Lake Oswego Transportation System Plan

Lake Oswego, Oregon

July 1997
Lake Oswego Transportation System Plan
Lake Oswego, Oregon

Prepared for:
City of Lake Oswego

Prepared by:
Kittelton & Associates, Inc.
610 SW Alder Street, Suite 700
Portland, Oregon 97205
(503) 228-5230

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of the State of Oregon.
Section 1.0

Executive Summary
1.0 Executive Summary

The Lake Oswego Transportation System Plan (TSP) has been developed to bring an earlier 1992 City TSP into compliance with the Oregon Transportation Planning Rule. The plan is a multi-modal plan, addressing improvements to existing roadways, new pedestrian and bicycle facilities, improvements in public transit service, and transportation demand management (TDM) strategies. The plan also includes a transportation improvement program, as well as changes to Lake Oswego codes and standards to implement the TSP recommendations.

The plan includes the following major components:

1. Modifications to the street functional classification system to reflect current street function and development patterns, in particular changes between the major and minor collector designations for certain streets.

2. Modification to the City street standards, to include a narrower local street width option, the regional street design standards, and access spacing criteria.

3. Extensive signal system and intersection improvements, to increase capacity in the roadway system at traffic congestion locations.

4. Expansion of the City's system of pedestrian and bicycle facilities, with the objective of sidewalks or pathways for pedestrians on all collector and arterial streets, and bike lanes or bikeways on major collectors and arterials.

5. Major improvements to the public transit system, including restructuring of Tri-Met fixed-route bus service, institution of local circulator bus service to serve lower density areas in the City, and new transit center and park-&-ride facilities.

6. Encouraging the implementation of TDM strategies by employers, to reduce vehicle trip making, including creation of a Transportation Management Association for the Kruse Way area, and implementation of the Metro regional parking strategies.

A total of 99 transportation improvement projects have been identified to be implemented in Lake Oswego over the 20 years, totaling about $54 million in existing dollars (not including improvements to the I-5/Kruse Way/Highway 217 interchange, estimated at $67 million). Projects have been prioritized for implementation into the 0-5, 6-10, and 11-20 year time frames. To achieve this program, new transportation funding sources - federal, state, and/or local - will be required. An added $21 million over the next 20 years (beyond the current City Street Bond program) will be required for street maintenance.

Specific text changes to the Lake Oswego Comprehensive Plan, Zoning Code, and Subdivision Standards have been identified to implement the new City TSP. The TSP is also consistent with Metro’s Regional Framework and Transportation Plans, the Clackamas County Transportation Plan, and Tri-Met’s Primary Transit Network Plan.

Kittelson & Associates, Inc.


2.0 Introduction

The full Lake Oswego Transportation System Plan consists of two documents. This document includes the various elements of the planned transportation system and details about their proposed implementation. The other document is a Resource Document. It provides details of the existing transportation conditions, results of transportation opinion surveys, development of the travel demand model for Lake Oswego, and the alternatives analyzed in the development of the transportation system plan.

Elements of the Transportation System Plan are presented in Section 3. Discussions include the full range of transportation plan elements as required by the Oregon Transportation Planning Rule. Roadway projects include both roadway widening and transportation system management to continue to provide access and mobility to private and commercial motor vehicles. Alternative mode personal travel is promoted through pedestrian, bicycle, and transit improvements. These measures also support the objectives of the transportation demand management plan presented. Though no changes are proposed to freight rail, water, and pipeline systems, existing conditions are reviewed here as well as in the Resource Document.

The proposed Transportation Improvement Program is presented in Section 4. Projects are grouped into near-term and longer-term lists over a 20-year period. Estimated costs for all elements of the Plan are discussed. Funding options and estimates of available funding are also given. Appendix A summarizes potential transportation funding programs.

Section 5 (with Appendix B) is a compilation of land use ordinance and Comprehensive Plan changes needed to implement the transportation system plan.

Section 6 presents an extended table establishing the compatibility of this plan with the Transportation Planning Rule and other applicable regional and county transportation plans.
Section 3.0

Transportation System Plan
3.0 Transportation System Plan

3.1 Policies

The Lake Oswego Transportation System Plan (TSP) presented in this section meets and is shaped by the planning policies of both the City of Lake Oswego and Metro. In addition, new policies are needed to implement the plan, reflective of the existing transportation goals and policies in the current Lake Oswego Comprehensive Plan.

3.1.1 TPR Requirements

The State Transportation Planning Rule requires that a multi-modal transportation system plan be prepared and adopted for all communities with over 2,500 population. This document, when adopted, along with the accompanying Resource Document, will meet this requirement. The TPR also requires the development of integral pedestrian and bicycle facilities, with bicycle facilities to be provided on all arterial and major collector roadways. The Lake Oswego TSP study has assessed pedestrian and bicycle improvements to meet such requirements. The resulting plan is presented in Sections 3.3 and 3.4. The TPR also requires that communities over 25,000 population develop a transit plan component to the TSP. The transit plan, resulting from a thorough evaluation of existing transit service and future growth patterns, is presented in Section 3.5. Finally, the TPR requires TSP's to incorporate Transportation Demand Management (TDM) measures to reduce overall vehicle trip making, and thus a very extensive TDM alternatives analysis for the Lake Oswego TSP has been undertaken, the resulting plan is presented in Section 3.6.

3.1.2 Existing City Transportation Goals

The transportation-related goals in the Transportation/Land Use Policy Element of the current Lake Oswego Comprehensive Plan also served as a guiding force in developing transportation system alternatives and in the transportation system plan presented in this document. Applicable goals related to the transportation system plan include:

Major Streets System

- Goal 1: Lake Oswego shall develop a major streets system consisting of major and minor arterials and major collectors, which will have minimal impact on the City's air quality, address the mobility needs of residents for all modes of travel, and promote energy conservation.

Intergovernmental Coordination

- Goal 2: Lake Oswego's transportation system shall be planned, developed, and operated in a coordinated manner with other state, regional, and local transportation providers.
Neighborhood Collectors and Local Residential Streets

- Goal 3: Lake Oswego shall develop a system of neighborhood collectors and local residential streets which preserves the quiet, privacy, and safety of neighborhood living and which has adequate, but not excessive capacity, necessary to accommodate planned land uses.

Alternative Transportation - Transit, Bicycling and Walking

- Goal 5: Lake Oswego shall undertake measures to reduce automobile travel.

- Goal 6: The City shall encourage transit ridership by working with Metro, Tri-Met, and ODOT to develop a transit system which is fast, comfortable, accessible, and economical through development of land use patterns, development design standards, and street and pedestrian/bikeway improvements which support transit.

- Goal 7: The City shall plan for and implement a bike and pathway system to provide a viable alternative to automobile travel.

Parking

- Goal 8: Adequate on-site parking and loading facilities shall be provided for all land uses.

3.1.3 Additional Transportation Policies

Additional transportation policies are reflected in the plan elements of the following sections. These policies are included to assist in bringing the TSP into compliance with the State Transportation Planning Rule. They include (referenced to Comprehensive Plan goals):

Neighborhood Collectors and Local Residential Streets

- Traffic calming measures shall be undertaken, in coordination with neighborhood associations, to maintain local and neighborhood collector street characteristics (Goal 3).

Alternative Transportation - Transit, Bicycling, and Walking

- Identify pedestrian facility/crossing needs in coordination with neighborhood associations, to serve local trip making needs (Goal 7).

- Multi-use pathways shall be a minimum of 8 feet wide (10 feet preferable) and physically separated from automobile traffic (Goal 7).

- Bicycle use of roadway shoulders shall be permitted only with the direction of travel of the adjacent automobile lane (Goal 7).

- Transit service will be provided to all major activity centers in Lake Oswego, with improved service to Portland and the Highway 217 corridor (Goal 6).
• The City shall pursue capital/operating assistance from Tri-Met or other public or private transit providers as needed to provide adequate transit service (Goal 6).

**TDM**

• Various TDM requirements based on employer size are specified in Section 2.6 (Goal 5).

**Willamette River Crossing**

Metro is currently studying options for replacing or supplementing the current Sellwood Bridge with new Willamette River bridge crossings; a first screening was completed in April 1997. Two of the six options recommended for further study are located in Lake Oswego. The City of Lake Oswego is on record in opposition to any Willamette River river crossing to and from Lake Oswego, due to the added traffic projected to be on east-west major street systems in the City, with a new bridge, and associated traffic congestion and safety problems. The development of this plan has assumed no such crossing within the planning horizon.

### 3.2 Roadway System Plan

#### 3.2.1 Functional Classification System

Several minor changes are needed to update the Lake Oswego street functional classification standards and designations.

The street functional classifications are defined in the updated Lake Oswego Transportation System Plan as follows:

**Freeway** - A freeway serves high traffic volumes between regional or state destinations. A freeway is a divided highway with full control of access. It is not intended to provide access to abutting land. Complete separation of conflicting traffic movements is provided. Traffic volumes generally are higher than 30,000 vehicles per weekday. I-5 is the freeway serving Lake Oswego, providing access north and south toward Portland and Salem.

**Major Arterial** - A major arterial primarily serves through traffic within a portion of an urban area connecting city/county street systems with freeways. It generally has four or more travel lanes with traffic in excess of 20,000 vehicles per day. In Lake Oswego, Highway 43 (State Street), Kruse Way, and Boones Ferry Road south of Country Club Road function as major arterials.

**Minor Arterial** - A minor arterial has 2-4 travel lanes and connects with the major arterial system. These roads have traffic volumes of 10,000 - 20,000 vehicles per day and serve moderate length trips. Kerr Parkway and Stafford Road function as minor arterials in Lake Oswego.
Major Collector - A major collector connects local streets with arterials, with traffic volumes generally ranging to 10,000 vehicles per day. These streets have some degree of access to abutting properties. Bryant Road, South Shore Boulevard, and Carman Drive are examples of major collectors in Lake Oswego.

Minor Collector - A minor collector serves a neighborhood area, with abutting land uses generally residential in character, and with substantial local access provided. Waluga Drive, Upper Drive, and Melrose Street are examples of minor (neighborhood) collectors in Lake Oswego.

Local Streets - A local street has a primary function to provide access to abutting land uses.

The street functional classification characteristics, with one exception, remain unchanged from the 1992 City TSP. Table 2-1 indicates various characteristics of the classifications, including average daily traffic volume ranges. The high end of the range for average daily traffic on a neighborhood collector street in the 1992 TSP is 3,000. Several neighborhood collectors today have or are projected to exceed that traffic volume threshold. Nonetheless, their location within the system and the other characteristics of these roads makes it desirable to maintain their neighborhood collector designations. Traffic calming can be used to mitigate some of the inappropriate results of higher traffic volumes and to discourage cut-through traffic. In these instances, the ADT threshold shall be raised from 3,000 vehicles per day to 5,000 vehicles per day. This raised threshold volume shall apply to:

- Botticelli,
- Jefferson Parkway (Kerr Parkway to Monroe Parkway),
- Melrose Street,
- McNary Parkway, and
- Monroe Parkway.

The much larger volumes and the location of the streets in the network call for changing the following streets from neighborhood to major collector classification:

- Carman Drive, Fosberg Road to Kruse Way,
- Fosberg Road, Melrose Street to Carman Drive, and
- Jefferson Parkway, Fosberg Road to Kerr Parkway.

Additional identified changes from the current functional classification plan include:

- Chandler Road changed from a local street to a major collector (this street is the logical continuation of Iron Mountain Boulevard at its north end), with Iron Mountain Boulevard north of Chandler Road changed from a major collector to a minor collector designation.

- Stafford Road changed from a major collector to a minor arterial designation between McVey Avenue and Rosemont Road (consistent with the most recent Metro and Clackamas County...
• Showing 4th Avenue as a designated major collector between "A" and "B" Avenues in downtown Lake Oswego, eliminating the major collector classification on 1st, 2nd, and 3rd Avenues between "A" and "B" Avenues.

• Eliminating the neighborhood collector designation for Waluga Drive south of Firwood Road, and identifying Firwood Road between Waluga Drive and Boones Ferry Road as the neighborhood collector instead (as Firwood Road serves as the major connector to Waluga Drive off Boones Ferry Road).

• Converting Oakridge Drive from Boones Ferry Road to Quarry Drive from a local street to a neighborhood collector (as it serves as the major connector to Quarry Drive off Boones Ferry Road).

With these changes, the Transportation System Plan street functional classification is presented in Figure 3-1. Table 3-1 presents the characteristics of each street functional classification.

Table 3-1
Lake Oswego Street Functional Classification System Characteristics

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of Travel Lanes</th>
<th>Speed Limit</th>
<th>Land Access</th>
<th>Parking</th>
<th>Bike Lanes</th>
<th>Sidewalks</th>
<th>Traffic Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway</td>
<td>4-8</td>
<td>55</td>
<td>None</td>
<td>Prohibited</td>
<td>No</td>
<td>No</td>
<td>30,000+</td>
</tr>
<tr>
<td>Major Arterial</td>
<td>5</td>
<td>25-45</td>
<td>Restricted</td>
<td>Generally</td>
<td>Yes</td>
<td>Yes</td>
<td>20,000+</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>2-3</td>
<td>30-45</td>
<td>Restricted</td>
<td>Generally</td>
<td>Yes</td>
<td>Yes</td>
<td>7,500-25,000</td>
</tr>
<tr>
<td>Major Collector</td>
<td>2*</td>
<td>25-40</td>
<td>Discouraged</td>
<td>Prohibited</td>
<td>Yes**</td>
<td>Yes</td>
<td>1,500-10,000</td>
</tr>
<tr>
<td>Neighborhood Collector</td>
<td>2</td>
<td>25-30</td>
<td>Permitted</td>
<td>Permitted</td>
<td>No</td>
<td>Yes</td>
<td>1,000-5,000</td>
</tr>
<tr>
<td>Local Streets</td>
<td>2</td>
<td>25</td>
<td>Permitted</td>
<td>Permitted</td>
<td>No</td>
<td>Yes</td>
<td>&lt;1,000</td>
</tr>
</tbody>
</table>

* Turn refuge lanes may be allowed subject to review and approval.
** Where topographic conditions permit.

3.2.2 Local Street Connections

The City, along with the emergency services providers and the School District, will continue to work with the neighborhoods to consider the value of potential through connections.

The Community Transportation Preferences Survey (see Resource Document) indicated substantial opposition to creating through connections for motor vehicles from existing cul-de-sacs. At the same time, concern was expressed about emergency access and about all streets.
sharing the load of neighborhood traffic. At least one neighborhood association (Forest Highlands) is asking for consideration of some new through connections, at least for bicycles and pedestrians.

This plan, in general terms, endorses connections for bicycles and pedestrians to shorten trip lengths and so encourage alternate mode use. New street connections are appropriate where they will significantly improve safety. Any new through routes should also be evaluated for their impacts to the functioning of the existing street network—will the new street better feed the existing framework of collector and arterial streets or will it encourage cut-through traffic?

It is recommended that new local street extensions - for vehicular and/or pedestrian/bicycle traffic, be derived through the local neighborhood transportation planning process, which is actively underway within several neighborhoods. This will ensure that these potential connections reflect specific neighborhood desires and public input.
At this time, the Lake Oswego TSP adopts the Metro performance criteria for local street connectivity, as identified in Title 6 of the Regional Framework Plan. Approval of new development shall include local street designs "with street intersection spacing to occur at intervals of no less than eight street intersections per mile except where topography, barriers such as railroads or freeways, or environmental constraints such as major streams and rivers, prevent street extension. The number of street intersections should be greatest in the highest density 2040 Growth Concept design types. Local street designs for new development shall satisfy the following additional criteria:

1. Performance Criterion: minimize local traffic on the regional motor vehicle system by demonstrating that local vehicle trips on a given regional facility do not exceed the 1995 arithmetic median of regional trips for facilities of the same motor vehicle system classification by more than 25 percent.

2. Performance Criterion: everyday local travel needs are served by direct, connected local street systems where: (1) the shortest motor vehicle trip over public streets from a local origin to a collector or greater facility is no more than twice the straight-line distance; and (2) the shortest pedestrian trip on public right-of-way is no more than one and one-half the straight-line distance."

### 3.2.3 Roadway Design Standards

Per the TPR, as part of a Transportation System Plan, an assessment of possible modifications to roadway design standards to better accommodate pedestrians, bicyclists and transit vehicles is required. In particular, the integration of sidewalks and bike lanes into roadway cross sections is encouraged, as well as introducing a modified local street width option that would narrow such streets. Such a design standards assessment was conducted as part of the Lake Oswego TSP.

Figure 3-2 identifies typical street cross sections for the different roadway functional classifications in Lake Oswego. The sections show a range in pavement and right-of-way width based on the number of travel lanes provided, whether or not parking and bike lanes are allowed, and whether sidewalks are attached or detached.

**Local Street Width**

To supplement the existing "traditional" local street width standard of 32 feet in Lake Oswego (with parking on both sides), a reduced street width for local streets, representing a "queuing" street design, is proposed. For queuing streets with parking on both sides, a 28 foot width is proposed. A 22 foot width with parking on one side is also proposed. The queuing street would only be applied where there is a maximum block length of 400 feet, there are mountable curbs along the street, and/or building sprinklers are provided. Alleys would be optional though desirable to provide alternative property access.
CITY OF LAKE OSWEGO
TRANSPORTATION SYSTEM PLAN

LOCAL RESIDENTIAL STREET W/PARKING
BOTH SIDES

LOCAL RESIDENTIAL STREET W/PARKING
ONE SIDE - "REDUCED" WIDTH

LOCAL RESIDENTIAL
W/NO PARKING

LOCAL COMMERCIAL/INDUSTRIAL STREET

MINOR
ARTERIAL
* OPTIONAL
** OPTIONAL ON-STREET PARKING IN
DOWNTOWN LAKE OSWEGO - 8' LANE

MINOR
ARTERIAL
* OPTIONAL
** OPTIONAL ON-STREET PARKING IN
DOWNTOWN LAKE OSWEGO - 8' LANE

MINOR
COLLECTOR
* OPTIONAL
** OPTIONAL ON-STREET PARKING IN
DOWNTOWN LAKE OSWEGO - 8' LANE

MINOR
(NEIGHBORHOOD)
COLLECTOR
W/PARKING

MINOR
(NEIGHBORHOOD)
COLLECTOR
W/BIKE LANES

STREET TYPICAL CROSS SECTIONS
FIGURE 3-2 JULY 1997
Bike Lanes

Bike lanes are to be incorporated into all arterials and major collectors, if possible. The desired bike lane width is five feet on major collectors and six feet on arterials.

Sidewalks

Where an urban roadway section is to be developed, sidewalks on both sides of the street should be developed. The minimum sidewalk width is five feet on local and collector streets, and six feet on arterials. Along most major streets and if sufficient right-of-way is available, sidewalks should be detached from the curb, separated by a minimum four foot planter strip or other pedestrian buffer.

Intersection Curb Returns

To facilitate pedestrian crossings at intersections, limited curb return radii are to be provided. The minimum curb return is to vary from 15 feet for local street to local street intersections, to 30 feet for arterial to arterial intersections. Where there is a high amount of truck traffic, larger curb returns should be provided, based on application of vehicle turning templates. For intersection corners with curb returns of over 50 feet, channelized raised pedestrian islands and/or median pedestrian islands shall be provided to reduce pedestrian crossing distance.

Transit Stops

New and improved bus stops on Lake Oswego streets should be developed according to the Tri-Met Bus Stop and Passenger Amenities Guidelines. This includes passenger waiting areas, curb ramps, bus shelters and benches. Bus pullouts will be developed at certain stops when warranted.

3.2.4 Access Management

Existing access standards for the various roadway functional classifications shall be enforced through the development permit process.

Maintaining an appropriate balance of mobility and access is at the heart of a street network built on functional classifications. Lower type facilities, such as neighborhood collectors, emphasize access and limit mobility with lower speed and more frequent interruptions to through traffic. Higher type facilities, such as arterials, emphasize mobility by limiting local access. Maintaining high mobility on arterials is essential to keeping excessive traffic off of lower classification facilities. In addition to coordinated signal systems and roadway designs for higher speeds and volumes, limiting the frequency of driveways and street intersections is a major part of keeping an arterial functioning as an arterial.
Table 3-2 presents recommended spacing distances for traffic signals, public intersections, private driveways, and for raised median openings. The minimum access spacing standards are to apply to new street construction and new or redeveloped land uses.

**Table 3-2**

**Proposed Access Spacing Guidelines**

<table>
<thead>
<tr>
<th>Roadway Functional Classification</th>
<th>Area'</th>
<th>Minimum Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Traffic Signals (miles)</td>
</tr>
<tr>
<td>Major Arterial</td>
<td>Urban CBD/RC</td>
<td>1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/4</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>Urban CBD/RC</td>
<td>1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/4</td>
</tr>
<tr>
<td>Major Collector</td>
<td>All</td>
<td>1/4</td>
</tr>
<tr>
<td>Neighborhood Collector</td>
<td>All</td>
<td>1/4</td>
</tr>
<tr>
<td>Local Residential Street</td>
<td>All</td>
<td>NA</td>
</tr>
<tr>
<td>Local Commercial/Industrial Street</td>
<td>All</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Notes:**
1. "Urban" refers to intersections inside the Lake Oswego urban growth boundary outside the central business district or designated regional centers.
2. "CBD/RC" refers to intersections within the Lake Oswego central business district, within designated regional centers, and along designated regional "Main Streets".
3. "All" refers to all intersections inside the Lake Oswego urban growth boundary.
4. NA - Not applicable.

Most of the major streets in Lake Oswego were developed before they were needed to function as modern arterials. Many areas have much closer access spacing. Changing this is a gradual process of consolidation and closure of driveways and sometimes public street intersections. This process can become part of the development review and approval process-steps toward access management become conditions of approval. Each step asked of any given development is not overly burdensome, but over time the steps result in access spacing appropriate to the facility. The concept of local access consolidation is presented in Figure 3-3 and the corresponding explanation in Table 3-3.
### Table 3-3

#### Example of Recommended Land Use Process

<table>
<thead>
<tr>
<th>Step</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>EXISTING</strong> - Currently Lots A, B, C, and D have site-access driveways that neither meet the access spacing criteria of 500 feet nor align with driveways or access points on the opposite side of the highway. Under these conditions motorists are put into situations of potential conflict (conflicting left turns) with opposing traffic. Additionally, the number of side-street (or site-access driveway) intersections decreases the operation and safety of the highway.</td>
</tr>
<tr>
<td>2</td>
<td><strong>REDEVELOPMENT OF LOT B</strong> - At the time that Lot B redevelops, the local jurisdiction would review the proposed site plan and make recommendations to ensure that the site could promote future crossover or consolidated access. Next, the local jurisdiction would issue conditional permits for the development to provide crossover easements with Lots A and C, and ODOT and/or the local jurisdiction would grant a conditional access permit to the lot. After evaluating the land use action, ODOT and/or the local jurisdiction would determine that <strong>LOT B</strong> does not have either alternative access, nor can an access point be aligned with an opposing access point, nor can the available lot frontage provide an access point that meets the access spacing criteria set forth for this segment of highway.</td>
</tr>
<tr>
<td>3</td>
<td><strong>REDEVELOPMENT OF LOT A</strong> - At the time Lot A redevelops, the local Jurisdiction and ODOT would undertake the same review process as with the redevelopment of Lot B (see Step 2); however, under this scenario ODOT and/or the local jurisdiction would use the previously obtained crossover easement at Lot B to consolidate the access points of Lots A and B. ODOT and/or the local jurisdiction would then relocate the conditional access of Lot B to align with the opposing access point and provide safe and efficient access to both Lots A and B. The consolidation of site-access driveways for Lots A and B will not only reduce the number of driveways accessing the highway, but will also eliminate the conflicting left-turn movements on the highway by the alignment with the opposing access point.</td>
</tr>
<tr>
<td>4</td>
<td><strong>REDEVELOPMENT OF LOT D</strong> - The redevelopment of Lot D will be handled in the same manner as the redevelopment of Lot B (see Step 2).</td>
</tr>
<tr>
<td>5</td>
<td><strong>REDEVELOPMENT OF LOT C</strong> - The redevelopment of Lot C will be reviewed once again to ensure that the site will accommodate crossover and/or consolidated access. Using the crossover agreements with Lots B and D, Lot C would share a consolidated access point with A and B. By using the crossover agreement and conditional access permit process, ODOT and/or the local jurisdiction will be able to eliminate another access point and provide the alignment with the opposing access points.</td>
</tr>
<tr>
<td>6</td>
<td><strong>COMPLETE</strong> - After Lots A, B, C, and D redevelop over time, the number of access points will be reduced and aligned, and the remaining access points will meet the Category 4 access management standard of 500-foot spacing.</td>
</tr>
</tbody>
</table>

### 3.2.5 Roadway Projects

Many intersection improvements and roadway widening projects will be needed in Lake Oswego over the next 20 years to maintain acceptable safety and levels of service.
Roadway projects have been identified through several processes. Metro has developed a financially contained network plan for 2015. The City has developed a Public Facilities Plan and a shorter-term Capital Improvements Plan. In addition, the refined year 2015 travel demand modeling undertaken for this Transportation System Plan has allowed confirmation of needs and suggested some additional, probable needs over the next 20 years.

Figure 3-4 identifies the proposed intersection, signal system, and roadway widening improvements included in the transportation improvement program of this plan.

These roadway improvements are needed to meet critical roadway capacity deficiencies that cannot be alleviated by transit, TDM, and pedestrian/bicycle facility improvements. Identified roadway and intersection capacity improvements in general will result in a year 2015 weekday p.m. peak hour level of service of "D" or better. Notable exceptions are the State Street/A Avenue and State Street/McVey Avenue intersections, which are estimated to operate at "F" and "E" respectively with the identified improvements. This is still consistent with Metro's new two hour regional level of service standards - "F" during the peak hour and "E" during the second hour of the peak.

Improvements beyond those currently under, or near to, a construction contract include:

**Roadway Improvements**

- reconstructing the I-5/Highway 217 interchange (including improvements at Bangy Road/Kruse Way intersection),
- widening of Kruse Way to six lanes between Bangy Road and Westlake Drive,
- widening of Bangy Road to five lanes between Kruse Way and Bonita Road,
- signal system improvements along Boones Ferry Road between I-5 and Bryant Road,
- signal system improvements along "A" Avenue between Highway 43 and 10th Street,
- Boones Ferry Road center two-way left-turn lane (Kruse Way to Madrona Street),
- widening Knaus Road and Goodall Road to neighborhood collector standards, and
- widening Washington Court between Lake Forest Boulevard and Boones Ferry Road.

**Intersection Improvements**

- Bangy Road/Bonita Road (new traffic signal and interconnect),
- Boones Ferry Road/Bryant Road (signal retiming),
- Boones Ferry Road/Knaus Road (new traffic signal),
- Bryant Road/Lakeview Boulevard (turn lanes, new traffic signal),
- Bryant Road/Upper Drive (new traffic signal),
- Carman Drive/Bonita Road (new traffic signal),
- Carman Drive/Fosberg Road/Parkview Drive (new traffic signal, turn lanes)
- Carman Drive/Lake Forest Boulevard (left turn lanes),
- Carman Drive/Meadows Road/Quarry Road (roundabout),
- Childs Road/Bryant Road (new traffic signal),
• Childs Road/Pilkington Road (new traffic signal),
• Country Club/"A" Avenue/10th Street (traffic signal or roundabout),
• Country Club/"C" Avenue/Iron Mountain Boulevard/et al. (intersection redesign/roundabout or traffic signal),
• Highway 43/"B" Avenue (turn lane),
• Highway 43/Cherry Drive (turn lanes),
• Highway 43/Glenmorrie Drive (left turn lanes),
• Highway 43/McVey Avenue (NB/SB left turn lanes),
• Highway 43/North Shore Road (northbound left turn lane),
• Highway 43/Terwilliger Boulevard (northbound left turn lane, new traffic signal),
• Jean Road/Bryant Road (new traffic signal),
• Kerr Parkway/Boones Ferry Road/Country Club Drive (extend turn lanes),
• Kerr Parkway/McNary Parkway (left turn lanes, new traffic signal),
• Kerr Parkway/Touchstone Drive (new traffic signal),
• Kruse Way/Carman Drive (left turn lanes on Carman),
• Kruse Way/Boones Ferry Road (second northbound left turn lane),
• Kruse Way/Mercantile Drive (EB/WB turn lanes),
• Kruse Way/Westlake Drive (EB/WB right turn lanes),
• McVey Avenue/Cornell Avenue (left turn lane, new traffic signal),
• McVey Avenue/Erickson Street (left turn lanes),
• Stafford Road/Bergis Road (southbound left turn lanes),
• Stafford Road/Childs Road (left turn lanes, new traffic signal),
• Stafford Road/Golf Course Access (northbound left turn lane),
• Stafford Road/Overlook Drive (left turn lanes, new traffic signal),
• Stafford Road/Rosemont Road (new traffic signal), and
• Stafford Road/Sunnyhill Drive (left turn lane).

Costs for these improvements and their priority for implementation is presented in Section 4.

It should also be noted that improvements to Boones Ferry Road south of Kruse Way will be reassessed as part of further "Main Street" corridor planning. In particular, the need for continuous left turn lanes will be assessed, as well as enhanced pedestrian crossing treatments.

3.3 Pedestrian System Plan

3.3.1 Pedestrian Facilities Plan

The planned improvements to the pedestrian system provide pedestrian facilities to serve all major activity centers in the City. Figure 3-5 identifies the added pedestrian facilities. With the identified improvements, all arterial and collector streets will have a sidewalk or pathway on at least one side of the street, with sidewalks and pathways on both sides of the street where possible.

Pedestrian system deficiencies are related to connectivity rather than capacity and have been previously identified in the Community Transportation Preferences Survey and the Existing
Conditions analysis. The base pedestrian system improvements include all pedestrian facilities identified in the City's Capital Improvement Program and Public Facilities Plan (which incorporates the City's Pathways Plan). These facilities consist mainly of extensions to the pathway system, as well as new sidewalks in some areas. Additional pedestrian facilities are identified to connect all major activity centers in Lake Oswego and to provide improvements in response to the most-requested pedestrian facilities identified from the survey and the first TSP public open house.

Major activity centers include:

- all public schools,
- Marylhurst College,
- Our Lady of the Lake School,
- PCC-Sylvania,
- downtown Lake Oswego,
- Lake Oswego Transit Center,
- Boones Ferry Road (Mercantile Way to Bryant Road, Monroe Parkway area),
- Kruse Way corridor, and
- major parks (e.g., Waluga Park).

One pedestrian facility that was popular in the survey and is not shown on current City plans (although it does appear in Clackamas County and City of Rivergrove plans) is a multi-use pathway on Childs Road.

In addition to pedestrian facilities along streets, new pedestrian paths between streets in neighborhoods (particularly connecting dead-end streets) are proposed where possible, particularly with new subdivision development. These paths should be located to meet the performance criteria for pedestrian connections reflected in Title 6 of the Metro Functional Plan (see Section 3.2.2), even if local street connections at these locations are not possible due to neighborhood opposition, cost, and/or environmental constraints. These paths could be shared with bicycles.

On arterial and major collector streets in Lake Oswego, designated pedestrian crossings are desirable to facilitate pedestrian access and safety across these roadways. All signalized intersections should have signal-controlled pedestrian crossings. In addition, other intersections and mid-block locations could warrant special pedestrian signals and/or crosswalks, particularly designated school crossing locations.

The set of planned pedestrian improvements is aimed at a broader understanding of community livability than is encompassed solely in the idea of promoting alternatives to automobile travel. Safe, available recreational opportunities presented by the current pathway system in Lake Oswego are valued by residents. Pathways and sidewalks also provide convenient access from residences to transit routes and make transit service more attractive.
3.3.2 Sidewalk and Pathway Projects

The pedestrian facilities improvement plan consists of projects to create additional multi-use paths, shoulder pathways, and sidewalks. On arterials and major collectors without sidewalks or separated pathways, shoulder pathways will be wide paved shoulders on both sides of the roadway; these will be shared pedestrian/bicycle facilities.

Multi-use paths

- Stafford Road, Overlook Drive to Childs Road,
- Childs Road, Stafford Road to City limits, and
- Willamette Greenway, Roehr Park to George Rogers Park.

Shoulder Pathways

- Knaus Road, Boones Ferry Road to Country Club Road,
- Goodall Road, Knaus Road to Country Club Road,
- Timberline Drive, Knaus Road to Bonniebrae,
- Old River Road/Glenmorrie Drive/Bluff Lane/Bergis Road, City limit to Stafford Road,
- Greentree Road/Westview, South Shore Boulevard to Palisades School,
- Childs Road, complete link at Bryant Woods Park,
- 65th Avenue/McEwan Road, Childs Road to Boones Ferry Road,
- Upper Drive, Bryant Road to Reese Road,
- Lanewood Street, Twin Fir Road to Boones Ferry Road,
- Twin Fir Road, Upper Drive to Boones Ferry Road,
- Lakeview Boulevard, complete path South Shore Boulevard to Upper Drive, and
- Wembley Park Road, Twin Fir Road to Country Club Road.

Sidewalks

- Pilkington Road, Childs Road to Boones Ferry Road,
- McEwan Road, 65th Avenue to Pilkington Road,
- Jean Road, Boones Ferry Road to Bryant School,
- Lake Forest/Washington Court, Carman Drive to Boones Ferry Road,
- Carman Drive, Lake Forest Boulevard to Meadows Road/Quarry Road,
- Waluga Drive/Firwood Road, Carman Drive to Boones Ferry Road, and
- Cherry Lane/Upper Cherry Lane, Highway 43 to Bergis Road.

3.4 Bicycle System Alternatives

3.4.1 Bicycle Facilities Plan

Exclusive bicycle facilities or accommodations for bicycles on-street are planned for all arterials and major collectors. Bike lanes, shoulder bikeways, multi-use paths, and wider shared-travel
lanes are used where applicable.

The bicycle plan includes all bicycle facilities identified in the City’s Capital Improvement Program and Public Facilities Plan. These facilities consist mainly of bike lanes added as part of larger roadway improvements. Additional bicycle facilities are needed to create a system that will support bicycling as a safe and desirable alternative to the automobile for trips in Lake Oswego. The added bicycle facilities respond to concerns raised in the Community Transportation Preferences Survey and provide a basic framework of connections through the City. All streets classified as major collectors or above are provided with bicycle facilities, usually on-street striped bicycle lanes. The only exceptions are "B" Avenue, between State Street and 5th Street, and 5th Street, between "A" and "B" Avenues-bicyclist in this downtown core can best operate in the main traffic stream. "A" Avenue west of 5th Avenue is provided with bike lanes to serve as an essential through route. A few neighborhood collectors (Botticelli, Knaus Road) also have proposed bike lanes where right-of-way appears to be available and higher traffic volumes exist.

On certain neighborhood collectors, designated bike routes where bikes operate in the same travel lane as motor vehicles are proposed to provide continuity in the bicycle system. These are referred to as "shared roadways".

Figure 3-6 presents the resulting bicycle facility plan. Bike lanes on urban cross-section streets are striped as part of the traveled way between the curbs. Parking may or may not be present on the street outside of the bike lane areas. Pedestrians are expected to use sidewalks along these streets. Where a street maintains a rural cross-section, where no on-street parking is allowed, bicycles would use the widened, paved shoulders of the roadway. Pedestrians would share the shoulders with bicyclists. In the special case of State Street (Highway 43), right-of-way constraints prevent creating full bike lanes. The outer travel lanes are, however, wider than standard auto travel lanes to accommodate shared use by automobiles and bicyclists.

In areas such as Iron Mountain Boulevard, where a pathway exists as a good, wide shoulder on one side of the street without obstacles and other impediments to bicycle travel, bikeways can be provided by widening the roadway to provide an additional paved shoulder on the other side. The shoulder bikeways will still provide safe walking space for pedestrians as well as serving bicyclists. Where pavement overlays are scheduled for roads planned for shoulder bikeways, the bikeways will be created at the time of the overlay wherever possible. Beyond this generic improvement strategy, the highest priority corridors are the arterials. Adding bicycle lanes to Boones Ferry Road south of Country Club is in the CIP. Adding bicycle lanes on Highway 43 north of downtown Lake Oswego will require coordination with the State’s ongoing Highway 43 Corridor Plan. The Willamette Greenway path, when completed from Roehr Park to George Rogers Park, will provide an excellent alternate route away from State Street for many trips between the planned mixed-use development at Marylhurst, the existing mixed-use area at Oswego Pointe, and to downtown Lake Oswego by way of Oswego Pointe Drive.

In addition to bicycle facilities along streets, new bike paths between streets in neighborhoods (particularly connecting cul-de-sac streets) are proposed where possible, particularly with new
EXISTING BIKE LANES

EXISTING MULTI-USE PATHWAY

ADDED BIKE LANES

ADDED MULTI-USE PATHWAY

SHARED ROADWAY (DESIGNATED BIKE ROUTE)

(Routes outside Lake Oswego based on RTP or County proposals)

LEGEND

EXISTING BIKE LANES

EXISTING MULTI-USE PATHWAY

ADDED BIKE LANES

ADDED MULTI-USE PATHWAY

SHARED ROADWAY (DESIGNATED BIKE ROUTE)

(Routes outside Lake Oswego based on RTP or County proposals)
subdivision development. These paths should be located to meet the performance criteria for bicycle connections reflected in Title 6 of the Metro Functional Plan (see Section 3.2.2), even if local street connections at these locations are not possible due to neighborhood opposition, cost, and/or environmental constraints. These paths could be shared with pedestrians.

### 3.4.2 Bike Lane and Bikeway Projects

The bicycle improvement plan consists of projects to create additional separated multi-use pathways and on-street bikelanes/bikeways.

**Multi-use paths**
- Stafford Road, Overlook Drive to Childs Road,
- Childs Road, Stafford Road to City limits (outside urban growth boundary, within Clackamas County jurisdiction), and
- Willamette Greenway, Roehr Park to George Rogers Park.

**Bike lanes/bikeways**
- Westlake Drive/Fosberg Road, Kruse Way to Lesser Road,
- Kerr Parkway, Touchstone Drive to City limits,
- Boones Ferry Road, within the City of Lake Oswego,
- Highway 43, north of downtown,
- Iron Mountain Boulevard/"A" Avenue, Upper Drive to State Street,
- South Shore Boulevard/Lakeview Drive, McVey Avenue to Bryant Road,
- Childs Road, City limits to 45th Avenue,
- Bryant Road, Childs Road to Boones Ferry Road,
- Pilkington Road, Childs Road to Boones Ferry Road,
- Jean Road, Boones Ferry Road to Bryant Road,
- Carman Drive/Fosberg Road, Forest Boulevard to Melrose Street,
- Bonita Road/Waluga Drive/Firwood Road, Bangy Road to Boones Ferry Road,
- Bangy Road, Bonita Road to Kruse Way, and
- Meadows Road, Bangy Road to Carman Drive.

### 3.4.3 Bicycle Terminal Facilities

At travel destinations, particularly larger employers, bicycle parking spaces should be provided, as well as bicyclist locker and shower facilities. This is an applicable Transportation Demand Management (TDM) strategy (see Section 3.6).
3.5 Public Transportation Plan

3.5.1 Tri-Met Fixed Route Service

Figure 3-7 shows the planned transit network for Lake Oswego by the year 2015. Although the service frequencies described reflect year 2015 demand, the route structure would be appropriate for implementation much sooner. The service structure and frequencies assume a Kruse Woods Transit Center and major park and ride facilities at the Kruse Woods Center and on Highway 43 near downtown Lake Oswego.

The fixed-route transit system, assumed Tri-Met service, would consist of the following:

- Lines 36, 37, and 38 are eliminated, except for some commute-hour service on Line 36. A few commute hour trips of Line 35 also continue as Line 78, for access to the North Shore transit center site and Lake Grove.
- Line 35 (Highway 43) would run at 15 minute headways all day.
- Line 41 (Boones Ferry/Mountain Park) would run from the Barbur Transit Center via Kerr Parkway, Jefferson Parkway, McNary Parkway, Monroe Parkway, and Boones Ferry Road to Tualatin. Headways of 15 minutes all day. This segment could easily be operated as an extension of Tri-Met's Capitol Highway service, providing through service to Portland at all times of day.
- Line 42 (Stafford) would extend from the Lake Oswego Transit Center via State Street, McNary Parkway, Stafford Road to the Stafford area, then via Borland to Meridian Park Hospital and Tualatin. Headways of 30 minutes all day, 15 minutes peak. This service would be implemented associated with development in the designated urban reserve area along Stafford Road.
- Line 78 (Beaverton-Lake Oswego) would run at 15 minute headways all day.
- Line 96 (I-5 Express) would be modified to operate nonstop between Portland and Kruse Woods Transit Center, then via Bangy Road, Bonita Road, 72nd Avenue to Tualatin and so on to Wilsonville by the present Line 96 route. Service every 30 minutes all day, 15 minutes during peak hour.
- Line 96X would provide peak only nonstop service between Portland and Tualatin, continuing to Wilsonville.

Some form of passenger rail service from downtown Lake Oswego to Portland for commuter trips is desirable, either along the trolley tracks, or using the Portland & Western Railroad bridge over the Willamette River and P&W tracks on the east side of the river. However, this will likely not be implemented in the next 20 years.

3.5.2 Demand-Responsive Circulator and Shuttle Service

In order to provide transit access to all areas of the City, four new local circulator bus routes are planned, adapted for low-density-area service (see Figure 3-7). The following routes will extend the geographic coverage of the transit system, through operation of demand-responsive service
off of a limited fixed-route structure with defined end points to each route (so-called "deviated fixed-route service"):

**Route A: South Shore/Valuga**

From the Lake Oswego Transit Center via State Street, McVey Avenue, South Shore Boulevard, Lakeview Drive, Bryant Road, Boones Ferry Road, Waluga Drive, Bonita Road, and Bangy Road to the Kruse Woods Transit Center. Deviates only along the South Shore. Hourly service with one bus all day, two buses during peak hours for 30 minute headways.

**Route B: Fosberg/Lesser**

From the Kruse Woods Transit Center via Bonita Road, Bangy Road, Carman Drive, Fosberg Road, Lesser Road, and Capitol Highway to the Barbur Transit Center. Deviation area extends from Touchstone/Kerr/PCC Boundary on the east to I-5 on the west, as well as the Waluga Triangle. Replaces the low-ridership Lesser Road portion of Line 78. Hourly service with one bus all day.

**Route C: North Shore/Jean**

From the Tualatin Park-and-Ride via Boones Ferry Road, Jean Road, Bryant Road, Boones Ferry Road, Reese Road, Upper Drive, Iron Mountain Boulevard, and "A" Avenue to the Lake Oswego Transit Center. Route deviation zone includes area south of Lakeview Boulevard and along Iron Mountain Boulevard, including the Wembley Park area. Hourly service with one bus all day, two buses during peak hours for 30-60 minute headways.

**Route D: Overlook/Childs**

From the Lake Oswego Transit Center via Highway 43, McVey Avenue, Stafford Road, Overlook Drive, Royce Road, Bryant Road, Childs Road, McEwan Road, and Boones Ferry Road to the Tualatin park-and-ride. This route would handle most transit deviations south and east of McVey Road.

### 3.5.3 Special Needs Service

Special needs transit service (paratransit) will continue to be provided by Tri-Met's LIFT program. Other organizations serving elderly and handicapped persons, such as the Clackamas County Community Action and the Lake Oswego Adult Community Center, will continue to serve door-to-door travel needs that cannot be met by Tri-Met fixed-route or local circulator bus service and will continue as important providers of dial-a-ride services.

The plan assumes that the school district will continue to provide transportation for school children according to the current standards. Bus service is provided for elementary school students living one or more miles from school and for older children living at least one and one half miles from school.
3.5.4 Willamette Shores Trolley and Commuter Rail

The Willamette Shores Trolley will continue to be operated on a recreational excursion basis, protecting the right-of-way for future transportation needs. With respect to long term plans for new light rail or commuter rail service to Lake Oswego, the current Metro Regional Transportation Plan does not identify any direct service to Lake Oswego within the next 20 years. Looking further into the future, the Region 2040 Plan does identify a potential commuter rail line from Portland to Newberg using the Willamette Shore Trolley line and the Portland & Western tracks through Lake Oswego. There currently are no plans to substantially upgrade the Willamette Shores trolley that would have any significant impact on reducing commuter vehicle trips in the Highway 43 corridor within the 20 year planning horizon. A current Metro commuter rail study is being conducted that is evaluating commuter rail locations through the Lake Oswego area, including a possible routing of rail service over the Willamette River using the existing Portland & Western Railroad bridge (as opposed to a Willamette Shores Trolley corridor alignment).

3.6 Transportation Demand Management (TDM) Plan

This plan calls for a moderate level of TDM activities within the City, consistent with the provisions of the Oregon Department of Environmental Quality (DEQ) Employee Commute Options (ECO) Rules. The TDM program focuses on lower-cost workplace-based measures, with the amount of effort related to the number of employees at a worksite. Table 3-4 summarizes the TDM plan. The program consists of three groups of strategies (the various strategies are described in more detail in the Background Document):

- **Low-cost mandatory employer programs.** Employers with more than ten employees participate in Tri-Met's Transportation Coordinator program (to provide on-site transit and carpool information and promotion) and provide on-site carpool matching for interested employees. Employers with more than 25 employees participate in Tri-Met's Emergency Ride Home program and provide preferential carpool parking if they provide on-site parking. Employers with more than 50 employees prepare TDM plans per the ECO rules.

- **Voluntary higher-cost employer programs.** These include the programs larger employers can choose from to fulfill their ECO requirements. These programs include transit and carpool subsidies, company cars available for work use during the day, secure bicycle parking, shower and locker facilities, flexible schedules, and telecommuting.

- **On-site bicycle parking and shower and locker facilities.** Larger new developments are required to build these facilities to encourage greater use of these modes. Upgrading of the City's pedestrian and bicycle facilities during the 20-year period is an essential support to the TDM plan.

There could be a cost to employees to participate in these programs, as well as a cost to the City to monitor compliance where ECO requirements (and hence State compliance) is not at issue.
In addition to these overall TDM strategies, a Transportation Management Association (TMA) for the Kruse Way office park area is proposed. The TMA would serve to coordinate and promote TDM strategies in the Kruse Way area. Goal 5, Objective 2 of the Regional Transportation Policy, July 1996 promotes the establishment of TMAs in areas identified as major employment, retail, and/or regional centers, such as the Kruse Way area.

**Table 3-4**

TDM Program Elements

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<th>Number of Employees</th>
<th>&lt;25</th>
<th>&gt;25</th>
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<tr>
<td>Transportation Coordinator</td>
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<tr>
<td>On-Site Carpool Matching</td>
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</tr>
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<td>Emergency Ride Home</td>
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<td>X</td>
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<tr>
<td>TDM Plan (ECO Rule)</td>
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</tr>
<tr>
<td>Voluntary Higher-Cost employer Programs*</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* Larger new developments are required to provide on-site secure bicycle parking, and shower and locker facilities.

### 3.7 Transportation System Management Plan

Many of the measures identified in Section 3.2 are applications of transportation system management (TSM) techniques. Various intersection improvements and signal system coordination projects will provide maximum capacity from existing roadways at minimum additional cost.

The planned TSP improvements are shown on Figure 3-4. Intersection improvements include adding turn lanes, new or upgraded signals, and signal system coordination. New or refined signal coordination will promote smoother arterial flow and greater capacity on:

- Highway 43 (State Street) between Terwilliger Boulevard and McVey Avenue,
- "A" Avenue between State Street and 8th Street,
- Boones Ferry Road between I-5 and Country Club Road, and
- Bangy Road between Bonita Road and Kruse Way.
In addition, progress toward meeting the access standards for the various functional classifications will translate into greater system capacity. The degree to which this occurs will depend on the rate of redevelopment along any given roadway.

3.8 Parking Plan

The City of Lake Oswego is currently reviewing proposed revisions to parking standards to meet the requirements of the Transportation Planning Rule and to conform to the spirit of the Regional Transportation Plan parking management standards. The planned revisions include measures to promote alternative mode travel consistent with the TDM plan presented in Section 3.6. The revisions also set maximum parking levels for new development.

The parking plan includes the following:

- secure bicycle parking at employer locations,
- preferential carpool/vanpool spaces at employer locations,
- the minimum parking requirements for a new development may be lowered based on proximity to transit lines,
- shared parking areas are specifically allowed where peak demand will not overlap, and
- the maximum number of parking spaces allowed is capped at 125 percent of the minimum parking requirement, in identified transit and pedestrian accessible areas (including downtown Lake Oswego and the Kruse Way area).

3.9 Freight Plan

3.9.1 Highway

Certain arterials in Lake Oswego handle significant truck goods movements. Major industrial/commercial land uses in the City serviced by trucks include businesses in downtown Lake Oswego and along Boones Ferry Road, and industrial uses along the Willamette River and in Tualatin northeast of the I-5/Boones Ferry Road interchange.

Figure 3-8 identifies arterials which should serve as designated truck routes. Major truck movements should be concentrated on these roadways to minimize impact on neighborhoods. Streets serving as truck routes include I-5, Highway 43, Boones Ferry Road, Country Club Road, and A Avenue.

3.9.2 Rail

No changes are planned for the freight rail system in Lake Oswego. Figure 3-8 presents the existing rail system.

Lake Oswego is served by the Portland and Western (P&W) Railroad spur line which serves the intermodal wood chip transfer facility along the Willamette River, on Foothills Road. The spur connects to the P&W main line from the Tualatin Valley to the northwest and from McMinnville
to the southwest with Portland. The main line passes through Lake Oswego from Tualatin crossing under Interstate 5, along the north shore of Oswego Lake, across State Street a block south of “A” Avenue, parallel to State Street on the east, then across the Willamette River roughly opposite Terwilliger Boulevard. No additional freight rail service is anticipated in the next 20 years.

The P&W Railroad line in Lake Oswego includes 11 at-grade road crossings east of I-5. Of these, three are of local streets serving the residential areas on the north shore of Oswego Lake. Two others are crossings of Foothills Boulevard by the spur line. Two additional local street crossings are grade-separated (the roads pass under railroad trestles; another grade separated crossing also takes the Willamette Shores Trolley over Briarwood Road). The remaining six at-grade crossings are of:

- Lakeview Boulevard,
- Bryant Road,
- McEwan Road,
- Boones Ferry Road (twice), and
- State Street (Highway 43).

Boones Ferry Road and State Street are both major arterials. Currently, freight trains are infrequent. They are, however, sometimes scheduled to pass through Lake Oswego during afternoon peak hours. The northeastern of the two Boones Ferry crossings is near Pilkington Road, a major collector. The State Street crossing is near “A” Avenue, another arterial. Neither of these locations lends itself to straightforward grade separation. As traffic volumes continue to increase on State Street and Boones Ferry Road, the City should negotiate with the P&W Railroad to schedule trains in ways that will cause minimal disruption. The ongoing Highway 43 Corridor study being conducted by ODOT should consider possible long-term solutions to accommodate potentially more intense use of the rail line.

3.10 Air Facilities Plan

No air facilities are currently located in Lake Oswego, nor are planned.

3.11 Water Facilities Plan

No changes are planned to the Lake Oswego water-transportation facilities. The operation of the wood chip transfer facility on the Willamette River with associated barge service will continue with existing facilities. Figure 3-8 indicates the location of this facility.

3.12 Pipeline Facilities Plan

No changes are planned to transmission-level pipeline facilities. The distribution networks for water and natural gas will continue to be expanded and upgraded as required by development. Figure 3-8 indicates the location of the 24” water transmission line through Lake Oswego serving the Tigard area.
Section 4.0
Transportation Funding Plan
4.0 Transportation Funding Plan

4.1 INTRODUCTION

The Transportation Planning Rule (OAR 660-12-040) requires that the Lake Oswego Transportation System Plan (TSP) include a transportation financing program. These programs are to include:

- a list of planned transportation facilities and major improvements;
- a general estimate of the timing for planned transportation facilities and major improvements;
- determination of rough cost estimates for the transportation facilities and major investments identified in the TSP (intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan(s) and allow jurisdictions to assess the adequacy of existing and possible alternative funding mechanisms); and,
- a discussion of existing and potential financing sources to fund the development of each transportation facility and major improvement (which can be described in terms of general guidelines or local policies).

The timing and financing provisions in the transportation financing program are not considered a land use decision as defined by the TPR and ORS 197.712(2)(e) and, therefore, cannot be the basis of appeal under State law. In addition, the transportation financing program is to implement the comprehensive plan policies which provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities which would cause premature development of urbanizable areas or conversion of rural lands to urban uses.

4.2 LAKE OSWEGO FUNDING HISTORY

Composition of the Street Fund

Table 4-1 identifies the revenues and expenditures associated with the Street Fund in Lake Oswego, from actual conditions in 1994-95 to projected conditions through 2001-02. The fund covers all operations and capital costs associated with the street system in Lake Oswego, and can be applied to sidewalks and pathways as well as on-street operations and maintenance.

Total revenues in the Street Fund have ranged from $2.6 to $3.7 million per year over the past three years, with the fund projected to stabilize to around $2.8 million per year by FY 2001-02. In recent years, most of the revenues for the Street Fund have come from governmental revenues, in particular state motor vehicle fees (about $1.5 million per year). Clackamas County has contributed another $250,000 per year related to road transfer fees for maintenance associated with Country Club Road which will end in 1998. Starting in 1995-96, state revenue sharing
revenues were accounted in the Street Fund, at about $160,000 per year. Also periodically hotel/motel tax revenue funds are transferred from the City General Fund to the Street Fund for capital projects.

Table 4-1

<table>
<thead>
<tr>
<th>Individual Fund Summaries: Street Fund</th>
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<tbody>
<tr>
<td><strong>Actual</strong></td>
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<td>Resources</td>
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<td>Appropriated Ending Fund Bal.</td>
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<tr>
<td>Total Requirements</td>
</tr>
<tr>
<td>Assumptions</td>
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<tr>
<td>Revenues</td>
</tr>
<tr>
<td>Motor vehicle fees and state revenue sharing are projected to increase by 3%. Clackamas county annual payments of $250,000 discontinue in 1997-98.</td>
</tr>
<tr>
<td>Franchise fee is to pay for street light maintenance contract. Assumed to increase to $260,000 in 1997-98 and by 3% annually thereafter.</td>
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<tr>
<td>Transfers assume 50% of annual Hotel/Motel Tax revenue from the General Fund for 1996-97 only.</td>
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<tr>
<td>Other Revenues include bond sales in 1996-97 and 1998-99.</td>
</tr>
<tr>
<td>Expenses</td>
</tr>
<tr>
<td>Materials and Services are assumed to increase by 6% annually after 1996-97.</td>
</tr>
<tr>
<td>Transfers are assumed to increase by 5% annually.</td>
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<tr>
<td>Capital Equipment assumed to increase 4% annually after 1996-97.</td>
</tr>
<tr>
<td>Contingency is at least equal to 10% of operational requirements, as policy requires.</td>
</tr>
</tbody>
</table>

On the expenditure side, a steady stream of about $800,000 per year from current funding sources is anticipated to be spent on City street capital projects, through FY 2001-02. In 1996, a $6.97 million Street Bond covering primarily pavement overlay projects was approved by the voters. The bond program will include the expenditure on capital projects from FY 1996-97 to FY 2001-02 at a level of $1.2 to $1.8 million per year. The bonds will be paid back over 20 years.

From the City's street maintenance program the annual cost to maintain the City's streets at an acceptable pavement service index (3.8 or greater) is approximately $1.4 million.

**System Development Charge**

The City of Lake Oswego currently has a transportation system development charge which is assessed to developers. The charge has both a "reimbursement fee" and an "improvement fee".
The reimbursement fee places a value on the amount of capacity on an existing street utilized by new site development traffic. The improvement fee is an assessment for the added traffic impact associated with new development on triggering new roadway improvements. As a follow up to the Lake Oswego TSP study, the City is undertaking a study to update its transportation SDC structure, to develop a multi-modal charge where funds could be spent on pedestrian, bicycle, and transit improvements in addition to street improvements.

4.3 OREGON TRANSPORTATION FUNDING HISTORY

Road-Related Funding

In 1992, Oregon received $704 million, or 67 percent of its highway revenues, from the collection of user taxes and fees. The second largest category is almost entirely comprised of the sale of timber logged from National Forests. In 1992, these timber receipts raised roughly $115 million. The remaining revenue sources - road and crossing tolls, general fund appropriations, property taxes, miscellaneous receipts and bond receipts - accounted for $223.5 million or roughly 21 percent of total transportation revenues.

The most significant portion of Oregon's highway user taxes and fees come from federal fuel and vehicle taxes, state taxes, and general motor vehicle fees. These categories account for 32 percent, 34 percent, and 25 percent, respectively, of all highway user taxes and fees collected in the state. During the 1980's, Oregon's transportation budget was bolstered by a series of two-cent annual gas tax increases. At the same time, the Federal Government was increasing investment in highways and public transportation. The situation is different today. The last two Legislatures failed to increase the gas tax and federal budget cuts are reducing transportation funding available to Oregon. The State Highway Fund is further losing buying power because the gas tax is not indexed to inflation, and increased fuel efficiency of vehicles reduces overall consumption.

Oregon Highway Trust Fund revenues are distributed among state (60.22 percent), County (24.38 percent) and City (15.40 percent) governments to fund their priority road needs. In 1995-96, the state estimated it would collect $575 million in state highway funds. Counties and cities would then receive about $140 and $90 million, respectively.

Oregon law allows local government, in addition to receiving state highway trust fund revenues, to levy local fuel taxes for street related improvements. Multnomah and Washington Counties, and some small cities (Tillamook, The Dalles, Woodburn) have used this authorization. Several attempts have been made by other jurisdictions but have not been supported by the electorate. As few local governments have implemented this option, non-user road revenues tend to be relied upon, to supplement the funds received from state and federal user revenues. Other local funding sources have included property tax levies, local improvement district assessments, bonds, traffic impact fees, road user taxes, general fund transfers, receipts from other local governments, and other miscellaneous sources.
Oregon's basic vehicle registration fee is $15 per year regardless of the vehicle being registered. Oregon law permits local governments (counties) and governmental entities to impose local option vehicle registration fees. To date, no county has implemented this tax.

Cities have relied more than counties on transfers from their general funds to support roadway improvements. Ballot Measure 5, however, approved by the voters in 1990, reduced the range of funding and financing options available to both cities and counties. Measure 5 limited the property tax rate for purposes other than for payment of certain general obligation indebtedness to $15 per $1000 of assessed value. The measure further divided the $15 per $1000 property tax authority into two components: $5 per thousand dedicated to the public schools; the remaining $10 dedicated to other local government units, including cities, counties, special service districts, and other non-school entities. The tax rate limitation for cities and counties went into effect in 1992. The school portion of the measure is being phased in over a five-year period beginning in FY 1992. In 1996, voters again approved a property tax limitation measure, Ballot Measure 47, which will further impact the ability of cities and counties to pay for needed infrastructure through historic or traditional means. The full impact of Measure 47 will likely find further definition in the 1997 Legislative session.

At the same time that increased growth and increased transportation demands are occurring, cities and counties have lost another traditional source of revenue for infrastructure construction and modernization timber harvest receipts. Under a 1993 negotiated mitigation plan, federal forest receipts to support county roads are decreasing 3 percent per year. In 1996, counties received 74 percent of their 1986-90 average receipts, and by 2003 they will receive 55 percent of the late 1980s revenues.

Given this funding environment, current funding levels and sources are not adequate to meet the transportation needs of the State, cities and counties for the next 20 years. In response to this gap between needs and funding, Governor Kitzhaber organized the Oregon Transportation Initiative to look at statewide transportation needs and to develop a program to address how these needs will be met. Through a public process led by business and civic leaders across the state, findings and recommendations on the state of transportation needs and methods to address those needs was submitted to the Governor in July 1996. A result of these recommendations was appointment of a committee to develop a legislative proposal to the 1997 Legislature regarding transportation funding. Part of that proposal will be identification of a "base" transportation system, with a priority of maintenance, preservation and operation of a system of transportation facilities and services that ensures every Oregonian a basic level of mobility within and between communities. It is expected that other components will include efficiencies resulting from better intergovernmental cooperation (shared resources and equipment, better communication on project needs and definition), and elimination of legislative barriers to more efficient and cost-effective methods of providing transportation services.

A part of transportation funding will be identification of relationships and responsibilities relative to delivery of projects and services. In Oregon, the primary state role has been to construct and maintain the state highway system and to assist local government with funding of other modes. The state also has a role in intercity passenger services and airports. This has
historically been minor, but would grow significantly if serious efforts were put into intercity rail improvements. Local governments, in addition to providing local roads, streets and bridge construction, maintenance and preservation, provide local transit and airport support. The Federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) began moving decision-making for federal programs to states and this program and other state policies incorporated in the Oregon Transportation Plan (OTP) encourage reassessment of responsibilities and obligations for funding.

These changing relationships have resulted in two significant issues for state and local governments. First, there is no clear definition of state responsibility. At one time, the state operated on an informal consensus that it should provide one-half the match on federally funded local and other projects that served statewide needs. No similar consensus seems to exist today. The state's responsibility for transit, airports and other local transportation infrastructure and services is not clear. The question of regional equity is raised in considering especially high-cost project needs, such as the Bend Parkway or the Portland area light rail program. Regional equity will probably require consideration of all modes together, because different regions may have different modal needs and financial arrangements.

Given this dynamic transportation funding environment, it is clear that local governments need to reassess traditional methods of funding projects and look creatively at ways to meet public expectations of high quality transportation services.

**Transit Funding**

Transit service in Oregon has evolved from private development and reliance on user fees for operating revenue to public ownership with public subsidy for operations. No clear philosophy of the state role in providing transit services is evident and the state is continuing its discussion on how the state should raise revenue in support of transit. The state has used general funds, lottery funds, stripper well funds, cigarette tax revenue and other funds at various times to support transit service. These efforts have largely been targeted towards supplying half the required match to federal capital improvement grants. Other than the elderly and disabled program, the state has provided no operating funds for transit. The state role has been one of granting authority to local governments to raise locally-generated operating revenue.

Federal Transit Administration (FTA) grants account for 69 percent of Oregon's funding for transit capital construction, which includes purchase of buses and other equipment. Federal funding for transit was increased through the flexibility provided by ISTEA. This federal legislation expires September 30, 1997 and, although there is strong indication that current flexibility will be retained, it will be dependent on Congressional approval to continue current programs. The largest source of transit operating revenues, $87 million, are local funds, which provide 64 percent of revenues needed for transit operations. Passenger fares cover 22 percent of Oregon's transit system operating costs. Transportation for the elderly and disabled is funded through dedication of two cents of the state cigarette tax and through federal programs.
Freight Rail Funding

The vast majority of rail freight spending is funded by privately-owned railroads. The Federal Local Rail Freight Assistance program is a small program that funds the rehabilitation of both publicly- and privately-owned rail lines, primarily branch lines. Congress is considering proposals to eliminate the program. If this occurs, there will be no program to provide ongoing railroad rehabilitation. Occasional support might be obtained through state lottery-funded economic development programs.

4.4 POTENTIAL TRANSPORTATION FUNDING SOURCES

There are a variety of methods to generate revenue for transportation projects. Funding for transportation improvement projects are derived from three sources: federal, state and local governments. Appendix A (Table A-1) provides a summary of federal, state and local highway, bridge, sidewalk and bicycle funding programs respectively, which have typically been used in the past. Although property tax is listed as a possible revenue source, the impacts of Ballot Measure 47 are not clear.

Appendix A (Table A-2) presents details of the revenue sources for streets, bridges, sidewalks and bicycle facilities currently used by cities, by type of facility, and indicates the percent of revenue each funding source represents for all cities in Oregon, trends, constitutional or other limitations, and the rate.

A similar list of transportation funding sources for transit projects is included in Appendix A (Table A-3). This is summarized with the general status of each funding source in Table A-4.

4.5 PROPOSED TRANSPORTATION IMPROVEMENT PROGRAM

Table 4-2 summarizes the required transportation improvement needs in the City of Lake Oswego over the next 20 years to meet both short and long-term needs. Table 4-3 presents a project-prioritized list of the improvements. Projects are divided into three time periods: 1) 0-5 years, 6-10 years, and 11-20 years. The 0-5 year period corresponds to the five-year horizon of the City's capital improvement program. For each of the time periods, projects are packaged into the following categories:

1. Roadway corridor (includes widening, road reconstruction, and signal system improvements)
2. Intersection (includes channelization and traffic control improvements)
3. Traffic calming (includes speed bumps, curb extensions, traffic diverters, and stop signs)
4. Pedestrian and bicycle facilities (includes sidewalks and off-street pathways, and on-street bike lanes - if not included under a roadway corridor project)
5. Transit (includes added fixed-route bus service, and local circulator service - 4 routes)
Table 4-2
Summary of Proposed Transportation Improvement Program Cost (1997 $)

<table>
<thead>
<tr>
<th>Type of Improvement</th>
<th>0-5 Years</th>
<th>6-10 Years</th>
<th>11-20 Years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Corridor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Signal System</td>
<td>$200,000</td>
<td>$0</td>
<td>$0</td>
<td>$200,000</td>
</tr>
<tr>
<td>- Widening</td>
<td>1,000,000</td>
<td>5,150,000</td>
<td>3,000,000</td>
<td>9,100,000</td>
</tr>
<tr>
<td>- Road Reconstruction</td>
<td>992,000</td>
<td>3,530,000</td>
<td>3,300,000</td>
<td>7,822,000</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$2,192,000</td>
<td>$8,680,000</td>
<td>$6,300,000</td>
<td>$17,172,000</td>
</tr>
<tr>
<td>Intersection*</td>
<td>$4,220,000</td>
<td>$3,215,000</td>
<td>$1,580,000</td>
<td>$9,015,000</td>
</tr>
<tr>
<td>Traffic Calming</td>
<td>$100,000</td>
<td>$100,000</td>
<td>$200,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>Pedestrian/Bicycle Facilities</td>
<td>$737,000</td>
<td>$3,035,000</td>
<td>$4,250,000</td>
<td>$8,022,000</td>
</tr>
<tr>
<td>Transit</td>
<td>$1,810,000</td>
<td>$5,025,000</td>
<td>$13,630,000</td>
<td>$20,465,000</td>
</tr>
<tr>
<td>Total</td>
<td>$9,059,000</td>
<td>$20,055,000</td>
<td>$25,960,000</td>
<td>$55,074,000</td>
</tr>
</tbody>
</table>

* Does not include reconstruction of I-5/Highway 217 interchange, estimated to cost $67 million in 1997 $.

Table 4-3
Transportation Improvement Program

<table>
<thead>
<tr>
<th>Type of Improvement</th>
<th>Location</th>
<th>Description</th>
<th>Estimated Cost (1997 $)*</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Range (0 to 5 Years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roadway Corridor</td>
<td>&quot;A&quot; Avenue - State Street to 10th Street</td>
<td>Signal interconnect</td>
<td>$150,000</td>
<td>F.S, SDC, NCFS</td>
</tr>
<tr>
<td></td>
<td>Bickner Street - Cedar Street to Hemlock</td>
<td>Reconstruction</td>
<td>$26,000</td>
<td>SB</td>
</tr>
<tr>
<td></td>
<td>Boones Ferry Road - 1-5 to Bryant Road</td>
<td>Signal interconnect</td>
<td>$25,000</td>
<td>F.S, SDC, NCFS</td>
</tr>
<tr>
<td></td>
<td>Boones Ferry - Kruse Way to Country Club Road</td>
<td>Widen to 6 lanes with bike lanes, pavement overlay</td>
<td>$1,000,000</td>
<td>SB</td>
</tr>
<tr>
<td></td>
<td>Durham Street - Ladd Street to Church Street</td>
<td>Reconstruction</td>
<td>$48,000</td>
<td>SB</td>
</tr>
<tr>
<td></td>
<td>Kruse Way - Kruse Oaks Blvd. to Bangy Road</td>
<td>Signal interconnect</td>
<td>$25,000</td>
<td>F.S, SDC, NCFS</td>
</tr>
<tr>
<td></td>
<td>Oak Street - Palisades Terrace to Highway 43</td>
<td>Reconstruction</td>
<td>$369,000</td>
<td>SB</td>
</tr>
<tr>
<td></td>
<td>Touchstone - Botticelli to Kerr Parkway</td>
<td>Reconstruction</td>
<td>$65,000</td>
<td>SB</td>
</tr>
<tr>
<td></td>
<td>Twin Fir Road - Upper Drive to Boones Ferry Road</td>
<td>Rehabilitation</td>
<td>$484,000</td>
<td>SB</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td>$2,192,000</td>
<td></td>
</tr>
</tbody>
</table>

Kittelson & Associates, Inc
<table>
<thead>
<tr>
<th>Type of Improvement</th>
<th>Location</th>
<th>Description</th>
<th>Estimated Cost (1997 $)*</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection</td>
<td>Boones Ferry Road/Bryant Road</td>
<td>Add split signal timing, replace loops</td>
<td>$20,000</td>
<td>GF</td>
</tr>
<tr>
<td></td>
<td>Boones Ferry Road/Country Club Road/Kerr Parkway</td>
<td>Develop right turn lane on Kerr Parkway approach</td>
<td>$110,000</td>
<td>SDC</td>
</tr>
<tr>
<td></td>
<td>Boones Ferry Road/Kruse Way</td>
<td>Second NB left turn lane</td>
<td>$280,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Carman Drive/Kruse Way</td>
<td>Add left turn lanes on Carman, right turn lanes on Kruse Way. Signal modification.</td>
<td>$300 000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Carman Drive/Meadows Road/ Quarry Road</td>
<td>Roundabout or traffic signal</td>
<td>$120,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Kerr Parkway/Touchstone Drive</td>
<td>Northbound left turn lane, traffic signal</td>
<td>$550,000</td>
<td>SDC</td>
</tr>
<tr>
<td></td>
<td>Kruse Way/Mercantile Drive</td>
<td>WB right turn lane</td>
<td>$120,000</td>
<td>SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Kruse Way/Westlake Drive</td>
<td>WB right turn lane</td>
<td>$120,000</td>
<td>SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>State Street (Hwy. 43)/McVey Avenue</td>
<td>NB/SB left turn lanes, upgrade traffic signal</td>
<td>$1,300 000</td>
<td>S, SDC</td>
</tr>
<tr>
<td></td>
<td>State Street (Hwy. 43)/Terwilliger Blvd.</td>
<td>NB left turn lane, realign Terwilliger approach, traffic signal</td>
<td>$550,000</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td>Stafford Road/Overlook Drive</td>
<td>Left turn lanes, traffic signal</td>
<td>$280,000</td>
<td>SDC</td>
</tr>
<tr>
<td></td>
<td>Stafford Road/Rosemont Road</td>
<td>Left turn lanes, traffic signal</td>
<td>$470,000</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td>$4,220 000</td>
<td></td>
</tr>
<tr>
<td>Traffic Calming</td>
<td>Locations to be determined</td>
<td>Speed bumps, curb extensions, traffic diverters, stop signs</td>
<td>$100 000</td>
<td>S, SDC, NLFS</td>
</tr>
<tr>
<td>Pedestrian/ Bicycle Facilities</td>
<td>Carman Drive - Waluga Drive to Quarry Road</td>
<td>Pathway on east side</td>
<td>$140,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Greentree Avenue - Weidman Road South to Greentree</td>
<td>6' sidewalk</td>
<td>$107,000</td>
<td>PL</td>
</tr>
<tr>
<td></td>
<td>South Shore Blvd. - Westview Avenue to Blue Heron Road</td>
<td>6' path for 500' at NW corner of Westview/South Shore intersection</td>
<td>$65 000</td>
<td>PL</td>
</tr>
<tr>
<td></td>
<td>Wembley Park Road</td>
<td>6' pathway</td>
<td>$100,000</td>
<td>PL</td>
</tr>
<tr>
<td></td>
<td>Westview Avenue - Greentree Avenue to South Shore Blvd.</td>
<td>Pathway on west side of Westview</td>
<td>$195,000</td>
<td>PL</td>
</tr>
<tr>
<td></td>
<td>Upper Drive - Reese Road to Bryant Road</td>
<td>6' pathway</td>
<td>$130,000</td>
<td>PL</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td>$737,000</td>
<td></td>
</tr>
<tr>
<td>Type of Improvement</td>
<td>Location</td>
<td>Description</td>
<td>Estimated Cost (1997 $)*</td>
<td>Potential Funding Source</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>-------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Short Range (0 to 5 Years)</strong></td>
<td>Transit</td>
<td>Local circulator bus route South Shore area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>30-60 min. service - peak</td>
<td>$750,000 (Capital)</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 min. service - off peak</td>
<td>$460,000 (Operating)</td>
<td>S, NLFS</td>
</tr>
<tr>
<td></td>
<td>Willamette Shores Trolley</td>
<td>Track/trestle rehabilitation</td>
<td>$600,000</td>
<td>CP</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td>$1,350,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short Range Total</td>
<td>$9,059,000</td>
<td></td>
</tr>
<tr>
<td><strong>Mid-Range (6 to 10 Years)</strong></td>
<td>Roadway Corridor</td>
<td>&quot;A&quot; Avenue - State Street to 3rd Avenue</td>
<td>Road reconstruction, streetscape improvements</td>
<td>$3,100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boones Ferry Road - Kruse Way to Madrona Street</td>
<td>Widen to 5 lanes**</td>
<td>$2,650,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bangy Road - Kruse Way to Bonita Road</td>
<td>Widen to 4 lanes, pavement overlay</td>
<td>$1,000,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lake Forest Boulevard - Washington Court to Carman Drive</td>
<td>Road reconstruction, sidewalks</td>
<td>$430,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meadows Road - Bangy Road to Carman Drive</td>
<td>Widen to 4 lanes</td>
<td>$1,500,000</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td>$8,680,000</td>
<td></td>
</tr>
</tbody>
</table>

** Pending confirmation of this as appropriate design treatment through further Main Street corridor study.

<table>
<thead>
<tr>
<th>Type of Improvement</th>
<th>Location</th>
<th>Description</th>
<th>Estimated Cost (1997 $)*</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection</td>
<td>Bangy Road/Bonita Road</td>
<td>Traffic signal, signal interconnect</td>
<td>$180,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Bryant Road/Lakeview Drive</td>
<td>Turn lanes, upgrade traffic signal</td>
<td>$300,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Bryant Road/Upper Drive</td>
<td>Traffic signal</td>
<td>$120,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Carman Drive/Bonita Road</td>
<td>Left turn lanes, traffic signal</td>
<td>$200,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Carman Drive/Parkview Drive</td>
<td>Traffic signal, channelization</td>
<td>$250,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Childs Road/Bryant Road</td>
<td>Left turn lanes, traffic signal</td>
<td>$180,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Country Club Road/&quot;C&quot; Avenue/Iron Mountain Road</td>
<td>Roundabout</td>
<td>$100,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Country Club Road/&quot;A&quot; Avenue/10th Street</td>
<td>Traffic signal</td>
<td>$100,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Kerr Parkway/McNary Parkway (lower intersection)</td>
<td>Left turn lanes, traffic signal</td>
<td>$200,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td>Type of Improvement</td>
<td>Location</td>
<td>Description</td>
<td>Estimated Cost (1997 $)*</td>
<td>Potential Source</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>-------------</td>
<td>--------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Intersection</td>
<td>Mid-Range</td>
<td>Knaus Road/Boones Ferry Road</td>
<td>Left turn lanes, realign intersection</td>
<td>$75,000</td>
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<tr>
<td></td>
<td></td>
<td>Knaus Road/Goodall Road</td>
<td>Channelization improvement</td>
<td>$60,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kruse Way/Kruse Oaks Drive</td>
<td>Intersection improvements, add bus pull-out</td>
<td>$100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stafford Road/Childs Road</td>
<td>Left turn lanes, traffic signal</td>
<td>$530,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>State Street/Cherry Street</td>
<td>Left turn lane, improve approach to Hwy. 43</td>
<td>$820,000</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>$3,215,000</td>
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<tr>
<td>Traffic Calming</td>
<td>Mid-Range</td>
<td>Locations to be determined</td>
<td>Speed bumps, curb extensions, traffic diverters, stop signs</td>
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</tr>
<tr>
<td>Pedestrian/ Bicycle</td>
<td>Mid-Range</td>
<td>Boones Ferry Road - Madrona Street to Jean Road</td>
<td>Bike lanes and sidewalks</td>
<td>$2,150,000</td>
</tr>
<tr>
<td>Improvements</td>
<td></td>
<td>Quarry Drive - Carman Road to Boones Ferry Road</td>
<td>Bike lanes and sidewalks</td>
<td>$585,000</td>
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<tr>
<td></td>
<td></td>
<td>Stafford Road - Overlook Drive to Rosemont Road</td>
<td>Pedestrian/bike path on west side</td>
<td>$100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Waluga Park- Oswego Lake Path</td>
<td>Construct sidewalks along portion of Quarry, Oakridge and Reese, and bike lanes along Oakridge between Quarry and Boones Ferry</td>
<td>$100,000</td>
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<tr>
<td></td>
<td></td>
<td>Washington Court - Roosevelt Avenue to Boones Ferry Road</td>
<td>Pavement overlay, add sidewalk on one side between Lake Forest Boulevard and Boones Ferry Road</td>
<td>$100,000</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>$3,035,000</td>
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<tr>
<td>Transit</td>
<td></td>
<td>#41 Boones Ferry route (Barbur Transit Center - Tualatin)</td>
<td>15 min. service - days 30 min. service - evenings</td>
<td>$1,250,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Operating - 2.5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kruse Woods Transit Center</td>
<td></td>
<td>$200,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Local circulator bus route - Fosberg/Lesser area</td>
<td>30-60 min. service - peak 60 min. service - off peak</td>
<td>$750,000</td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>Operating - 2.5 years</td>
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Kittelson & Associates, Inc
<table>
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<tr>
<th>Type of Improvement</th>
<th>Location</th>
<th>Description</th>
<th>Estimated Cost (1997 $)*</th>
<th>Potential Funding Source</th>
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<tbody>
<tr>
<td><strong>Mid-Range (6 to 10 Years)</strong></td>
<td>Transit</td>
<td>South Shore Circulator (Continued service)</td>
<td>Operating subsidy (5 years)</td>
<td>$925,000</td>
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<tr>
<td></td>
<td></td>
<td>Transit</td>
<td>Operating subsidy (5 years)</td>
<td>$925,000</td>
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<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>$5,025,000</td>
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<td></td>
<td>Mid-Range Total</td>
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<td>$20,005,000</td>
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<tr>
<td><strong>Long-Range (11 to 20 Years)</strong></td>
<td>Roadway Corridor</td>
<td>Kruse Way - Bangy Road to Westlake Drive</td>
<td>Widen to 6 lanes</td>
<td>$3,000,000</td>
</tr>
<tr>
<td></td>
<td>Knaus Road/Goodall Road</td>
<td>Improve to neighborhood collector standards with pathways</td>
<td>$2,700,000</td>
<td>S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Laurel Street - Dyer Street to Hallinan Street</td>
<td>Embankment, construct road</td>
<td>$600,000</td>
<td>S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>$6,300,000</td>
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<tr>
<td></td>
<td>Intersection</td>
<td>Carman Drive/Burma Road</td>
<td>Realign Burma Road approach, add left turn lanes</td>
<td>$200,000</td>
</tr>
<tr>
<td></td>
<td>Carman Drive/Lake Forest Boulevard</td>
<td>WB left turn lane</td>
<td>$150,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Childs Road/Pilkington Road</td>
<td>Left turn lanes</td>
<td>$100,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Bryant Road/Cardinal Avenue</td>
<td>Upgrade approach to Bryant</td>
<td>$60,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Jean Road/Bryant Road</td>
<td>Left turn lanes, traffic signal</td>
<td>$170,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>McVey Avenue/Cornell Street</td>
<td>Left turn lane on McVey, traffic signal</td>
<td>$50,000</td>
<td>F, S, SDC, NLFS</td>
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<td></td>
<td>McVey Avenue/Erickson Street</td>
<td>Left turn lane on McVey</td>
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<td>F, S, SDC, NLFS</td>
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<td>South Shore Boulevard/ Fernwood Street</td>
<td>Left turn lane</td>
<td>$50,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>South Shore Boulevard/Westview Drive</td>
<td>Left turn lane, retaining wall</td>
<td>$100,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Stafford Road/Golf Course Road</td>
<td>NB Left turn lane on Stafford</td>
<td>$50,000</td>
<td>F, S, SDC, NLFS</td>
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<td></td>
<td>Stafford Road/Sunnyhill Drive</td>
<td>NB left turn lane on Stafford</td>
<td>$50,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>State Street/(Hwy. 43)/&quot;B&quot; Avenue</td>
<td>SB right turn lane</td>
<td>$350,000</td>
<td>S, RAP, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>State Street (Hwy. 43)/Glenmorrie Drive</td>
<td>Left turn lane</td>
<td>$100,000</td>
<td>S, RAP, SDC, NLFS</td>
</tr>
<tr>
<td>Type of Improvement</td>
<td>Location</td>
<td>Description</td>
<td>Estimated Cost (1997 $)*</td>
<td>Potential Funding Source</td>
</tr>
<tr>
<td>---------------------</td>
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<td>--------------------------</td>
</tr>
<tr>
<td>Long-Range (11 to 20 Years)</td>
<td>State Street (Hwy. 43)/North Shore Road</td>
<td>Intersection improvements</td>
<td>$100,000</td>
<td>S, RAP, SDC, NLFS</td>
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<tr>
<td>Traffic Calming</td>
<td>Locations to be determined</td>
<td>Speed bumps, curb extensions, traffic diverters, stop signs</td>
<td>$200,000</td>
<td>SDC, NLFS</td>
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<tr>
<td>Pedestrian/Bicycle Facilities</td>
<td>&quot;A&quot; Avenue/Country Club Road/Boones Ferry Road/Kruise Way</td>
<td>Connect pedestrian/bike facilities, landscaping</td>
<td>$550,000</td>
<td>SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Bergis Road</td>
<td>Pedestrian connection to Luscher Farm</td>
<td>$50,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Bonita Road - Carman Drive to Bangy Road</td>
<td>Sidewalks and bike lanes</td>
<td>$300,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Cherry Street - Hwy. 43 to Hallinan School</td>
<td>6' path/sidewalk connecting to school</td>
<td>$300,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Carman Drive - 1-5 to Kruise Way</td>
<td>Sidewalks and bike lanes</td>
<td>$290,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Carman Drive - Kruise Way to Melrose Street</td>
<td>Sidewalks and bike lanes</td>
<td>$150,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Goodall Road - Knaus Road to Country Club Road</td>
<td>6' pathway behind drainage culvert</td>
<td>$300,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Greentree Avenue - Westview Street to Greentree Avenue</td>
<td>Pedestrian/bike path completion</td>
<td>$250,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Hallinan Street - Laurel Street to Cherry Street/Glenmorrie Street</td>
<td>Pedestrian/bike path</td>
<td>$200,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Lanewood/Douglas Circle - Boones Ferry Road to Twin Fir Road</td>
<td>Pedestrian path to connect with bus stops on Boones Ferry Road</td>
<td>$200,000</td>
<td>F, S, SDC, NLFS</td>
</tr>
<tr>
<td></td>
<td>Glenmorrie Drive - Hwy. 43 to Old River Road</td>
<td>Pathway to connect with Willamette River Greenway</td>
<td>$300,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Old River Road - Glenmorrie Drive to West City Limits</td>
<td>Pathway on east side of road</td>
<td>$480,000</td>
<td>F, S, SDC, NLFS</td>
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<td></td>
<td>Pilkington Road - Childs Road to Boones Ferry Road</td>
<td>Pedestrian/bike facilities</td>
<td>$300,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Twin Fir Road - Upper Drive to Boones Ferry Road</td>
<td>Pedestrian paths</td>
<td>$480,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td></td>
<td>Willamette River Greenway - Roehr Park South to George Rogers Park</td>
<td>Pathway to complete Willamette Greenway Path</td>
<td>$100,000</td>
<td>F, S, SDC, NLFS</td>
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<tr>
<td>Subtotal</td>
<td></td>
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<td>$4,250,000</td>
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### Transportation Funding Plan

#### Long-Range (11 to 20 Years)

<table>
<thead>
<tr>
<th>Type of Improvement</th>
<th>Location</th>
<th>Description</th>
<th>Estimated Cost (1997 $)*</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit</td>
<td>#42 McVey route (Lake Oswego - Stafford - Tualatin)</td>
<td>30 min. service - days 60 min. service - evenings</td>
<td>$500,000 (Capital) $720,000 (Operating - 2.5 years)</td>
<td>F, S, SDC, NLFS, F, NLFS</td>
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<tr>
<td></td>
<td>Local circulator bus routes - North Shore/Jeans &amp; Overlook/Childs area</td>
<td>30-60 min. service - peak 60 min. service - off peak</td>
<td>$1,250,000 (Capital) $1,460,000 (Operating)</td>
<td>F, S, SDC, NLFS, F, S, NLFS</td>
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<tr>
<td></td>
<td>South Shore &amp; Fosberg/Lesser Circulators</td>
<td>Operating Subsidy (10 Years)</td>
<td>$3,700,000</td>
<td>F, S, NLFS</td>
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<tr>
<td></td>
<td>Downtown Lake Oswego - East of State Street</td>
<td>Park-n-ride/relocated transit center</td>
<td>$3,000,000</td>
<td>F, S, SDC, NLFS</td>
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<td>Kruse Woods Transit Center</td>
<td>Park-n-ride</td>
<td>$3,000,000</td>
<td>F, S, SDC, NLFS</td>
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<td><strong>Subtotal</strong></td>
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<td><strong>$13,630,000</strong></td>
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<td><strong>Long Range Total</strong></td>
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<td><strong>$25,960,000</strong></td>
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<td><strong>OVERALL TOTAL</strong></td>
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<td><strong>$55,074,000</strong></td>
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</tbody>
</table>

* Roadway and transit facilities costs reflect construction, right-of-way costs with construction costs at a 40-50% contingency.

### Funding Source:

- C Clackamas County
- CP City of Portland
- F Federal Funds - ISTEA
- J Jefferson Rail Consortium
- LID Local Improvement District
- LORA Lake Oswego Redevelopment Agency
- NLFS New Local Funding Source - General obligation bonding, local gas tax, street utility fee (one or more)
- PL Current Park Levy
- S State of Oregon - State Highway Fund, Special Public Works Fund, funds, State vehicle registration fees, gas tax, and revenue sharing
- SB Current Street Bond (General Obligation Bonding)
- SDC System Development Charge

A total of over $55 million in transportation improvements is included in the 20-year improvement program (in 1997 $). This does not include the added $67 million required to construct the identified I-5/Highway 217 interchange improvements (including improvements to the Bangy Road/Kruse Way intersection). This is an average of almost $2.7 million in transportation capital costs and transit operating subsidies per year over the next 20 years, a substantial increase over current transportation expenditures by the City of Lake Oswego. A summary of the general content of projects in each of the transportation program intervals is as follows:
0-5 Years

The initial five-year program focuses on Transportation System Management (TSM) improvements (signal system, intersection, traffic calming improvements) and transit service modifications.

The five-year program consists of 32 projects totaling over $9 million (in 1997 dollars). This excludes the 34 pavement overlay projects not yet constructed to be funded through the 3-year $6 million street bond approved in 1996. Improvement projects include:

1. Signal interconnect improvements on "A" Avenue, Kruse Way, and Boones Ferry Road (the thought being to initially focus on lower cost signal improvements in these corridors before roadway widening projects are programmed);

2. 12 intersection projects, all at critical intersections experiencing major congestion or safety problems today;

3. Six separate pedestrian/bicycle facility projects, focusing on added off-street pathway development;

4. Reserving $100,000 for to be identified traffic calming measures along certain neighborhood collector streets;

5. Instituting the first local circulator bus route (South Shore), involving the purchase of three buses and operating costs over a portion of the 5-year period (assumed to be 2.5 years).

6-10 Years

In the second five years, 29 projects are programmed, totaling about $20 million. A focus of the 6-10 year program is roadway widening to add travel lanes on Boones Ferry Road, Bangy Road, and Meadows Road ($3 million total), as well as the reconstruction of "A" Avenue (another $3 million). Another focus is expanded local circulator service (adding the Fosberg-Lesser route), continued subsidy of the South Shore route, and initiating added commuter service on Tri-Met's #41 route (total transit capital and operating costs of about $5 million). Other improvement projects include:

1. 14 intersection improvements, including a roundabout at the Country Club Road/"C" Avenue/Iron Mountain Blvd. intersection;

2. Reserving $100,000 for to be identified traffic calming measures on neighborhood collector streets; and

3. Pedestrian and bicycle improvements along Boones Ferry Road and Quarry Road, and some other streets.
11-20 Years

During the second 10 years of the program, a total of 38 projects totaling about $26 million are identified. Big focuses of this program are widening of the west portion of Kruse Way to six lanes ($3 million), institution of the remaining two local circulator routes and new #42 Tri-Met route serving the Stafford area, and continued operating subsidy of earlier implemented local bus service ($7.5 million). This period also includes construction of new park-n-ride facilities in the Kruse Woods and downtown Lake Oswego areas ($6 million). Other improvements include:

1. 14 intersection improvements, focused on adding turn lanes at minor arterial and collector intersections:

2. 15 pedestrian/bicycle facility projects, including off-street pathways, sidewalks, and on-street bike lanes; and

3. Increased application of traffic calming measures ($200,000 total), reflective of the added traffic on neighborhood collector facilities.

Potential funding sources in the 20-year program are grouped into general categories. This includes potential, federal, state, and local funding, where local funding will require institution of a major new local funding source to supplement funds from transportation system development charges. This could include added street bonding, a local gas tax, or a street utility fee.

4.6 Transportation Maintenance Program

City of Lake Oswego Engineering staff estimates that it will cost about $1.4 million annually for pavement overlays and other roadway maintenance. Discounting the $6.97 million City Road Bond expenditure over the next five years, an added $21 million will be required over the next 20 years (5-20 year time frame) for street maintenance. Where possible, bike lanes will be added to streets as part of overlay projects.

If the City of Lake Oswego institutes and sponsors local circulator bus service, vehicle maintenance will be required.
5.0 Comprehensive Plan/Land Use Ordinance Modifications to Implement the Transportation System Plan

5.1 INTRODUCTION

The Transportation Planning Rule (TPR) requires that certain features appear in local jurisdiction zoning and subdivision codes with respect to parking, bicycle and pedestrian facilities, building orientation and street design. In many cases, local jurisdictions have revised their codes prior to adoption of a transportation system plan, or had updated their codes to reflect the intent of the TPR prior to its adoption. Prior to the undertaking of the Lake Oswego Transportation System Plan, City staff prepared a review of the zoning and subdivision codes. Their recommendations have been reviewed with the Lake Oswego Planning Commission, but not yet approved by the City Council. In general, the recommendations of this review bring the Lake Oswego code up to the standards of the Transportation Planning Rule.

The following City of Lake Oswego documents were also reviewed to assess TPR consistency and desired changes to support the recommendations of the TSP. Comments on each document are summarized below.

- 1994 Comprehensive Plan,
- 1991 Access and Site Circulation Standards,
- 1994 Zoning Code,
- 1994 Subdivision Ordinance, and
- 1996 Minimum Off-Street Parking Requirements.

5.2 REQUIREMENTS OF THE TRANSPORTATION PLANNING RULE

The Oregon Chapter of the American Planning Association prepared a report on "TPR Ordinance Recommendations" which is included in the TPR guidelines published by the Oregon Department of Transportation (ODOT) and the Oregon Department of Land Conservation and Development (DLCD). Review of this report in tandem with existing Lake Oswego codes presented a simple way to compare what is in Lake Oswego's codes versus what should be there in the context of the TPR.

The basic requirements of the TPR are based on the belief that if there are two simple changes in the way transportation links to land use are developed, more people will choose to bike, walk or take public transportation rather than drive alone. First, relatively minor changes in building orientation and street layout can improve access for these modes of travel. Second, if safe and convenient routes are provided, people will walk, bike or take the bus more.
Safe and convenient bike and pedestrian access. The rule requires that sidewalks be provided along arterials and collectors in urban areas, bikeways along arterials and major collectors, and where appropriate, separate bike or pedestrian ways to minimize travel distances within and between developments. These facilities shall be provided within and from new subdivisions, planned developments, shopping centers, and industrial parks to nearby residential areas, transit stops, and neighborhood activity centers. Road systems for new development which can be served by transit need to include pedestrian access to existing and identified future transit routes.

Internal Pedestrian Circulation. The rule requires internal pedestrian circulation to be provided in new office parks and commercial development. Circulation can be provided through clustering of buildings, construction of pedestrian ways, skywalks and similar techniques.

Accessways. Where appropriate, separate bike or pedestrian ways shall be provided to minimize travel distances within and between subdivisions, planned developments, shopping centers and industrial parks and nearby residential areas, transit stops, and neighborhood activity centers. This also applies to links between transit routes and activity centers.

Transit Facilities. Transit routes and facilities shall be designed to support transit use through provision of bus stops, pullouts and shelters, optimum road geometries, on-street parking restrictions and similar facilities as appropriate. In MPO areas (such as the Portland metro region), major industrial, institutional, retail and office developments shall provide either a transit stop on-site or connection to a transit stop along a transit trunk route when the transit operator requires such an improvement.

Carpool and Vanpool Parking. New industrial and commercial developments shall provide preferential parking for carpools and vanpools.

Building Orientation. New retail, office and institutional buildings at or near existing or planned transit stops shall provide preferential access to transit through: orienting building entrances to the transit stop or station, clustering buildings around transit stops and locating buildings as close as possible to transit stops.

Bicycle Parking. Bicycle parking facilities shall be provided as part of new multifamily residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park and ride lots.

Parking Space Reductions. Setting maximum limits is recommended as an interim measure and suggested to meet requirements for a parking plan in the Portland metro area.

Redevelopment of Parking Spaces. Existing developments may redevelop a portion of existing parking areas for transit oriented uses including bus stops and pullouts, bus shelters, park and ride stations, transit oriented developments and similar facilities where appropriate.

Minimum Densities. In the Portland metro area, local governments must consider increasing residential densities and establishing minimum residential densities within one-quarter mile of
transit lines, major regional employment areas and major regional retail shopping areas, and increasing densities in new commercial office and retail developments. Local governments with population greater than 25,000 such as Lake Oswego must designate, along existing or planned transit routes, types and densities of land uses adequate to support transit.

**Residential Street Standards.** The TPR does not require, but encourages local jurisdictions to reevaluate residential street standards to improve connectivity between neighborhoods, but reduce attractiveness for speeding.

**Traffic Management Measures.** The TPR does not require, but encourages the use of strategies to reduce speed or traffic volumes on residential streets. This includes modification of design standards for new streets and installation of traffic calming or other techniques on existing streets.

5.3 **ASSESSMENT OF EXISTING COMPREHENSIVE PLAN AND CODE**

5.3.1 Lake Oswego Comprehensive Plan

Revisions to the Lake Oswego Comprehensive Plan made in 1994 appear to have included the TPR requirements.

In the section on Goal 9: Economic Development, one of the action items is to work with Tri-Met to increase the level and quantity of transit service to commercial and industrial districts in Lake Oswego. This section could be strengthened to include improvements to serve residential trip ends, either through expanded park-and-ride locations and service or neighborhood-based service.

Under Goal 10: Housing, one of the action measures is to design residential streets to accommodate residential speeds and volumes, increase land use efficiency and reduce impervious surfaces. Other parts of the Lake Oswego Code define gravel shoulders without sidewalks as acceptable on residential streets. One possible conflict is that for ADA compatibility and creation of a desirable pedestrian environment, gravel shoulders in lieu of sidewalks is not an acceptable solution for urban areas. Gravel surfaces also can be considered a detriment for water quality goal attainment. Recommended changes to Section 44.08.398 require paved sidewalks for new residential construction.

The Transportation and Land Use Policy Element has a couple of sections that raise questions. Under Major Streets System Goal 1, Policy 1, level of service (LOS) D is identified as the threshold to be maintained. Policy 4(b) states that traffic generated by new land uses does not exceed the design capacity of the street system. Generally, design capacity is considered to be in the LOS E range. Both policies should be revised to be consistent with the regional LOS standard.

Policy 3 under Goal 4: Land Use and Transportation Relationships includes monitoring changes in the area’s transportation network and ensuring that traffic counts and other planning
information are kept current. The Lake Oswego Zoning Code references the 1983 study prepared by Carl Buttke as the basis for transportation analysis in the Kruse Way area. The information referenced in the Zoning Code should be kept current, as directed by this policy.

5.3.2 Access Standards

Section 18 of the Lake Oswego Zoning Code deals with access, as applicable to all major developments and land partitions. The only shortcoming of this section is that it appears to define flag lots as illegal. The statement that every lot shall abut a street for a width of 25 feet renders infill development in areas such as the Waluga Triangle unfeasible. Regional land use assumptions suggest that increased densities in these areas should be encouraged, and that access through the creation of shared driveways or flag lots can facilitate this type of infill.

5.3.3 On-Site Circulation Standards - (DRIVEWAYS AND FIRE ACCESS ROADS)

The changes to Section 19 cited in the recommended code revisions meets the intent and requirements of the TPR. The old language duplicates some of the road standards, which are discussed elsewhere in City code, while the new materials relate strictly to driveways and emergency access. Old Section 20 dealt with on-site circulation for bikeways and walkways; the proposed section includes accessways. The TPR references accessways as a means of providing pedestrian and bicycle access when direct road connections are unsafe or unfeasible. The City's recommended language mirrors that in the TPR recommendations prepared by the American Planning Association, Oregon Chapter.

5.3.4 Zoning Code

Much of the Lake Oswego Zoning Code deals with specific sub-areas, such as the Old Town Design District, the area along Kruse Way, and the Mountain Park Town Center. Standards for specific densities, amenities and design features are included. Section 48.10.315.10 spells out traffic management requirements for the Kruse Way area. This section of the Zoning Code should be strengthened to require a Kruse Way area transportation management association (TMA) or other cooperative group to work to reduce daily trip-making. This section also refers to the 1983 Buttke traffic study, and requires comparison of planned development to the values identified in this study. This study is 14 years old and should be replaced either by information from the 1995 I-5/Highway 217 Subarea Plan, this 1997 Lake Oswego Transportation System Plan, or other recently completed work. This would require an amendment to the Kruse Way Annexation and Settlement Agreement, in which the Buttke study is referenced.

There should be some provision in the Zoning Code to allow for a "master transportation study" for specific sub-areas, and allow for updates of these studies at the City's discretion (see comment on Comprehensive Plan).

The section allows for an owner or employer to implement a transportation management plan (TMP) voluntarily until traffic at intersections affected by a specific development operate consistently at LOS C or worse. Again, much of the Kruse Way area is operating at or below
this level today. Implementation of the State's ECO rule will force some employers to adopt TMPs, however, for areas such as downtown, Marylhurst, or Kruse Way, a coordinated effort between all employers would be more likely to produce results.

### 5.3.5 Subdivision Ordinance

Under 44.08.373 Functional Classification of the Lake Oswego Subdivision Ordinance, there may be a conflict with other classifications used by the City and overall consistency with classifications used in the metro area. There is no provision for a "local" street, or a low-volume street used to access commercial or industrial property. By definition, any street accessing these types of uses must be a collector. The design standards for collectors may be inappropriate for some of the streets providing access to industrial areas along the riverfront and other commercial areas. The City should consider a general "local" street standard which provides for on-street parking, two travel lanes and direct access for industrial and commercial uses as well as residential.

Section 44.08.382 Residential Streets -- Specific Standards has some shortcomings. The basic cross section of two 3-meter travel lanes and a 1-meter gravel shoulder on each side should be reconsidered. Gravel shoulders have been determined by many jurisdictions to be unacceptable in urban areas because of dust and sedimentation issues, as well as their safety for pedestrians and bicycle use. When residential streets are subject to a rehabilitation project or new construction occurs, paved shoulders or sidewalks should be required.

In section 44.08.387, a revision is needed to define when cul-de-sacs are appropriate. Also, sidewalks should be provided on all cul-de-sacs. The language in the proposed code revisions section is adequate for these purposes.

### 5.3.6 Minimum Off-Street Parking Requirements

The TPR guidelines suggest using parking maximums rather than parking minimums in developing standards. A review of the "recommended code revisions" sections on off-street parking requirements appears to address some of the TPR parking requirements. The new section covers bicycle parking and access, reductions to minimum requirements, carpool/vanpool parking, dimensions, and parking surfaces. There does not appear to be anything in the proposed revisions to deal with the TPR requirement of a net per capita parking decrease for MPO areas. The Lake Oswego Comprehensive Plan has policies supporting the regional parking space reduction goal, however.

### 5.4 MODIFICATIONS TO THE COMPREHENSIVE PLAN

It is intended that the Lake Oswego TSP in its entirety will be incorporated into the Lake Oswego Comprehensive Plan, with an expanded set of policies under the transportation goals (see Section 3.1.3).
5.5 MODIFICATIONS TO LAND USE AND DEVELOPMENT CODE

Appendix B identifies proposed Development Code changes relating to the Transportation Planning Rule, specifically regarding transit, pedestrian and bikeway requirements, building orientation and bicycle parking requirements. The changes are shown with the deletions shown in strike out and added new text shown in bold and underlined.
Section 6.0
Compatibility with State Transportation Planning Rule & Other Plans
6.0 Compatibility with State Transportation Planning Rule & Other Plans

6.1 TRANSPORTATION PLANNING RULE COMPLIANCE

In April 1991, the Oregon Land Conservation and Development Commission (LCDC), with the concurrence of the Oregon Department of Transportation (ODOT), adopted the Transportation Planning Rule (TPR), OAR 660 Division 12. The TPR requires local jurisdictions to prepare and adopt a Transportation System Plan (TSP) by June 1997. Outlined below is a list of requirements and recommendations for a Transportation System Plan for a jurisdiction with a population over 25,000 inside a Metropolitan Planning Organization (MPO) area, and how each of those were addressed in the Lake Oswego TSP. The comparison shows that the Lake Oswego TSP is in compliance with the provisions in the TPR.

6.1.1 Development of a Transportation System Plan

TPR Recommendations/Requirements | Lake Oswego TSP Compliance
---|---
Public and Interagency Involvement

- Establish Advisory Committees
  
  A Technical Advisory Committee (TAC) was established for the development of the TSP. See Appendix B in the Lake Oswego TSP Resource Document for a list of TAC members.

- Develop informational material
  
  Materials (including report text, charts and maps) were prepared for public agency review illustrating and defining critical components of the Lake Oswego TSP.

- Schedule informational meetings, review meetings and public hearings throughout the planning process; involve the community
  
  A total of three TAC meetings and three open houses were held in review of the study interim end products and the draft TSP.

- Coordinate plan with other agencies
  
  Representatives from ODOT, Metro, Clackamas County, Tri-Met, and other local agencies were apprised of the TSP development and participated at the TAC meetings.
Review Existing Plans, Policies, Standards, and Laws

- Review and evaluate existing comprehensive plan
  
  The 1994 Lake Oswego Comprehensive Plan was reviewed and evaluated as part of the TSP development. In addition, the City's 1994 Subdivisions Ordinance, 1991 Access and Site Circulation Standards, and 1996 Parking Requirements were also reviewed.

- Land use analysis - existing land use/vacant lands inventory
  
  The Lake Oswego Planning Department updated all population/employment forecasts, based on an updated existing land use/vacant lands inventory, for use in the Lake Oswego TSP travel modeling process.

- Review existing ordinances - zoning, subdivision, engineering standards
  
  Existing City ordinances and engineering standards were reviewed for adequacy in the development of the Lake Oswego TSP.

- Review existing significant transportation studies
  
  Significant transportation studies reviewed as part of the Lake Oswego TSP include the 1992 Lake Oswego Transportation Study, Lake Oswego Public Facilities Plan, Metro Regional Transportation Plan, Tri-Met Primary Transit Network Study, as well as ten other documents.

- Review existing capital improvement programs/public facilities plans
  
  The City of Lake Oswego, Clackamas County, and ODOT CIP's were reviewed as part of Lake Oswego TSP development.

- Americans with Disabilities Act (ADA) requirements
  
  The ADA requirements were reviewed and recognized as part of the Lake Oswego TSP development.
Inventory Existing Transportation System

- Street system (number of lanes, lane widths, traffic volumes, level of service, traffic signal location and jurisdiction, pavement conditions, structure locations and conditions, functional classification and jurisdiction, truck routes, number and location of accesses, safety, substandard geometry)

- Bicycle ways (type, location, width, condition, ownership/jurisdiction)

- Pedestrian ways (location, width, condition, ownership/jurisdiction)

- Public Transportation Services (transit ridership, volumes, route, frequency, stops, fleet, inter-city bus, passenger rail, special transit services)

- Intermodal and private connections

- Air transportation

- Freight rail transportation

- Water transportation

An inventory of the existing street network, traffic volumes, traffic control devices and levels of service is provided in Section 2 of the Lake Oswego TSP Resource Document.

A summary of the existing bicycle route system is given in Section 2.1 of the Lake Oswego TSP Resource Document.

An inventory of existing sidewalks along collector and arterial streets in Lake Oswego is illustrated in Figure 2-6 of the Lake Oswego TSP Resource Document.

A summary of the existing public transportation services is presented in Section 2 and illustrated in Figure 2-7 of the Lake Oswego TSP Resource Document.

No significant intermodal and private carrier transportation services and/or connections are found within the City of Lake Oswego.

A summary of existing air transportation (passenger, cargo and recreation) is provided in Section 2 of the Lake Oswego TSP Resource Document.

A summary of freight rail transportation services is provided in Section 2 of the Lake Oswego TSP Resource Document.

A summary of water transportation services is provided in Section 2 of the Lake Oswego TSP Resource Document.
• Pipeline Transportation

A summary of pipeline transportation services is provided in Section 2 of the Lake Oswego TSP Resource Document.

• Environmental constraints

Floodplain and wetland environmental constraints are identified and included in the evaluation of alternatives in Section 4 of the Lake Oswego TSP Resource Document.

• Existing population and employment

As outlined in Section 3 of the TSP, the number of households in the City of Lake Oswego is approximately 18,760 while the employment is approximately 17,750.

Determine Transportation Needs

• Forecast population and employment

An updated existing land use analysis and vacant lands inventory by the Lake Oswego Planning Department served as the basis for forecasting future year 2015 population and employment (see Section 2 of the Lake Oswego TSP Resource Document).

• Determination of transportation capacity needs (cumulative analysis, transportation gravity model)

Future p.m. peak hour traffic assignments were calculated using the travel demand model developed for the Lake Oswego TSP, which was a "focus" model consistent with Metro's regional travel demand Model (emme/2). Operational analyses were conducted at 15 critical intersections, to determine the levels of service, deficiencies and improvement needs under future conditions (refer to Section 5 of the Resource Document).

• Other roadway needs (safety, bridges, reconstruction, operation/maintenance)

Section 2 of the Lake Oswego TSP Resource Document summarizes the existing pavement inventory and pavement conditions. Section 3 of this plan document summarizes the plan for the maintenance and rehabilitation of streets within Lake Oswego's jurisdiction.

• Freight transportation needs

The recommended transportation system plan in Section 3 will provide for adequate freight movement by rail and highway.
The recommended public transportation plan in Section 3 will provide adequate service for those residents needing public transportation, and represents a substantial improvement in transit service and accessibility over existing conditions.

Future bicycle and pedestrian improvements are to be made in conjunction with roadway improvements to provide cyclists and pedestrians with full accessibility to Lake Oswego's arterial/collector street system. Added off-street pathway projects are also proposed. The proposed pedestrian/bicycle facility plans are illustrated in Figure 3-6 and 3-7.

### Develop and Evaluate Alternatives

- **Update community goals and objectives**

  Goals were established as part of the TSP development (see Section 3)

- **Establish evaluation criteria**

  Evaluation criteria were established as part of the TSP development (see Section 4 of the Resource Document).

- **Develop and evaluate alternatives**

  Section 4 of the Lake Oswego Resource Document identified three transportation system alternatives to assess the long-term transportation needs including:

  - Metro's "Financially Constrained" Plan Alternative,
  - Roadway "Build"/Moderate Transit/Transportation on Demand Management (TDM) Alternative, and
  - Extensive Transit/TDM Alternative.

  Elements from the recommended alternative were determined based on input from TAC members, the Lake Oswego Planning Commission, comments from the public open house, and evaluation of the alternatives analysis, and are incorporated into Section 2.
Produce a Transportation System Plan

- Transportation goals, objectives, and policies
  Specific recommendations regarding transportation goals and policies are outlined in Section 3.

- Street plan element (functional street classification and design standards, proposed facility improvements, access management plan, truck plan, safety improvements)
  The street plan element is outlined in Section 3.

- Public transportation element (transit route service, transit facilities, special transit services, inter-city bus and passenger rail)
  The public transportation element is outlined in Section 3.

- Bikeway system element
  The bicycle plan is outlined in Section 3.

- Pedestrian system element
  The pedestrian plan is outlined in Section 3.

- Airport element (land use compatibility, future improvements, accessibility/connections/conflicts with other modes)
  The airport element is outlined in Section 3.

- Freight rail element (terminals, safety)
  The rail element is outlined in Section 3.

- Water transportation element (terminals)
  The water transportation element is outlined in Section 3.

- Parking Plan
  The parking plan element is outlined in Section 3.

- Transportation System Management Element
  The parking plan element is outlined in Section 3.

- Transportation Demand Management Element
  TDM is addressed in Section 3.
6.1.2 Implementation of a Transportation System Plan

Plan Review and Coordination

- Consistent with ODOT, Metro, Clackamas County, Tri-Met, and other applicable plans
  Comments from these jurisdictions will be included following their review of the Draft TSP.

Adoption


Implementation

- Ordinances (facilities, services and improvements; land use or subdivision regulations)
  See Section 5.

- Transportation financing/capital improvements program
  The proposed transportation improvement program and transportation finance plan is summarized in Section 4.

6.2.1 METRO Regional Transportation Plan

The Lake Oswego Transportation System Plan is consistent with the METRO Regional Transportation Plan. All identified roadway improvements in the City TSP are included in the preferred regional transportation plan network, in particular improvements to State Street (Highway 43), Boones Ferry Road, and Kruse Way. The extensive pedestrian/bicycle facility improvements planned on the Lake Oswego arterial and major collector street system are also consistent with the policies and projects identified in the Regional Bicycle Plan. The City TSP Parking Plan is consistent with the Regional Parking Management Plan, in proposing maximum parking thresholds for new development. The City TSP Transportation Demand Management (TDM) Plan is also consider with the TDM provisions in the regional plan, and reflects the new State Employee Commute Option (ECO) ruling.

6.2.2 Clackamas County Transportation Plan

The Lake Oswego Transportation Plan is also consistent with the Clackamas County Transportation Plan. All of the projects identified in the 1992 Lake Oswego Transportation which was conducted by the County, which served as an input into the 1993 County Transportation Plan, have been incorporated into the Lake Oswego TSP. The roadway functional classification plan in the City TSP is also consistent with the County Functional Classification Plan for arterials and major collectors, with the major change showing Stafford...
Road as a minor arterial from McVey Avenue to I-205. Pedestrian and bicycle facilities identified in the County Plan have also been incorporated into the City TSP.

6.2.3 Tri-Met Primary Transit Network Plan

The Tri-Met Primary Transit Network Plan served as the backbone for identifying a restructured fixed route bus system in the Lake Oswego areas as part of the TSP. The City TSP goes beyond the Primary Transit Network Plan (and the METRO Regional Transportation Plan) by proposing four local circulator bus routes to supplement fixed-route service. The City TSP also goes beyond the Primary Network Plan in recommending two new park-n-ride facilities in Lake Oswego - one in the Kruse Woods area and the other in downtown Lake Oswego, as well as a new transit center at Kruse Woods.

Like the Tri-Met Plan, the City TSP does not show commuter rail along either the Willamette Shores Trolley corridor on the Portland & Western Railroad corridor before year 2015.
Appendix A

Project Potential Funding Sources
Table A-1
Summary of Road-Related Transportation Funding Programs

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Sources</strong></td>
<td></td>
</tr>
<tr>
<td>Intermodal Surface Transportation Efficiency Act (ISTEA)</td>
<td>ISTEA is designed to provide flexibility in federal funding of transportation projects. ISTEA established several funding programs including the 1) National Highway System; 2) Interstate Program; 3) Surface Transportation Program; 4) Congestion Management and Air Quality Improvements Program; and 5) National Scenic Byways Program.</td>
</tr>
<tr>
<td>Surface Transportation Program (STP)</td>
<td>The Surface Transportation Program was authorized by Title I of the ISTEA. The STP funds are allocated to the State and suballocated to cities and counties on a formula basis by the Oregon Transportation Commission. STP funds may be used for any road that is not functionally classified as a local or rural minor collector and must be included in the Transportation Improvement Program to receive STP funds.</td>
</tr>
<tr>
<td>Transportation Enhancement Program (Part of STP)</td>
<td>The ISTEA includes provisions that require the State to set aside a portion of its Surface Transportation Program (STP) funds for projects that will enhance the cultural and environmental value of the State's transportation system. Eligible transportation enhancement projects must be directly related to the intermodal transportation system. This program funds enhancements including pedestrian and bicycle facilities; preservation of abandoned railway corridors; landscaping and other scenic beautification; control and removal of outdoor advertising; acquisition of scenic easements and scenic or historic sites; scenic or historic highway programs; historic preservation; rehabilitation and operation of historic transportation buildings, structures or facilities; archaeological planning and research; and mitigation of water pollution due to highway runoff.</td>
</tr>
<tr>
<td>Highway Enhancement System (HES)</td>
<td>The FHWA Highway Enhancement System Program provides funding for safety improvement projects on public roads. Safety improvement projects may occur on any public road and must be sponsored by a county or city. To be eligible for Federal aid, a project should be part of either the annual element of a Regional Transportation Plan or the annual listing of rural projects by ODOT, although they do not have to be part of the approved State Highway Improvement Program to receive HES funding.</td>
</tr>
<tr>
<td>Timber Receipts (USFS)</td>
<td>The United States Forest Service shares 25 percent of national forest receipts with counties. By Oregon law (ORS 294.060), the County then allocates 75 percent of the national forest receipts to the road fund and 25 percent to local school districts.</td>
</tr>
<tr>
<td>Community Development Block Grants (CDBG)</td>
<td>Community Development Block Grants (CDBG) are administered by the Department of Housing and Urban Development (HUD) and could potentially be used for transportation improvements in eligible areas.</td>
</tr>
</tbody>
</table>
Table A-1 (continued)
Summary of Road-Related Transportation Funding Programs

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>State Highway Fund</strong></td>
<td>The State Highway Fund composed of gas taxes, vehicle registration fees, and weight-mile taxes assessed on freight carrier. In 1994, the state gas tax was $0.24 per gallon. Vehicle registration fees were $15 annually. Revenues are divided as follows: 15.57 percent to cities, 24.38 percent to counties, and 60.05 percent to ODOT. The city share of the State Highway Fund is allocated based on population. ORS 366.514 requires at least one percent of the State Highway Fund received by ODOT, counties and cities be expended for the development of footpaths and bikeways. ODOT administers the bicycle funds, handles bikeway planning, design, engineering and construction, and provides technical assistance and advice to local governments concerning bikeways.</td>
</tr>
<tr>
<td><strong>Special Public Works Fund (SPWF)</strong></td>
<td>The State of Oregon allocates a portion of revenues from the state lottery for economic development. The Oregon Economic Development Department provides grants and loans through the SPWF program to construct, improve and repair infrastructure to support local economic development and create new jobs. The SPWF provides a maximum grant of $500,000 for projects that will help create a minimum of 50 jobs.</td>
</tr>
<tr>
<td><strong>Transportation Access Charges</strong></td>
<td>The most familiar form of a transportation access charge is a bridge or highway toll. Transportation access charges are most appropriate for high-speed, limited access corridors; service in high-demand corridors; and bypass facilities to avoid congested areas. Congestion pricing, where drivers are charged electronically for the trips they make based on location and time of day, is the most efficient policy for dealing with urban congestion. It not only generates revenue for maintenance and improvements; but also decreases congestion and the need for capital improvements by increasing the cost of trips during peak periods. The Oregon Revised Statutes allow ODOT to construct toll bridges to connect state highways and improve safety and capacity. The Statutes also allow private development of toll bridges. Recent actions by the Oregon legislature provide authority for developing toll roads. State authority for congestion pricing does not exist; new legislation would be required.</td>
</tr>
<tr>
<td><strong>Immediate Opportunity Fund (IOF)</strong></td>
<td>Financed at a level of $5 million per year to a maximum of $40 million through FY96. The fund is to support specific economic developments in Oregon through the construction and improvement of roads and is restricted for use in situations that require a quick response and commitment of funds. It is anticipated that the maximum amount available for a single project is $500,000 or 10 percent of the annual program level. This fund may be used only when other sources of financial support are unavailable or insufficient and are not a replacement or substitute for other funding sources.</td>
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<tr>
<td>Program Name</td>
<td>Description</td>
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<td><strong>State Level (continued)</strong></td>
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<tr>
<td>OR Transportation Infrastructure Bank (OTIB)</td>
<td>As a pilot program for the USDOT, the Oregon Transportation Commission has made $10 million available from projects that will not be contracted in FY 1996. The OTIB will make loans for transportation projects and will offer a variety of credit enhancements. Initial loans must be for improvements on federal aid highways, repayments go into an account that will be made available for any mode. Ability to repay will be a key factor in all loans.</td>
</tr>
<tr>
<td>Traffic Control Projects</td>
<td>The State maintains a policy of sharing installation, maintenance, and operational costs for traffic signals and luminaire units at intersections between State highway and city streets (or county roads). Intersections involving a State highway and a city street (or county road) which are included on the state-wide priority list are eligible to participate in the cost sharing policy. ODOT establishes a statewide priority list for traffic signal installations on the State Highway System. The priority system is based on warrants outlined in the Manual for Uniform Traffic Control Devices. Local agencies are responsible for coordinating the statewide signal priority list with local road requirements.</td>
</tr>
<tr>
<td><strong>Local Sources</strong></td>
<td></td>
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<tr>
<td>Special Assessments/Local Improvements Districts</td>
<td>Special assessments are charges levied on property owners for neighborhood public facilities and services, with each property assessed a portion of total project cost. They are commonly used for such public works projects as street paving, drainage, parking facilities and sewer lines. The justification for such levies is that many of these public works activities provide services to or directly enhance the value of nearby land, thereby providing direct and/or financial benefit to its owners. Local Improvement Districts (LIDs) are legal entities established by the City to levy special assessments designed to fund improvements that have local benefits. Through a local improvement district (LID), streets or other transportation improvements are constructed and a fee is assessed to adjacent property owners.</td>
</tr>
<tr>
<td>Systems Development Charges (Impact Fees)</td>
<td>Systems Development Charges (SDCs) are fees paid by land developers intended to reflect the increased capital costs incurred by a municipality or utility as a result of a development. Development charges are calculated to include the costs of impacts on adjacent areas or services, such as increased school enrollment, parks and recreation use, or traffic congestion. Numerous Oregon cities and counties including Lake Oswego presently use SDCs to fund transportation capacity improvements. SDCs are authorized and limited by ORS 223.297 - 223.314.</td>
</tr>
<tr>
<td>Local Gas Tax</td>
<td>A local gas tax is assessed at the pump and added to existing state and federal taxes. Tillamook, The Dalles and Woodburn are Oregon cities that have a local gas tax. Multnomah and Washington Counties also have gas taxes.</td>
</tr>
</tbody>
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### Table A-1 (continued)
#### Summary of Road-Related Transportation Funding Programs

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<tr>
<th>Program Name</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Local Sources (continued)</strong></td>
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<tr>
<td>Local Parking Fees</td>
<td>Parking fees are a common means of generating revenue for public parking maintenance and development. Most cities have some public parking and many charge nominal fees for use of public parking. Cities also generate revenues from parking citations. These fees are generally used for parking-related maintenance and improvements.</td>
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<tr>
<td>Street Utility Fee</td>
<td>Most city residents pay water and sewer utility fees. Street user fees apply the same concept to city streets. A fee would be assessed to all businesses and households in the city for use of streets based on the amount of use typically generated by a particular use. For example, a single-family residence might, on average, generate 10 vehicle trips per day compared to 130 trips per 1,000 square feet of floor area for retail uses. Therefore, the retail use would be assessed a higher fee based on higher use. Street services fees differ from water and sewer fees because usage cannot be easily monitored. Street user fees are typically used to pay for maintenance more than for capital projects.</td>
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<tr>
<td>Vehicle Registration Fees</td>
<td>Counties can implement a local vehicle registration fee. The fee would operate similar to the state vehicle registration fee. A portion of the County fee would be allocated to the City.</td>
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<tr>
<td>Property Taxes</td>
<td>Local property taxes could be used to fund transportation, although this is limited by Ballot Measure 5 and 47.</td>
</tr>
<tr>
<td>Revenue Bonds</td>
<td>Revenue Bonds are bonds whose debt service is financed by user charges, such as service charges, tolls, admissions fees, and rents. If revenues from user charges are not sufficient to meet the debt service payments, the issuer generally is not legally obligated to levy taxes to avoid default, unless they are also based by the full faith and credit of the insuring governmental unit. In that case, they are called indirect general obligation bonds. Revenue bonds could be secured by a local gas tax, street utility fee, or other transportation-related stable revenue stream.</td>
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<tr>
<td>Facility</td>
<td>Revenue Source</td>
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<tr>
<td>Streets/Bridges/</td>
<td>Oregon Highway Trust Fund</td>
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<td>Sidewalks/Bike Lanes</td>
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<td>General Fund Transfers</td>
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<td>Special Property Tax Levies</td>
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<td>Improvement District</td>
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<td>Assessments</td>
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<td>Systems Development</td>
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<td>Charges/Traffic Impact</td>
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<td>Fees</td>
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<td>Utility Franchise Fees</td>
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<td>Interest Earnings</td>
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<td>Local Gas Tax</td>
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<td>Private Contributions</td>
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<td>Source Type</td>
<td>Revenue Source</td>
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<td>----------------------------------------</td>
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<tr>
<td>Misc. - permit fees, finds, fines, parking, Motel Tax, other</td>
<td>8% or $14.5.</td>
</tr>
<tr>
<td>Federal - FHWA+HUD</td>
<td>3% or $5.6.</td>
</tr>
<tr>
<td>Misc. State Revenues - mainly Lottery funds.</td>
<td>2% or $3.</td>
</tr>
<tr>
<td>Off-street Bike Paths</td>
<td>Misc. general funds &amp; ISTEA</td>
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<tr>
<td>Program Name</td>
<td>Description</td>
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<tr>
<td><strong>FEDERAL SOURCES</strong></td>
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<td>All funds from the Federal Transit Administration (FTA) pay 80 percent of capital costs and require a 20 percent local match.</td>
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<tr>
<td>FTA Section 18</td>
<td>Section 18 is a federally sponsored program for small urban and rural areas (under 50,000 population) to support both capital and operating needs. These funds are dispersed through ODOT and distributed on a population basis.</td>
</tr>
<tr>
<td>FTA Section 16</td>
<td>These funds are distributed through ODOT to support the capital needs of nonprofit social service transportation providers. Funding of paratransit vehicles for public agencies is done through FTA Section 16.</td>
</tr>
<tr>
<td>FTA Section 9</td>
<td>Operating assistance is available to a predetermined regional cap based on the size and productivity of the operation. Capital assistance is available with a limit of 80 percent of a capital project. FTA funds are allocated to transit agencies based on a complex formula which includes population, population density, and the number of revenue service hours operated within a year.</td>
</tr>
<tr>
<td>FTA Section 3</td>
<td>FTA Section 3 funds are limited to capital purchases and fall into three categories: 1) bus/bus facilities, 2) new rail starts, and 3) rail modernization. As with other FTA grants, the Section 3 Discretionary funds provide 80 percent funding with a 20 percent required local match.</td>
</tr>
<tr>
<td>Congestion Management/Air Quality Program (CMAQ)</td>
<td>This program was included in ISTEA for non-attainment areas as defined in the Federal Clean Air Act. ISTEA funds are administered by ODOT and are generally focused on air quality improvements.</td>
</tr>
<tr>
<td><strong>STATE SOURCES</strong></td>
<td></td>
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<tr>
<td>Oregon Public Transit Assistance (In-Lieu Payroll Tax)</td>
<td>This fund source is a local payroll tax disbursed by the state to support transit services. To be eligible for these funds, a transit district must be formed and it must be generating local revenues (i.e., property tax). The amount is determined based on the number of State and Federal employees within the Transit District and is the reimbursement of payroll taxes collected from those employees. There is a restriction on the funds specifying that the amount of money received cannot exceed the amount of funding generated locally through the property tax. These funds can be used to support operations or as local match for federal capital grants.</td>
</tr>
<tr>
<td>Special Transportation Funds (STF)</td>
<td>STF are generated through a 2 percent tax on cigarette sales. These funds are available to public and social service nonprofit transit providers. These funds are to be used to support elderly and disabled transit operations only. The funds are collected and allocated directly to counties or transit districts based on population.</td>
</tr>
</tbody>
</table>
# Table A-3
## Summary of Transit Funding Programs

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Transportation Grant Program</td>
<td>The Community Transportation Program (CTP) provides grants for passenger transportation services for senior citizens, people with disabilities, and the general public. The CTP combines two programs that were previously run separately; the Special Transportation Grants (STG) program, the Small and Rural Area Capital Assistance Program.</td>
</tr>
<tr>
<td></td>
<td>The Special Transportation Fund (STF) program provides ongoing revenue to transportation districts to finance transportation services for people over 60 years of age or people with disabilities. The fund may be used for the creation, maintenance or expansion of transportation services for the elderly and disabled.</td>
</tr>
<tr>
<td></td>
<td>Counties, transportation districts, cities and nonprofit organizations are eligible for these funds. Private passenger transportation companies may also participate through service agreements with local governments. Eligible activities include planning, capital investments, operating assistance, system development, and transportation demand management projects.</td>
</tr>
<tr>
<td>System Development Charges (Impact Fees)</td>
<td>Systems Development Charges (SDCs) are fees paid by land developers intended to reflect the increased capital costs incurred by a municipality or utility as a result of a development. Development charges are calculated to include the costs of impacts on adjacent areas or services, such as increased school enrollment, parks and recreation use, or traffic congestion.</td>
</tr>
<tr>
<td></td>
<td>Numerous Oregon cities and counties including Lake Oswego presently use SDCs to fund transportation capacity improvements. SDCs are authorized and limited by ORS 223.297 - 223.314.</td>
</tr>
<tr>
<td>Parking Taxes and Fees</td>
<td>A parking tax or fee could be levied by the City of Lake Oswego and all or a portion of it dedicated to public transportation uses. Many downtown areas levy parking fees and as the city grows, the levy can be used as a strategy to encourage transit use for trips to the downtown area.</td>
</tr>
</tbody>
</table>
### Table A-4
Currently Used Transit Revenue Sources in Oregon

<table>
<thead>
<tr>
<th>Transit Service Type / Function</th>
<th>Funding Source</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small City &amp; Rural</strong>&lt;br&gt;(Astoria, Union County, etc.)&lt;br&gt;(operating &amp; capital)</td>
<td>1. Federal grants - capital &amp; operating&lt;br&gt;2. Local Property Tax (typically w/in city or county operating levy)&lt;br&gt;3. Fares, donations &amp; advertising</td>
<td>1. Major Source - Declining&lt;br&gt;2. Major Source - Stable&lt;br&gt;3. Minor Source - Stable</td>
</tr>
</tbody>
</table>
Appendix B

Modification to Lake Oswego Land Use and Development Code
Proposed Development Code changes relating to the Transportation Planning Rule, specifically regarding transit, pedestrian and bikeway requirements, building orientation and bicycle parking requirements.

Shall be amended by deleting the text shown by strike out and adding the new text shown in bold and underlined as follows:

<table>
<thead>
<tr>
<th>Lake Oswego Code</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUILDING DESIGN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2.005 Title.</strong></td>
<td></td>
</tr>
<tr>
<td>The title of this standard is &quot;Building Design.&quot;</td>
<td></td>
</tr>
<tr>
<td><strong>2.010 Applicability.</strong></td>
<td></td>
</tr>
<tr>
<td>This standard is applicable to development involving a structure for commercial, industrial, institutional, multi-family residential, attached single-family (three or more units) residential development, and to all minor development within the DD zone. This standard is also applicable to exterior modifications of a structure which does not qualify as a ministerial development pursuant to LOC 49.20.105(2)(c)</td>
<td></td>
</tr>
<tr>
<td><strong>2.015 Definitions.</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>2.020 Standards for Approval.</strong></td>
<td></td>
</tr>
<tr>
<td>1. Buildings shall be designed and located to complement and preserve existing buildings, streets and paths, bridges and other elements of the built environment, and to assure accessibility for bicyclists, pedestrians, and users of other transportation modes.</td>
<td></td>
</tr>
<tr>
<td>a. Design buildings to be complementary in appearance to adjacent structures of good design with regard to:</td>
<td></td>
</tr>
<tr>
<td>i. Materials</td>
<td></td>
</tr>
<tr>
<td>ii. Setbacks (for retail/commercial part specifically)</td>
<td></td>
</tr>
<tr>
<td>iii. Roof lines</td>
<td></td>
</tr>
<tr>
<td>iv. Height</td>
<td></td>
</tr>
<tr>
<td>v. Overall Proportions</td>
<td></td>
</tr>
<tr>
<td>b. Where existing buildings are to remain on site, new development shall be designed to:</td>
<td></td>
</tr>
<tr>
<td>i. Integrate the remaining buildings into the overall design, or</td>
<td></td>
</tr>
<tr>
<td>ii. Provide separate landscaping, remodeling or other treatment which establishes a distinct character and function for the remaining buildings.</td>
<td></td>
</tr>
<tr>
<td>Where a residential building is to remain, a lot meeting the zone requirements must be provided.</td>
<td></td>
</tr>
<tr>
<td>c. Design bus shelters, drinking fountains, benches, mail boxes, etc., to be complementary in appearance to buildings.</td>
<td></td>
</tr>
<tr>
<td>d. Design those elements listed below to be complementary in appearance to those buildings or structures upon which they are located.</td>
<td></td>
</tr>
<tr>
<td>Windows Mailboxes</td>
<td></td>
</tr>
</tbody>
</table>
Doors
Downspouts
Utility Connections and Meters
Chimneys
Lights
Signs
Awnings
Foundations

Mechanical Equipment
Vents
Stairs
Decks and Railings
Weather vanes, aerials, and other appendages attached to the roof or projecting above the roofline.

e. Design awnings, signs, and lights at a specific height to define the first floor or retail cornice height.

f. Use trees and other natural elements to help define building proportion relationships and to provide scale to the structure as a whole.

g. Limit the variety of styles of building elements.

h. Screen mechanical equipment from view, or place in locations where they will generally not be visible.

i. Every attempt shall be made to design and locate buildings to provide access to desirable views, while not blocking the views of others unnecessarily (density reduction not required).

2. Buildings shall be designed and located to complement and preserve existing natural landforms, trees, shrubs and other natural vegetation.

a. Consider landforms and trees as design elements which must relate to building elevations to determine scale and proportion.

b. Design foundations to match the scale of the building being supported. Berming, restitng, or sheathing the foundation structure with wall siding are examples of methods which accomplish this purpose.

c. Use decks, railings, and stairs to relate a building to the contours of the land.

3. Buildings shall be designed to minimize the personal security risks of users and to minimize the opportunities for vandalism and theft. Building hardware that discourages forced entry and provides approved egress capability shall be used.

4. Buildings shall be designed and constructed to reduce noise impacts on interior occupied spaces and adjacent property.

a. Use solid barriers such as fences, berms, natural landforms and structures to reduce sound levels. The effectiveness of the barrier increases as barrier height increases and as it is moved closer to either the source or the receiver.

b. Minimize the window surface on sides facing adverse sound sources, where possible.

c. Heat pumps, or similar mechanical equipment shall be located so that operating noise does not affect use of living areas such as bedrooms, outdoor decks or patio areas and adjacent property.

5. Buildings shall be designed and constructed with roof angles, overhangs, flashings, and gutters that to direct water away from the structure.

6. Buildings shall incorporate features such as arcades, roofs, alcoves, porticoes and awnings to protect pedestrians from the elements. Except over fire lanes which require a minimum 13'-6" height clearance, the minimum vertical clearance is nine feet for awnings and 12 feet for building overhangs.

7. Building orientation and clustering of buildings in multi-building complexes shall include bicycle and pedestrian oriented features.
a. Buildings that are within 30 feet of a public street shall have a public entrance directly from the street.

b. Buildings located on sites adjacent to a transit street shall have at least one public entrance within 30 feet of the transit street.

c. Refer to LODS 20 “On-Site Circulation Standards—Bikeways, Walkways, and Accessways” for requirements for providing security lighting for night time use by employees, residents, customers, and service providers.

6. Design and/or modifications to the structures and sites used as group care homes will maintain neighborhood scale, appearance and function, particularly regarding size of structure, width of driveway, signs, exterior lighting and placement of noise generating equipment and parking facilities. (Res. R-81.20, Sec. 2, 4-17-84.)

2.025. Standards for Construction. 
None.

2.030. Standards for Maintenance. 
None.

2.035. Procedures. 
None.

2.040. Miscellaneous Information. 
None.

TRANSIT SYSTEM

6.005. Title. 
The title of this standard is “Transit System.”

6.010. Applicability. 
This standard is applicable to all major development, new subdivisions, planned developments, residential developments of four units or more, and new commercial, institutional and industrial developments located on a transit street or within one-quarter mile of a transit street.


1. Multiple Passenger Exchange Stations: Includes, but is not limited to, bus stops, park and ride stations, and designated car pool vehicle parking spaces.

2. Multiple Passenger Transit: Includes buses, car pool, van pools, and taxis.

3. Transit Facilities: Includes, but is not limited to, transit streets, transit stops, park and ride stations, multi-modal exchange stations, pedestrian paths connecting buildings and loading/unloading stations (or other paths which, in turn, connect to stations), multiple-passenger transit waiting shelters and furniture, and transit information stations.

2. Transit-oriented features: Features to support a high level of transit use, such as sidewalks, accessways, bikeways, pedestrian and bicycle amenities, bus pullout lanes and walkways within developments.

This section is being deleted because it conflicts with State Law ORS 197.665(2) which prohibits imposing any zoning requirement on a group home that is "more restrictive than a zoning requirement imposed on a single-family dwelling in the same zone."
3. Transit-oriented development (TOD) means a mix of residential, retail and office uses and a supporting network of roads, bicycle and pedestrian ways focused on a major transit stop designed to support a high level of transit use.

4. Transit street: All streets designated by the Lake Oswego Comprehensive Plan as an arterial street and any street designated by Tri-Met as a bus route.

4. Waiting Shelters: An area providing protection from weather, and visual access and physical proximity to arriving transit vehicles; may be as simple as an extended overhang or protected entry or as elaborate as a separate structure complete with furniture.

6. Projected transit service: Service which will be established within a 1/4 mile radius within five years after the completion of development.

1. All applicable development as defined by 6.010 of this section shall be required major developments are be required to provide facilities to serve multiple passenger transit facilities and transit-oriented features.
   a. The extent of the transit facilities required for a particular site shall be determined by the City in coordination with Tri-Met, based upon an analysis of:
      i. Level of existing and projected adjacent transit facilities.
      ii. Proximity of other ridership attractors, such as bus routes.
      iii. Size and trip generation potential of proposed development adjacent to transit street (within 1/4 mile of a transit street).
      iv. Expected patronage transit ridership generated by a development.
   b. Transit-oriented features Hard-surfaced pedestrian paths shall be provided to connect the development with:
      i. The nearest adjacent multiple passenger exchange facilities, transit street or
      ii. To adjacent paths which lead to the nearest loading/unloading facilities transit street.
   c. Transit facilities may be installed on site or in the public right-of-way, at the discretion of the City Manager. Where a proposed development creates or contributes to a need for transit stops, pullouts, or other transit facilities, as identified by the City in coordination with Tri-Met, easements or right-of-way dedication may be required.

None.

None.

6.040. Miscellaneous Information.
None.
7.005. Title
The title of this standard is "Off-Street Parking, Loading and Bicycle Access Standard".

7.010. Applicability.
The provisions of this chapter shall apply to all development which generates a parking need. This shall include the construction of new structures, the remodeling of existing structures and a change of use which increases on-site parking or loading requirements or which changes access requirements.

7.015. Definitions
2. Gross Floor Area (G.F.A.): The area included within the surrounding exterior walls of a building or portion thereof excluding allowable projections, decks, patios, uncovered exit stairways or uncovered above-grade driveways.
3. Parking District: A district established for the purpose of planning and development of shared parking facilities which serve the whole district.
4. Tandem Parking: The parking of a vehicle in front of or behind another vehicle which requires one of the vehicles to be moved in order for the other vehicle to enter or exit. Also called stacked parking.
5. Carpool: A group of two or more commuters, including the driver, who share the ride to and from work and other destination on a regularly scheduled basis.
6. Vanpool: A group of from seven to fifteen commuters, including the driver, who share the ride to and from work or other destination on a regularly scheduled basis.

7.020 Standards for Approval
1. Vehicle Parking
a. Required parking spaces shall be available for the parking of operable passenger vehicles of residents, customers, patrons and employees and shall not be used for the storage of vehicles or materials or for the loading and unloading or parking of vehicles used in conducting the business or use.
b. Number of Required Parking Spaces
   i. Refer to Table 7.1 to determine the number of parking spaces required. The number of parking spaces specified for each type of use are the minimum standards. Fractional space requirements shall be counted as the next highest whole space.
   ii. Except for residential parking requirements, the maximum number of parking spaces shall not exceed 125 percent of the minimum number of required spaces.
   iii. Handicapped parking and ramps shall be provided in accordance with the Uniform Building Code.
   iv. In the case of mixed uses, the total requirements for off-street parking facilities shall be the sum of the requirements for the various uses computed separately.
c. On-Site Location of Required Parking Spaces

i. All required parking shall be off-street. Parking may not be located in a required yard or special street setback, except where driveways for residential use constitute the required parking area, except where permitted in LOC 41.08.282.

ii. Except for tandem parking in residential developments of single-family detached and attached dwelling units, duplexes, and zero lot line dwelling units, design shall insure that the parking of any vehicle shall not interfere with the parking or maneuvering of any other vehicle.

d. Parking Options:

i. Within commercial, industrial and campus institutional zones, parking may be provided on lots which are within 500 feet of the property line of the use to be served. Within the EC (East End General Commercial) zone only, unless otherwise prohibited, employee parking may be allowed within 1000 feet of the property line of businesses the use to be served.

e. Shared Parking (SP)

ii. Shared parking is allowed if the applicant can provide a parking study that demonstrates that the combined peak use is provided for and:

(a) there are a sufficient number of parking spaces to accommodate the requirements of the individual businesses; or
(b) that the peak hours of operation of such establishments do not overlap; and
(c) that an exclusive permanent easement over a delineated area has been granted for parking space use.

9. e. Reduction for Access to Transit Facilities Parking Space Requirements

Parking space requirements may be reduced in developments where compensating factors exist which would offset the parking demand (such as availability of mass transit). Refer to Table 7.3 for reduction options. Reductions shall be based on the following criteria and multipliers:

Reduction for Access to Transit Facilities

a. (Development Size (DS) on a single or unified site)

<table>
<thead>
<tr>
<th>Gross Floor Area</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 20,000</td>
<td>No reduction</td>
</tr>
<tr>
<td>20,000 plus</td>
<td>.85 x requirement</td>
</tr>
</tbody>
</table>

b. Transit Access (TA) Commercial and Industrial Uses only

i. Transit shelter greater than 500 feet from building No reduction

ii. Transit available with shelter within 500 feet of building .95 x requirement

iii. Transit available on fronting street without shelter .90 x requirement

iv. Transit available on fronting street with shelter immediately adjacent to building .85 x requirement

c. Pedestrian Access (AC)

(Commercial and Industrial uses only)

i. No convenient access No modifications

ii. Convenient pedestrian .90 x requirement

- access to 100 residential units or more within 1000 feet of the site.
Parking requirement modification shall be calculated as follows: Minimum requirement by type use x DS (Development Size) x TA (Transit Access) x PA (Pedestrian Access) = modified parking requirement.

f. Parking Dimensions
   i. Refer to Table 7.2 to determine the minimum dimension and layout of parking spaces.
   ii. The minimum dimension to meet residential parking space requirements shall be eight feet six inches wide and 18 feet six inches long for each space.
   iii. Up to 50% of the total parking requirement may be provided in compact car spaces. All parking spaces designated for compact vehicles shall be signed or labeled by painting on the parking space.

6. Loading
   Loading berth in sufficient numbers and size to adequately handle the needs of the development shall be required. The off-street parking areas to fulfill the requirements of this standard shall not be used for loading and unloading or the storage of vehicles or materials or parking of trucks used in conducting business or use.

h. Carpool and Vanpool Parking
   Commercial and industrial development which requires a total of 50 or more parking spaces shall designate at least five (5) percent of the number of parking spaces as employee carpool or vanpool parking. These designated carpool and vanpool parking spaces shall be the closest employee parking spaces to the building entrances normally used by employees, except for any handicapped parking spaces provided. The carpool/vanpool spaces shall be full size parking spaces. The spaces shall be clearly marked "Reserved-Carpool/Vanpool Only" with hours of use.

2. Bicycle Parking
   a. Bicycle parking shall be provided for all new multiple family residential developments (4 units or more) and commercial, industrial and institutional uses, except seasonal uses, such as fireworks stands and Christmas tree sales; drive-in theaters; and self-storage facilities are exempted.
   b. The minimum number of required bicycle parking spaces are listed in Table 7.4.
   c. Modifications which increase the size of existing commercial, industrial or institutional buildings by more than ten (10) percent shall provide bicycle parking spaces to meet the requirement of Table 7.4 for the entire development. For the purposes of this section, an "existing building" is a building as it exists on (date of adoption of ordinance).
   d. Bicycle parking shall be separated from car parking and vehicular traffic by a physical barrier or sufficient distance to protect parked bicycles from damage by vehicles.
   e. Bicycle parking for multiple uses may be clustered in one or several locations meeting all other requirements specified in this section for bicycle parking.
f. One hundred percent (100%) of all required bicycle parking spaces for residential and industrial categories shall be covered. Bicycle parking spaces for employees of commercial and institutional uses are encouraged to be covered and secured. Cover for bicycle parking may be accommodated by building or roof overhangs, awnings, bicycle lockers, bicycle storage within buildings or dwelling units or free standing shelters.

g. Required bicycle parking inside a building shall be provided in a well-illuminated, secure location within 50 feet of a building entrance. If provided outside, the long term bicycle parking spaces shall be provided in a well-illuminated, secure location within 50 feet of a building entrance.

h. Outdoor bicycle parking spaces shall be clearly visible and shall be located within 50 feet of the public entrance to the building.

i. If the required bicycle parking spaces cannot be provided on-site within the EC (East End General Commercial) zone, bicycle parking racks may be provided on the sidewalk adjacent to the property’s frontage providing a minimum five foot unobstructed sidewalk width is maintained.

j. Bicycle parking spaces shall be a minimum of six feet long and two feet wide, and provide a minimum five foot access aisle. For covered spaces the overhead clearance shall be at least seven feet.

7.025 Standards for Construction.

1. The surface of the parking and maneuvering area shall be constructed as a durable surface. The use of gravel in low use areas, such as recreational vehicle storage in a residential zone or outside equipment storage or fleet vehicles in industrial zones, may be approved, so long as the gravel is contained, the parking area is clearly defined, and where grade permits. Refer to LODS 19.025(6) for additional paving surface specifications.

2. Bicycle Parking

a. Areas set aside for required bicycle parking shall be clearly marked and reserved for bicycle parking only. If the bicycle parking is not visible from the street or main building entrance, a sign shall be posted indicating the location of the parking facilities.

b. Rack types and dimensions

   i. Bicycle racks shall hold bicycles securely by the frame and be anchored.

   ii. Bicycle racks shall accommodate both:

      (a) Locking the frame and one wheel to the rack with a high-security U-shaped shackle lock; and,

      (b) Locking the frame and both wheels to the rack with a chain or cable not longer than 6 feet.

7.030 Procedures.

Applicant shall provide scaled parking plan with dimensions and number of spaces accurately depicted.

7.040 Miscellaneous Information.

None.

ON-SITE CIRCULATION STANDARDS--DRIVEWAYS AND FIRE ACCESS ROADS

References to short-term and long term spaces have been deleted because the revised Table 7.4 has negated the need for distinguishing between short- and long-term bicycle parking spaces.

These are examples of low usage, but not an exclusive list.

Final analysis of low usage will be made during development review.
19.005. Title

The title of this standard is “On-Site Circulation—Driveways and Fire Access Roads.”

19.010. Applicability

This standard is applicable to all development proposing a new use or an increased use on a site when the development will result in the construction or the increased use of private streets, driveways, or parking lot aisles.

19.015. Definitions

1. AASHTO: American Association of State Highway and Transportation Officials.

2. Design vehicle: A selected motor vehicle, the weight, dimensions, and operating characteristics of which are used in highway design. In this standard, design vehicle categories are those adopted by the City’s “Standard Details”, defined below.

3. Driveway: A vehicular accessway that has, as its primary purpose, the provision of a driveable connection between a structure or parking area on private property and the public street system. “Driveway” may include private easement roads or ways, common areas used for vehicular access, parking pads, turnaround areas, and parking lot aisles.

4. Driveway approach: That portion of the driveway that is situated in the public right of way.

5. Driveway grade: The ratio of the change in elevation to the change in horizontal distance traveled, measured along the steepest 10 foot increment along the centerline of the traveled way. Grades are expressed in percent.

6. Fire code: The Uniform Fire Code as adopted or amended by LOC Chapter 15, and any other applicable provisions of LOC Chapter 15.

7. Fire Department/delivery vehicle turnaround: An area providing space for the maneuvering of fire fighting vehicle or other design vehicle (in the case of a delivery or loading area) in which the design vehicle can make a 180 degree change in direction with a continuous forward movement, or no more than one backing movement.

8. Increased use: An increase in trip generation or parking requirement.

9. Pavement, paving: As used in this standard, “pavement” means Portland cement concrete, asphaltic concrete, and modular masonry pavement systems. “Pavement” also includes pervious pavement systems such as those known by the proprietary names of Grasscrete or Geoweb, provided that the cells are filled with an aggregate material or vegetation.

10. Residential turnaround: An area providing space for the maneuvering of a “P” (passenger) design vehicle in which the vehicle can make a 180 degree change in direction with a continuous forward movement, or no more than one backing movement.

11. Standard Details: The set of detail drawings contained in the City of Lake Oswego’s “Standard Construction Specifications and Drawings”.

[Exhibit DA 4-96-TPR]
Standards for Approval

1. Driveway Approaches—Locational Limitations and Restrictions
   a. On corner lots where the adjacent streets are fully improved to their anticipated ultimate width, the nearest edge of a proposed driveway to the intersection shall be no closer than 30 feet when measured from the projected curb of the street that is the most parallel to the alignment of the proposed driveway.
   b. On corner lots where the adjacent streets are not fully improved to their anticipated ultimate width, the nearest edge of a proposed driveway to the intersection shall be no closer than 30 feet when measured from the lot corner, or if the corner is a radius, from the point of intersection of the tangents. If right-of-way dedication is required as a condition of approval, the lot lines after dedication shall be used as the basis for determining compliance with this standard.
   c. On lots with less than 75 feet of continuous frontage on a single public street, only one driveway shall be permitted along that frontage.
   d. All driveway approaches shall be located and designed so that the driver entering or exiting the driveway can see approaching traffic for a sufficient distance to make a safe entrance and exit. AASHTO standards shall be used in determining compliance with this standard.
   e. The maximum width of a driveway approach, measured where the edges of the driveway meet the right-of-way, shall be governed as follows:
      i. Single family residential with garage door(s) facing the street: 12 feet per garage or carport stall, but not to exceed 30 feet.
      ii. Single family residential with side-loading garage: 24 feet.
      iii. All other uses: 24 feet unless otherwise justified by the recommendations of a traffic study.

2. Driveway Widths
   a. Driveways shall conform to the minimum width requirements of LOC 15.06.610 (Uniform Fire Code Adopted) and LODS 7. “Off-Street Parking, Loading and Bicycle Access Standard”.
   b. When the Fire Marshall determines that an on-site staging area is necessary pursuant to the Fire Code, a minimum unobstructed surface of 24 feet shall be provided for a length and location as determined by the Fire Marshall.

3. Driveway Grades
   a. The maximum grade of a driveway serving a single family structure shall be 20%.
   b. The maximum grade of a driveway for all other uses shall be 15%.
   c. For all uses except residential structures of four units or less, there shall be a landing area where a driveway used by multiple drivers meets the public street. The landing area shall be a minimum of 25 feet long and shall have a maximum grade of five (5) percent. The length and grade of the landing area described in this subsection presupposes that the abutting street has been fully improved to its ultimate anticipated width. If a driveway is proposed on a street that is not fully improved, and the development proposal is anticipated to
proceed prior to the improvement of the street, the City Engineer shall determine the location and grade of the future street improvement and the applicant shall design the driveway and site grading so that this standard will not be compromised when the street is improved in the future.

d. Along the traveled way, grade breaks shall not exceed an algebraic difference of nine (9) percent unless accomplished by the construction of a vertical curve complying with the city’s Standard Details.

e. The maximum cross-slope of a driveway shall be five (5) percent, except for that portion of a driveway which must blend with an adjacent street grade that exceeds five (5) percent. When blending is necessary, the length of the blended section shall be limited to 30 feet.

4. Fire Access Lanes

a. All developments shall comply with the minimum requirements for fire access roads as stipulated by the Uniform Fire Code and LOC Chapter 15.

b. The paved improvement of fire lanes, their associated turnarounds and right of way dimensions shall comply with the city’s Standard Details.

c. When a fire access road is required to be used as a primary or alternate access route for the provision of emergency services to or through an abutting property, the fire lane shall be declared as such on a legal instrument to be recorded against the title of the affected property(ies). A declaration on a plat or on a recorded development plan may also be used to satisfy this standard.

5. Turnarounds

a. If a dead-end driveway exceeds 150 feet in length, it shall provide a fire department turnaround in compliance with the City’s “Standard Details”.

b. Except where a continuous forward exit can be made out of the site, all developments with on-site loading and delivery areas shall provide a turnaround for delivery vehicles in compliance with the City’s “Standard Details”.

c. Required turnarounds shall not overlap a required parking space.

6. Special Provisions–Schools

a. Schools and similar institutional or instructional uses with a total enrollment of 25 or more students on any given day shall provide an on-site driveway that allows a continuous forward flow of vehicles through the site for the loading and unloading of children.

7. Easements Required

a. Driveways and their associated parking areas and turnarounds shall be located on the site or, if located off-site, in an easement.

b. A copy of the easement shall be submitted to the City as part of the development application. If the easement has not yet been obtained at the time of application, the applicant shall supply a letter of commitment from the party who has the authority to grant the easement indicating that the easement will be granted contingent upon the development’s approval by the City.

c. Easements shall state the purpose of the easement, identify the benefiting and burdened properties, state the duration of the easement rights granted, and stipulate the maintenance responsibilities of the parties.
19.025. Standards for Construction

1. All driveways that serve as fire lanes or fire access roads shall be paved, unless modified below, and shall be designed to support the design vehicle load. The City may require an engineered pavement section and soil test to ensure compliance with this standard.

2. Driveway approaches in the right-of-way shall be constructed according to the City’s "Standard Details".

3. In locations where there is a slope adjacent to a driveway edge, there shall be a minimum two-foot shoulder or other means of protecting the driveway and the adjacent land from the adverse effects of erosion.

4. Stormwater running off a driveway shall be managed and disposed of in compliance with the applicable drainage standards for minor or major development, and the Uniform Plumbing Code.

5. Where a driveway approach needs to cross a roadside ditch, a culvert of 10" minimum diameter shall be used. The City may require a larger culvert if warranted by the hydrology of the upstream drainage basin.

6. All driveways shall be paved with a material that does not generate dust. Hard pavement is required except in the following circumstances:
   a. Low-use driveways, such as one serving a parking pad for a recreational vehicle, boat trailer, or access to a storage building or storage area.
   b. Existing unpaved driveways, when there is an existing use on the site that is rated at 10 or less average daily trips per weekday pursuant to the applicable ITE (Institute of Transportation Engineers) category, and the rating will not be increased with the proposed development.
   c. When the requirement for a paved driveway is waived, a paved approach shall be constructed to prevent the tracking of loose gravel onto the public street.
   d. Temporary construction access driveways.
   e. Combustible materials, erodable materials, or floatable materials shall not be approved as acceptable driveway surfaces (i.e. wood chips, bark dust, shredded tire rubber).

19.030. Standards for Maintenance

Driveways that serve as fire lanes shall be maintained in a state of good repair and free of obstruction for their entire length and width. They shall also be kept free of overhead obstructions for a vertical clearance of 13-1/2 feet.

19.035. Procedures

Applications shall include a scaled site plan containing sufficient dimensions and spot elevations to demonstrate compliance with this standard.

19.040. Miscellaneous Information

For additional requirements pertaining to parking, refer to LODS 7-- "Off-Street Parking, Loading, and Bicycle Access Standard".

ON-SITE CIRCULATION STANDARDS

20.005. Title.

The title of this standard is "On-Site Circulation Standards-Bikeways and Walkways and Accessways."
20.010. Applicability.

This standard is applicable to all minor and major development involving the construction of a new structure other than a detached single family dwelling, duplex, or accessory structure, and subdivisions and planned developments. This standard is also applicable to modifications which increase the square footage of commercial, industrial or institutional buildings by more than ten (10) percent. For the purposes of this section, an “existing building” is a building as it exists on (date of adoption of ordinance).

20.015. Definitions:

1. Bikeway: A strip of land, legally accessible to the public, improved per State Bikeway Manual standards and specifications. Any road, path, or way which is open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are shared with other transportation modes.

2. Walkway: A surfaced strip of land, legally accessible to the public, improved to accommodate pedestrian traffic, including persons in wheelchairs.

3. Accessways: A strip of land intended for use by pedestrians and bicyclists that provides a direct route where the use of public roads would significantly add to the travel time and/or distance.


1. Bikeways shall be public. Commercial, industrial and institutional developments of one acre or more shall provide a pedestrian and bicycle circulation plan for the site.

   a. Pedestrian connections between the proposed development and existing development on adjacent properties other than connections via the street system shall be identified and implemented, where feasible.

   2. Walkways shall connect at least one public entrance of each building accessible to the public to the nearest public walkway or other walkway leading to a public walkway. Walkways shall also connect to other areas of the site, such as parking lots and outdoor activity areas, to other building entrances, to adjacent streets and nearby transit stops.

   3. Walkways shall meet accessibility standards of the Americans with Disabilities Act (ADA) standards as found in UBC Chapter 31. Walkways within the site, connections to the public sidewalk, and external connections off site shall provide convenient, accessible, and the most practical direct, barrier-free route design.

   4. Portions of walkways shorter than 30 feet across driveways, parking lots or walkways crossing surfaces shared by fork lift or heavy truck traffic may use a painted crossing zone. Otherwise, walkways crossing driveways, parking areas, and loading areas shall be clearly identifiable through the use of a different paving material, raised elevation, warning signs or other similar method.

      a. Where walkways are adjacent to vehicle travel areas, they shall be separated by a raised curb, bollards, landscaping or other physical barrier. If a raised walkway is used, the ends of the raised portions shall be equipped with curb ramps.
5. Accessways for use by pedestrians and bicyclists shall be required when necessary to provide direct routes not otherwise provided by the existing right-of-way. Developments shall not be required to provide right-of-way for accessways off-site to meet this requirement. If right-of-way is otherwise available off-site, the developer may be required to improve an accessway off-site to the nearest transit route.


1. The surfacing of walkways, bikeways and accessways shall consist of either two inches of asphaltic concrete over a minimum of four inches of compacted crushed rock, or of four inches of concrete, as determined by the City Manager. Other materials must be specifically approved by the City Manager.

2. Walkway surfacing must be five feet in unobstructed width, unless specifically otherwise approved by the City Manager, and never less than three feet in unobstructed width. (Res. R-91-48; 11-5-91)

3. Walkways shall have a maximum grade of 15 percent. Where steeper grades are encountered, steps may be used. Walkways without stairs shall have a maximum slope of eight percent and a maximum cross slope of two percent.

4. Ramps for handicapped use are required on all walkways used by the public at all points where a path intersects a curb.

5. Walkways, bikeways and accessways must be constructed in such a way as to allow the surface drainage to sheet flow across them, and not follow flow along them longitudinally.

6. An accessway shall include at least a 15-foot wide right-of-way or easement and an 8-foot wide hard surface. For safety, accessways shall be as straight as practicable. Bollards or landscaping shall be used to block motor vehicular access.

7. Walkways, bikeways and accessways shall be illuminated to enhance pedestrian safety. Where a facility is to be used at night by employees, residents, customers or the public, illumination shall be either by street lights or luminaires on poles no higher than 14 feet with a maximum 0.3 average footcandle and a maximum uniformity of illuminating ratio not to exceed 20:1. Separate lighting shall not be required if existing or proposed new lighting adequately illuminates the way.


1. Maintenance of walkways, bikeways or accessways shall be the responsibility of the owner or owners of the land abutting or through which the way passes. If the maintenance is proposed to be by an association or other entity, the maintenance agreement or by-laws, as the case may be, shall be subject to the review and approval by the City.

20.035. Procedures.

Applications shall include a scaled site plan containing sufficient dimensions and spot elevations to demonstrate compliance with this standard.

20.040. Miscellaneous Information.

None.

Questions have arisen about lighting meeting UBC or ADA requirement. The City does not regulate ADA requirements. Oregon UBC does not prescribe pathway lighting maximums.
CHAPTER 44 SUBDIVISIONS

44.08.371. Purpose.

The purpose of this ordinance is to set forth standards and criteria for the design and construction of streets in accordance with the functions they are designed to fulfill and the characteristics, both physical and legal, of the lands which abut them.

44.08.372. - 48.08.380 ...

44.08.387. Miscellaneous Streets - Specific Standards.

a. In industrial, commercial, high-density residential areas, the central business district, and other areas of high traffic volume, the right-of-way widths shall be determined in accordance with the standards for collector streets set forth in LOC 44.08.380. The width of pavement shall be recommended by the City Engineer based on the requirements for number and width of travel lanes, number and width of on-street parking lanes, and the need for protected turning movements. Curbs, gutters and storm drain systems shall be required.

b. Loop streets shall be considered acceptable principally in residential areas only.

c. Cul-de-sacs shall not be permitted where they would preclude current or future through connections to a collector or road of higher classification. If all connections required by a neighborhood circulation plan are made, cul-de-sacs may be permitted with appropriate accessways required for pedestrian and bicycle circulation.

d. Cul-de-sacs shall generally be designed with a circular closed end with sufficient radius and right-of-way to allow for utilities, street lights, sidewalks, bikeways, etc. Use of a "fish tail" or "hammerhead" configuration must be approved by the City Engineer. Where 14 or more lots have access to a cul-de-sac, sidewalks shall be provided on at least one side. Sidewalks shall be provided on at least one side of all cul-de-sacs.

e. Alleys shall be located in a right-of-way of not less than six metres (20 feet), with paved roadway widths to be approved by the City Engineer based on the function of the alley.

f. One-way residential streets may be less than six metres (20 feet) subject to approval of the reviewing body. (Ord. No. 1713, Sec. 17; 12-19-78.)

44.08.398. Sidewalks.

a. Sidewalks shall be a minimum of 1.5 metres (5 feet) in width.

b. Sidewalks may be of concrete, asphalt, or other material of construction as determined by the City Engineer.

c. Sidewalks on existing streets may be of gravel construction if desired by a majority of owners of lots on the street and acceptable to the City Engineer.

d. Sidewalks may meander within the right-of-way.

e. Where parking is permitted on the shoulder, sidewalks shall be a minimum of 2.5 metres (8 feet) from the nearest travel lane. (Ord. No. 1713, Sec. 28; 12-19-78.)

The following Chapter 44 has not been copied in its entirety—only those sections which are proposed for revision at this time. The entire Chapter is provided as Exhibit 8.
1. All new development, and structural additions to existing commercial, institutional and industrial buildings which increase traffic shall construct new walkways or improve existing walkways adjacent to a public street along the development property frontage to the specifications of the City of Lake Oswego.

2. Sidewalks shall be constructed to the following minimum widths:

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Residential Sidewalk</th>
<th>Commercial/Public/ Institutional Sidewalk</th>
<th>Industrial Sidewalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local/Residential</td>
<td>5 ft.</td>
<td>7 ft.</td>
<td>5 ft.</td>
</tr>
<tr>
<td>Major Collector/ Neighborhood Collector</td>
<td>5 ft.</td>
<td>8 ft.</td>
<td>5 ft.</td>
</tr>
<tr>
<td>Minor Arterial/ Major Arterial</td>
<td>6 ft.</td>
<td>8 ft.</td>
<td>6 ft.</td>
</tr>
</tbody>
</table>

3. The entire required width of sidewalks shall be unobstructed.

4. A sidewalk setback from the curb by at least five feet may be reduced by one foot in width (but not less than 5 feet) overall when a minimum five-foot separation strip is provided. The separation strip shall be landscaped and shall be maintained by the adjacent property owner. The planting strip may contain fixed objects such as trees, mailboxes, fire hydrants, telephone poles or benches.

Definitions:

17. Dwelling, Multiple: A building on one or more lots designed to contain three or more dwelling units and used for residential purposes, that share common walls or floor/ceilings with one or more units. The land underneath the structure is not divided into separate lots. Multiple dwelling includes structures commonly called garden apartments, apartments, and condominiums.

17.1 Dwelling, Row house: A building providing two or more dwelling units, each on a separate lot and each having a common or party wall separating dwelling units.

18. Dwelling, Single-Family: A detached dwelling unit designed and used for that purpose or an attached dwelling unit, located on its own lot, that shares one or more common or abutting walls with one or more dwelling units. The common or abutting wall must be shared for at least 50 percent of the length of the side of the dwelling. An attached house does not share common floor/ceilings with other dwelling units. An attached house is also called a rowhouse, townhouse, or a common-wall house.

The following changes must be made in order to implement the proposed revisions.

This definition was recently adopted as part of the code amendments to implement the First Addition Neighborhood (FAN) Plan. The proposed definition of single-family will meet the intent of the rowhouse definition, but will allow the site to be developed as single-family development.
**TABLE 7.1**

Minimum Off-Street Parking Space Requirements*

<table>
<thead>
<tr>
<th>Type of Use</th>
<th>Parking Spaces Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(A) Residential</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Single-family dwelling and duplex</td>
<td>1 space per dwelling unit</td>
</tr>
<tr>
<td>(2) Secondary dwelling unit</td>
<td>1 space per unit (in addition to 1 space required for main dwelling unit)</td>
</tr>
<tr>
<td>(3) Multi-family</td>
<td>Twenty-five percent (25%) of the required parking for multi-family use shall be located to provide for common or visitor use.</td>
</tr>
<tr>
<td>(i) Studio/Efficiency</td>
<td>1 space per unit</td>
</tr>
<tr>
<td>(ii) 1 Bedroom</td>
<td>1.25 spaces per unit</td>
</tr>
<tr>
<td>(iii) 2 or more Bedrooms</td>
<td>1.5 spaces per unit</td>
</tr>
<tr>
<td>(4) Rooming and boarding house; Bed and Breakfast</td>
<td>1 space per each guest room plus one for owner</td>
</tr>
<tr>
<td><strong>(B) Commercial Residential</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Hotel or Motel</td>
<td>1 space per unit</td>
</tr>
<tr>
<td>(2) Assisted living facility</td>
<td>0.5 space per unit plus one per three employees</td>
</tr>
<tr>
<td>(3) Hospital</td>
<td>1.5 spaces per bed</td>
</tr>
<tr>
<td><strong>(C) Places of Public Assembly</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Churches, clubs, lodges, meeting rooms and auditoria</td>
<td>1 space per 4 seats of maximum capacity, or 1 space for each 5 occupants based on maximum capacity as calculated under the provisions of the Uniform Building Code</td>
</tr>
<tr>
<td>(2) Library, reading room, museum, art gallery</td>
<td>1.88 spaces per 1,000 square feet and plus one space per two employees on the peak shift</td>
</tr>
<tr>
<td>(3) Nursery, day or child care facility, kindergarten</td>
<td>2.5 spaces per 1,000 square feet G.F.A.</td>
</tr>
<tr>
<td>(4) Elementary or middle school, or equivalent</td>
<td>16.6 spaces per 1,000 square feet G.F.A. in the auditorium or 2 spaces per classroom</td>
</tr>
</tbody>
</table>

*Table 7.1, Off-Street Parking Requirements - Revised, 4/97*
private or parochial school

(5) **Senior high and equivalent private or parochial school:**

(6) **College: Commercial school for adults**

(7) **Schools such as martial arts, music, dance, gymnastics**

(D) **Commercial Amusements**

(1) Stadium, arena, theater

(2) Bowling alley

(3) **Sports club/Recreation facilities, including billiard and pool parlors, video arcades, dance hall, gymnasium, health club**

(E) **Commercial**

(1) Office, _including business and management services_, except medical or dental

(2) Medical and Dental **Offices or clinics including accessory laboratories for medicine, dentistry, veterinarian practice or other practices of the healing arts**

(3) Bank

(4) **Supermarket**

(5) **Convenience food store**

(6) **Specialty food stores, such as delicatessen, bakery, coffee (Take-out food/drink primarily)**

(7) Eating or drinking establishment

whichever is greater.

.2 space per number of students and staff

3 spaces per 1,000 square feet G.F.A. (excluding dorms)

1 space per 100 square feet G.F.A. of lesson activity floor area plus .5 space per employee.

1 space/4 seats (fixed seating)

3 spaces per lane plus .5 space per employee.

2 spaces per 1,000 square feet G.F.A

3.33 spaces per 1,000 square feet G.F.A.

3.9 spaces per 1,000 square feet G.F.A.

2.5 spaces per 1,000 square feet G.F.A.

2.9 spaces per 1,000 square feet G.F.A.

2.2 spaces per 1,000 square feet G.F.A.

6.6 spaces per 1,000 square feet G.F.A.

13.3 spaces per 1,000 square feet G.F.A.
(8) **Eating or drinking establishment with drive up window**

9.9 spaces per 1,000 square feet G.F.A.

(9) **Barber shop, beauty salon, personal care services, such as nail, tanning, and therapeutic massage salons**

4 spaces per 1,000 square feet G.F.A. plus .5 space per station

(10) **Retail sales and rentals, except as otherwise specified herein**

3.3 spaces per 1,000 square feet G.F.A.

(11) **Heavy equipment rentals, such as yard and tool equipment**

1 space per 1,000 square feet G.F.A. plus .5 space per employee

(12) **Service or repair shop, such as electronic and home appliance repair, upholstery**

1.6 spaces per 1,000 square feet G.F.A.

(13) **Automotive repair garage and service station**

1.6 spaces per 1,000 square feet G.F.A. plus .5 space per employee

(14) **Mortuary**

1 space per five seats based on maximum auditorium capacity plus .5 space per employee.

(C) **Bulk merchandise**

(1) **Furniture, appliance store building materials**

2 spaces per 1,000 square feet G.F.A.

(2) **Auto, boat or trailer sales**

1 space per 1,000 square feet G.F.A. of building plus .5 space per employee

(3) **Truck, trailer and automobile rental parking lot**

.75 space per employee on largest shift

(G) **Industrial**

(1) **Light industrial, industrial park, Manufacturing**

1.6 spaces per 1,000 square feet G.F.A.

(2) **Storage, warehouse, wholesale establishment, freight terminal, truck or auto storage**

1 space per 1,500 square feet G.F.A. or .75 space per employee based on maximum shift, whichever is greater.

(3) **Mini-storage facility**

3.33 spaces per 1,000 square feet of gross office floor area plus one space for resident manager.
(H) Uses Not Specifically Mentioned

Parking requirements for uses not specifically mentioned in this section shall be determined by the requirements for off-street parking facilities for the listed use which, as determined by the City Manager, is most similar to the use not specifically mentioned, or by a parking study.

*NOTE:

Per LODS 7.020(1)(b)(i) Fractional space requirements shall be counted as the next highest whole space.

Per LODS 7.020(1)(b)(ii) Except for residential parking requirements, the maximum number of parking spaces shall not exceed 125 percent of the minimum number of required spaces.
# TABLE 7.2
Off-Street Parking Matrix
Required Space and Aisle Dimensions in Feet

<table>
<thead>
<tr>
<th>COMPACT SIZE VEHICLES</th>
<th>STANDARD SIZE VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angle (A)</strong></td>
<td><strong>Stall Width (B)</strong></td>
</tr>
<tr>
<td>0° (parallel)</td>
<td>8.0</td>
</tr>
<tr>
<td>45°</td>
<td>8.0</td>
</tr>
<tr>
<td>60°</td>
<td>8.0</td>
</tr>
<tr>
<td>75°</td>
<td>8.0</td>
</tr>
<tr>
<td>90°</td>
<td>8.0</td>
</tr>
</tbody>
</table>

**A** Parking Angle

**B** Stall Width

**C** Stall Depth (no bumper overhang)

**D** Aisle Width between Stall Lines, except for fire lanes, which are regulated by LOC Chapter 15, “Fire Protection”.

**E** Module Width (no bumper overhang)

**F** Bumper Overhang
### TABLE 7.3
Parking Requirement Modifiers

#### Reduction for Access to Transit Facilities

<table>
<thead>
<tr>
<th>Commercial and Industrial Uses (Based on Development Size on a Single Site (DS))</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross Floor Area</strong></td>
<td></td>
</tr>
<tr>
<td>0 - 20,000 square feet</td>
<td>No reduction</td>
</tr>
<tr>
<td>20,000 plus square feet</td>
<td>.85 x requirement</td>
</tr>
</tbody>
</table>

**Availability of Transit Access (TA)**

- Transit shelter more than 500 feet from building: No reduction
- Transit available with shelter within 500 feet of building: .95 x requirement
- Transit available on fronting street without shelter: .90 x requirement
- Transit available on fronting street with shelter within 50 feet of building: .85 x requirement

#### Reduction for Pedestrian and Bicycle Access (PA)

<table>
<thead>
<tr>
<th>Commercial and Industrial Uses</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>No hard surfaced pedestrian/bicycle access</td>
<td>No reduction</td>
</tr>
<tr>
<td>Hard surfaced pedestrian and bicycle access to 100 or more residential units within 1000 feet of the site.</td>
<td>.90 x requirement</td>
</tr>
</tbody>
</table>

#### Reduction Permitted within the Downtown Redevelopment District

Lake Oswego Development Standard Chapter 23, *Downtown Redevelopment District Design Standard*, permits specified modifications for parking requirements within the District.

#### Reduction Permitted Based on Parking Study

The Parking Study shall demonstrate sufficient number of parking spaces:

- a. For shared parking with other multiple uses per LOC 7.020(1)(d)(ii)
- b. Based on similar uses elsewhere in the City or the same use at other sites.

Parking requirement modification shall be calculated as followed: Minimum requirement by type use x DS (Development Size) x TA (Transit Access) x PA (Pedestrian Access) = modified parking requirement.

**Definitions:**

- Transit Access: Availability of transit services as delineated above.
- Pedestrian Access: The means by which pedestrians have safe, adequate and usable ingress and egress to a property or use.