2000, p. 48, and Paul Waddell, Terry Moore, and Sharon Edwards, *Exploiting Parcel-Level GIS for Land Use Modeling*, May 1998.

¹³ Lew Bowers, Development Manager, Portland Development Commission.

Table 4-4 Station Area Redevelopment Potential

Station Area ¹	Floor Area			Unused As % of Allowed	Ratio of Value of Improvements to Value of Land ^{3,4}										Total	
	Square Feet (X 1,000)				Under 1		1 to 1.99		2 to 2.99		3 to 3.99		4 and Over		Acres	Per-
	Allow- ed ²	Exist- ing	Un- used		Acres	Per- cent	Acres	Per- cent	Acres	Per- cent	Acres	Per- cent	Acres	Per- cent	Acres	Per- cent
Segment 2																
Bancroft ⁵	8,477	755	7,722	91	25	83	4	13	0	0	0	0	1	4	30	100
Hamilton	5,513	776	4,736	86	12	47	6	23	1	5	0	0	6	25	25	100
Total	13,990	1,532	12,458	89	37	67	10	17	1	2	0	0	7	13	55	100
Segment 3																
Boundary, Wil. Sh. L.	3,601	1,524	2,077	58	30	71	9	21	3	8	0	0	0	0	42	100
Boundary, Mac. Opts.	5,741	1,936	3,805	66	40	69	11	19	4	7	0	1	3	4	58	100
Carolina	2,188	846	1,342	61	17	58	8	26	2	7	1	4	1	4	29	100
Nebraska	2,008	604	1,404	70	9	48	5	30	2	11	1	5	1	6	18	100
Nevada	1,478	504	974	66	7	39	7	40	1	8	0	1	2	13	18	100
Total, Wil. Sh. L.	7,086	2,632	4,454	63	45	58	21	27	7	9	1	1	3	4	77	100
Total, Mac. In-St.	9,406	3,286	6,121	65	64	61	26	25	8	7	2	2	6	6	105	100
Total, Mac. Ad. Ln.	9,406	3,286	6,121	65	64	61	26	25	8	7	2	2	6	6	105	100
Segment 4																
Sellwood Bridge	383	16	367	96	2	100	0	0	0	0	0	0	0	0	2	100
Segment 6⁶																
B Avenue	16,179	2,673	13,505	83	18	37	8	17	8	17	2	4	13	25	50	100
Lk. Oswego	14,664	2,623	12,040	82	7	48	2	12	2	12	2	16	2	12	15	100
Terminus																
Total, Both Options	30,842	5,296	25,546	83	26	39	10	16	10	16	5	7	15	22	65	100
Total, Streetcar Alt.⁷																
From	52,302	9,476	42,826	82	110	55	41	21	18	9	6	3	25	13	200	100
To	54,622	10,130	44,492	81	126	55	50	22	19	8	6	3	28	12	230	100
Total, MOS Phasing Option⁷																
From	21,460	4,180	17,280	81	84	62	31	23	8	6	1	1	11	8	135	100
To	23,780	4,833	18,946	80	103	63	35	22	9	6	2	1	13	8	162	100

Note: Wil. Sh. L. means Willamette Shore Line; Mac. In-St means Macadam In-Street; Mac. Ad. Ln. means Macadam Additional Lane; MOS means Minimum Operable Segment.

Numbers exclude land zoned for parks and open space.

¹Redevelopment potential measurement area, as shown on Figures 4-4 through 4-9.

²Allowed by the floor area ratio specified in the applicable zoning regulations, but see footnote 6.

³Ratios in Segments 2, 3, and 4 are based on assessed market values in 2008. Ratios in Segment 6 are based on assessed values in 2009.

⁴The ratios of the value of improvements to the value of land do not include residential or commercial condominiums because tax assessments do not separately assess the value improvements and land for them. Figure 4-5 identifies the properties that are excluded from the ratios because they are residential or commercial condominiums.

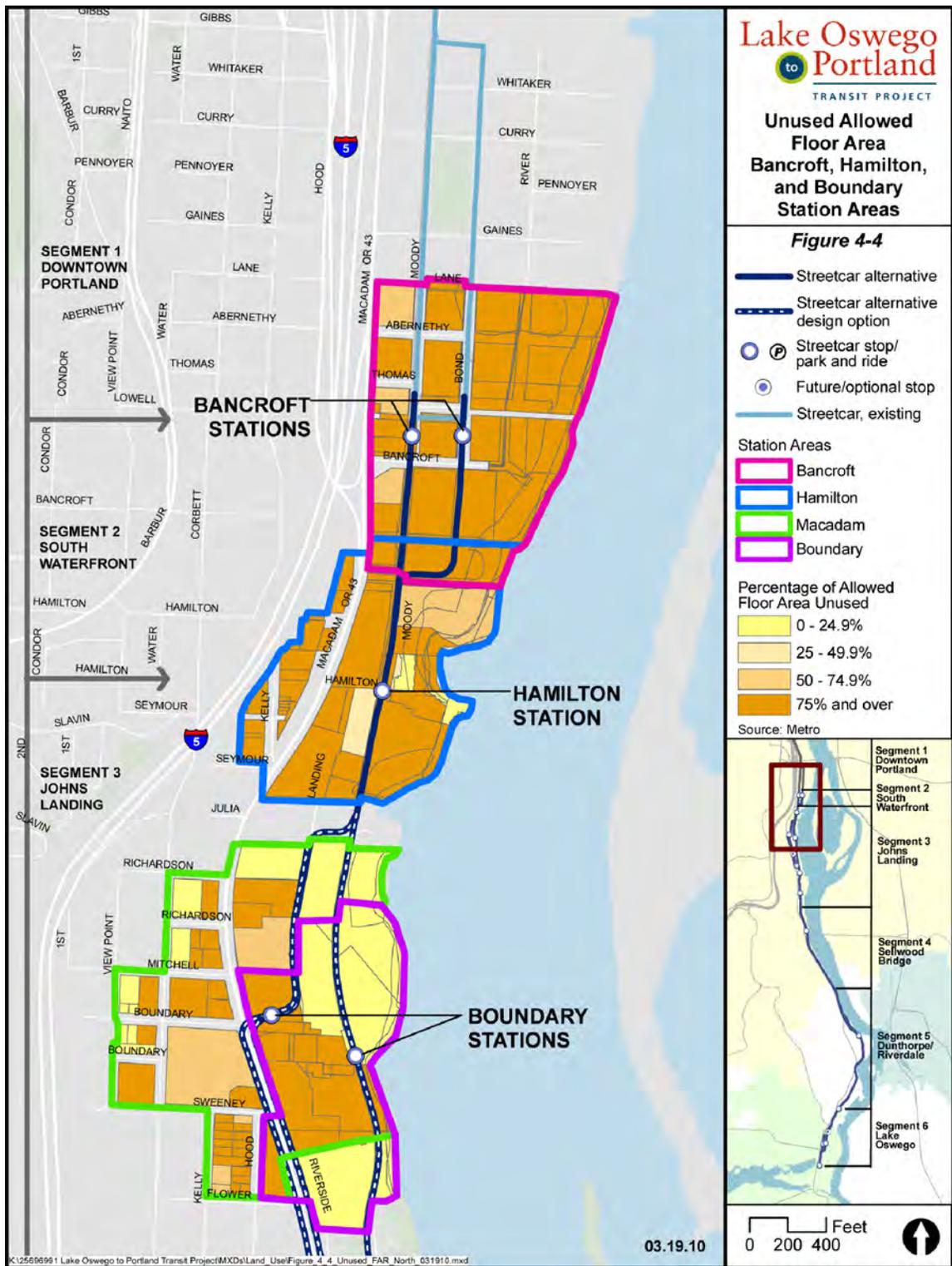
⁵The ratios of the value of improvements to the value of land do not include the lock bounded by Moody, Bond, Lowell, and Abernethy because the apartment buildings on it are under construction.

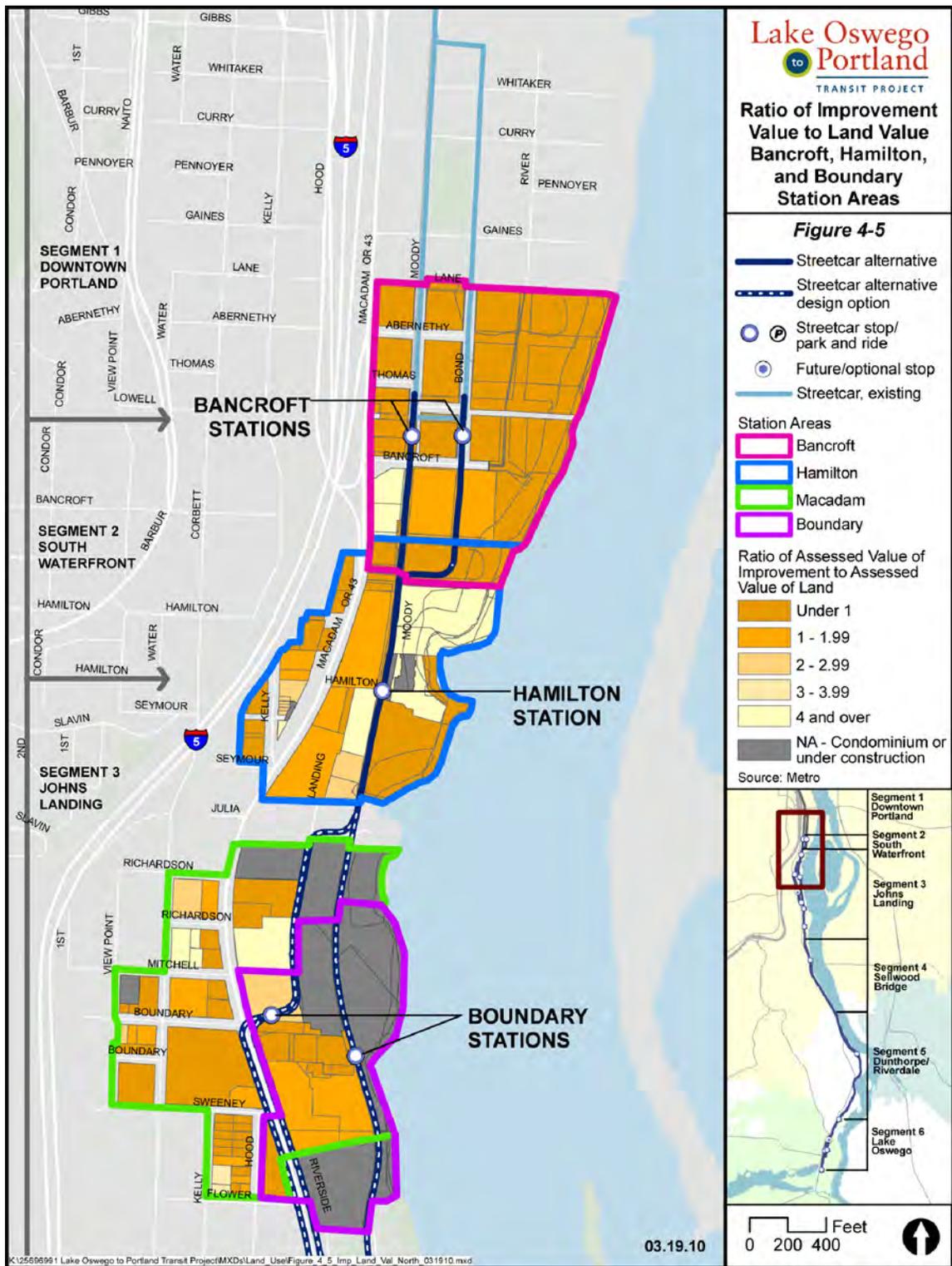
The floor area square footages include the block.

⁶The allowed floor area numbers assume that the City of Oswego rezones to Multi-Family Residential/East End Commercial the land now zoned Industrial. The existing Industrial zoning would not allow the type of commercial and residential uses that make up mixed-use development and allows only one-third as much floor area.

⁷Totals do not add across because the column totals sum ranges.

Sources: Data provided by Metro. Portland data from City of Portland Bureau of Planning and Sustainability "Development Capacity Analysis." Lake Oswego data from Metro. Table prepared by URS Corp. with GIS analysis by David Evans and Associates.





4. Portland's Central City has experienced a large amount of the mixed-use development, which the zoning in the Hamilton Station area allows.¹⁴ While the 2008/2009 recession slowed development in Segment 2 and elsewhere in the region, such markets cycles are much shorter in duration than the duration of a large public infrastructure project like the Streetcar Alternative. For example, real estate investment in the Portland area is expected to begin recovering from its current depressed levels in 2012 or 2013. This compares to the expected life of a streetcar project of 50 to 100 years.¹⁵

How much, how much more intense, and how much sooner redevelopment would occur are unknown. The streetcar would be one of a range of factors that would influence whether redevelopment occurs, when it occurs and the form it takes. Important among these factors would be:

- Governmental development subsidies, which can take the form of write-downs in the cost of land acquisition or public investments in infrastructure, such as street and sidewalk improvements and parks (streetcars fall into this category);
- How the return on investment on a property's current improvements compare to the return if the property were redeveloped;
- Market demand for the types of uses allowed by applicable zoning regulations;
- National and regional economic conditions; and
- The individual circumstances of property owners, which can range from such factors as personal health and financial risk tolerance to credit-worthiness and the tax advantages of investment portfolio alternatives.

4.2.4.3 Cumulative Impacts

The land use impacts of both the Streetcar Alternative and the extension of Moody Avenue and the South Portal project described above would likely be greater combined than alone. Redevelopment would likely occur sooner and be more intense if all three are combined, especially if they occur within the same timeframe. By more intense is meant more square footage and more likely to be mixed use, rather than separate commercial, office, and residential uses. This is because all three would strengthen the market appeal of properties in the area.

4.2.4.4 Potential Mitigation Measures

No potential mitigation measures are proposed in Segment 2 because the Streetcar Alternative would not have adverse land use impacts. The impacts would not be adverse because its direct impacts would be small, the land development it would encourage indirectly is what applicable zoning allows, and zoning implements the City's policies for the area.

¹⁴ The zoning is Central Commercial north of Hamilton Street and Storefront Commercial south of Hamilton Street. Both zones allow commercial, office, and residential uses.

¹⁵ Dennis Yee, economist, Metro, personal communication, February 16, 2010.

4.3 Segment 3, Johns Landing

4.3.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions

Figure 4-1 on page 32 shows existing land use in Segment 3, Johns Landing. Figure 4-2 on page 33 shows generalized comprehensive plan designations and Figure 4-3 on page 33 generalized zoning. Land uses east of Macadam Avenue are multi-family residential and office, mostly developed in the 1980s. Most of the multi-family housing units are two and three-story condominiums and are separate from the office buildings, which are four and five stories high. Development is more suburban in character than development in the South Waterfront area and less mixed-use. Willamette Park, a large park with a heavily-used boat landing, is located in this area. Storefront commercial uses predominate along the west side of Macadam Avenue and single-family residential uses predominate west of Macadam Avenue. The comparatively small amount of vacant land is mostly near Interstate-5 and is impacted by proximity to it. Johns Landing has seen only limited redevelopment since the 1980s. Notable exceptions are a supermarket and condominiums on the west side of Macadam Avenue near its intersection with Taylors Ferry Road, built in the 1990s. There are no pending amendments to the comprehensive plan provisions applicable to Segment 3 and no planned interventions, such as use of urban renewal authority.

4.3.2 Impacts of the No-Build Alternative

The No-Build Alternative would not have any direct, indirect, or cumulative land use impacts in Segment 3. The pace of redevelopment would be slow, as it has been since the 1980s.

4.3.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures

For the same reasons as in Segment 2, the Enhanced Bus Alternative would have no direct, indirect, or cumulative land use impacts and no potential mitigation measures are proposed.

4.3.4 Impacts of the Streetcar Alternative, Including Options, and Potential Mitigation Measures

The land use impacts of the Streetcar Alternative in Segment 2 would be the same, for the same reasons as in Segment 2.

4.3.4.1 Direct Impacts

Tables 4-1, 4-2, and 4-3 show the direct impacts of the Segment 3 options by existing land use, comprehensive plan designation, and zoning, respectively. They result from the acquisition of property for the Streetcar Alternative. The Macadam Additional Lane Option would convert to project use an estimated 3.6 acres, compared with 2.2 acres under the Macadam In-Street Option and 0.2 acres under the WSL Option. The property acquisition figures in the Community Impacts Technical Report show the location of the direct impacts.

4.3.4.2 Indirect Impacts

The Streetcar Alternative would likely result in redevelopment of commercial uses near Macadam Avenue in Segment 3 and there is both a large potential for redevelopment and substantial capacity to accommodate intensification of land uses. The Streetcar Alternative would likely result in redevelopment because that was the consequence of the original Portland Streetcar, as described in the section on Segment 2, above. Table 4-4 on page 39 shows that existing private property

improvements represent less than two times the value of the land they occupy on about 85 percent of station area properties. Improvement values are less than land values on about 60 percent of the properties. These percentages indicate high redevelopment potential. Table 4-4 also shows that existing development uses only about 60 percent of allowed floor area in the station areas. At the same time, the extent of redevelopment would be less than along the original Portland streetcar route because there are no plans for the kinds of City interventions to foster redevelopment that there were in the Pearl District. In addition, the extent of redevelopment and intensity of uses would be less than in Segment 2. This is because there is virtually no vacant land near the stations in Segment 3 and allowed floor area is lower.¹⁶

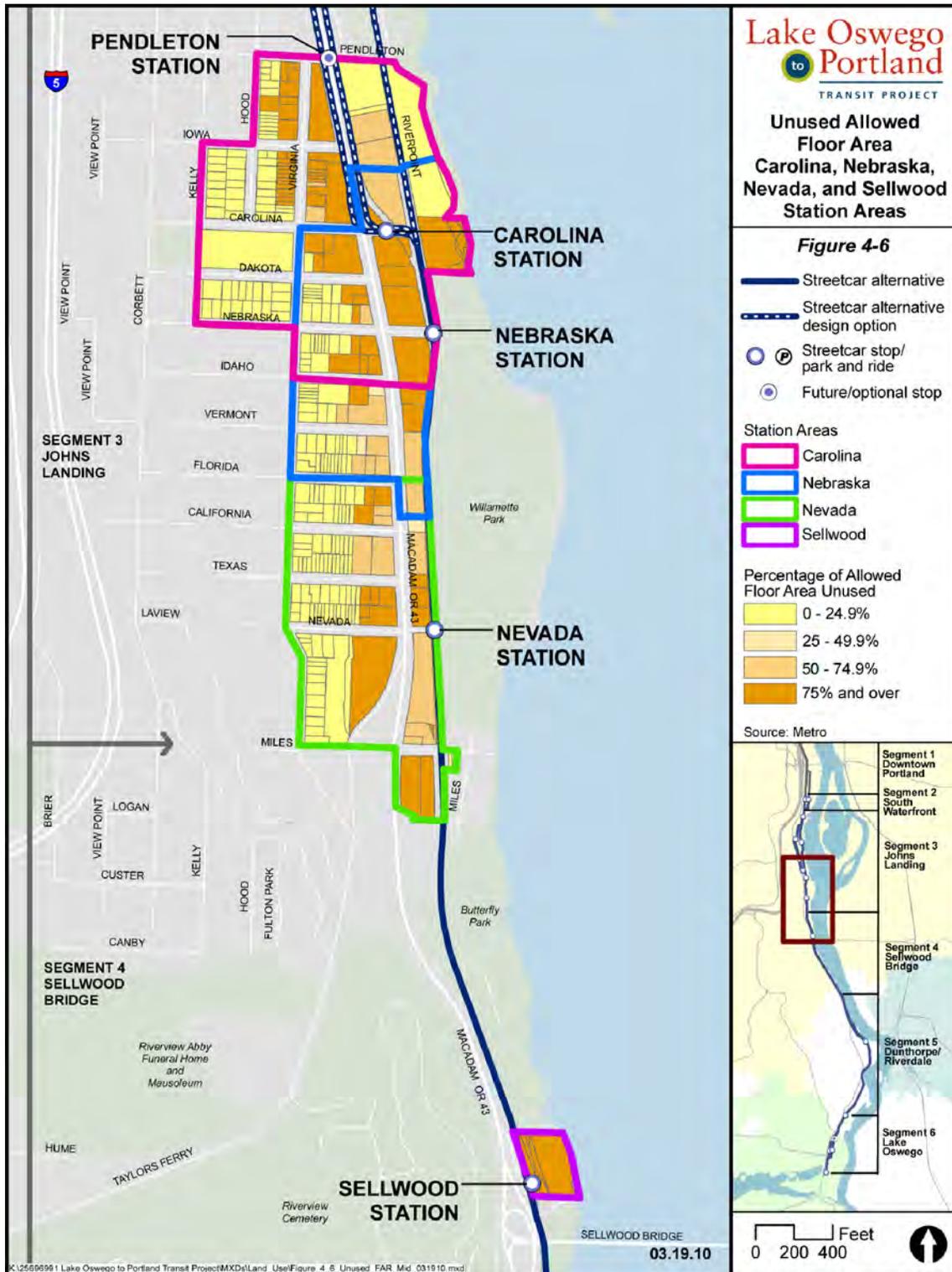
The redevelopment mainly would be of commercial uses because improvement to land value ratios are lower and unused floor area percentages higher, compared to residential uses. In addition, many of the residential uses are condominium complexes, which are unlikely to redevelop during the planning period. Some of the commercial redevelopment would likely include housing, because the Storefront Commercial zoning allows mixed residential and commercial uses.

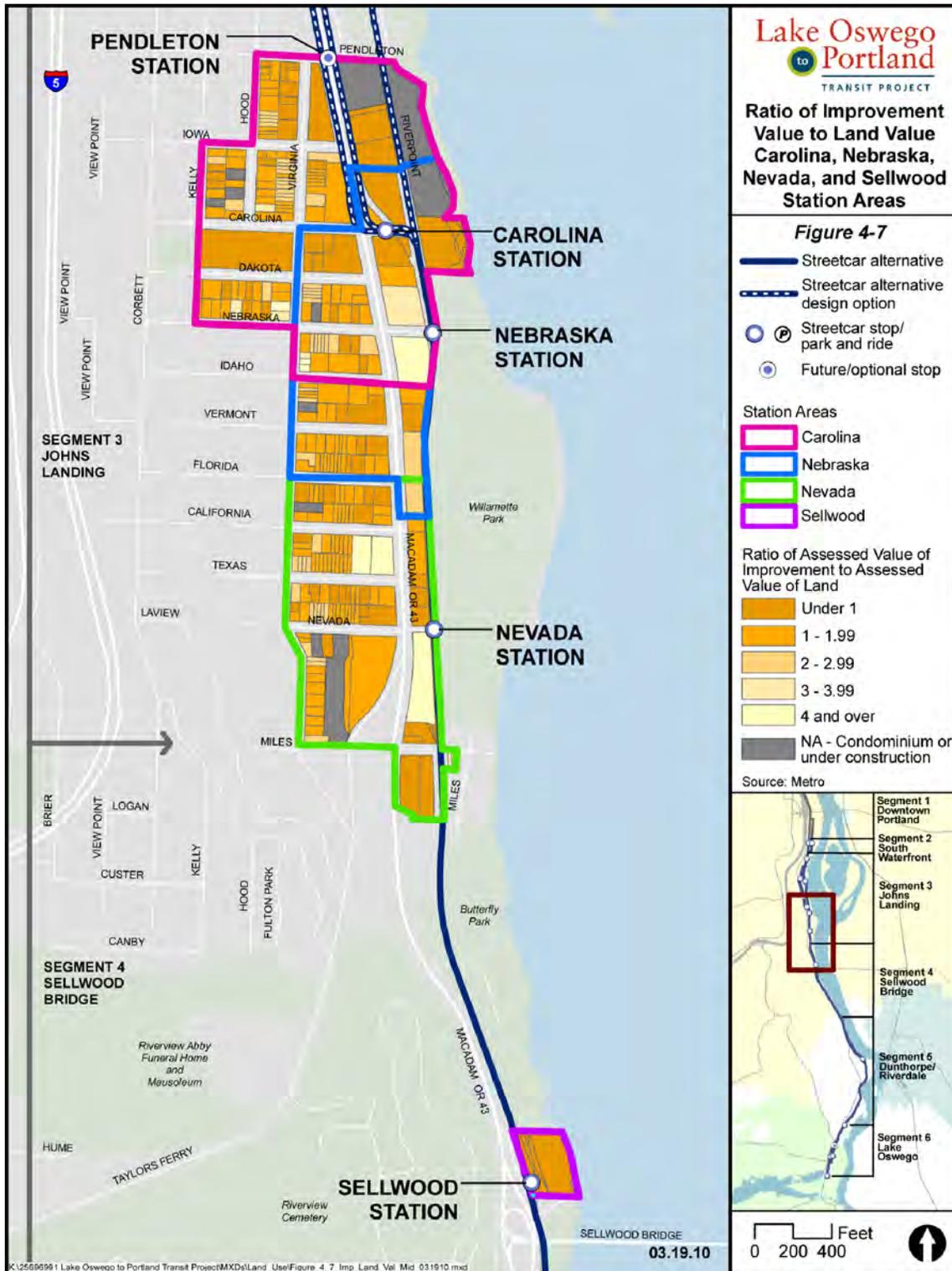
There would be more redevelopment under the Macadam In-Street and Macadam Additional Lane and Macadam Additional Lane Options than under the WSL Option. One reason is that more land with low improvement to land value ratios would be close to the Boundary Station under the Macadam In-Street and Macadam Additional Lane Options, compared to the WSL Option (51 acres with a ratio under two compared to 39 acres). See Table 4-4 and Figure 4-5. Similarly, there would be nearly twice as much unused allowed floor area in the Boundary Station area under the Macadam Options as under the WSL Option. See Table 4-4 and Figure 4-4. Likewise, while the amount of unused allowed floor area in the Carolina and Nebraska Station areas is nearly the same, 25 acres in the Carolina Station area have an improvement to land value ratio under two, compared with 14 acres in the Nebraska Station area. See Table 4-4 and Figure 4-7. In addition, the location of the Boundary Station on Macadam Avenue under the Macadam In-street and Macadam Additional Lane Options would strengthen the perception of Macadam Avenue being served by streetcar. This would improve the marketability of commercial real estate along Macadam, making redevelopment more likely.¹⁷ The Nevada Station area would be the same under all the options.

A future optional station would be located at Pendleton Street. While the land on the east side of Macadam Avenue near Pendleton Street is mainly residential and unlikely to redevelop, uses on the west side are commercial and would be more likely to redevelop if this station were built.

¹⁶ The maximum floor area ratio (FAR) allowed by the Storefront Commercial zone applicable in Segment 3 is 3 to 1, compared to the maximum FAR of 4 to 1 allowed by the Central Commercial zone applicable to Segment 2. See City of Portland Code, Section 33.130.205, Table 130-3. The regulations for the Medium Density Multi-Dwelling Residential 1,000 zone applicable in Segment 3 do not include a maximum FAR. However, the maximum density of 1 unit per 1,000 square feet of site area has the effect of limiting FAR to below 4 to 1. See City of Portland Code, Chapter 33.120, Table 120-3.

¹⁷ Studies have shown higher values for properties located close to rail transit stations. According to one report, "Fifteen of these studies reported that properties that were located near a transit station experienced a premium effect in terms of obtaining a higher value than comparable properties without transit access." Center for Transit-Oriented Development, *Capturing the Value of Transit*, November 2008, p. 5.





Application of section 0060 of the TPR¹⁸ would not constrain the potential redevelopment in Segment 3 described above. TPR section 0060 places conditions on amendments to comprehensive plans and zoning if they would contribute to violations of standards for congestion levels on state highways contained in the Oregon Highway Plan (OHP).¹⁹ Macadam Avenue in Segment 3 is a state highway. However, section 0060 would not apply in Segment 3, because the existing Storefront Commercial zoning allows as permitted uses the commercial, residential and mixed uses that would comprise the redevelopment; amendments to Portland's comprehensive plan or zoning would not be necessary.

4.3.4.3 Cumulative Impacts

No other identified projects, plans, policies, or trends would combine with the Streetcar Alternative in a way that would materially alter their land use impacts.

4.3.4.4 Potential Mitigation Measures

As with Segment 2, no potential mitigation measures are proposed in Segment 3 because the Streetcar Alternative would not have adverse land use impacts. The impacts would not be adverse because direct impacts would be small, the land development the Streetcar Alternative would encourage is what applicable zoning allows, and zoning implements the City's policies for the area.

4.4 Segment 4, Sellwood Bridge

4.4.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions

Figure 4-1 on page 32 shows existing land use in the portion of Segment 4 near the Sellwood Bridge and to the north. Figure 4-2 on page 33 shows generalized comprehensive plan designations and Figure 4-3 on page 33 generalized zoning. The predominant land use is public and semi-public, made up of parks east of Macadam Avenue and Riverview Cemetery west of Macadam Avenue. The single-family residential use shown south of Butterfly Park in Figure 4-1 is the parking lot for a boathouse moorage. The north end of Segment 4 contains single-family homes west of Macadam Avenue and commercial uses on its east side. The utility use is an electric power substation. Multnomah County, which owns the Sellwood Bridge, has selected a preferred alternative for the replacement of the bridge, which is structurally deficient. Issuance of a final environmental impact statement is expected in 2010. Construction is expected to begin in 2012 and reach completion in 2015. There are no pending proposals for amending comprehensive plan provisions applicable to Segment 4 or any planned interventions.

4.4.2 Impacts of the No-Build Alternative

The No-Build Alternative would not have any direct, indirect, or cumulative land use impacts in Segment 4.

¹⁸ Oregon Administrative Rule 660-012-0060.

¹⁹ ODOT, Oregon Highway Plan, as amended through January 2006. See Policy 1F, Highway Mobility Standards, on p. 77.

4.4.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures

The Enhanced Bus Alternative would have no direct, indirect, or cumulative land use impacts in Segment 4 and no potential mitigation measures are proposed. The only land with potential for redevelopment is the land in commercial use just north of the Sellwood Bridge and in Segment 4's north end. While the Enhanced Bus Alternative would increase bus frequency, such improvements do not have a material effect on decisions to redevelop commercial uses. The cemetery and park land is unlikely to be redeveloped under any alternative. The same is true of the land in single-family use, because it is zoned single-family and single-family zoning is difficult to change because of opposition from residents. No mitigation measures are proposed.

4.4.4 Impacts of Streetcar Alternative and the MOS Phasing Option, Including Design Options, and Potential Mitigation Measures

The land use impacts of the Streetcar Alternative and MOS phasing option in Segment 4 would be the same, for the same reasons as in Segments 2 and 3.

4.4.4.1 Direct Impacts

The Streetcar Alternative would not have direct impacts in Segment 4 because it would not require the conversion of land to project use. Construction of the west interchange of the proposed replacement of the Sellwood Bridge would necessitate the realignment of the streetcar right of way and a different station configuration. The bridge project would acquire the right of way needed for the streetcar realignment. It would do the same under the No-Build Alternative, because the Willamette Shore Line alignment could be retained as a bicycle and pedestrian path, if rail use were discontinued. This makes land conversion in Segment 4 a consequence of the bridge project, not the Streetcar Alternative.

4.4.4.2 Indirect Impacts

The Streetcar Alternative would encourage the redevelopment of the commercial properties on the north end of Segment 4. Some are within two blocks of the Nevada Station, increasing the attractiveness of the property in the same way as described in the discussion of Segment 3 impacts. As Figures 4-6 and 4-7 show, existing development on the properties uses only 4 percent of allowed floor area and has a value less than the value of the land it occupies. These indicate potential for substantial increases in return on investment from redevelopment, making it more likely.

The Streetcar Alternative would have a similar effect on the commercial property immediately north of the Sellwood Bridge. The property was the Staff Jennings Boating Center, a family-owned recreational boating dealership in continuous operation at the site from 1929 to 2010. Table 4-4 on page 39 shows that existing improvements use less than only 4 percent of allowed floor area and have a value less than the value of the land. The proposed station adjoining the property would make the property the only waterside location in the region with adjacent access by motor vehicle, streetcar, and boat.

4.4.4.3 Cumulative Impacts

The combined effect of the Streetcar Alternative and replacement of the Sellwood Bridge would encourage redevelopment of the Staff Jennings Boating Center property even more than the Streetcar Alternative alone. The reason is that the new interchange built in conjunction with bridge replacement would improve motor vehicle access to the property. Under existing conditions and without the new interchange, direct access and egress are limited to northbound traffic. Southbound traffic access and egress are via a local street several blocks to the north of the property, which has

an unsignalized intersection with Macadam Avenue. With the new bridge, the interchange would provide signalized routing from the site for traffic coming from and going to all directions.

4.4.4.4 Potential Mitigation Measures

No potential mitigation measures are proposed in Segment 4 because the Streetcar Alternative would not have adverse land use impacts. The impacts would not be adverse because there would be no direct impacts, the land redevelopment the Streetcar Alternative would encourage is what applicable zoning allows, and zoning implements the City's policies for the area.

4.5 Segment 5, Dunthorpe/Riverdale

4.5.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions

Figure 4-1 on page 32 shows existing land use in the portion of Segment 5 where the Riverwood In-Street and WSL Options are located. Figure 4-2 on page 33 shows generalized comprehensive plan designations and Figure 4-3 on page 33 generalized zoning. Single-family residential is the predominate use, comprehensive plan designation, and zoning in all of Segment 5, including portions Figures 4-1, 4-2, and 4-3 don't show. Lot sizes are typically large. There is little vacant land.

4.5.2 Impacts of the No-Build Alternative

The No-Build Alternative would not have any direct, indirect, or cumulative land use impacts in Segment 5.

4.5.3 Impacts of the Enhanced Bus Alternative

The Enhanced Bus Alternative would have no direct, indirect, or cumulative land use impacts in Segment 5 and no potential mitigation measures are proposed. The applicable single-family zoning would not allow changes to other uses. Changes to bus service would not alter land uses in the area.

4.5.4 Impacts of the Streetcar Alternative, Including Options, and Potential Mitigation Measures

4.5.4.1 Direct Impacts

Tables 4-1, 4-2, and 4-3 show the direct impacts of the Segment 5 options by existing land use, comprehensive plan designation, and zoning, respectively. The impact of the Riverwood In-Street Option would result from the acquisition of a 0.7-acre property. The WSL Option would not have any direct land use impacts. The property acquisition figures in Appendix G of the DEIS show the location of the direct impact under the Riverwood In-Street Option.

4.5.4.2 Indirect Impacts

The Streetcar Alternative would not indirectly cause any land uses to change. This is because the area is already developed in compliance with its single-family residential zoning and opposition from its residents would foreclose rezoning to allow other uses. There is no proposal for such rezoning.

4.5.4.3 Cumulative Impacts

No cumulative impacts on land use would occur. No other identified projects, plans, policies, or trends would combine with the Streetcar Alternative in a way that would alter the direct impact of the Riverwood In-Street Option or have indirect land use impacts in Segment 5.

4.5.4.4 Potential Mitigation Measures

No measures to mitigate the direct impacts of the Riverwood In-Street Option have been identified.

4.6 Segment 6, Lake Oswego

4.6.1 Existing Land Use, Plan Designations, Zoning, Other Transportation Projects, Planned Real Estate Developments, Expected Plan Amendments, and Planned Interventions

Figure 4-1 on page 32 shows existing land use in Segment 6, Figure 4-2 on page 33 shows generalized comprehensive plan designations, and Figure 4-3 on page 33 shows generalized zoning. Improvements under the build alternatives would be located between the downtown to the west and an area containing residential, commercial, and industrial uses to the east. Both have seen substantial redevelopment since the mid-1990s, much of it carried out under the auspices of the City of Lake Oswego Redevelopment Agency. To the west, redevelopment included Oswego Pointe, redeveloped from a cement plant site. It comprises 522 multi-family housing units (labeled on Figure 4-1 as the Oswego Pointe Apartments and Condominiums) 20,000 square feet of office space, a 10,500 square foot restaurant, a waterfront public pathway, a water sports center, an amphitheater, and boat dock.²⁰ To the east, one project was the complete redevelopment of the block bounded by State Street, A Avenue, 1st Street, and the Union Pacific Railroad (UPRR) tracks. The development includes over 84,000 square feet of retail and office space and a 366-space parking structure.²¹ Another project was the creation of Millennium Park, as shown on Figure 4-1.

Two projects are in the planning stages:

- Foothills Redevelopment. The City of Lake Oswego is partnering with owners of the industrial land shown on Figures 4-1, 4-2, and 4-3 to formulate a plan for what may include eight to ten-story residential buildings and some commercial uses. The land owners have retained a development consultant. Implementation would require an amendment to the Lake Oswego Comprehensive Plan and zoning map. Build-out would occur over a 20 to 30-year period.
- North Anchor Site. The Redevelopment Agency is formulating a plan for redeveloping the North Anchor Site identified on Figure 4-1 with a 50,000 to 60,000 square foot replacement of the existing library and 35,000 square feet of commercial space.

City officials believe the Wizer's Grocery Store site shown on Figure 4-1 is likely to be redeveloped because of its location and the age of the existing improvements.

The City of Lake Oswego expects to prepare a new street system plan for area near the streetcar line options. No major improvements are planned for State Street. According to the City, it may consider changes in the future to improve pedestrian crossings between downtown and the Foothills area.

²⁰ Lake Oswego Redevelopment Agency, East End Redevelopment Plan, May 18, 2004, p. 9.

²¹ Ibid., p. 10.

4.6.2 Impacts of the No-Build Alternative

The No-Build Alternative would not have any direct, indirect, or cumulative land use impacts. Some redevelopment would occur, as indicated by redevelopment that has occurred in the area in the past, as described above.

4.6.3 Impacts of the Enhanced Bus Alternative and Potential Mitigation Measures

4.6.3.1 Direct Impacts

Tables 4-1, 4-2, and 4-3 show the direct impacts of the Enhanced Bus Alternative in Segment 6 by existing land use, comprehensive plan designation, and zoning, respectively. The impacts would result from the park-and-ride lot.

4.6.3.2 Indirect and Cumulative Impacts and Potential Mitigation Measures

The Enhanced Bus Alternative would not change land uses and would not have a material effect on the intensity of land uses resulting from redevelopment in Segment 6. Greater bus frequency to and from downtown Portland would make residential uses in the B Avenue and Lake Oswego Terminus Station areas more attractive. However, the effect would be insufficient to encourage redevelopment to occur that would not occur under No-Build Alternative or to increase amount of residential or commercial development.²² Cumulative impacts would be similarly limited. No mitigation measures are proposed.

4.6.4 Impacts of the Streetcar Alternative, Including Options, and Potential Mitigation Measures

4.6.4.1 Direct Impacts

Tables 4-1, 4-2, and 4-3 show the direct impacts of the Segment 6 options by existing land use, comprehensive plan designation, and zoning, respectively. The Foothills Option would convert to project use a total of an estimated 5.4 acres of land, compared to an estimated 2.3 acres under the UPRR ROW Option. The extension of Foothills Road accounts for most of the difference between the two options. If the City of Lake Oswego or developers build the road extension, the conversion of use would not be considered an impact of the Streetcar Alternative, because the streetcar tracks would run in the roadway.

4.6.4.2 Indirect Impacts

The indirect impacts of the UPRR ROW and Foothills Options would be the same because the B Avenue and Lake Oswego Terminus Station areas are the same. The locations of the B Avenue Station under both options are close to each other and the Lake Oswego Terminus Station location is the same under both options.

Under both options, the Streetcar Alternative would likely result in more land redevelopment, redevelopment to more intense uses, and redevelopment sooner in the B Avenue and Lake Oswego Terminus Station areas than under the No-Build Alternative. The reasons are similar to the reasons the Streetcar Alternative would have similar effects in Segment 2:

²² Unlike streetcar lines, as discussed on page 30, enhanced bus service has not been documented to result in intensification of development. One reason may be the absence of major capital improvements, making enhanced bus perceived as being more susceptible to being scaled back or eliminated.

1. Portland’s experience with the original Westside Streetcar project encouraging redevelopment and more intense redeveloped uses, as describe in item 1 on page 36. Like the Pearl District in Portland, the City of Lake Oswego has made street improvements and built new parks in and near the station areas and plans additional street improvements. As with the Pearl District, the City of Lake Oswego is partnering with land owners and developers to facilitate redevelopment of the Foothills industrial area. It is likely to similarly partner with the owner of the Oswego Village commercial center that includes the Albertson’s grocery store and adjacent land near the Lake Oswego Terminus Station.
2. There would be a large amount of capacity for redevelopment in Segment 6, if the City Lake Oswego carries out its plans for Foothills redevelopment, as described on page 51. Table 4-4 on page 39 assumes that the land now zoned Industrial in the Foothills area is rezoned to Multi-Family Residential/East End Commercial. It shows that 83 percent of the floor area allowed by existing and planning zoning of the B Avenue and Lake Oswego Terminus Station areas is unused by existing development.²³ Also see Figure 4-8. It should be noted that City officials think that only a fraction of allowed square footage is likely because of parking requirements and because the scale of development likely to be proposed is lower than the floor area regulations would allow.
3. Many properties in the station areas are ripe for redevelopment, as indicated by their improvement to land value ratios. Table 4-4 shows that 39 percent have ratios of less than one, 55 percent less than 2, and 71 percent less than 3. Also see Figure 4-9.

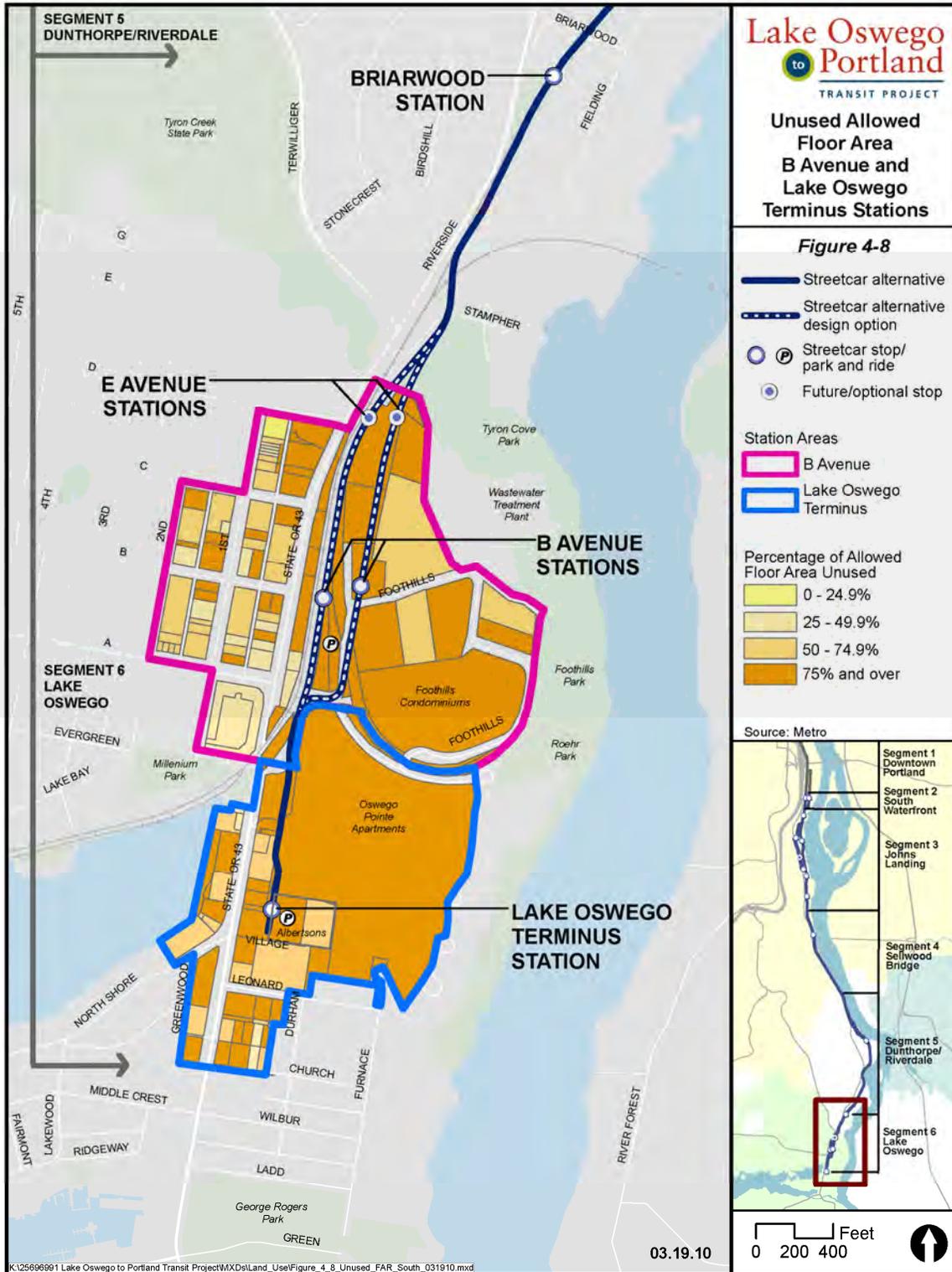
Realization of the redevelopment potential described above is contingent on the City of Lake Oswego finding a way to comply with Section 0060 of the State of Oregon TPR.²⁴ As described on page 48, the provision places conditions on changes to comprehensive plans and land use regulations if they would contribute to violations of OHP mobility performance standards on state highways. It would apply to the Foothills redevelopment project because of the need for plan and zoning map amendments and because development there would increase traffic on Highway 43, a state highway. The City may be able to comply using approaches available under the TPR and the OHP, such as by establishing a “special transportation area,” which lowers the applicable mobility performance standard. In addition, Metro is working with the Oregon Department of Transportation to formulate OHP amendments that would provide new ways to achieve TPR compliance for development in town centers like downtown Lake Oswego.²⁵

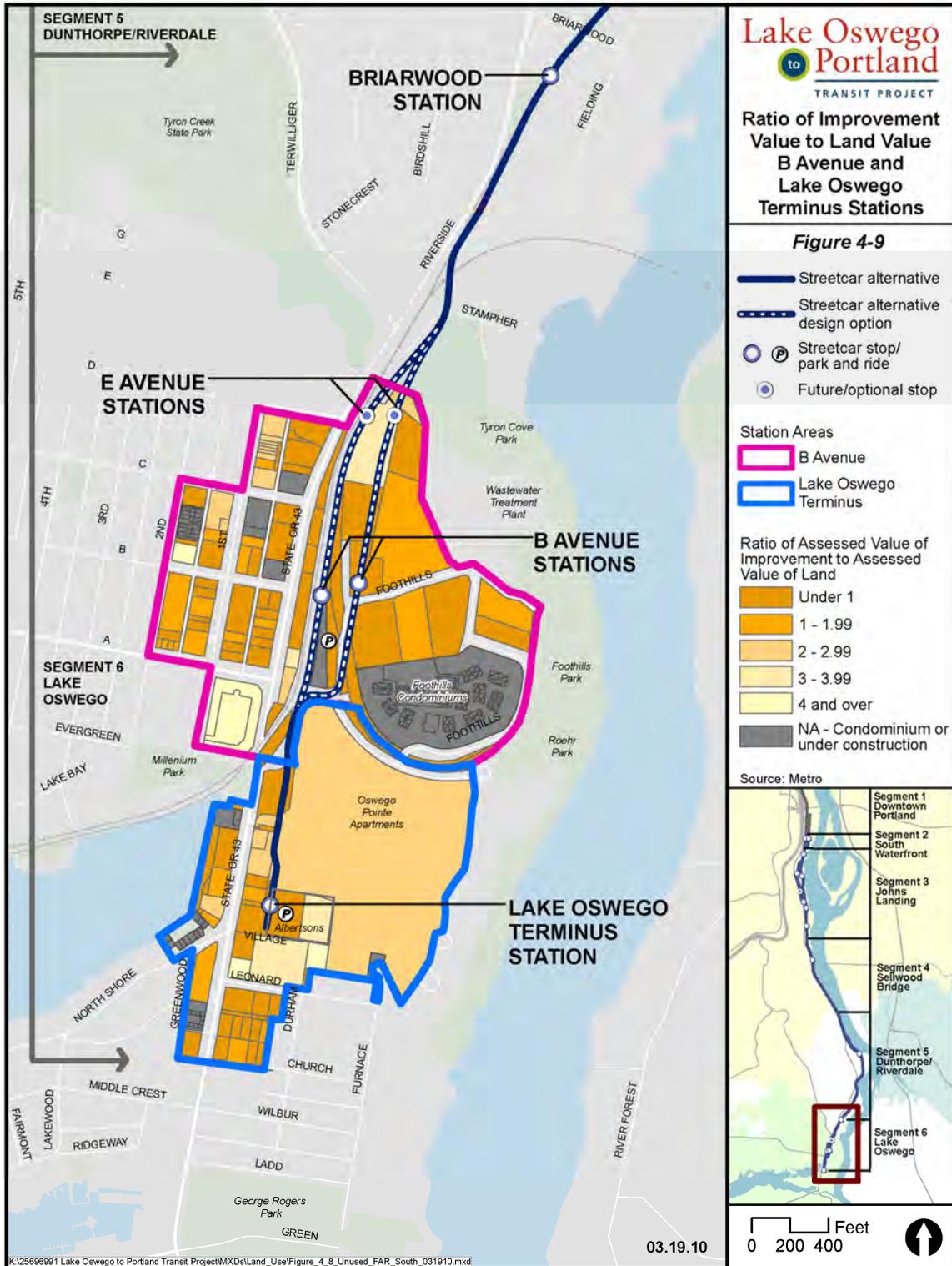
The Streetcar Alternative would not impact land use in the vicinity of the Briarwood Station. Land use changes would require changing the single-family zoning to permit multi-family and/or commercial development. The residents of single-family neighborhoods like this area resist such rezoning, making it highly unlikely. No such rezoning has been proposed or is contemplated.

²³ The existing Industrial zoning would not allow the type of commercial and residential uses that make up mixed-use development and allows only one-third as much floor area.

²⁴ Oregon Administrative Rules Chapter 660, Division 12.

²⁵ ODOT, Memorandum to the Oregon Transportation Commission on “Metro request for alternative mobility standards” from Metro and ODOT Region 1, September 29, 2009.





4.6.4.3 Cumulative Impacts

The indirect impacts analysis above describes the combined land use impacts of the Streetcar Alternative, planned Foothills redevelopment, the City's plans to amend the comprehensive plan and zoning map as they apply to the Foothills area, and the City's plans to formulate a street plan for the area near the alignments of the UPRR and Foothills Options. No other actions have been identified that would combine with the land use impacts of the Streetcar Alternative in an identifiable way.

4.6.4.4 Potential Mitigation Measures

No potential mitigation measures are proposed in Segment 6 because the Streetcar Alternative would not have adverse land use impacts. The impacts would not be adverse because:

- the direct impacts would be small relative to local and regional land needs,
- except in the Foothills industrial area, the land development they would encourage is what applicable zoning allows and zoning implements the City's policies for the area, and
- in the Foothills industrial area, the City plans to amend the comprehensive plan and zoning map to allow residential and commercial redevelopment, which the Streetcar Alternative would encourage.

4.7 Summary Comparison of Alternatives

4.7.1 Direct Impacts of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option

The No-Build Alternatives would have no direct impacts. Tables 4-1, 4-2, and 4-3 compare the total direct impacts of the Enhanced Bus and Streetcar Alternative and MOS phasing option in Segments 2 through 6.

4.7.2 Indirect Impacts of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option

As stated in the analysis above, the No-Build and Enhanced Bus Alternatives would not have indirect land use impacts. The Streetcar Alternative would encourage more redevelopment than the MOS phasing option because it would encourage redevelopment in downtown Lake Oswego, as well as in the South Waterfront and Johns Landing areas and near the Sellwood Bridge in Portland. Table 4-4 on page 39 shows that a total of up to 126 acres of land with an improvement to land value under one would be within the station areas of the Streetcar Alternative, compared to up to 103 acres under the MOS phasing option. Similarly, up to 176 acres of land with an improvement to land value under two would be within the station areas of the Streetcar Alternative, compared to up to 125 acres under the MOS phasing option. Table 4-4 does not break out acreages of land by percentage of unused allowed floor area. However, the comparisons between the Streetcar Alternative and MOS phasing option would be similar to the value ratio comparisons.

4.7.3 Cumulative Impacts of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option

As stated in the analysis above, the No-Build and Enhanced Bus Alternatives would not have cumulative land use impacts. The cumulative impacts of the Streetcar Alternative and MOS phasing

option would be similar. This is because the only location with identifiable cumulative impacts is the Sellwood Bridge Station. Redevelopment impacts of a combination of the Streetcar Alternative and the Sellwood Bridge replacement would be greater than the impact of the Streetcar Alternative alone. Both the Streetcar Alternative and MOS phasing option include the Sellwood Bridge Station.

4.7.4 Potential Mitigation Measures of the No-Build, Enhanced Bus, and Streetcar Alternative and MOS Phasing Option

As discussed above, no mitigation measures are proposed because the alternatives would not have adverse land use impacts. The No-Build and Enhanced Bus Alternatives would not have indirect land use impacts. The direct impacts of the Enhanced Bus and Streetcar Alternatives would be small relative to local and regional land needs. The indirect land use impacts of the Streetcar Alternative and MOS Phasing option would not be adverse because the land development they would encourage is what applicable zoning (or planned rezoning, in the case of the Foothills industrial area of Segment 6) allows and zoning implements the policies applicable to the affected the areas.

5. COMPLIANCE WITH PLANS AND POLICIES

5.1 Oregon Statewide Planning Program Requirements

Oregon’s statewide land use planning laws and regulations, first enacted in 1973, require all local jurisdictions to adopt and periodically update comprehensive plans and implementing ordinances. These plans and ordinances must comply with Oregon’s 19 Statewide Planning Goals. The plans must include maps of planned land use, urban growth boundaries to delineate the boundary between urban and rural areas, and TSP’s. TSPs must provide for transportation facilities that support planned land use.²⁶ Once the Land Conservation and Development Commission (LCDC) has “acknowledged” a plan as consistent with the Statewide Planning Goals, the Goals no longer apply directly to projects such as the LOPT Project.

LCDC has acknowledged all the comprehensive plans and implementing ordinances applicable to the project. Therefore, the Statewide Planning Goals do not apply to project alternatives.

5.2 State Transportation System Plan

Because ODOT has jurisdiction over Macadam Avenue in Portland, the provisions of the state transportation system plan apply to the portions affected by the Macadam Additional Lane and Macadam In-Street Options. (While ODOT also has jurisdiction over State Street in Lake Oswego and the highway between it and Macadam Avenue, all of which are parts of OR 43, only these two options would result in alterations to the highway.) In addition, both Streetcar Alternative options in Segment 6 would include a new underpass of the Tillamook Branch of the UPRR, which is under ODOT’s regulatory jurisdiction. This section identifies applicable provisions of the relevant plans that are part of the state transportation system plan.

5.2.1 Oregon Transportation Plan

Regarding the Oregon Transportation Plan (OTP), ODOT’s web site states:

The OTP is the overarching policy document among a series of plans that together form the state transportation system plan. The OTP considers all modes of Oregon’s transportation system as a single system and addresses the future needs of Oregon’s airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation, and railroads through 2030. It assesses state, regional, and local public and private transportation facilities. . .²⁷

With the exception of several policies, the policies of the Oregon Transportation Plan are general and both the Streetcar and Enhanced Bus Alternatives would comply with them. The exceptions are:

- Policy 3.3, Downtowns and Economic Development, which states:

It is the policy of the State of Oregon to provide transportation improvements to support downtowns and to coordinate transportation and economic development strategies.

Strategy 3.3.1 states:

²⁶ Oregon Administrative Rule Section 660-012-0015(3)(a).

²⁷ <http://www.oregon.gov/ODOT/TD/TP/ortransplanupdate.shtml>.

Coordinate private and public resources to provide transportation improvements and services to help stimulate active and vital downtowns, economic centers and main streets.²⁸

The Streetcar Alternative would comply with this policy and implement the strategy and the Enhanced Bus Alternative would not. Portions of Segments 2 and 3 are designated main streets, as described on page 66. As described on pages 36 and 44, the Streetcar Alternative would encourage redevelopment in Segments 2 and 3 and the Enhanced Bus Alternative would not. In addition, as described on page 52, the Streetcar Alternative would encourage redevelopment in downtown Lake Oswego and the Enhanced Bus Alternative would not.

- Strategy 4.1.2, which states:

Encourage the development and use of technologies that reduce greenhouse gases.²⁹

The Streetcar Alternative would better meet this objective than the Enhanced Bus Alternative. Compared to the No-Build Alternative, the Enhanced Bus Alternative is projected to reduce carbon dioxide (CO₂) by 25 tons per day, compared to about 41 tons per day under the Streetcar Alternative. See Section 3.11, Air Quality, of the DEIS and the Air Quality Technical Report.

- Policy 4.3, Creating Communities, which states:

It is the policy of the State of Oregon to increase access to goods and services and promote health by encouraging development of compact communities and neighborhoods that integrate residential, commercial and employment land uses to help make shorter trips, transit, walking and bicycling feasible. Integrate features that support the use of transportation choices.

Strategy 4.3.1 states:

Support the sustainable development of land with a mix of uses and a range of densities, land use intensities and transportation options in order to increase the efficiency of the transportation system. Support travel options that allow individuals to reduce vehicle use.³⁰

For the reasons stated in the analysis of indirect land use impacts above, the Streetcar Alternative would meet Policy 4.3 and implement Strategy 4.3.1, while the Enhanced Bus Alternative would not. For the reasons stated in the analysis of indirect land use impacts in Segment 3, the Macadam In-street and Macadam Additional Lane Options would better meet Policy 4.3 and implement Strategy 4.3.1 than the WSL Option.

5.2.2 Oregon Public Transportation Plan

With the exception of one policy and one strategy under it, the policies of the Oregon Public Transportation Plan³¹ are general and both the Streetcar and Enhanced Bus Alternatives would comply with them. The exception is Policy 1D. It and the strategy under it are:

²⁸ ODOT, Oregon Transportation Plan, September 2006, p. 57.

²⁹ Ibid., p. 60.

³⁰ Ibid., p. 61.

The public transportation system and local land use planning should be complementary and coordinated. Public transportation should be both responsive to and facilitate implementation of land use laws.

Strategy 1D.1

Encourage public transportation projects that support compact or in-fill development or mixed use projects.³²

For the reasons stated in the analysis of indirect land use impacts above, the Streetcar Alternative would meet Policy 1D and implement Strategy 1D.1, while the Enhanced Bus Alternative would not. For the reasons stated in the analysis of indirect land use impacts in Segment 3, the Macadam In-street and Macadam Additional Lane Options would better meet Policy 1D and implement Strategy 1D.1 than the WSL Option.

5.2.3 Oregon Rail Plan

Because, as stated above, both Streetcar Alternative options in Segment 6 would include a new undercrossing of the Tillamook Branch of the Union Pacific Railroad, there is the potential for policies of the Oregon Rail Plan³³ to apply. However, the Plan contains no applicable policies.

5.2.4 Oregon Highway Plan

Because the OHP addresses state highways, only a few of its policies are applicable to the proposed project. Among them is Policy 1F, which establishes mobility performance standards.³⁴ These standards and related policies apply to the portions of Macadam Avenue which the Macadam Additional Lane and Macadam In-Street Options would alter. The Transportation Technical Report addresses compliance with the standards. Other OHP policies applicable to project alternatives follow.

- Action 4B.1, which states:

Promote alternative passenger transportation services in commute highway corridors to help maintain or meet established performance standards.³⁵

This policy calls for ODOT to support either the Enhanced Bus or Streetcar Alternative. Traffic volumes on Highway 43 are forecasted to exceed the applicable performance standard at all modeled intersections under the No-Build Alternative. For the most part, traffic volumes under the Enhanced Bus Alternative are forecasted to be the same or slightly lower than under the No-Build Alternative. The exceptions under the Enhanced Bus Alternative are at the intersections of Highway 43 with North Shore Road, Middlecrest Road/Wilbur Street, and McVey Avenue/Green Street in Lake Oswego, where volumes are forecasted to be slightly higher. The same is true of the Streetcar Alternative, except that volumes are not forecasted to be higher at

³¹ ODOT, Oregon Public Transportation Plan, April 1997.

³² Ibid., p. III-3. A second strategy addresses “interurban” transportation. Travel between Lake Oswego and Portland is intraregional, rather than interurban.

³³ ODOT, Oregon Rail Plan, November 8, 2001.

³⁴ OHP, op. cit., p. 77.

³⁵ Ibid., p. 141.

the intersection of Highway 43 with North Shore Road. See Table 4.3-4 in the DEIS. Automobile travel times on Highway 43 are forecasted to be the same under the Enhanced Bus Alternative as under the No-Build Alternative and lower under the Streetcar Alternative. See Table 4.2-2 of the DEIS.

- Action 4B.2, which states:

Promote alternative passenger transportation services located off the highway system that help to preserve the performance and function of the state highway system.³⁶

This policy calls for ODOT to support the Streetcar Alternative, except for the Macadam design options in Segment 3.

5.2.5 Oregon Bicycle and Pedestrian Plan and Oregon Revised Statutes Section 366.514

The Oregon Bicycle and Pedestrian Plan³⁷ contains several policies applicable to the portion of Macadam Avenue which the Macadam In-street and Additional Lane Options of the Streetcar Alternative would alter. They are:

- Strategy 1A, which states:

Integrate bicycle and pedestrian facility needs into all planning, design, construction and maintenance activities of the Oregon Department of Transportation, local governments and other transportation providers.

- Strategy 1B, which states:

Retrofit existing roadways with paved shoulders or bike lanes to accommodate bicyclists, and with sidewalks and safe crossings to accommodate pedestrians.³⁸

The Plan also states:

Urban bikeways and walkways will be provided:

1. As part of road construction projects: ODOT will incorporate needed bicycle and pedestrian facilities on construction, reconstruction and relocation projects, subject to the provisions of ORS 366.514. Facilities may be provided on local streets that provide a better alternative to the highway. . . .³⁹

Oregon Revised Statute (ORS) section 366.514(1) states:

Out of the funds received by the Department of Transportation or by any county or city from the State Highway Fund reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts or ramps as part of the project. Footpaths and bicycle

³⁶ Ibid., p. 142.

³⁷ ODOT, Oregon Bicycle and Pedestrian Plan, June 1995.

³⁸ Ibid., p. 21.

³⁹ Ibid., p. 24. ORS 366.514 would not apply because the relevant provision applies to projects funded from the State Highway Fund. The Streetcar Alternative would not be funded from the State Highway Fund.

trails, including curb cuts or ramps as part of the project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated. . .

ORS 366.514(1) would not apply to the Streetcar Alternative because moneys from the State Highway Fund are not proposed to be used to fund the project. If the State Highway Fund became a funding source for the project, ORS 366.514(1) would apply and the Macadam In-street and Macadam Additional Lane Options of the Streetcar Alternative would not comply with it. This is because, while they would provide sidewalks, they would provide neither bike lanes on Macadam Avenue nor a bicycle trail located off of Macadam Avenue.

5.3 Regional Plans

Because the LOPT Project is a transportation project, the only regional plan that applies directly to it is the Regional Transportation Plan (RTP). This section contains applicable provisions of the 2035 RTP. The analyses of compliance with 2035 RTP Objective 1.1 requires referencing how the 2040 Growth Concept, a land use plan, classifies the project area. For this reason, this section describes the applicable classifications. In addition, as stated on page 81, an applicable City of Portland policy requires transportation projects to implement the 2040 Growth Concept.

5.3.2 2035 Regional Transportation Plan

5.3.2.1 Applicable Provisions and Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative

Financially-Constrained Project List

The 2035 RTP's financially-constrained project list includes the Streetcar Alternative.⁴⁰ It does not include the Enhanced Bus Alternative. The No-Build Alternative would not be consistent with the project list.

Objective 1.1 Compact Urban Form and Design

Objective 1.1 states:

Use transportation investments to reinforce growth in and multimodal access to 2040 Target Areas and ensure that development in 2040 Target Areas is consistent with and supports the transportation investments.⁴¹

The Streetcar Alternative would meet Objective 1.1 and the Enhanced Bus and No-Build Alternatives would not. This is because extension of the streetcar system would encourage the types and intensities of development the 2040 Growth Concept designations call for, which the Enhanced Bus and No-Build Alternatives would not. The definition of "Target Areas" includes town centers, main streets, and corridors.⁴² As described in subsection 5.3.3, below, the project area is a corridor and contains a designated Town Center and designated Main Streets. The Streetcar Alternative would support the designations more than the MOS phasing option, because it would support the Town Center designation of downtown Lake Oswego, as well as the Main Street designations in the South Waterfront and Johns Landing areas. The Streetcar Alternative design options would not

⁴⁰ Metro, 2035 Regional Transportation Plan Final Draft, March 2010, Appendix 1.1, p. 30.

⁴¹ Ibid., p. 2-8.

⁴² Ibid., p. 2-5.

materially differ regarding Objective 1.1. See the land use impact analyses in sections 4.2, 4.3, and 4.6, above.

Objective 3.1, Travel Choices

Objective 3.1 states, “Achieve modal targets for increased walking, bicycling, use of transit and shared ride and reduced reliance on the automobile and drive alone trips.”⁴³ The Enhanced Bus Alternative would help meet Objective 3.1 more than No-Build Alternative and the Streetcar Alternative would help meet the objective more than the Enhanced Bus Alternative. Table 6.1-8 in the DEIS shows that the transit mode share is projected to be higher under the Enhance Bus Alternative than under the No-Build Alternative and higher under the Streetcar Alternative than under the Enhanced Bus Alternative.

Objective 3.2, Vehicle Miles of Travel

Objective 3.2 states, “Reduce vehicle miles traveled per capita.”⁴⁴ The Enhanced Bus Alternative would help meet Objective 3.2 more than No-Build Alternative and the Streetcar Alternative would help meet the objective more than the Enhanced Bus Alternative. Table 6.1-2 in the DEIS shows that vehicle miles of travel is projected to be lower under the Enhance Bus Alternative than under the No-Build Alternative and lower under the Streetcar Alternative than under the Enhanced Bus Alternative.

Objective 3.3, Equitable Access and Barrier Free Transportation

Objective 3.3 states:

Provide affordable and equitable access to travel choices and serve the needs of all people and businesses, including people with low income, children, elders and people with disabilities, to connect with jobs, education, services, recreation, social and cultural activities.⁴⁵

There are no clear differences in how well the alternatives meet Objective 3.3. Compared to the No-Build Alternative, the Enhanced Bus and Streetcar Alternatives would improve transit access in some areas and reduce it in others. There are no clear differences among the affected areas in income levels or “children, elders and people with disabilities.” See Section 3.3, Neighborhoods, Displacements and Relocations and Environmental Justice, of the DEIS and the Community Impact Assessment Technical Report.

Objective 5.1, Operational and Public Safety, and Objective, 5.2 Crime

Objective 5.1 states, “reduce fatalities, serious injuries and crashes per capita for all modes of travel.” Objective 5.2 states, “reduce vulnerability of the public, goods movement and critical transportation infrastructure to crime.”⁴⁶ There are no material differences among the alternatives in terms of safety or crime. See Section 3.14, Safety and Security, of the DEIS and the Safety and Security Technical Report.

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Ibid., p. 2-10.

Objective 6.1 Natural Environment

Objective 6.1 states, “Avoid or minimize undesirable impacts on fish and wildlife habitat conservation areas, wildlife corridors, significant flora and open spaces.”⁴⁷ The Streetcar Alternative would meet this objective, but the Enhanced Bus Alternative would not. This is because the Enhanced Bus Alternative would adversely impact aquatic habitat, while the Streetcar Alternative would not. See Section 3.8, Ecosystems, of the DEIS and the Ecosystems Technical Report.

Objective 6.2, Clean Air

Objective 6.2 states, “Reduce transportation-related vehicle emissions to improve air quality so that as growth occurs, the view of the Cascades and the Coast Range from within the region are (sic) maintained.”⁴⁸ Both the Enhanced Bus and Streetcar Alternatives would comply with this policy. As described in Section 3.11, Air Quality, of the DEIS and the Air Quality Technical Report, neither alternative would cause violations of air quality standards.

Objective 6.3 Water Quality and Quantity

Objective 6.3 states, “Protect the region’s water quality and natural stream flows.”⁴⁹ As described in Section 3.9, Hydrology and Water Quality, of the DEIS and the Hydrology and Water Quality Technical Report, the Enhanced Bus and Streetcar Alternatives would comply with applicable state and federal water quality standards.

Objective 6.4, Energy and Land Consumption

Objective 6.4 states, “Reduce transportation-related energy and land consumption and the region’s dependence on unstable energy sources.”⁵⁰ The Enhanced Bus and Streetcar Alternatives are similar in meeting this objective. The Enhanced Bus Alternative is projected to increase fuel and energy consumption compared to the No-Build Alternative, but by a small amount. The Streetcar Alternative is projected to reduce fuel and energy consumption compared to the No-Build Alternative, but also by a small amount. Depending on the combination of design options, the Streetcar Alternative would convert to transportation use from 2.5 to 9.6 acres of land, compared to no conversion of land under the Enhanced Bus Alternative. However, by reducing the need to increase roadway capacity compared to the No-Build Alternative, both would likely reduce long-term transportation-related land consumption.

Objective 6.5 Climate Change

Objective 6.5 states, “Reduce transportation-related greenhouse gas emissions.”⁵¹ The Streetcar Alternative would better meet this objective than the Enhanced Bus Alternative. Compared to the No-Build Alternative, the Enhanced Bus Alternative is projected to reduce carbon dioxide by 25 tons per day, compared to about 41 tons per day under the Streetcar Alternative. See Section 3.11, Air Quality, of the DEIS and the Air Quality Technical Report.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Ibid.

Regional Transit Network Policies

In Section 2.5.3, Regional Transit Network Vision, the RTP states:

Five policies form the foundation of this vision:

- Build the total system and transit-supportive land uses to leverage investments
- Expand high capacity transit
- Expand frequent service
- Improve local service
- Support expanded commuter rail and intercity transit service⁵²

2035 RTP Figure 2.15, Regional Transit Network, shows “rapid streetcar” in the LOPT corridor. See Figure 5-1. The RTP describes “rapid streetcar” as “streetcars running in mostly exclusive right of way so that they are able to travel faster safely.”⁵³ Therefore, the Enhanced Bus Alternative would not comply.

Classifications of Highway 43

The RTP’s Regional Design Classifications map classifies Highway 43 as a “Regional Boulevard” north of its intersection with Taylors Ferry Road and in downtown Lake Oswego and as a “Regional Street” from Taylors Ferry Road south to downtown Lake Oswego.⁵⁴ The RTP shows “Illustrative Design Concepts” for these classifications and shows them each as having four “planned travel lanes.”⁵⁵ It does not state policies regarding the classifications.

The RTP’s Arterial and Throughway Network map shows Highway 43 as a “Major Arterial.”⁵⁶ The text describes major arterials, but does not state policies regarding them.⁵⁷

The RTP’s Regional Transit Network map shows the Highway 43 corridor as both existing “frequent bus” and proposed “streetcar.”⁵⁸ The map legend states, “dotted lines represent proposed projects and are not intended to identify specific alignments.” The text does not contain policies specific to these designations.

5.3.2.2 Potential Changes to Project Alternatives to Achieve or Improve Compliance

According to section 3.8.4.5 of the DEIS, the adverse impact of the Streetcar Alternative on aquatic habitat could be reduced, thereby improving compliance with Objective 6.1, Natural Environment.

⁵² Ibid., p. 2-40

⁵³ Ibid., p. 2-47.

⁵⁴ Ibid., Figure 2.10, p. 2-28.

⁵⁵ Ibid., Table 2.6, p. 2-29.

⁵⁶ Ibid., Figure 2.12, p. 2-35.

⁵⁷ Ibid., p. 2-37.

⁵⁸ Ibid., Figure 2.25, p. 2-42.

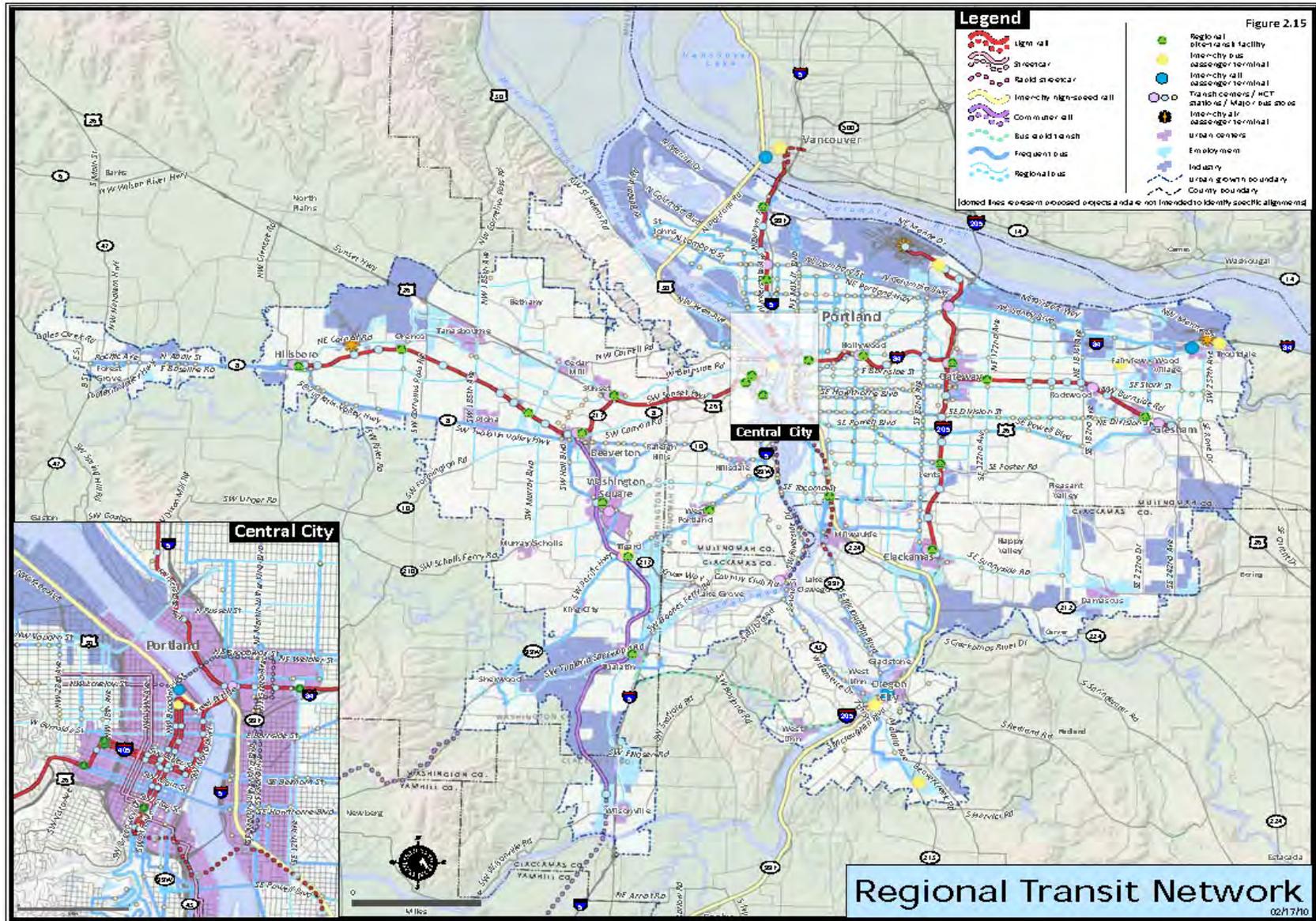
5.3.2.3 Potential Changes to Policies Needed to Achieve Compliance

Metro could add the Enhanced Bus Alternative to the RTP's fiscally-constrained project list, described on page 62, and amend 2035 RTP Figure 2.15 to show "frequent bus" instead of "rapid streetcar" in the LOPT corridor.

5.3.3 2040 Growth Concept

This subsection describes how the 2040 Growth Concept classifies the project area. As described on page 62, the section does this to enable evaluating compliance with 2004 RTP Policy 14, contained on page 62, above; with 2035 RTP Objective 1.1, contained on page 62, above; and with Policy 6.17 of the City of Portland Transportation System Plan on page 81, below. The 2040 Growth Concept does not apply directly to project alternatives, so this section does not address compliance.

FIGURE 5-1 2035 REGIONAL TRANSPORTATION PLAN FIGURE 2.15, REGIONAL TRANSIT NETWORK



The 2040 Growth Concept map:⁵⁹

- Classifies downtown Lake Oswego as a “Town Center.” Regarding Town Centers, the 2040 Growth Concept states:

Town centers provide localized services to tens of thousands of people within a two- to three-mile radius. Examples include small city centers such as Lake Oswego, Tualatin, West Linn, Forest Grove and Milwaukie and large neighborhood centers such as Hillsdale, St. Johns, Cedar Mill and Aloha. One to three-story buildings for employment and housing are characteristic. Town centers have a strong sense of community identity and are well served by transit.⁶⁰

- Classifies downtown Portland as part of the “Central City.” Regarding the Central City, it states:

Downtown Portland serves as the hub of business and cultural activity in the region. It has the most intensive form of development for both housing and employment, with high-rise development common in the central business district. Downtown Portland will continue to serve as the finance and commerce, government, retail, tourism, arts and entertainment center for the region.

- Classifies as “Main Streets” an area along the Willamette Shore Line alignment from Hamilton Court south to near Pendleton Street and west along SW Boundary Street to west of SW Corbett Avenue. Regarding Main Streets, it says:

Similar to town centers, main streets have a traditional commercial identity but are on a smaller scale with a strong sense of the immediate neighborhood. Examples include Southeast Hawthorne in Portland, the Lake Grove area in Lake Oswego and the main street in Cornelius. Main streets feature good access to transit.

- Classifies as a Corridor the route of Macadam Avenue and Highway 43. Regarding Corridors, it states:

Corridors are major streets that serve as key transportation routes for people and goods. Examples of corridors include the Tualatin Valley Highway and 185th Avenue in Washington County, Powell Boulevard in Portland and Gresham and McLoughlin Boulevard in Clackamas County. Corridors are served extensively by transit.

- Shows the Willamette Shore Line alignment as being “Potential HCT Facilities.” “HCT” means high-capacity transit, but there is no definition of “Potential HCT Facilities.”

⁵⁹ Metro, 2040 Growth Concept Map, last amended November, 17, 2005.

⁶⁰ Metro, The Nature of 2040, The Region's 50-Year Strategy For Managing Growth, June 1, 2000, p. 11

5.4 Clackamas County Plans

Clackamas County has planning jurisdiction over the area north of the Lake Oswego city limits⁶¹ to the County's boundary with Multnomah County.⁶²

5.4.1 Applicable Provisions

General Transportation Goals

Create a safe, efficient and effective transportation system – with multiple modes – that balances the needs of the economy, protection of the environment, conservation of natural resources, and protection of neighborhoods.⁶³

Transportation Demand Management Goals

Reduce single occupant vehicle trips on the roadway network during peak travel demand periods.⁶⁴

Reduce Vehicle Miles Traveled per Capita by 10% by year 2020 (using year 2000 as a base year).⁶⁵

Policy 6.0 Establish the following Year 2040 Non Single Occupancy Vehicle (SOV) modal split targets for Regional 2040 Design Types:

2040 Design Type Non-SOV Modal Target

* * *

Town Centers 45%⁶⁶

* * *

Transit Goals

Develop an integrated transit system that complements and supports the road, pedestrian, and bicycle system and encourages the use of alternative transportation modes within, to, and from the County's urban areas.⁶⁷

Encourage transit ridership through development of a transit system that is fast and comfortable at low cost.⁶⁸

* * *

⁶¹ On the east side of the WSL alignment, the city limits are at Briarwood Road. On the west side, the city limits are four lots to the north of Briarwood Road.

⁶² The County boundary is roughly 2,000 feet north of Briarwood Road.

⁶³ Clackamas County, Comprehensive Plan, January 17, 2008, p. V-4.

⁶⁴ Ibid., p. V-13.

⁶⁵ Ibid.

⁶⁶ Ibid., p. V-14.

⁶⁷ Ibid., p. V-16.

⁶⁸ Ibid.

Policy 8.0, Protect neighborhoods, recreation areas and pedestrian/bikeways from transportation related environmental degradation.⁶⁹

5.3.2 Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative

None of the alternatives would be clearly noncompliant with the policies quoted above because the language is general. The Enhanced Bus and Streetcar Alternative would better implement the multi-modal feature of the quoted general transportation goal, the transportation demand management goal and policy, and the transit goals. However, the No-Build Alternative includes continuation of existing transit service. The mitigation measures identified in the analyses of noise, vibration, and natural resource impacts would protect the affected neighborhoods from potential environmental degradation resulting from the Enhanced Bus and Streetcar Alternatives.

5.5 Multnomah County Plans

Multnomah County has comprehensive planning jurisdiction over the area south of the Portland city limits to the County's boundary with Clackamas County.⁷⁰

5.5.1 Applicable Provisions

Multnomah County transportation policy 33a states:

The County's Policy is to implement a balanced, safe and efficient transportation system, in evaluating parts of the system, the County will support proposals which:

- A. Implement the comprehensive plan;
- B. Best achieve the objectives of the specific project;
- C. Protect or enhance water and air quality and reduce noise levels;
- D. Protect social values and the quality of neighborhoods and communities;
- E. Support economic growth;
- F. Provide a safe, functional and convenient system; and
- G. Provide optimum efficiency and effectiveness of investment.
- H. Update and refine the bicycle corridor concept plan, (sic)
- I. The County will also consider: (sic)
 - Equality of access to urban opportunities;
- J. The degree of mobility available to all people in terms of alternative types of transportation;
- K. Energy conservation and efficiency;

⁶⁹ Ibid., p. V-17.

⁷⁰ The Portland city limits are a short distance north of the intersection of Radcliffe Road and Highway 43.

L. System flexibility;

M. Pedestrian crossing and safety; and

N. The need for landscaping and other design techniques Necessary for visual enhancement.⁷¹

Multnomah County classifies Riverwood and Military Roads as “Urban Local.” It does not classify OR 43. The plan describes local streets as follows.

Local streets provide access to abutting land uses on low traffic volume and low speed facilities. Their primary purpose is to serve local pedestrian, bicycle and automobile trips and limited public transportation use in urban areas; and auto and farm vehicle circulation with local pedestrian, bicycle and equestrian use in rural areas.⁷²

Policy 34 states:

The County's Policy is to develop a safe and efficient trafficway system using the existing road network, and by:

* * *

E. Providing safe and convenient bicycle and transit facilities and a pedestrian environment with road crossings and sidewalk network designed for pedestrian travel in accordance with Policy 33c: Bikeways/Pedestrian System and Policy 35: Public Transportation;

* * *

G. Reducing reliance on the automobile and assuring that the Planned transportation system supports patterns of travel and land use which will avoid or mitigate problems of air pollution, Traffic congestion and community liveability;⁷³

Strategy 3.A under Policy 34 states:

Fostering Choice: The trafficway system should be managed to provide opportunities for choices among available travel modes so that reliance on automobiles as single-occupant vehicles can be reduced, and so that total vehicle miles traveled as a measure of automobile use per capita can be reduced in the future, in accordance with the state Transportation Planning Rule and Policy 35: Public Transportation.⁷⁴

Policy 35, Public Transportation, contains no policies applicable to the project alternatives.

⁷¹ Multnomah County, Multnomah County Comprehensive Framework Plan, undated, no page numbers (see http://www2.co.multnomah.or.us/Community_Services/LUT-Planning/urban/framework/nav/fp_index.html#fp_toc).

⁷² Ibid., Policy 34, Trafficways.

⁷³ Ibid.

⁷⁴ Ibid.

5.5.2 Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative

The Enhanced Bus and Streetcar Alternatives would implement elements E and G of Policy 34 and Strategy 3.A, which the No-Build Alternative would not. None of the alternatives would be clearly noncompliant with the other policies quoted above because: 1) the language is general; 2) Policy 33 applies to County support for projects, rather than to projects, themselves; and, 3) the various Policy 33 considerations would favor different alternatives.

5.6 City of Lake Oswego Plans

5.6.1 Applicable Provisions

The Comprehensive Plan includes the following policies under Goal 8, Transit System:

1. Transit shall be a viable alternative to the single-occupant automobile in the City's highest density employment and housing areas. The City shall develop, in conjunction with Tri-Met, a network of transit routes to connect these areas with Main Streets, Town Centers, Employment Centers, downtown Portland and major transit and transfer stations. * * *
2. Develop transit centers in Town Centers and Employment Centers where there is a need for transfer points between bus lines and local shuttle services or transit trunk routes. Transit centers will be conveniently located for all modes of transportation, in particular pedestrian, bike and transit.

* * *

6. The City shall work to preserve existing railroad rights-of-ways and other easements to maintain opportunities for future mass transit, bike and pedestrian paths.⁷⁵

The Plan identifies downtown Lake Oswego as having Main Streets and being a Town Center. There is another Main Street and Town Center and an Employment Center. All are east of the project area.⁷⁶

Below these policies in the Plan are the following "Recommended Action Measures." While they are not policies, they illuminate the intent of the quoted policies.

- i. The City shall work to preserve existing railroad rights-of-ways and other easements to maintain opportunities for future mass transit and bike and pedestrian paths.
- ii. The City shall pursue capital/operating assistance from Tri-Met and/or other public or private transit providers as needed to provide adequate transit service.
- iii. Work with Tri-Met to identify additional opportunities for park and ride facilities and shelters in Lake Oswego.
- iv. Support efforts to develop greater inter-city public transit options.

⁷⁵ City of Lake Oswego, Comprehensive Plan, December 1994, as amended, p. 12-18, ff.

⁷⁶ Ibid., Figures 26 – 28.

- v. Preserve the Willamette Shore Rail line for high capacity transportation opportunities or opportunities to share the right of way, if feasible, with high capacity transit and other modes of travel, such as pedestrian and bicycle.
- vi. Coordinate with Metro, Tri-Met, Multnomah County, Clackamas County, the City of Portland and other regional partners in the planning and design of high capacity transit on the Willamette Shore Rail line to ensure:
 - a. Adequate access to the regional transportation system;
 - b. Adequate termini facilities; and
 - c. Adequate access to the line for all modes of travel.⁷⁷

Figure 20D of the Plan, Transit Network and Facilities Plan, shows the following:

- the Willamette Shore Line alignment as “Right-of-Way Preservation, Future High Capacity Transit”
- “Regional Rapid Bus, High Frequency (Limited Stops)” along State Street/Highway 43 north from Avenue A, on Avenues A and B between 4th Street and State Street/Highway 43, and on 4th Street between Avenues A and B,
- “Frequent Bus Network (High Frequency, Frequent Stops)” along State Street/Highway 43 from the southern edge of the map to the northern edge
- A park and ride lot and “major transit stop” near the terminus of the Willamette Shore Line alignment⁷⁸

The Plan’s “Public Facilities Plan: Transportation Improvement Program 1-10 Years,” includes “Track/trestle rehabilitation” of the “Willamette Shores Trolley”⁷⁹ and “Park and Ride/relocated transit center” “Downtown Lake Oswego - East of State Street.”⁸⁰ This is shown on the Transit Network and Facilities Plan figure as the park and ride lot and “major transit stop” near the terminus of the Willamette Shore Line alignment, listed above.

5.6.2 Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative

City of Lake Oswego policies support both the Enhanced Bus and Streetcar Alternatives, but not the No-Build Alternative or MOS phasing option. Neither the Streetcar Alternative nor the Enhanced Bus Alternative would fail to comply with policies 1, 2, and 6 under Goal 8, as quoted above, but the Streetcar Alternative would be more consistent with the policies. At the same time, the Streetcar Alternative would not provide “Frequent Bus Network (High Frequency, Frequent Stops)” along State Street/Highway 43 through the downtown. Both alternatives would make transit a viable alternative to the automobile in the downtown area and the park-and-ride lot under both alternatives

⁷⁷ Ibid., p. 12-19.

⁷⁸ Ibid., Figure 20D.

⁷⁹ Ibid., p. 12-28.

⁸⁰ Ibid. p. 12-34.

would provide an additional transit center. The Enhanced Bus Alternative would not foreclose preserving the WSL right of way. At the same time, policy 6 and the “Recommended Action Measures” under Goal 8, as quoted above, express a desire for “high capacity transit” on the Willamette Shore Line alignment.

Similarly, neither the MOS phasing option nor the No-Build Alternative would fail to comply with policies 1, 2, and 6 under Goal 8 because TriMet would continue to provide transit service, there is an existing transit center in downtown Lake Oswego, and the No-Build Alternative would not foreclose preserving the WSL right of way. However, the MOS phasing option and No-Build Alternatives would be inconsistent with the desire for “high capacity transit” on the Willamette Shore Line alignment implicit in policy 6 and the “Recommended Action Measures” under Goal 8.

5.6.3 Potential Changes to Project Alternatives Needed to Achieve Compliance

Because neither the Streetcar Alternative nor the Enhanced Bus Alternative would fail to comply with applicable Lake Oswego Comprehensive Plan policies, no changes in the alternatives are needed to achieve compliance.

5.6.4 Potential Changes to Policies Needed to Achieve Compliance

While neither the Streetcar nor Enhanced Bus Alternative fails to comply with the applicable policies of the Lake Oswego Comprehensive Plan, clarification of the policies could make clear which of the alternatives the City would prefer.

5.7 City of Portland Plans

5.7.1 Applicable Provisions and Compliance of the No-Build, Enhanced Bus, and Streetcar Alternative

5.7.1.1 Transportation System Plan

Policy 6.5, Traffic Classification Descriptions

Policy Language

Policy 6.5 states:

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.⁸¹

The TSP classifies Macadam and Highway 43 as “Major City Traffic Streets.”⁸²

Compliance of Project Alternatives with the Policy

None of the policies for Major City Traffic Streets applies to project alternatives.⁸³ The policy is included here for context and to document that policies for Major City Traffic Streets were reviewed.

⁸¹ City of Portland, Transportation System Plan, April 5, 2007, p. 2-6.

⁸² Ibid., Map 6.41.1, p. 2-101.

⁸³ Ibid., p. 1-6, ff.

Policy 6.7 Bicycle Classification Descriptions

Policy Language

Policy 6.7 states, “Maintain a system of bikeways to serve all bicycle users and all types of bicycle trips.” The TSP classifies as a “City Bikeway” Highway 43 south of the Sellwood Bridge to the city limits.⁸⁴ Macadam Avenue is not classified. The classification map shows an “Off-Street Path” in the vicinity of the existing Willamette Shore Line alignment south of SW Miles Street. None of the policies for City Bikeways applies to project alternatives.⁸⁵ Regarding Off-Street Paths, Policy 6.7.B states:

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.⁸⁶

* * *

Compliance of Project Alternatives with the Policy

The Streetcar Alternative appears to be in substantial, but not technical, compliance with providing an “Off-Street Path” in the vicinity of the existing Willamette Shore Line alignment south of SW Miles Street. A draft report prepared for Metro has identified how an off-street trail could be routed, if the a streetcar alternative were implemented, including in conjunction with the replacement of the Sellwood Bridge.⁸⁷ It shows the path as the Greenway Off-Street Path, which parallels the WSL alignment south to a point north of SW Radcliffe Road. South of this point, the report shows only an “On-Street Facility” on Highway 43. This point is a short distance north of the Portland city limits, where the City’s comprehensive planning jurisdiction ends.⁸⁸ This implies that only the WSL alignment is feasible as an “Off-Street Path” for the short distance to the city limits. The No-Build and Enhanced Bus Alternatives would not conflict with providing an “Off-Street Path,” because the path could use the Willamette Shore Line alignment, if rail use were abandoned. Similarly, the MOS phasing option would not conflict with providing an “Off-Street Path” to the Portland city limits because the path could use the Willamette Shore Line alignment, if rail use were abandoned.

Potential Changes to Project Alternatives to Achieve Compliance

No change to the Streetcar Alternative has been identified that would enable providing an “Off-Street Path” all the way to the Portland city limits. Closer examination of the area may identify a way to do this.

⁸⁴ Ibid., Map 6.41.3, p. 2-103.

⁸⁵ Ibid., p. 2-12, ff.

⁸⁶ Ibid., p. 2-13.

⁸⁷ Alta Planning and Design, Lake Oswego to Portland Trail, Draft, July 2009, Map 3.

⁸⁸ Under contract with Multnomah County, the City of Portland exercises land use regulatory authority in an area south of the city limits which extends to the boundary between Multnomah and Clackamas Counties. However, Multnomah County retained comprehensive planning authority over the area.

Potential Changes to Policies Needed to Achieve Compliance

The TSP could be amended to indicate that substantial provision of an “Off-Street Path” would comply with the plan, even if the path is not provided for the entire length shown on classification map.

Policy 6.6, Transit Classification Descriptions

Policy Language

Policy 6.6 states, “Maintain a system of transit streets that supports the movement of transit vehicles for regional, interregional, interdistrict, and local trips.”⁸⁹ Macadam Avenue and Highway 43 are classified as “Major Transit Priority Streets.”⁹⁰ Regarding such streets, the TSP states:

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.

* * *

- 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.⁹¹

⁸⁹ City of Portland, Transportation System Plan, op cit., p. 2-9.

⁹⁰ Ibid., Map 6.41.2.

Compliance of Project Alternatives with the Policies

As proposed, the Enhanced Bus Alternative would not comply with the policy calling for “transit-preferential measures, such as signal priority and bypass lanes.” Similarly, as proposed, the Macadam In-Street and Macadam Additional Lane Options of the Streetcar Alternative would not comply with the policy calling for signal priority. The Macadam In-Street and Macadam Additional Lane Options of the Streetcar Alternative would encourage transit-supportive land uses to locate along Macadam Avenue, for the reasons described in the land use impact analyses in Segments 3 and 4, which begin on pages 44 and **Error! Bookmark not defined.**, respectively. The WSL Option and the No-Build Alternative would not affect Macadam Avenue, so Policy 6.6 would not apply to them.

Potential Changes to Project Alternatives to Achieve Compliance

Adding signal priority to transit vehicles could be added to the Enhanced Bus Alternative and Macadam In-Street and Macadam Additional Lane Options of the Streetcar Alternative would not be feasible in much of the corridor. This is because it would not improve speeds without adding bypass lanes. Analysis conducted during the alternatives analysis concluded that such lanes would have to be continuous, because of the length of traffic queues. Adding additional lanes was found to be infeasible.

Potential Changes to Policies Needed to Achieve Compliance

“Where feasible” could be added to the sentence reading, “Employ transit-preferential measures, such as signal priority and bypass lanes.”

Policy 6.8 Pedestrian Classification Descriptions

Policy Language

Policy 6.8 states, “Maintain a system of pedestrianways to serve all types of pedestrian trips, particularly those with a transportation function.”⁹² The TSP classifies Macadam Avenue south of Iowa Street a “City Walkway.”⁹³ As with the bicycle classification map referenced on page 75, the pedestrian classification map also shows an “Off-Street Path” in the vicinity of the existing Willamette Shore Line alignment south of SW Miles Street. The path is labeled “Bike & Pedestrian Path.”

Regarding City Walkways, Policy 6.8.C states:

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.⁹⁴

* * *

⁹¹ Ibid., p. 2-9.

⁹² Ibid., p. 2-13.

⁹³ Ibid., Map 6.41.4, p. 2-104.

⁹⁴ Ibid., p. 2-14.

- 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.

Regarding Off-Street Paths, Policy 6.8.D states:

- 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.⁹⁵

Compliance of Project Alternatives with the Policy

Project sponsors would use the Pedestrian Design Guide in designing the Macadam In-Street and Macadam Additional Lane Options of the Streetcar Alternative between Iowa and Carolina Streets. It should be noted that right of way widths there would constrain the provision of the “furnishings zone” sidewalk widths the Design Guide calls for.⁹⁶ The analysis of compliance of project alternatives with the provision calling for an “Off-Street Path” is the same as under Policy 6.7 on page 75.

Potential Changes to Project Alternatives to Achieve Compliance

See the discussion under Policy 6.7 on page 75.

Potential Changes to Policies Needed to Achieve Compliance

See the discussion under Policy 6.7 on page 75.

Policy 6.9 Freight Classification Descriptions

Policy Language

Policy 6.9 states, “Designate a system of truck streets, railroad lines, and intermodal freight facilities. That support local, national, and international distribution of goods and services.” The TSP designates as a “Major Truck Street” Macadam Avenue and Highway 43 to the city limits.⁹⁷ Policy 6.9.D states:

⁹⁵ Ibid., p. 2-15.

⁹⁶ City of Portland, Pedestrian Design Guide, June 1998, Section A.

⁹⁷ Portland Transportation System Plan, op. cit., Map 6.41.5, p. 2-105.

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

* * *

- Design. Major Truck Streets should accommodate all truck types, as practicable.⁹⁸

Compliance of Project Alternatives with the Policy

The Macadam In-Street and Macadam Additional Lane Options of the Streetcar Alternative would not constrain truck turning movements and therefore would comply with the policy calling for the accommodation of all truck types. The WSL Option and the Enhanced Bus and No-Build Alternatives would not affect truck turning movements on Macadam Avenue.

Policy 6.10 Emergency Response Classification Descriptions

Policy Language

Policy 6.10 states, “Emergency Response Streets are intended to provide a network of streets to facilitate prompt emergency response.”⁹⁹ The TSP classifies Macadam Avenue and Highway 43 as “Major Emergency Response” routes.¹⁰⁰ Policy 6.10.A states:

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.¹⁰¹

* * *

Compliance of Project Alternatives with the Policy

The Macadam In-Street and Macadam Additional Lane Options of the Streetcar Alternative and Enhanced Bus Alternative do not include providing preferential or priority treatment of emergency vehicles at signalized intersections. When improvements provide for such treatment of streetcars or busses, it is also available for emergency vehicles. However, none of the alternatives or options would provide such treatment. The WSL Option of the Streetcar Alternative and the No-Build Alternative would not affect Macadam Avenue, so the policy does not apply to them.

Potential Changes to Project Alternatives to Achieve Compliance

See the discussion under Policy 6.6 on page 77.

Potential Changes to Policies Needed to Achieve Compliance

See the discussion under Policy 6.6 on page 77.

⁹⁸ Ibid., p. 2-16, ff.

⁹⁹ Ibid., p. 2-15.

¹⁰⁰ Ibid., Map 6.41.6, p. 2-106.

¹⁰¹ Ibid., p. 2-18.

Policy 6.11 Street Design Classification Descriptions

Policy Language

Policy 6.11 states, “Street Design Classification Descriptions identify the preferred modal emphasis and design treatments for regionally significant streets and special design treatments for locally significant streets.”¹⁰² The TSP classifies Macadam south to Nevada Street as a “Regional Main Street” and Macadam Avenue and Highway 43 south of Nevada Street a “Regional Corridor” and south from just south of the Sellwood Bridge a “Greenscape Street.”¹⁰³

Policy 6.11.C states:

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.¹⁰⁴

Policy 6.11.E states:

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

¹⁰² Ibid., p. 2-18.

¹⁰³ Ibid., Map 6.41.7, p. 2-107.

¹⁰⁴ Ibid., p. 2-20, ff.

- 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.¹⁰⁵

Policy 6.11.H states:

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.¹⁰⁶

Compliance of Project Alternatives with the Policies

Because the policies call for design features to be “considered,” they are not obligatory. Instead, the City of Portland would consider them in reviewing the Macadam In-Street or Macadam Additional Lane Option of the Streetcar Alternative, if selected. The policies would not apply to the WSL Option or to the Enhanced Bus or No-Build Alternatives, because they would not alter the design of Macadam Avenue.

Policy 6.17 Coordinate Land Use and Transportation

Policy Language

Policy 6.17 states, “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

¹⁰⁵ Ibid., p. 2-22.

¹⁰⁶ Ibid., p. 2-24.

transportation projects and programs.”¹⁰⁷ Three Comprehensive Plan designations apply to land along the routes of the Streetcar and Enhanced Bus Alternatives. They are discussed below.

- Central Commercial, which applies to the area shown on Figure 4-2 as Mixed Use. Regarding it, the Comprehensive Plan states:

This designation is intended to be the city’s most physically intense commercial designation. The have (sic) the highest designation is intended for the most developed parts of the city which levels of public services. It allows a full range of commercial uses. The designation encourages development that is supportive of a pedestrian orientation. . .¹⁰⁸

- Urban Commercial, which applies to the areas shown on Figure 4-2 as Commercial. Regarding it, the Comprehensive Plan states:

This designation is intended for more developed parts of the city near relatively dense residential areas. A full range of retail, service, and business uses are allowed serving a local and a larger market area. It is intended primarily for areas which are served by transit. Development should have a strong orientation to pedestrians. It is also intended to allow commercial development in some areas while maintaining housing opportunities. . .¹⁰⁹

- Medium Density Multi-Dwelling, which applies to the area shown on Figure 4-2 as Multi-Family Residential. Regarding it, the Comprehensive Plan states:

This designation continues a common development pattern for medium density apartments. It is intended for areas with good public services, including being well served by transit, and no development constraints. It may be used for lands near arterials, transit streets, or commercial areas. The maximum density is generally 43 units per acre, but may go up to 65 units per acre in some situations. The scale of the development is intended to reflect the allowed densities while being compatible with nearby single-dwelling areas. . .¹¹⁰

See the descriptions of the 2040 Growth Concept classifications applicable to the land along the routes of the Streetcar and Express Bus Alternative in Portland, which begin on page 68.

Compliance of Project Alternatives with the Policy

The Streetcar Alternative would comply with Policy 6.17 by encouraging the types and intensities of development called for by the Comprehensive Plan designation policy language quoted above and by the Town Center 2040 Growth Concept classification quoted on page 68. The indirect land use impact analyses for Segments 2, 3, and 4, which start on pages 36, 44, and 49, respectively, explain how the Streetcar Alternative would do this. The Macadam In-Street and Macadam Additional Lane Options in Segment 3 would have a stronger effect than the WSL Option, as described on page 45.

¹⁰⁷ Ibid., p. 2-28.

¹⁰⁸ City of Portland, Comprehensive Plan Goals and Policies, as amended through July 2006, p. 10-4.

¹⁰⁹ Ibid.

¹¹⁰ Ibid., p. 10-3.

The Streetcar Alternative would also provide the “Potential HCT Facilities” shown on the 2040 Growth Concept map. The No-Build and Enhanced Bus Alternatives would not comply with Policy 6.17 because they would not encourage the types and intensities of development called for by the Comprehensive Plan designation policy language quoted above or by the Town Center 2040 Growth Concept classification. See the analysis at pages 35, 44, and 48. In addition, these alternatives would not provide the “Potential HCT Facilities” shown on the 2040 Growth Concept map.

Potential Changes to Project Alternatives to Achieve Compliance

None identified. The identified noncompliance is inherent to the No-Build and Enhanced Bus Alternatives.

Potential Changes to Policies Needed to Achieve Compliance

The relevant portions of Policy 6.17 would have to be dropped to avoid the non-compliance of the No-Build and Enhanced Bus Alternatives.

Policy 6.19 Transit-Oriented Development

Policy Language

Policy 6.19 states:

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.¹¹¹

* * *

Compliance of Project Alternatives with the Policy

Policy 6.19 does not apply to the alternatives because the quoted objectives demonstrate that it applies to development, not transportation facilities. It is quoted here to document that it’s applicability was considered.

¹¹¹ Ibid., p. 2-29.

Policy 6.21 Right-of-Way Opportunities

Policy Language

Policy 6.21 states:

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.

* * *

D. Preserve existing and abandoned rail rights-of-way and examine their potential for future rail freight, passenger service, or recreational trail uses.¹¹²

Compliance of Project Alternatives with the Policy

The Streetcar Alternative would comply with Policy 6.21 by preserving the WSL ROW by dedicating to streetcar use all or portions of it within the City of Portland. The Macadam In-Street and Macadam Additional Lane Options would not foreclose preserving the WSL ROW not used. Similarly, neither the No-Build nor the Enhanced Bus Alternative would foreclose preserving the WSL ROW. Under either alternative, it could be used for an “Off-Street Path.”

Policy 6.24, Public Transportation

Policy Language

Policy 6.24 states:

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:

* * *

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.

¹¹² Ibid., p. 2-30.

D. Implement transit-preferential measures on Major Transit Priority Streets to achieve travel times competitive with the automobile and to improve service reliability.

* * *

H. Develop streetcar lines in Portland to connect new or redeveloping neighborhoods to employment opportunities and other destinations, including shopping, education, and recreation.¹¹³

Compliance of Project Alternatives with the Policy

The compliance of project alternatives with Policy 6.24 is mixed. The Enhanced Bus Alternative would comply with Objective C and the Streetcar Alternative would comply with Objective H. Neither the Enhanced Bus Alternative nor the Macadam In-Street or Macadam Additional Lane Options of the Streetcar Alternative would comply with Objective D, because they do not include transit preference at signalized intersections. The No-Build Alternative would not comply with any of the objectives.

Potential Changes to Project Alternatives to Achieve Compliance

Regarding Objective D, see the discussion of signal priority under Policies 6.6 and 6.10, above. Other instances of noncompliance are inherent to the alternatives.

Potential Changes to Policies Needed to Achieve Compliance

Under the Streetcar Alternative, noncompliance with Objective C could be avoided by adding “and the high-capacity transit system” after “bus service.” Regarding Objective D, see the discussion of signal priority under Policies 6.6 and 6.10, above. Other instances of noncompliance could not be avoided without dropping the quoted language.

Policy 6.41, Southwest Transportation District

Policy Language

Policy 6.41 states:

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.)

¹¹³ City of Portland, Transportation System Plan, op. cit., p. 2-32.

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, 1978.¹¹⁴

Compliance of Project Alternatives with the Policy

The Streetcar Alternative would comply with this policy by providing streetcar commuter service. The No-Build and Enhanced Bus Alternatives would not comply with the policy because they would not provide streetcar service.

Potential Changes to Project Alternatives to Achieve Compliance

The noncompliance are inherent to the alternatives.

Potential Changes to Policies Needed to Achieve Compliance

The noncompliance could not be avoided without dropping the quoted language.

5.7.1.2 South Waterfront Plan

Policy Language

The South Waterfront Plan applies to Segment 2 south to SW Hamilton Street.¹¹⁵ The Plan's transportation policy states:

Support the development of a multimodal transportation system serving residents, employees and visitors to and within this urban district, with strong connections to the Willamette River and the greenway.¹¹⁶

Applicable objectives under the policy are:

3. Support the development of the Central City streetcar and a regional streetcar line that connects the district to downtown, Lake Oswego, and adjacent neighborhoods.
9. Encourage increased transit service in the district while maintaining existing service levels in adjacent districts and neighborhoods.¹¹⁷

In November 2009, the Portland City Council approved a revised "Concept Street Plan" for the South Waterfront Plan area and directed City staff to prepare for Council enactment amendments to

¹¹⁴ Ibid., p. 2-99.

¹¹⁵ City of Portland, South Waterfront Plan, November 13, 2002, p. A-5.

¹¹⁶ Ibid., p. E-3.

¹¹⁷ Ibid.

the City’s zoning code and TSP to incorporate the revised street plan.¹¹⁸ Figure 5-2 shows the Concept Street Plan. In the project area, the plan shows:

- A new segment of SW Hamilton Street east of Macadam Avenue, including an intersection with SW Macadam Avenue (referred to as the South Portal)
- Extension of SW Bond Avenue south from its existing terminus at SW Bancroft Street to the new SW Hamilton Street
- Extension of SW Moody Avenue south from its existing terminus at SW Bancroft Street along the WSL alignment
- “Rail Transit” on SW Bond Avenue to the new SW Hamilton Street
- “Rail Transit” on SW Moody Avenue
- “Rail Transit” between SW Bond Avenue and Moody Avenues on the new SW Hamilton Street and near SW Lowell Street.

Compliance of Project Alternatives with the Policy

Both the Enhanced Bus and Streetcar Alternative would comply with Objective 9 by improving transit service. Only the Streetcar Alternative, not the Enhanced Bus Alternative or MOS phasing option, would comply with Objective 3, by connecting to Lake Oswego by streetcar. The Moody/Bond Couplet Option in Segment 2 complies with the “Concept Street Plan” call for streetcar on both Moody and Bond Avenues; the WSL Option does not. The No-Build Alternative does not comply with any of the policies.

Potential Changes to Project Alternatives to Achieve Compliance

The characteristics of the alternatives and options that make them fail to comply with the quoted policies are inherent to their definition. They cannot be changed to achieve compliance

Potential Changes to Policies Needed to Achieve Compliance

To avoid the noncompliance of the Enhanced Bus Alternative or MOS phasing option with Objective 3, Objective 3 would have to be dropped. Similarly, for the WSL Option to comply with the “Concept Street Plan,” streetcar would have to be removed from Bond Avenue.

5.7.1.3 North Macadam Transportation Development Strategy

Policy Language

The North Macadam Transportation Development Strategy applies to Segment 2 south to approximately 1,000 feet south of Hamilton Court.¹¹⁹ While the City of Portland plans to add the

¹¹⁸ City of Portland, South Waterfront District Street Plan, Criteria and Standards, November 2009. City staff plan to seek City Council enactment of an ordinance adding the Concept Street Plan to the TSP, along with other TSP amendments. When this will happen has not been determined.

¹¹⁹ City of Portland, North Macadam Transportation Development Strategy, April 2009. See p. 1-2.

Strategy to the TSP by amendment,¹²⁰ the Strategy is a systematic compilation of projects, rather than a transportation plan. It contains maps showing analysis results and project locations, but not plan maps.¹²¹ “Streetcar to Lake Oswego” is among the projects the Strategy includes and is listed as a “Medium Priority Project.”¹²²

Compliance of Project Alternatives with the Policy

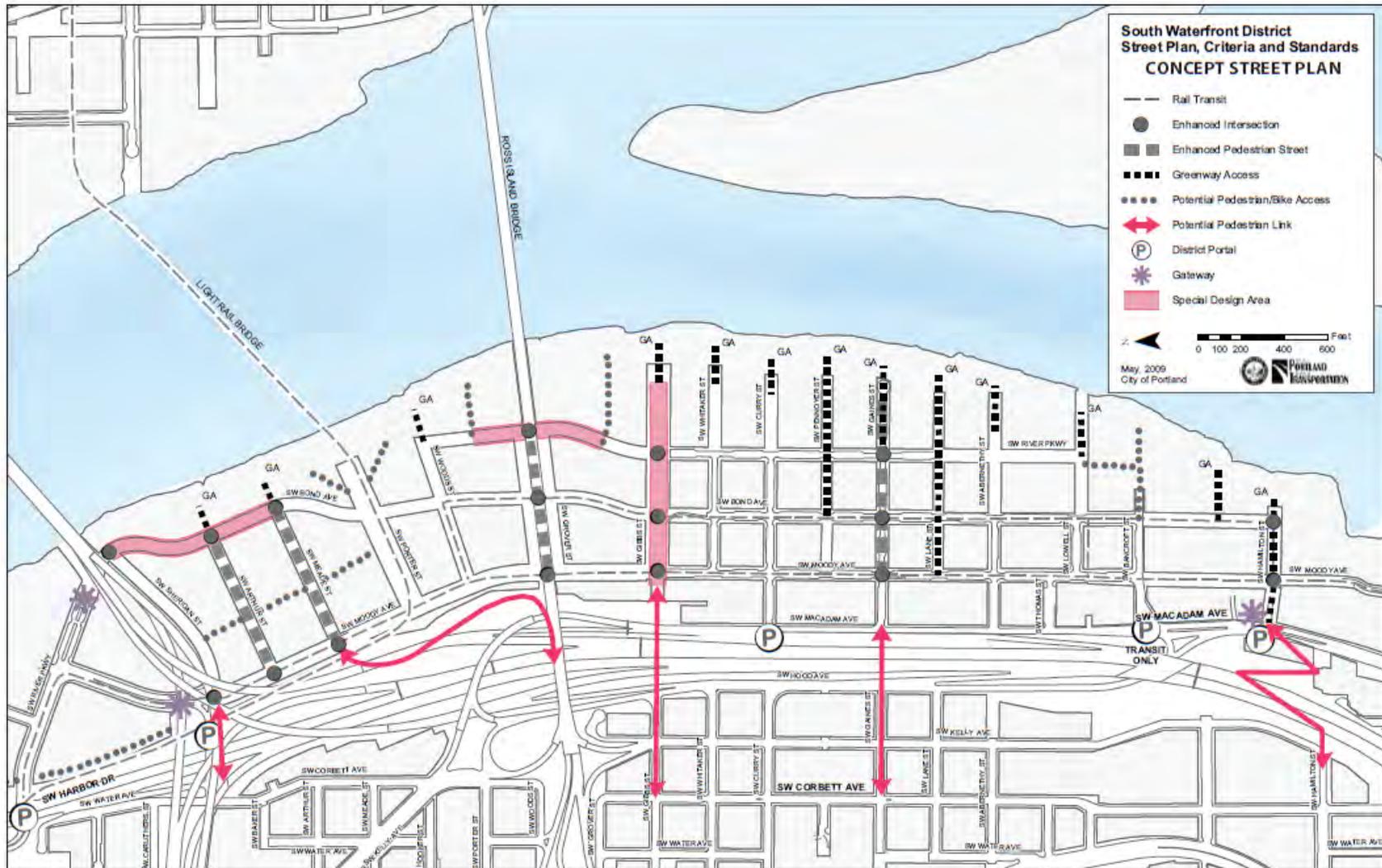
The Streetcar Alternative would comply with the North Macadam Transportation Development Strategy, because it calls for “Streetcar to Lake Oswego.” The No-Build Alternative and Enhanced Bus Alternatives would not comply, because they would not provide “Streetcar to Lake Oswego.”

¹²⁰ As with the revised Concept Street Plan of the South Waterfront Plan, City staff plan to seek City Council enactment of an ordinance adding the North Macadam Transportation Development Strategy to the TSP, along with other TSP amendments. When this will happen has not been determined.

¹²¹ For example, Figure 6-1 on p. 6-7 is entitled “Future Transit Network Alternatives.”

¹²² Ibid., p. 6-5.

FIGURE 5-2 SOUTH WATERFRONT CONCEPT STREET PLAN



5.7.1.4 Portland Streetcar System Concept Plan

Policy Language

The Portland Streetcar System Concept Plan includes “Lake Oswego to Portland: Lake Oswego to SW Lowell St” as a “Planned Regional Project” in a table entitled, “Existing Streetcar Corridors and System Concept Corridors.”¹²³ The plan document states, “Concept corridors represent the potential for future investments in streetcar infrastructure. Each concept corridor would require an Alternatives Analysis process to evaluate more detailed streetcar route alignment options.”¹²⁴

Compliance of Project Alternatives with the Policy

The Streetcar Alternative would provide the streetcar project the Portland Streetcar System Concept Plan envisions. However, the No-Build Alternative and Enhanced Bus Alternatives cannot be said to fail to comply with the Plan because it identifies the corridor as having “the potential for future investments in streetcar infrastructure.” It does not definitively call for streetcar in the corridor.

5.7.1.5 Willamette Greenway Plan

Policy Language

The 1987 Willamette Greenway Plan applies to the project area within the City of Portland south of the South Waterfront Plan area, i.e., south of SW Hamilton Street.¹²⁵ The plan states:

The Greenway Setback is a minimum of 25 feet landward from the top of the bank. No buildings, structures, parking lots, or fills are to be located within the setback unless it can be shown to be necessary for the functioning of a river-dependent or river-related use. Uses that are non river-dependent or river-related must obtain a Greenway Goal Exception to be within the Greenway Setback. A Greenway Goal Exception is an exception to the Willamette Greenway Plan.¹²⁶

Compliance of Project Alternatives with the Policy

Neither the Streetcar Alternative nor the Enhanced Bus Alternative would include improvements within “25 feet landward from the top of the bank.” The interchange that is part of the New Interchange Option does include improvements within “25 feet landward from the top of the bank.” As described on page 49, the interchange is part of the preferred alternative for replacing the Sellwood Bridge, not part of the Streetcar Alternative. Multnomah County, which would build the replacement bridge, is seeking from the City of Portland a Greenway Goal exception.

5.7.1.6 Other Components of Portland’s Comprehensive Plan

The area subject to the South Waterfront Plan, as described on page 86, is within the area of the Central City Plan. However, the South Waterfront Plan amended the Central City Plan, as it applies

¹²³ City of Portland, Portland Streetcar System Concept Plan, Public Review Draft, July 1, 2009, p. 45. The Portland City Council “accepted” the plan September 9, 2009, and the City plans to add the corridors in the plan to its TSP at a date that has not been determined.

¹²⁴ Ibid.

¹²⁵ The South Waterfront Plan amends the Willamette Greenway Plan within the South Waterfront Plan Area. South Waterfront Plan, op. cit., p. H-9. It contains the same restriction on uses within 25 feet of the top of the bank as the quoted provision.

¹²⁶ City of Portland, Willamette Greenway Plan, 1987, p. 8.

to the area of the Plan.¹²⁷ Consequently, Central City Plan policies are the same as South Waterfront Plan policies, so this report does not separately address Central City Plan policies. Similarly, the only policy in the Central City Transportation Management Plan applicable to any part of the project area is the policy for the North Macadam District, now known as South Waterfront. The policy is introduced by the statement, “The Central City Plan established the following policy for the North Macadam District.”¹²⁸ Because the South Waterfront Plan amended the Central City Plan as applied to the North Macadam District, the quoted policy is no longer effective and is not addressed here. Thus, the South Waterfront Plan technically contains the policies of both the Central City Plan and the Central City Transportation Management Plan applicable to the South Waterfront portion of the project area. The Portland Plan, now under development, will supersede other portions of the Central City Plan, and the update of the TSP, also under way, will supersede other portions of the Central City Transportation Management Plan.

¹²⁷ South Waterfront Plan, op. cit., p. H-7.

¹²⁸ City of Portland, Central City Transportation System Plan, December 1995, p. 95.

6. REQUIRED LAND USE PERMITS

6.1 Multnomah County

By agreement, the City of Portland regulates land use in the unincorporated area of Multnomah County south of the city limits in the project area. See the discussion of City of Portland land use permits below. The Residential 20,000 zoning referenced there applies to the project area in unincorporated Multnomah County.

6.2 Clackamas County

No land use permits from Clackamas County would be needed because the project includes no buildings within unincorporated Clackamas County. A permit from the Engineering Division of the Department of Transportation and Development would be needed, but this is not a land use permit.¹²⁹

6.3 City of Portland

The City of Portland Zoning Code would require issuance of a conditional use permit for the construction of new streetcar improvements. Rail lines are a conditional use in all four zones where streetcar improvements under the Streetcar Alternative would be located. These are the Central Commercial,¹³⁰ Storefront Commercial,¹³¹ Open Space,¹³² and Residential 20,000 zones.¹³³

6.4 City of Lake Oswego

Some of the capital improvements that would be built as part of any of the build alternatives are permitted uses under the Lake Oswego Community Development Code and some require a conditional use permit. All of the improvements under both the Streetcar Alternative and Enhanced Bus Alternative fall within the definition of “major public facilities.”¹³⁴ This includes the tracks and associated structures, stations, and park-and-ride facilities, including the parking structure. Major public facilities are permitted uses in the East End General Commercial district¹³⁵ and Industrial district.¹³⁶ and are conditional uses in all of the residential zones where project improvements are located (R-0 and R-10)¹³⁷ and in the Parks and Natural Area zone.¹³⁸ Under the Streetcar Alternative, this means that the Briarwood Station, A Avenue Station, and most of the track and street improvements under the Streetcar Alternative would require a conditional use permit. However, the Lake Oswego Terminus, including the parking structure, would not require a conditional use permit. Under the Enhanced Bus Alternative, street improvements associated with the Lake Oswego Terminus would require a conditional use permit, but the terminus, including the parking structure, would not. See Figures 6-1, 6-2, and 6-3. They show the proposed improvements under the two Streetcar Alternative options and the Enhanced Bus Alternative superimposed on the City’s zoning map.

¹²⁹ Personal communication from Ron Weinman, Transportation Planner, Clackamas County, February 17, 2010.

¹³⁰ City of Portland Zoning Code, Chapter 33.130, Table 130-1, p. 130-6.

¹³¹ Ibid.

¹³² Ibid., Chapter 33.100, Table 100-1, p. 100-3.

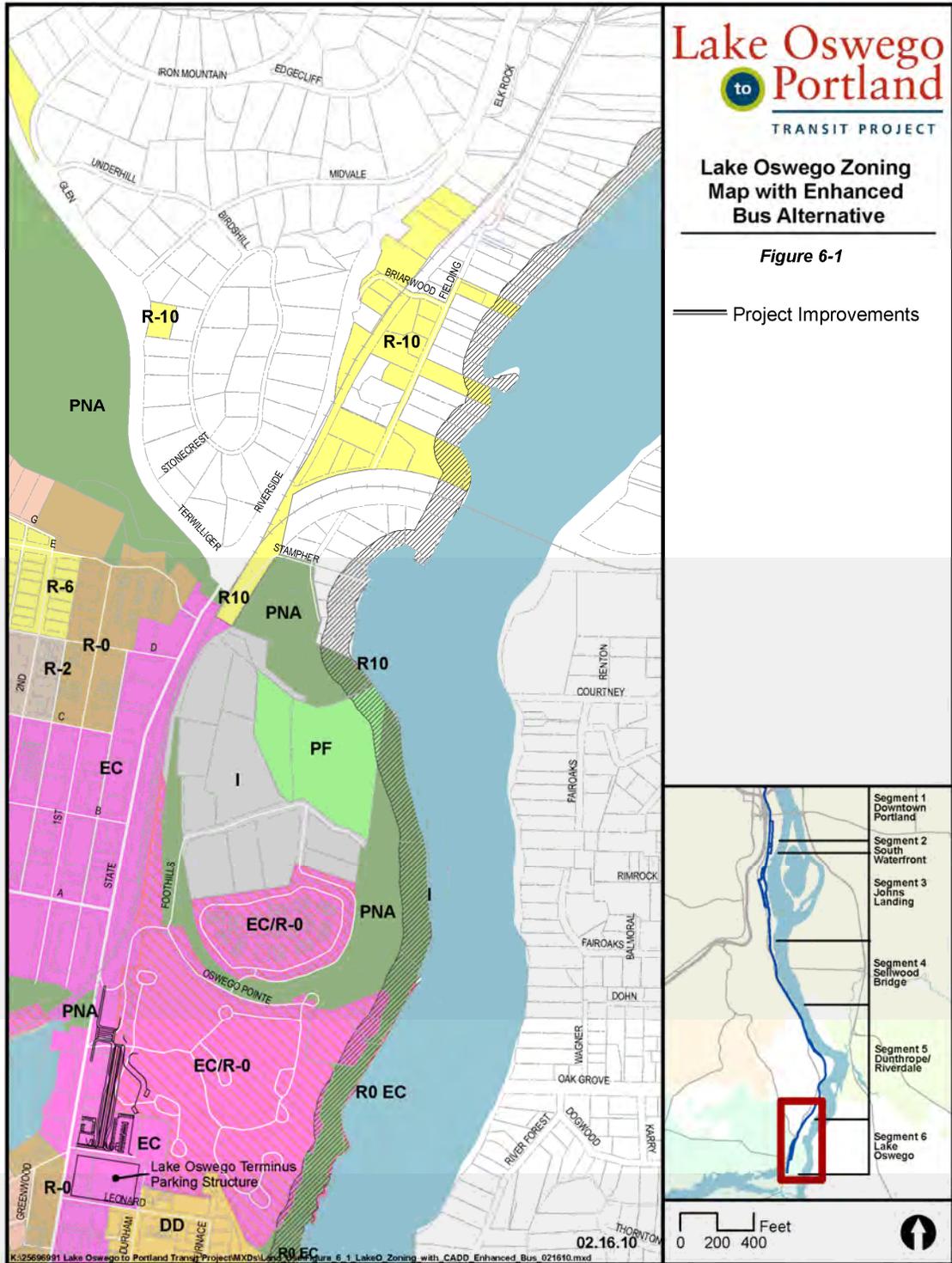
¹³³ Ibid., Chapter 33.110, Table 110-1, p. 110-5.

¹³⁴ City of Lake Oswego, Community Development Code, February 2002, Section 50.02.005, Definitions. The definition states, “Any public service improvement or structure developed by or for a public agency that is not defined as a minor public facility.” Project improvements do not fall within the definition of “minor public facilities.”

¹³⁵ Ibid., Section 50.11.010.14.A.

¹³⁶ Ibid., Section 50.13.010.6.

¹³⁷ Ibid., Section 50.06.015.2; Section 50.08.015.3



¹³⁸ Ibid., Section 50.13B.015.4.

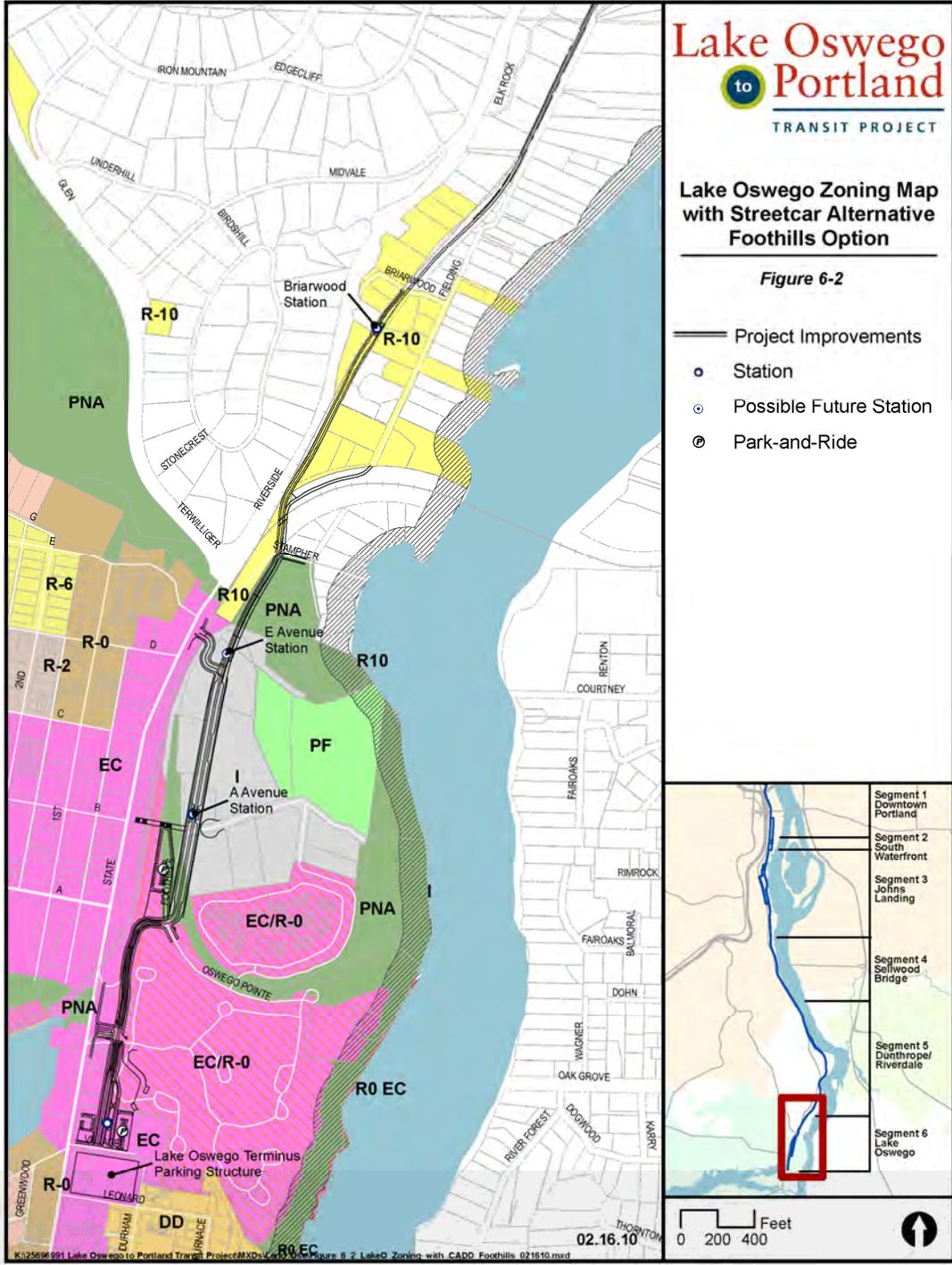
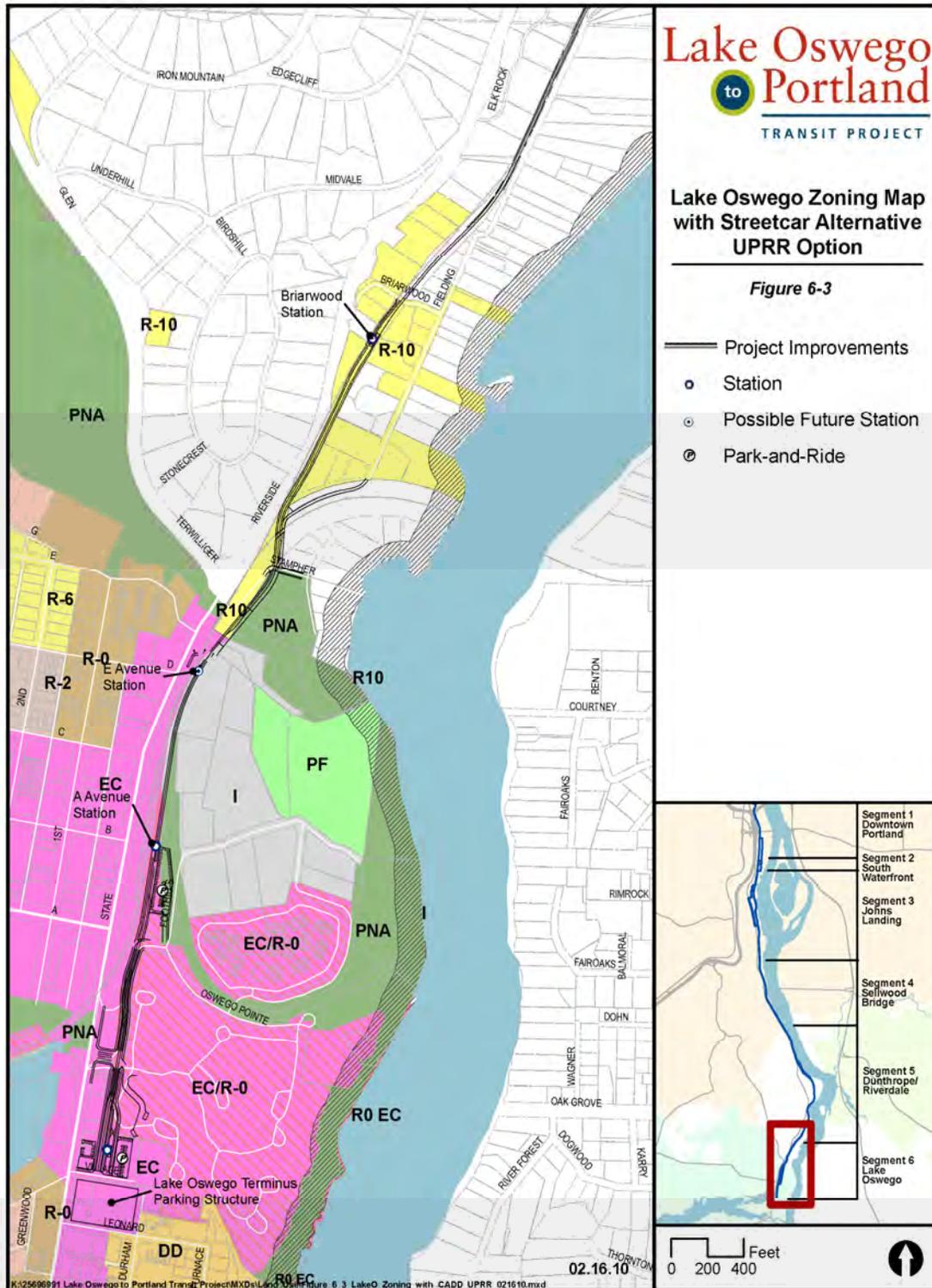


Figure 6-3 Lake Oswego Zoning Map with Streetcar Alternative, UPRR Option



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