

**Our roads  
wind and twist  
doubling back,  
swinging in wide circles  
like a mad, Wonderland maze**

*By Samantha Mitchell*

**And the Indian Plum  
guides leaf-padded pathways  
through ferny glens**

*By Mike Buck*

**Forest road  
the rain bending  
toward home**

*By Scot Siegel*

# Connected Community



Adopted March 18, 2014

# Connected Community

## Vision

We have safe, efficient and convenient transportation choices for all users. There are frequent and reliable public transportation options that make it easy to move around our City and the region. Safe pathways, sidewalks, roadways and bike routes enable residents of all neighborhoods to walk and bike and drive.

## Statewide Land Use Planning Goal

The Connected Community chapter implements Statewide Planning Goal 12 (Transportation).

## Updates to Lake Oswego 1994 Comprehensive Plan

The Connected Community chapter replaces Goal 12: Transportation, as contained in the Lake Oswego 1994 Comprehensive Plan, and incorporates by reference the previously adopted provisions of the 1997 Transportation System Plan (TSP), including the Roadway Functional Classifications Plan (See also, Figure 16, Functional Street Classifications\*), Roadway Improvements Plan, Pedestrian Facilities Plan, Bicycle Facilities Plan, and Transit Network and Facilities Plan. In 2014, as the TSP is updated pursuant to Periodic Review, TSP figures are to be updated and incorporated into the Comprehensive Plan.

# Connected Community

## Background

### Statewide Planning Goal 12: Transportation

*“To provide and encourage a safe, convenient and economic transportation system.”*

Statewide Planning Goal 12 and the State Transportation Planning Rule (Oregon Administrative Rule 660, Division 12) require cities to maintain a Transportation System Plan that considers all modes of travel. This includes automobiles, transit, freight (trucks and rail), air, bicycles, pedestrian ways, pipelines and transmission lines, and water. The plan must be based on an assessment of local, regional and state needs and consider appropriate combinations of travel modes to avoid principal reliance upon any one mode of transportation. The State rule also requires that transportation and land use planning be done in a coordinated manner.

### Lake Oswego Transportation System Plan

Lake Oswego adopted its Transportation System Plan (TSP) in 1997. This chapter contains the goals, policies and recommended action measures for an update to the TSP. The City is updating its plan pursuant to Statewide Land Use Planning (Periodic Review) requirements. Once the updated TSP is adopted, this chapter will be amended to incorporate any changes.

### Coordination with Regional Planning Requirements

Since the City adopted its first Transportation System Plan in 1997, Metro has adopted new plans and planning requirements. The Metro Functional Plan directs local jurisdictions to implement the Regional 2040 Growth Concept, a long-range plan intended to guide growth and development of the region over 50 years. The 2040 Concept identifies 10 types of planning areas, or “design types”, that local jurisdictions in the Portland metropolitan area must respond to in updating their land use and transportation plans. Design types are the building blocks of the regional growth management strategy.

Design types relevant to Lake Oswego for transportation planning purposes are identified in the Urbanization Chapter (See Figures 17–20), as follows:

<b>Town Centers</b>	Lake Oswego has two designated Town Centers, the East End Commercial Area, or Downtown, and the Lake Grove Village Center.
<b>Main Streets</b>	‘A’ Street and Boones Ferry Road (within the Town Centers) are Lake Oswego’s two designated Main Streets. These areas are supposed to be walkable, provide services to nearby neighborhoods, and have good access to transit.
<b>Corridors</b>	Country Club Road, Boones Ferry Road, and Kruse Way are Lake Oswego’s designated Corridors. According to Metro, Corridors are

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key transportation routes for people and goods, and are well served by transit.

**Employment Areas** The industrial areas west of Lake Forest Boulevard, and the office-commercial areas in the Kruse Way corridor are Lake Oswego's designated Employment Lands. These areas benefit from good freight access to the interstate system; freeway interchange capacity and access to alternative modes of transportation, including transit service, will be essential for businesses and industry to remain competitive.

The 2035 Regional Transportation Plan (RTP), adopted by Metro in June 2010, identifies the transportation policies, projects, and strategies needed to implement the 2040 Growth Concept. The RTP also contains criteria for monitoring transportation system performance for all modes of travel, and it begins to address State greenhouse gas emissions reduction targets, but does not require cities to adopt such targets.

## Local Priorities

While State and Metro planning rules require the City to periodically update its Plan, the City chooses how to create a well-functioning, integrated transportation system that responds to the needs of its citizens. The transportation plan must address increasing automobile traffic and alternative modes of travel, while maintaining neighborhood livability.

Lake Oswego is known for its active, outdoor lifestyle. Residents desire an inter-connected, transportation network that provides accessibility to jobs, schools, services, and other destinations for residents of all ages and abilities; one that includes well-designed streets and paths that encourage walking and bicycling throughout the City.

Community appearance and safety are also important to Lake Oswegans. Streets and pathways should be designed to fit within the context of Lake Oswego's neighborhood and reinforce a sense of place that is distinctive to each neighborhood, while providing connections between neighborhoods, districts, and surrounding communities.

## Summary of Major Issues

The following issues related to Goal 12 (Transportation) were addressed through the Comprehensive Plan update:

- Trends toward increasing vehicle volumes;
- Challenges to avoiding congestion and providing congestion relief;
- The need to optimize the life and utility of existing transportation facilities to save costs;
- Opportunities for repurposing public rights-of-way to better meet evolving travel needs;

- The provision of safe, reliable facilities for freight vehicles (trucks and rail) to support a vibrant economy;
- The need to improve connectivity and avoid over-reliance on individual streets;
- Balancing mobility with neighborhood livability; i.e., avoiding cut-through traffic;
- Opportunities to increase the percentage of trips made by walking or bicycling by providing safe and convenient/shorter routes by these modes; i.e., improved connections to goods and services within a 20-minute walking distance of home; and
- Responding to public transit service reductions; e.g., support local circulator bus routes to supplement fixed-route service, park-and-ride facilities, and a new transit center.

## Goals And Policies

The Connected Community goals and policies are organized as follows: A) Safety, B) Transportation Choices, C) Efficiency, D) Accessibility, E) Connectivity, F) Livability, G) Sustainability.

The Transportation System Plan reinforces and expands upon the following goals and policies: Goal A: Safety (Policies 2, 3, 4, 6, 7, and 8), Goal C: Efficiency (Policies 1, 2, 4, and 5), Goal E: Connectivity (Policies 2 and 5), and Goal G: Sustainability (Policies 1, 2, 3, 4, and 6).

### A. Safety

#### Goal

Provide a safe, multimodal transportation system for all users.

#### Policies

- A-1. Designate, implement, and maintain routes for walking and biking that support safe movements from residential areas to, through and along schools, parks, transit, employment centers, town centers, neighborhood villages, and commercial corners and neighborhood commons.
- A-2. Incorporate safety considerations in the planning, design and re-design of public streets\* for the benefit of all intended users.
- A-3. Preserve user safety, system integrity, and facility aesthetics by providing regular maintenance of the transportation system.
- A-4. Improve and promote transportation safety through a comprehensive program of education, enforcement and engineering.
- A-5. Identify and prioritize locations with high crash rates to implement improvements.
- A-6. Identify safety concerns for pedestrians, and bicyclists at high traffic volume streets and/or locations with high levels of pedestrian/bicycle demand and implement improvements.

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- A-7. Identify safety concerns for motor vehicles at high traffic volume streets and/or locations with high levels of demand among all modes of travel, and implement improvements.
- A-8. Identify, implement, and maintain a network of Emergency Response Streets to facilitate prompt emergency response.
- A-9. Provide pedestrian and bicycle facilities with new bridges when retrofitting existing bridges to support the safe movement of all users.

## **B. Transportation Choices**

### **Goal**

Subject to fiscal constraints, improve opportunities to comfortably and conveniently drive, walk, bike and take transit.

### **Policies**

- B-1. Provide land use patterns and promote public and private development that supports efficient transit service.
- B-2. Provide street and frontage improvements such as dedicated facilities, landscaping, and street lighting and permit amenities such as benches and shelters to encourage walking and biking as viable travel modes, particularly along corridors that serve the primary transit network and employment centers, town centers and neighborhood villages.
- B-3. Require development, redevelopment, and public transportation improvement projects to provide facilities that accommodate pedestrian, bicycle, and transit use, particularly in areas with identified gaps in the transportation system and in all employment centers, town centers, neighborhood villages, commercial corners, and neighborhood commons.
- B-4. Public street standards shall recognize the multi-modal nature of the street right-of-way.
- B-5. Locate off-street parking in commercial, industrial, and high-density residential areas to be at the sides or rear of buildings where practical, with buildings oriented to the street in a manner which is convenient to pedestrians, bicyclists and transit riders.

## **C. Efficiency**

### **Goal**

Optimize the performance of the transportation system for the efficient movement of people and goods.

### **Policies**

- C-1. Maintain arterial and major collector streets to planned level of service\* standards, whenever practical.

- C-2. Balance roadway size and scale with the need to provide safe and efficient transportation for all modes.
- C-3. Control and consolidate driveway access to major collectors and arterials through the development review process and the implementation of major street projects.
- C-4. Coordinate with ODOT\* to provide and manage Hwy 43 in a manner consistent with the City's transportation system goals and policies, and coordinate with other regional partners responsible for traffic signal operations to regularly confirm the efficient timing and progression of traffic signals.
- C-5. Reduce traffic congestion to enhance traffic flow through such system management measures as intersection improvements, incident management, signal priority, signal optimization, signal synchronization, and a range of measures provided through technological advancements.
- C-6. Require applicants for zone change requests and conditional use permits to determine the resulting extent of impacts to the transportation system and provide mitigation deemed appropriate by the City to maintain transportation system efficiency.
- C-7. Require development applicants to provide facilities for the movement of people to and from the site by walking, bicycling, automobiles and transit.
- C-8. Plan 20 minute neighborhoods\* to accommodate uses that efficiently meet many daily residential needs via short trips by any mode of travel.

## **D. Accessibility**

### **Goal**

Provide a multimodal transportation system that is suitable for community members of all ages, income levels and physical abilities to access daily needs and services.

### **Policies**

- D-1. Plan street standards that accommodate transit service into areas that connect people to employment centers, town centers and neighborhood villages.
- D-2. Locate appropriate transit stops in employment and town centers that are conveniently located and well-connected to the transportation system.
- D-3. Locate transit amenities such as transit shelters, benches, lighting, park and ride lots, etc. that meet the access needs of residents and employees, including the youth, elderly, and people with disabilities.
- D-4. Provide accessibility for walking and biking, transit and vehicle connections within and among the employment centers, town centers, neighborhood villages, schools, parks, commercial corners and neighborhood commons so residents can access their daily needs.
- D-5. Develop a coordinated transportation system that is barrier-free (accessible) and serves the needs of people and businesses.

## **E. Connectivity**

### **Goal**

Develop connections to and between different modes of transportation.

### **Policies**

- E-1. Acquire right of way, where appropriate, through development for planned and required transportation facilities during the development review process.
- E-2. Expand neighborhood and local connections to provide convenient circulation between neighborhoods.
- E-3. Preserve existing rights-of-way (ROW), including railroad ROW and other easements, to maintain opportunities for future mass transit, bike and pedestrian paths.
- E-4. Require development applicants, where appropriate, to connect local trail and bicycle facilities directly to regional trails and bicycle networks, and transit routes.
- E-5. Emphasize connectivity when prioritizing projects for funding.

## **F. Livability**

### **Goal**

Design and maintain a transportation system that enhances the quality of Lake Oswego's natural and built environment.

### **Policies**

- F-1. Develop and maintain flexible design criteria and construction methods to local and neighborhood collector streets that are responsive to neighborhood character and planned land uses.
- F-2. Mitigate the impacts of traffic on neighborhood collectors and higher classifications that bisect residential neighborhoods.
- F-3. Minimize the impacts of traffic generated through new commercial development on adjoining neighborhoods.
- F-4. Develop design standards that assure that pedestrian, bicycle, and storm water design elements are compatible with the neighborhood character and the street functionality.
- F-5. Develop design standards that reinforce neighborhood livability by:
  - a. Protecting local streets from being misused by non-local traffic by applying traffic calming and diversion techniques when and where feasible.
  - b. Applying design standards that reinforce neighborhood character, social interaction and community building.
  - c. Addressing parking impacts, including screening and buffering.
  - d. Maintaining truck circulation restrictions.

- e. Preserving the visual attractiveness of the community by limiting adverse visual impacts to the City's public spaces and streetscape.
- F-6. Maintain parking regulations that require off-street employee and customer parking and loading facilities to be provided on-site and commensurate with the size and relative needs of each new development.
- F-7. Commercial and industrial parking should not intrude into adjacent residential neighborhoods.

## **G. Sustainability**

### **Goal**

Provide a transportation system that maintains and improves economic vitality, environment health, social equity and well-being for citizens today and in the future.

### **Policies**

- G-1. Develop and maintain trip reduction strategies developed regionally, including employment, tourist, and recreational trip reduction programs to reduce pollution\* and improve the health of the citizens.
- G-2. Utilize the financial resources needed to achieve the goals for adequately providing and maintaining the transportation system.
- G-3. Support mixed-use development by designating locations for such uses and providing land use opportunities that encourage local job creation in order to reduce the number of locally generated regional commuting and shopping trips.
- G-4. Provide and maintain the transportation system in a manner that is consistent with the Stormwater Management Manual, minimizing storm water pollution and hydrologic impacts.
- G-5. Ensure that an adequate supply of parking is provided to support economic activity while balancing the need to drive, take transit, and bike and walk to and within employment centers, town centers and neighborhood villages.
- G-6. Provide off-street parking that is designed to incorporate multiple functions such as storm water management, reducing the urban heat island effect,\* decreasing impervious surfaces and providing temporary space for public functions.

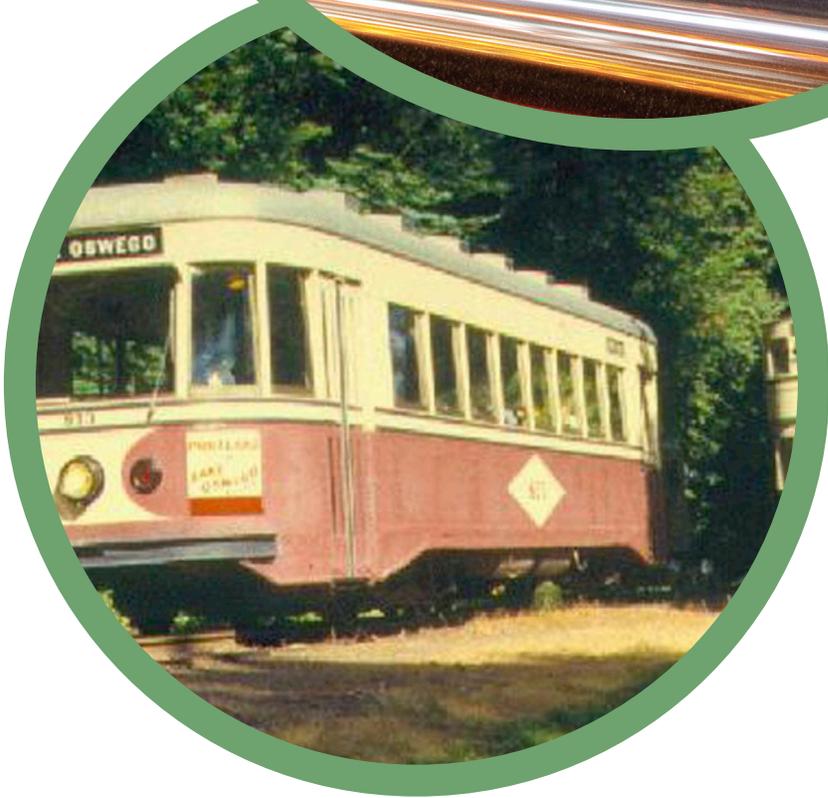
### **Recommended Action Measures**

- A. Improve and promote transportation safety through a comprehensive program of education, enforcement and engineering.
- B. Coordinate with commercial water and rail transportation providers and transit agencies to assure safe and compatible operations where services/facilities intersect with the City's transportation system.
- C. Coordinate with schools and surrounding neighbors to plan for safe and effective transportation for students and surrounding neighborhoods.

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- D. Coordinate with TriMet, Metro, and ODOT to assure that effective and efficient transit services are provided for Lake Oswego residents and businesses.
- E. Support local circulator transit option initiatives that connect residents to employment centers, town centers, and neighborhood villages.
- F. Avoid new and eliminate existing pedestrian and bicycle dead ends that require substantial out-of-direction travel for pedestrians and bicyclists.
- G. Consider residential area parking guidelines, where appropriate, to maintain the safety, character and utility of residential streets.
- H. Maintain or enhance the tree canopy along key transportation corridors.
- I. Coordinate with Metro, Tri-Met, ODOT and Clackamas County to develop interim benchmarks for measuring progress towards transportation goals and policies over the planning period.







# Functional Street Classifications

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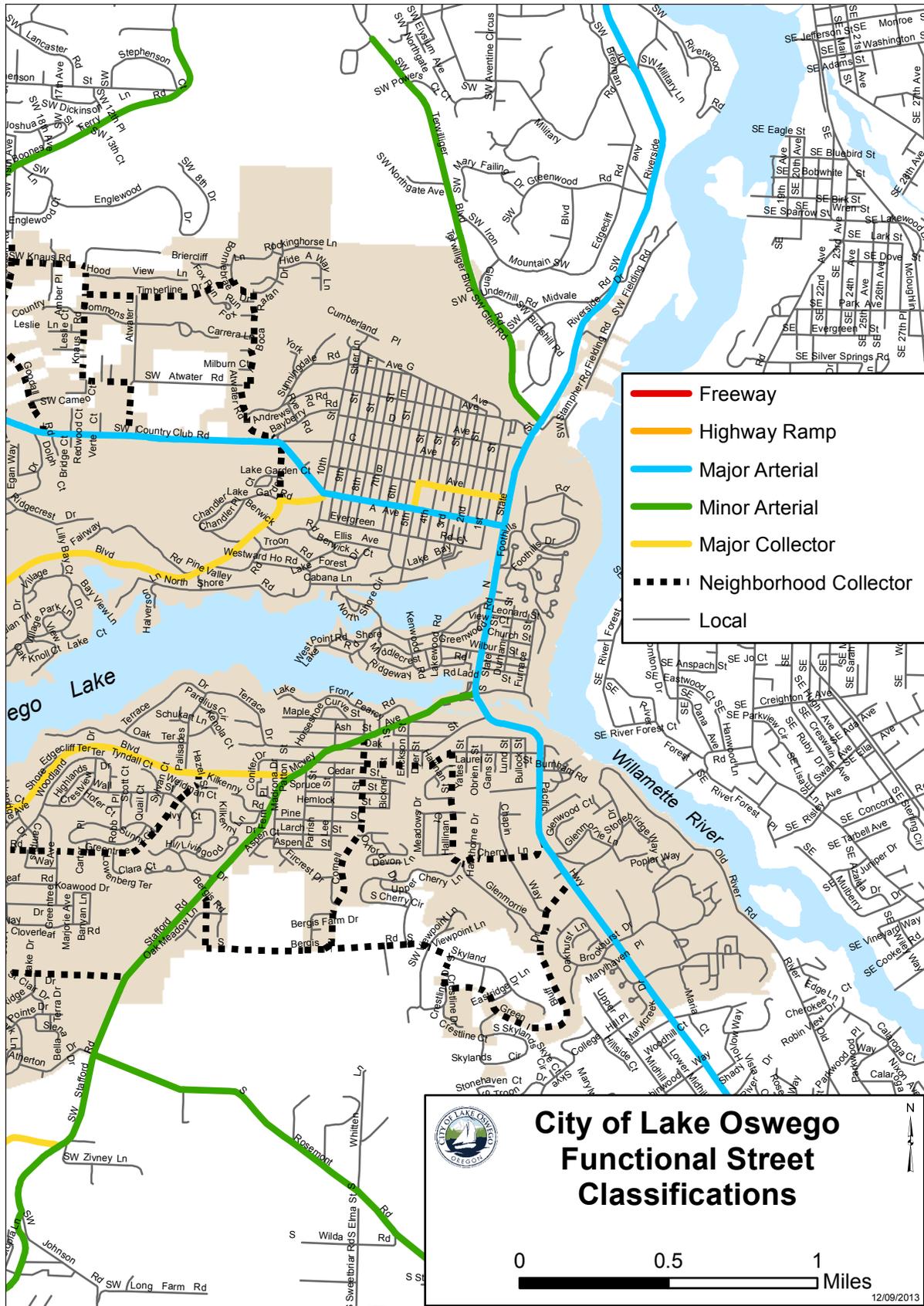


Figure 16 (right side)

**THE  
PARK RANGER**

He will remain unnamed  
this humble, modest man  
who serves us with a smile.

He enlisted in our army,  
our municipal guard, if you will,  
a guise to protect us from ourselves.

A soldier of our benches,  
our trees and our children,  
he patrols through the night.

A hero for our city,  
as graceful as can be.

*By Iris Liu*



# Community Health & Public Safety



# Community Health and Public Safety

**Public Safety, Police & Fire Protection • Public Facilities & Services; Surface Water Management, Water Treatment & Delivery, Wastewater Collection & Treatment • Solid Waste Management • Sound Quality • Energy & Environment • Access to Local Food • Natural Hazards**

## Vision

Our community is a safe place to live and supports lifelong active and healthy living. We have excellent public facilities and services, including public safety response systems that work together with an involved community to ensure peace and safety. There are opportunities for active lifestyles and to obtain locally grown food, to promote the health and social interaction of our residents.

## Statewide Land Use Planning Goals

The Community Health and Public Safety chapter implements Statewide Planning Goal 6: Air, Water and Land Resources; Goal 7: Areas Subject to Natural Disasters and Hazards; Goal 11: Public Facilities and Services, and Goal 13: Energy.

## Updates To Lake Oswego 1994 Comprehensive Plan

The Community Health and Public Safety chapter replaces the following chapters of the Lake Oswego 1994 Comprehensive Plan Goal 6: Air, Water and Land Resources; Goal 7: Areas Subject to Natural Disasters and Hazards; Goal 11: Public Facilities and Services; and Goal 13: Energy.

## PUBLIC SAFETY, POLICE AND FIRE PROTECTION

### Background

This chapter focuses on providing a high level of public safety through resources, facilities, equipment, personnel, agreements with other agencies, and service standards. The Public Safety policies also address development-related issues, including the construction of new streets, fire code compliance, and crime prevention techniques in development design.

The City can promote crime prevention by adopting and maintaining development standards for public and private spaces. Developments that are designed with natural surveillance, or visibility of public spaces from adjacent uses, allow citizens to observe the space around them for their own safety and the protection of others. Crime prevention is also fostered through appropriate access control. For example, sidewalks, pavement, lighting, and landscaping can be used to clearly guide the public to and from entrances and exits. Similarly, where appropriate, gates, walls, fences, landscaping, and lighting can be used to prevent or discourage access to or from dark or unmonitored areas. Where public spaces are planned, they should be located and designed to encourage public use and discourage illicit activity. Finally, development standards should consider selection and maintenance of building materials. For example, landscaping, lighting, and other features can support crime prevention if they are maintained, but may actually facilitate crime if they are not maintained properly.



### Summary of Major Issues

#### Fire Department

- The Lake Oswego Fire Department provides fire protection for all areas within the City limits and contracts to provide services to three special service districts: Lake Grove Rural Fire District No. 57; Riverdale Rural Fire Protection District No. 11; and Alto Park Water District.
- The current Emergency Operations Plan was adopted in December 2010. The plan provides the basic framework to guide City departments in their efforts to mitigate, prepare for, respond to, and recover from any major emergency or disaster that may affect all or parts of the City. The Fire Department is active in all six major emergency categories addressed in the plan, including hazardous materials accidents, mass casualties, wildfires, earthquakes, severe weather, and structural fires.

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- The average age of those living in the City increased to 45.8 in 2010 from 41.2 in 2000 (U.S. Census Data). As the population ages, the percentage of medical calls can rise. An aging community may increase the demand on emergency services provided by the Fire Department.

## Police Department

- The Police Department is a full-service law enforcement agency. It provides services through six divisions with activities that range from criminal investigations and traffic law enforcement to animal control, education programs, and neighborhood watch services. The Department has two K-9 teams, provides a school resource officer, operates a 911 emergency dispatch center for police and fire (located in City Hall), and provides contracted Dispatch Services for the cities of Milwaukie and West Linn, servicing a population of about 83,000 persons.
- The Department has adopted a Strategic Plan. The Communications/911 center has grown since the last plan was updated and will need additional building space in a structure that meets current seismic standards. The department will also need to update critical operations as more systems migrate toward electronic and paperless systems. These critical operations include Dispatch (hardware and software), Records Management, Report Writing, E-ticketing, and the mandatory reporting that goes with each of these. This technology comes with a cost and needs to be factored into future operations. In addition, these tools will help the department move toward paperless reports, which reduces storage space and contributes to sustainability.

## Goals And Policies

### Goal

Ensure a high level of public safety by providing police and fire protection, and emergency services and preparedness.

### Policies

1. Maintain development standards and enter into agreements with other agencies when appropriate to promote efficient use of fire and police personnel, facilities, equipment and communication resources, and to allow fire and police personnel to respond to public safety needs within targeted response times.
2. Require police and fire protection to be considered in the development review process. Particular attention shall be given to:
  - a. Fire hydrant locations and sufficient fire flows;
  - b. Street layout and site design features that ensure emergency vehicle access and building identification; and
  - c. Exterior lighting and landscape design.

3. Provide and maintain development standards and guidelines that promote Crime Prevention through Environmental Design.\*
4. Require all home occupations to comply with the Oregon Fire Code.
5. Ensure adequate police and fire protection can be provided to newly annexed areas.
6. Require new streets to be of high structural quality, sufficient width and adequately maintained to ensure emergency vehicle and service equipment access while maintaining neighborhood character.
7. Maintain agreements to provide fire protection services outside the City provided:
  - a. Actions are consistent with the City's Public Facility Plan and Comprehensive Plan goals and policies pertaining to public facilities and services and urbanization;
  - b. Adequate resources exist to provide these services; and
  - c. Arrangements are in the City's financial interests.
8. Plan Fire Department facilities, streets and other public facilities to allow personnel and equipment to reach the location of fire alarms within the City within eight minutes or less.
9. Plan Police Department facilities to allow Department personnel and equipment to reach the location of emergency calls for protection of life and property within five minutes or less.
10. Update and maintain the site design and development standards to decrease and minimize the possibility of wildfires and their potential for destruction.

## **Recommended Action Measures**

- A. Decrease and minimize the possibility of wildfires and their potential for destruction through public education, emergency planning, enforcement of the building, fire and municipal codes, and maintenance of fire-fighting resources.
- B. Maintain a Lake Oswego Emergency Operations Plan and provide resources to respond to emergencies including mass casualty incidents,\* floods,\* landslides, wildfires, earthquakes, severe weather, volcanic eruptions, major structural fires and hazardous materials accidents.
- C. Create safety awareness and educational opportunities and implement safety programs for the community.
- D. Coordinate development reviews between Fire and Police Departments, developers and recognized neighborhood associations to ensure appropriate public safety services can be made available.
- E. Recognize the special public safety needs of Lake Oswego's elderly, youth, and socially disadvantaged. Provide primary prevention services to these groups, such as traffic safety and drug education, home fire and crime proofing information, support for Neighborhood Watch or similar programs, and personal safety education.

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- F. Increase traffic safety through development reviews and review of capital improvement projects; enforcement of traffic laws for all modes of travel, and maintenance of active community traffic safety programs.
- G. Coordinate with other jurisdictions, public safety agencies and recognized neighborhood associations to ensure compatibility of equipment and communications, emergency support can be provided when needed, resources are shared to address multi-jurisdictional investigations and enforcement issues, and effective implementation of the Lake Oswego Emergency Operations Plan.
- H. Encourage water providers within the Urban Services Boundary to provide sufficient water storage and pressure to ensure adequate fire flows.

## **PUBLIC FACILITIES AND SERVICES: SURFACE WATER MANAGEMENT**

### **Background**

Federal regulations require the implementation of measures to improve storm water quality. The National Pollutant Discharge Elimination System (NPDES) Storm Water Program is designed to prevent storm water runoff from washing harmful pollutants into local surface waters such as streams, rivers, lakes or coastal waters. The NPDES regulates storm water discharges from three potential sources: municipal separate storm sewer systems (MS4s), construction activities, and industrial activities. The Environmental Protection Agency administers these permits in some states; however, in Oregon it is the responsibility of the Oregon Department of Environmental Quality (DEQ) to protect the quality of Oregon's environment which includes water quality and surface water management.

The City's Storm Water Management Master Plan was updated in 2009 and is called the Clean Streams Plan. The update was mandated by the City's 2005 NPDES MS4 Permit. The plan focuses on citywide policies, standards, and projects intended to protect streams, lakes, and rivers. It also encourages the use of low impact development\* approaches to reduce storm water volumes, mitigation efforts related to emergency situations, and a list of potential capital improvement projects (infrastructure improvements) to improve the City's surface water system.

### **Summary of Major Issues**

All sub-watersheds in the City drain directly or indirectly to the Willamette River, Tualatin River, or Oswego Lake which drains to the Willamette River. The Clean Streams Plan reflects



current best practices in surface water management, which focus on reducing contaminants\* commonly found in storm water, such as metals, motor oil, nutrients, sediments and bacteria. The Clean Streams Plan emphasizes the most current policies and standards related to improving water quality.

Although most storm water travels through the City's storm drainage system, much of the storm water runoff is from private property. The plan includes capital programs such as replacing catch basins with facilities that trap sediments, preparation and maintenance of design guidelines and standards in a storm water design manual, and activities to correct flooding, reduce the volume of runoff and concentration of phosphorus found in fertilizers coming from private property. Education is also important because studies have shown that reducing contaminant levels at the source is more effective and less costly than removing them after they have mixed and then traveled with storm water. The Plan also includes a discussion of the need for changes to the City's Storm Water Ordinance to comply with federal regulations and Development Code changes to implement low-impact approaches to development, which can also be less costly.

## Goals And Policies

### Goals

1. Improve water quality by reducing the amount of pollution conveyed by storm water runoff.
2. Ensure that future land use activities protect and enhance area water quality.
3. Protect and enhance natural ground and surface water drainage systems.\*
4. Promote public safety and minimize damage to public and private property from surface water runoff.

### Policies

1. Use natural systems and non-structural methods\* to treat, convey and dispose of storm water runoff at the source to the extent allowed by site characteristics.
2. Apply development best practices to restore, protect and enhance the environmental functions and values of rivers, the lake and stream corridors, as a means to enhance water quality and fish and wildlife habitat.
3. Protect and improve existing drainage systems and easements by:
  - a. Prohibiting the encroachment of structures and other permanent improvements over public storm drainage lines and within easements and drainage ways.
  - b. Discouraging modification to existing open drainage ways\* that negatively impact surface water function.
4. Require new and improved storm drainage facilities to have the capacity to accommodate storm drainage flows from upstream development at full build-out and to comply with the City's Surface Water Management Program.

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5. Require all development and redevelopment to implement measures to minimize runoff from the development site during and after construction.
6. Develop and implement intergovernmental agreements with local, regional, state and federal agencies to implement measures to minimize the quantity of pollutants entering ground and surface waters from both point and non-point sources.\*
7. Coordinate the City's development review process with appropriate state and federal agencies and the Lake Oswego Corporation, as it pertains to water quality in Oswego Lake and the Willamette and Tualatin Rivers.
8. Provide and maintain development standards that promote Low Impact Development to improve water quality, reduce impervious surfaces, promote infiltration, and preserve open space.
9. Provide and maintain development standards that ensure public and private storm water systems are planned, developed, and maintained to prevent flooding, protect water quality, and preserve natural surface water systems to protect aquatic habitat.

## Recommended Action Measures

- A. Educate and involve the community in opportunities to protect, restore, and enhance water quality, such as by avoiding use of chemical fertilizers and pesticides and through voluntary efforts to restore streams and riparian\* areas.
- B. Strive to improve the water quality of Oswego Lake and the Willamette and Tualatin Rivers by working with appropriate government agencies, Lake Oswego Corporation and the community to implement water quality programs and projects.
- C. Develop funding mechanisms to:
  - i. Maintain storm drainage facilities;
  - ii. Resolve the deficiencies of the existing system; and
  - iii. Implement a capital improvement program (CIP) for surface water management.
- D. Develop and maintain a system development charge methodology and ordinance that requires developers to be responsible for their proportionate share of the cost of providing required public facilities and services.
- E. Ensure that construction and maintenance projects are planned and implemented to reduce short and long term harm and, when possible, improve the environment.
- F. Facilitate analyses, create designs, and implement solutions to reduce drainage and flooding problems.
- G. Develop incentives for low-impact development,\* such as flexible paving and surface water management standards for parking areas and streets, where the area of impervious surface is reduced or minimized.
- H. Use innovative features in transportation project design to reduce or eliminate storm water runoff.

- I. Work with surrounding jurisdictions within the Urban Services Boundary (USB) to ensure storm drainage requirements of new and future development are provided for; existing storm drainage easements, natural systems, and capital facilities are protected for future use; activities necessary to resolve existing drainage and flooding problems are coordinated with long range City plans; and, adverse downstream impacts of development and other activities are minimized.
- J. Discourage the pumping of storm water, including the use of sump pumps as a solution for proper storm drainage.
- K. Implement a program to eliminate the infiltration of storm water into the sanitary sewer system.
- L. Schedule needed storm drainage improvements for implementation as part of the City's overall Capital Improvement Program.
- M. Regularly maintain and clean the public storm water system to maximize the benefit of existing facilities.
- N. Encourage private property owners to regularly maintain private storm water systems to avoid localized flooding, minimize peak flows and damage to the public system.
- O. Consider allowing rainwater harvesting for non-potable uses, to reduce surface water runoff and conserve water.

## **PUBLIC FACILITIES AND SERVICES: WATER TREATMENT AND DELIVERY**

### **Background**

Lake Oswego's water supply, treatment, and transmission system ("supply system") was developed between 1965 and 1969. Over the next five decades, with regular maintenance and periodic upgrades, the supply system delivered an adequate supply of water to Lake Oswego citizens and to other water districts the City serves pursuant to intergovernmental agreements.

By 2013, the age of the supply system, growth in the City's customer base, and increasing water consumption, particularly during peak periods, necessitated major improvements to the system. In the last two decades, the Water Master Plan and Water Management and Conservation Plan, and various studies and intergovernmental agreements, addressed the City's water supply, treatment and delivery planning needs, leading up to the 2008 agreement with the City of Tigard to form the Lake Oswego Tigard Water Partnership. The partnership followed a comprehensive analysis of supply alternatives that revealed that



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a joint system with Tigard would produce considerably lower impacts to rates than Lake Oswego making needed system improvements on its own. The partnership is now central to the City's water planning as it prepares to bring Tigard on to its system by 2016.

## Changes since the 1994 Comprehensive Plan:

1. Lake Oswego endorsed the partnership with the City of Tigard to jointly plan, fund, construct and operate an expanded water supply system. In order to meet the joint water needs of Lake Oswego and Tigard projected for the year 2020, the City anticipates using all 25 cubic feet per second (cfs) (16.15 million gallons per day) authorized by its water right permit S-32410, in addition to the 25 cfs authorized by its water right certificate.
2. Based on projected population growth and the need to provide water on an emergency basis to other municipal water suppliers, Lake Oswego anticipates developing and beneficially using all 59 cfs (38.1 mgd) under its Clackamas River water rights by approximately 2040.
3. Water consumption in Lake Oswego is one of the highest in the entire Portland/Vancouver metropolitan area. Lake Oswego has a Water Conservation Specialist, and has begun a comprehensive water conservation program aimed at lowering water usage throughout the community. Efforts have included consumer water audits, toilet rebates, washing machine rebates, water conservation kits and other water management tools.

The City supplies water within its urban services boundary (USB). The City's wholesale customers within the USB include the following water districts: Forest Highlands, Lake Grove, Rivergrove, Southwood Park, Skylands, Glenmorrie, Alto Park, and portions of the Palatine Hill Water Districts. The entire area, including properties within the City, includes 40,600 residents and 13,400 service connections (households, commercial establishments, public facilities, schools, irrigation accounts, and wholesale customers).

Lake Oswego receives its raw water from the Clackamas River. Its water intake is located about  $\frac{3}{4}$  mile upstream from the Willamette River in Gladstone. The water is treated at the City's treatment facility in West Linn. The treated water is then pumped through another large pipeline through the community to the new Waluga Reservoir near the City's western boundary. From there, water is distributed to Lake Oswego customers and to Tigard's Bonita Road pump station for further distribution to Tigard's customers. The City's water treatment and delivery system includes 13 pump stations, 15 water storage reservoirs, and 25 pressure reducing stations and other facilities. Lake Oswego's water delivery infrastructure is aging and its customer base is growing. In the summer of 2012, the City replaced 10,000 feet of old water main lines – a \$1.2 million project.

There are several documents that informed the water treatment and delivery goals and policies in the 2013 Comprehensive Plan, pursuant to Statewide Planning Goal 11 (Public Facilities). In 2006, the City worked with CH2MHill and GSI Water Solutions to initiate Lake

Oswego's first Water Management and Conservation Plan (WMCP). The Plan is intended to address changes in water service needs over time, responding to a variety of conditions including aging infrastructure and state water policy. The WMCP describes water management, water conservation, and programs to guide the wise use and stewardship of the City's water supply. As a result of this work, the City has implemented a water audit and is implementing recommendations such as leak detection to address the audit's discovery of high water losses between 8–20%. The City also initiated a conservation program as part of its basic services. The WMCP includes five-year benchmarks and other measures, which are considered in updates to the Comprehensive Plan.

## Summary of Major Issues

With a growing understanding of water as a shared regional natural resource, it is increasingly important for the City to consider the environmental and societal cost of new water supply as part of its planning and management efforts. Current issues regarding the City's sources of supply include:

- The Clackamas River is home to several species of threatened and endangered salmon as well as potentially sensitive species like the Pacific Lamprey and Bull Trout.
- The “highest and best use”\* of scarce water supplies will drive the decision-making process regarding the allocation of water in the State for the foreseeable future.
- In August of 2012, the Oregon Water Resources Commission adopted an Integrated Water Resources Plan, which considers human needs as well as in-stream needs. The Integrated Water Resources Strategy recommends improving access to water resources data for land use planning, and encourages regional approaches to water resource management. Partnering with Tigard provides a model for this type of cooperation. The Strategy also recommends research and best practices toward increasing water use efficiency and improving watershed health and safety.

## Goals And Policies

### Goal

Ensure a reliable, safe and adequate supply of water to meet the existing and future needs of Lake Oswego.

### Policies

1. As part of the City's Public Facility Plan, maintain a plan for water treatment and delivery that serves land within the City's Urban Service Boundary.
2. Provide and maintain land use and development standards that require developers where legally permissible to:
  - a. Modify, replace, renew, and extend the public water system as necessary to serve new development;

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- b. Design and construct modifications, replacements, renewals, and extensions of the public water system to facilitate the orderly and efficient extension of public water service to future development; and
  - c. Ensure access to all public water facilities as required by City codes and standards through the granting and recording of public utility easements.
3. Require new development in Lake Oswego to connect to the municipal water system unless the development is within the service boundaries of another water district and that district is authorized to provide municipal water service within the City's Urban Services Boundary pursuant to Intergovernmental Agreement.
  4. Serve as the ultimate provider of water service within the Urban Services Boundary upon annexation of any property or the dissolution of any local water district.
  5. Promote efficiency and longevity of the municipal water system by including sustainability\* principles in the City's planning, design, construction and operations standards and guidelines.
  6. Water storage facilities shall be designed and constructed, where practical, to minimize scale, bulk, and visual impacts on adjacent uses through methods such as setbacks, landscape screening, below grade construction and use of appropriate colors and materials.

## Recommended Action Measures

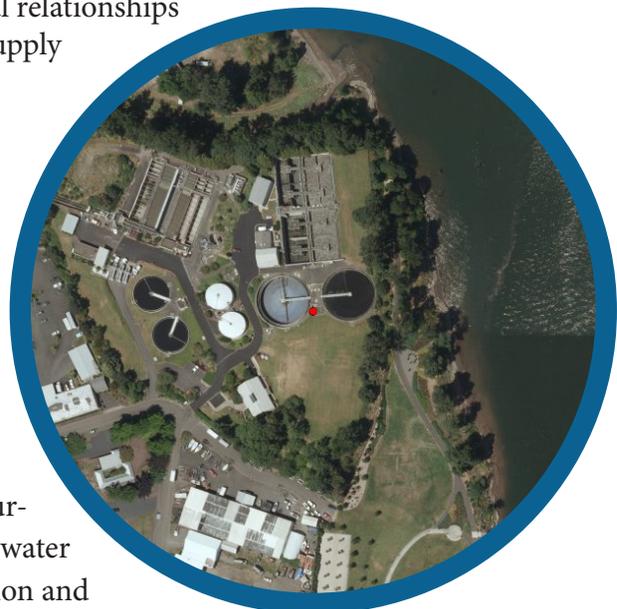
- A. Maintain and implement a water system master plan and capital improvement program to prioritize needed improvements.
- B. Maintain a supply of treated water that meets or exceeds all state and federal standards.
- C. Plan and manage the water utility to address all state and federal requirements, including provisions for emergency response and water conservation.
- D. Design, operate, and maintain the City's water system to provide adequate fire protection to the residents, businesses and institutions served by the City's system.
- E. Take actions to protect Lake Oswego's water rights on the Clackamas and Willamette Rivers.
- F. Ensure adequate revenues are derived from the supply of water to provide for operation and maintenance expenses, capital construction, and to preserve the financial integrity of the utility.
- G. Develop and maintain a system development charge methodology and ordinance that requires developers to be responsible for their proportionate share of the cost of providing required public facilities and services.
- H. Ensure the costs of extending water lines and construction of other related improvements accrue to those who benefit through measures such as connection fees, systems development charges, zone-of-benefit and other cost recovery methods.

- I. Ensure water storage and distribution facilities are adequately maintained to ensure a reliable supply at adequate flows and pressure, protect water quality and minimize water loss.
- J. Reduce water consumption and water loss through effective conservation programs, the application of new technologies and ongoing maintenance and replacement of deteriorated lines.
- K. Where practical, in new development require property owners to eliminate private ground water wells as drinking water sources and require connection to the City's water system.
- L. Develop agreements with other water providers that:
  - i. Define short and long term service provision roles for the City and other service providers;
  - ii. Specify the terms and conditions of withdrawal of territory from other service providers and the transition of capital facility ownership and administration to the City;
  - iii. Provide for coordination of plans and programs between the City and other service providers; and,
  - iv. Ensure services are provided consistent with the City's adopted Public Facility Plan.
- M. Promote and support local and regional efforts to protect and manage the Clackamas and Willamette River watersheds for municipal uses.
- N. Participate in regional and subregional relationships with other agencies regarding water supply planning and management.

## **PUBLIC FACILITIES AND SERVICES: WASTEWATER COLLECTION AND TREATMENT**

### **Background**

The City adopted a Wastewater Master Plan (WWMP) in 2013. The WWMP contains a current inventory and analysis of the City's wastewater collection infrastructure, including its condition and capacity, and a plan for management and operation of the system. The WWMP plan policies and criteria guide wastewater infrastructure improvements. The Wastewater Plan also establishes specific criteria for evaluating the capacity of the wastewater collection system as the City grows pursuant to Statewide Planning Goal 11. The plan is based on the City providing service to all properties within its Urban Services Boundary.



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The wastewater system is defined as the City's wastewater major collector pipelines, pump stations, and septic tank effluent pumps (STEPs). The service area is equal to the existing Urban Service Boundary. The City does not have a wastewater treatment plant. The majority of the wastewater is conveyed to the City of Portland's Tryon Creek Wastewater Treatment Plant (TCWTP) located in Lake Oswego. The remainder is conveyed to Cleanwater Services facilities, in Tigard. The City operates and maintains approximately one million feet of wastewater pipes, 12 pump stations, and 21 septic tank effluent pumps.

The Lake Oswego Interceptor Sewer (LOIS) was constructed in the early 1960s, submerged below the surface of Lake Oswego. The system included almost 3.5 miles of varying diameter pipe traversing Lake Oswego, canals, and bays. The interceptor was originally designed to handle sewer flows from about 3,500 developed acres, but by the end of its lifetime was collecting flows from a 4,500-acre service area, way beyond its capacity. Additionally, the system was vulnerable to flooding, storm events, and seismic events. Severe breaks in the pipeline would have dumped raw sewage into the lake and also caused millions of gallons of lake water to drain through the pipe, potentially overwhelming the treatment plant and impacting the Willamette River. In 2012, the City completed the rehabilitation of LOIS.

The WWMP analyzes capacity of the wastewater system based on current and future land uses/growth; condition of infrastructure; and regulatory requirements. It prioritizes improvements that correct system deficiencies to ensure public safety and protect the community's investment in the existing infrastructure system. The WWMP recommends projects within the City limits, including a Repair Program to fix old, deteriorated pipes, and an Improvement Program. Projects include replacing and resizing infrastructure, increasing capacity, and reducing demand on the system through reducing storm water infiltration and inflow. It also includes an Expansion Program that looks at projects needed to provide more capacity to serve the entire Urban Service Boundary over time.

## Summary of Major Issues

The wastewater system is aging. During rain events, it experiences flows more than 10 times higher than the base (dry weather) flow, which usually indicates that there are improper storm connections to the sanitary sewer (infiltration and inflow) or the collection system has deteriorated. This can result in more demand, requiring larger sewer pipes and pump stations, and wastewater treatment plant capacity. It can also cause sewer overflows.

## Goals And Policies

### Goal

Provide adequate and efficient wastewater collection and treatment systems to meet the present and future needs of Lake Oswego residents and businesses, improve the City's environmental quality, and serve land uses within the Urban Services Boundary.

## Policies

1. Maintain code requirements that require developers to:
  - a. Provide adequate wastewater collection to all new development; and,
  - b. Pay an equitable portion of costs associated with extending service.
2. Require all new development within the City to connect to the City's wastewater collection system and pay a system development charge.
3. Require connection to the City's wastewater collection system when existing septic systems fail and City wastewater collection service is available, in accordance with state Department of Environmental Quality requirements.
4. Extend wastewater collection service to:
  - a. Declared health hazard areas within the Urban Services Boundary; and
  - b. Property within the City limits.
5. Allow the use of private pumping systems in those areas and situations where conventional gravity sewer systems are not practical.
6. Prohibit the construction of structures that would prevent access to public sewer lines and easements.
7. Coordinate with other wastewater utility providers, public agencies, and City public facility programs to promote efficiency.
8. Maintain and implement intergovernmental agreements with the City of Portland and Clean Water Services to treat Lake Oswego's wastewater, and coordinate Lake Oswego's collection system policies with these entities.
9. Provide and maintain code standards that promote water conservation in new development and in redevelopment projects to minimize impacts to the wastewater collection system.
10. Allow through appropriate land use and development standards modifications or expansions of the Tryon Creek Wastewater Treatment Plant (TCWTP) to address new regulatory and environmental conditions, while avoiding or mitigating negative off-site impacts to adjacent land uses.
11. As part of the City's Public Facility Plan, maintain a plan for a wastewater collection system that serves land within the City's Urban Service Boundary.

## Recommended Action Measures

- A. Maintain the existing wastewater collection system to preserve its viability and minimize future capital costs.
- B. Prioritize improvements to control and reduce infiltration and inflow of storm and ground water into the wastewater collection system.
- C. Provide adequate funding sources for wastewater collection system capital projects listed in the Public Facility Plan.

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- D. Work with the City of Portland and the Cleanwater Services of Washington County (USA) to ensure that the Tryon Creek and Durham Wastewater Treatment Plants maintain adequate capacity to ultimately serve lands within the Lake Oswego Urban Services Boundary.
- E. Encourage innovative ways for new development and redevelopment to minimize impact on the wastewater system, such as graywater systems (reuse of shower and bath wastewater, bathroom sink water, kitchen sink and laundry wastewater onsite).
- F. Coordinate with Metro and other jurisdictions to identify efficient, economic and environmentally sound long term regional wastewater collection and treatment options.
- G. Ensure the costs of extending sanitary sewers accrue to those who benefit through such measures as connection fees based on the number of residential units or commercial or industrial equivalents; methods to pay for needed line over-sizing, such as zone-of-benefit agreements; and payment of system development charges.
- H. Maintain intergovernmental agreements with the City of Portland and Clean Water Services to treat Lake Oswego's sanitary sewage at the Durham and Tryon Creek Treatment Plants, that are financially equitable, ensure adequate capacity is available to serve Lake Oswego, and provide for close cooperation and coordination in matters which may affect the City of Lake Oswego.
- I. Maintain and improve the existing sanitary sewer collection and treatment system through preventive maintenance and ongoing evaluation.
- J. Encourage Clackamas County to advise property owners seeking new septic system or repair permits within the Urban Services Boundary that they may be required to connect to the City's system when they are annexed to the City even if there are no documented problems with the existing system.
- K. Encourage Clackamas County to stop issuing new septic tank permits where there has been a pattern of recorded system failures or documented aquifer pollution.
- L. Require new sanitary sewers to be constructed using methods and materials that prevent infiltration and inflow.
- M. Request Clackamas County to inform the City of septic failures and requests for repair within the Urban Services Boundary.

## SOLID WASTE MANAGEMENT

### Background

This chapter, in addition to guiding the location and design of solid waste facilities for compatibility with land uses, takes an integrated approach to resource management. The recommended action measures respond to Metro's 2008 Regional Solid Waste Management



Plan, which provides a framework for coordinating solid waste and recycling programs in the region and encourages waste reduction. The regional plan includes a state-required waste reduction program that takes a system-wide approach to waste management. Currently, the City contracts with private firms for waste management services, but also supports waste reduction through its Sustainability Plan for City Operations and with education and outreach to businesses and residents.

## Summary of Major Issues

Reduction of overall consumption reflects the findings of the Lake Oswego Greenhouse Gas Inventory. This is achieved through recycling of materials. To eliminate waste and pollution, an emphasis on a closed-loop system of production and consumption is necessary. This idea translates to maximizing resource conservation and minimizing environmental impacts by reuse of materials, reducing the amount of solid construction waste being diverted to landfills, and waste reduction in building and infrastructure construction. An example of how the City can work toward this goal is by encouraging deconstruction of buildings during demolition to recover reusable building materials.

## Goals And Policies

### Goal

Reduce the community's overall generation and toxicity of solid waste.

### Policies

1. Require sufficiently sized, screened and enclosed space for recycling, composting, solid waste storage and compacting within industrial, commercial, mixed-use, institutional and high-density housing developments. Ensure proper access for waste hauler vehicles to these areas.
2. Allow recycling and recovery uses in appropriate zones and subject to standards and regulations for land use compatibility; ensure adequate setbacks, buffering and screening are provided to mitigate impacts on adjacent land uses.

## Recommended Action Measures

- A. Implement a city-wide solid waste and materials management program that:
  - i. Follows Oregon's hierarchy for the management of solid waste: waste prevention, reuse, recycling, composting, and energy recovery, with safe disposal as the last option;
  - ii. Promotes the highest and best use of recovered, reusable and recyclable materials;
  - iii. Is cost effective, efficient and environmentally responsible;
  - iv. Is coordinated with regional plans and is consistent with regional and State materials recovery rates and recycling requirements.

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- B. Promote recycling and reuse opportunities that are accessible to all households, businesses and institutions, including convenient access to recycle items not collected curbside.
- C. Use education and incentives to increase participation in recycling programs thereby reducing materials consumption and associated Greenhouse Gas emissions.
- D. Promote solid waste recycling, reuse and disposal options by providing for the licensing and permitting of provider(s) through franchise agreements.
- E. Discourage unauthorized dumping through public education and enforcement actions.
- F. Prevent hazardous wastes from entering the waste stream through public education, enforcement, and City government operations that emphasize proper handling and disposal.
- G. Reduce the amount of goods consumed by City government operations by utilizing recycled, resource efficient, low carbon, least toxic and durable materials in both daily operations and capital projects; and by maintaining in-house waste prevention, recycling and composting programs.
- H. Use education, incentives and other efforts to increase recycling of reusable building materials and deconstruction instead of demolition during private and public construction.

## SOUND QUALITY

### Background

A quiet environment contributes significantly to Lake Oswego's quality of life. Studies have shown that there are direct links between noise and health. Noise can diminish or disrupt one's quality of life and can have negative impacts on the natural environment.

The State of Oregon currently has laws regulating noise from new and used motor vehicles, industry and commerce, motor sports vehicles and facilities, and airports. Although state noise laws are in effect, the Oregon Department of Environmental Quality no longer enforces these regulations leaving local jurisdictions primarily responsible for regulating noise and preventing noise problems.

Currently, noise impacts are regulated by the City through a noise ordinance and development standards that prescribe regulations to prevent or mitigate noise impacts caused by new development. The City's Municipal Code regulates loud and disturbing noise as a nuisance and has specific noise prohibitions relating to:



- The keeping of animals
- Mechanical equipment
- Horns and sirens
- Noise amplification devices
- Gathering of persons
- Construction hours

In addition, Lake Oswego's development standards for buildings and landscaping require mitigation of noise impacts on interior occupied spaces and adjacent properties.

In general, it is more effective to mitigate for or separate new noise-generating uses from noise-sensitive uses than it is to address existing, on-going noise problems. This can be achieved by separating noise generating activities from noise sensitive uses, limiting the hours of operation where land uses generate noise, or requiring noise insulation techniques to be utilized in new construction. Communities can also work to prevent noise problems from occurring, especially in residential neighborhoods, through public education. However, enforcement of noise ordinances is the principal method cities use to address noise disruptions when they do occur in residential neighborhoods.

Noise regulations are enforced by the Lake Oswego Police Department and the City's code enforcement specialist; however, there is no on-going noise monitoring program and problems are dealt with on a complaint basis. Enforcement is often challenging because the City has no regulations that establish maximum allowable decibel or sound levels.

In general, the existing goals, policies, and recommended action measures for Sound Quality in the 1994 Comprehensive Plan are still relevant; however, to specifically address noise quality, the City may want to assess whether certain land uses need to be identified as "noise-sensitive" and consider establishing maximum acceptable decibel levels for certain types of equipment or uses to minimize noise impacts. This might require the City to balance potentially competing policies, such as those that support noise regulations with those that support mixed-use development and increased densities in designated areas.

## Summary of Major Issues

As the number and size of vacant, developable parcels decreases, and more infill and redevelopment occurs, the potential for noise conflicts increases. Because noise complaints are difficult to resolve after an area is developed, potential noise impacts should be considered during review of development applications. Noise mitigation through site or structure design, or by limiting the hours of noise emissions, should be explored at the development phase to help prevent noise conflicts.

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Development standards can be established to regulate the location, hours of operation, or maximum decibel levels of noise generating activities adjacent to noise-sensitive areas or to require noise abatement through the use of building material, vegetation, walls, berms, and other landforms. The effectiveness of each of these techniques should be evaluated so that one technique alone is not relied upon to provide adequate sound mitigation. It is also important to note that this is an imprecise way of controlling noise impacts because tenants and land uses may change after a building is constructed.

Techniques for enforcement and monitoring should also be considered. Development standards can establish maximum decibel levels, but this can be more difficult to enforce since noise levels are often perceived differently by individuals. The City's capacity to investigate noise violations and enforce the code would also have to be considered in adopting any new standards. A source for maximum noise levels for different types of uses is ORS Chapter 340, Division 35.

The Goal 6 chapter of the 1994 Comprehensive Plan contained the following Sound Quality Goal "reduce noise levels in Lake Oswego and maintain the quiet character of the community in which people can converse, relax, play and sleep without interference from noise." Given Comprehensive Plan's focus on infill development and redevelopment, it may be more realistic to maintain current noise levels or to mitigate for noise impacts than to reduce noise levels.

- Land uses that are considered noise-sensitive should be defined more clearly to indicate if there are particularly sensitive areas in the City that should be protected from new noise impacts (i.e., specific natural areas or significant sites).
- As the City continues to develop (mainly through infill and redevelopment), the potential for noise conflicts will naturally increase, particularly where mixed-use development occurs. Assure that code standards address noise concerns, for example, through conditional use criteria, but do not add unreasonable costs or delays to the development review process.
- A policy to establish maximum decibel levels for certain (new) equipment and uses should set reasonable limits on these noise sources to protect quality of life, while being measurable and verifiable.

## Goals And Policies

### Goal

Minimize the negative impacts of noise on dissimilar uses and preserve the quiet character of residential neighborhoods.

### Policies

1. Preserve and maintain the quiet character of residential neighborhoods, public open spaces, natural parks and parks with natural elements through zoning regulations and development standards.

2. Develop and maintain standards for mixed-use projects and conditional uses that prevent or mitigate negative noise impacts\* on noise-sensitive land uses.\*
3. Develop and maintain code requirements that mitigate noise through site design and development requirements for major public facilities to prevent negative impacts on noise-sensitive land uses.
4. Minimize negative noise impacts on noise-sensitive land uses through design features such as buffers when improving major transportation facilities.\*
5. Maintain the quiet character of residential areas through regulations that address new development, infill, the interface between different types of abutting land uses and associated mechanical equipment through such regulations as adequate setback requirements, height restrictions, buffering and performance standards.

## Recommended Action Measures

- A. Coordinate with area jurisdictions and state and local agencies to minimize noise impacts of existing and future transportation facilities and other noise-producing land uses.
- B. Prepare and maintain development standards requiring review of the potential noise impacts of new development, including roads, and the need for mitigating measures such as:
  - i. Building setbacks;
  - ii. Berms, sound walls and extensive landscaping;
  - iii. Site design measures such as using parking, storage areas and buildings that generate little or no noise and separate noise sources from surrounding land uses;
  - iv. Sound insulation and state of the art mechanical and processing equipment that generates little or no noise;
  - v. Measures recommended by DEQ or a qualified noise consultant and financial agreements to ensure required noise reduction measures are installed;
  - vi. Increased rights-of-way for major arterials and berming, sound walls, sunken roadways, and planting of large shrubs and trees;
  - vii. Traffic management measures to discourage through traffic from using local residential streets; and,
  - viii. Regulate hours of construction activity to minimize the noise impacts on the surrounding area.
- C. Update existing Community Development Code provisions to provide both clear and objective standards and performance standards for noise mitigation. The Code should contain a chart with acceptable noise levels based on adjacent land uses.
- D. Coordinate with the City of Portland to establish performance standards for the Tryon Creek Wastewater Treatment Plant, including provisions for noise mitigation.
- E. Examine railroad noise mitigation or reduction measures for neighborhoods and districts located adjacent to a railway.

## ENERGY AND ENVIRONMENT

### Background

An immense amount of energy is needed to move people and goods, power our buildings and manufacturing, heat the air and water in our homes, and to grow the food we eat. Much of that energy is from non-renewable supplies, such as oil, coal, and natural gas. As energy supplies and pricing become more uncertain, strategies to reduce reliance on non-renewable energy\* sources become more critical.

Energy issues and climate change are closely interrelated. Responses to climate change can be put in two categories: mitigation or adaptation. Mitigation focuses on reducing the amount of human-caused greenhouse gases (GHGs) entering the atmosphere; while climate adaptation and resilience strategies address the impacts of climate change on communities and people's abilities to adapt.

*Oregon Climate Change Adaptation Framework*, developed by the Department of Land Conservation and Development, Oregon Climate Change Research Institute, Oregon University System, and other state agencies in 2010, outlines the likely physical changes that can be expected from climate change, and the initial low-and no-cost strategies state and local government can take to adapt to these changes. The strategies include increasing energy and water efficiency now to reduce the need for more expensive, additional supplies in the future; as well as building infrastructure, such as storm treatment facilities, that can handle extreme storm events now, rather than paying for the costs of repair and cleanup in the future.

Lake Oswego has been working to address energy and climate issues for many years. The 1994 Comprehensive Plan addressed energy conservation (Goal 13) as well as air resources quality (Goal 6, Section 1) and solid waste management (Goal 6, Section 3). These goal areas did not directly address climate change; however, the impacts associated with climate change are better understood now and have become more critical to manage.

In 2005, the City Council signed the U.S. Mayor's Climate Protection Agreement, which was reaffirmed by the City Council in 2009 (Resolution 09-09). As of May 2012, 16 cities in Oregon and 34 cities in Washington State, have signed the Agreement.



## Summary of Major Issues

Since 2007, the City has conducted two Greenhouse Gas (GHG) emissions inventories for City operations (2008 and 2009). Targets and strategies were identified to reduce energy use, decrease fuel consumption, increase recycling and decrease overall solid waste, and conserve water, all actions that will reduce overall emissions from City operations. These are several of the actions identified in the City's Sustainability Plan for City operations (adopted by the City Council in 2007, Resolution 07-60).

The City's Sustainability Advisory Board (SAB), formed by City Council in 2008, identified a community-wide GHG inventory as a first step to better understand the community's carbon footprint and establish a baseline from which to identify the most effective strategies for reducing emissions while meeting multiple community benefits and objectives. However, funding was not immediately available to start this work or develop a community climate action plan. SAB then decided to work toward integrating sustainability and climate action into the Comprehensive Plan as a more holistic strategy and opportunity.

In August 2009, the City received an allocation from the U.S. Department of Energy's Energy Efficiency and Conservation Block Grant (EECBG) program. The purpose of the EECBG program is to assist eligible entities in creating and implementing strategies to:

- Reduce fossil fuel emissions in a manner that is environmentally sustainable and, to the maximum extent practicable, maximizes benefits for local and regional communities;
- Reduce the total energy use of the eligible entities;
- Improve energy efficiency in the building sector, the transportation sector, and other appropriate sectors; and
- Create or retain jobs.

Based on the Energy Efficiency and Conservation Strategy prepared as a requirement of the grant program (approved by City Council, Resolution 09-65), in early 2010 final approval was granted to the City to use EECBG funds to implement the following projects:

- Establish an Energy and Emissions Management System for City Facilities;
- Conduct Education and Outreach;
- Retrofit Outdoor Lighting at City Facilities;
- Conduct a Community GHG Emissions Inventory;
- Fund an Energy Management Pilot for the Lake Oswego School District;

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- Participate in Clackamas County Energy Efficiency on Main Street Program (rebates for energy efficiency upgrades for main street businesses); and
- Participate in Clean Energy Works of Oregon (incentives and on-bill financing mechanism for energy efficiency retrofits to single-family homes).

## Goals And Policies

### A. Energy Services

#### Goal

Ensure energy systems\* and communication systems are available to all development.

#### Policies

- A-1. Require developers to establish and ensure the preservation of easements necessary to provide energy and communication services and systems.
- A-2. Require new energy and communication utilities to be placed underground where practical.
- A-3. Prepare and maintain development standards for small-scale renewable energy systems that ensure compatibility of those systems with adjacent land uses.

### B. Energy Conservation and Resilience

#### Goal

Reduce net community energy use and carbon emissions to increase Lake Oswego's long-term resiliency\* and decrease costs.

#### Policies

- B-1. Encourage implementation of the Connected Community policies and action measures to increase the share of trips made by modes other than single-occupant vehicles.
- B-2. Encourage implementation of the Solid Waste Management policies and action measures to reduce materials flows (foods, goods and services).
- B-3. Adopt and maintain infrastructure design standards that support long-term resilience.\*
- B-4. Locate and design public facilities to minimize life-cycle costs, including costs associated with energy and water consumption.

### C. Energy Efficiency and Renewable Energy

#### Goal

Increase energy efficiency and the use of renewable energy improvements.

## Policies

- C-1. Develop regulatory incentives that encourage new development and redevelopment projects to incorporate green building practices\* while maintaining compatibility with adjacent land uses.
- C-2. Prepare and maintain plans, zoning regulations and development standards that support energy-efficient development, such as infill, redevelopment, and rehabilitation of existing buildings, in Employment Centers, Town Centers and Neighborhood Villages.
- C-3. Promote energy efficiency and renewable energy use through the application of code standards during the site planning process.
- C-4. When adopting or updating code standards that promote energy efficiency and renewable energy use, in all types of development, consider compatibility with surrounding land uses and provide flexibility to implement new technologies.
- C-5. Promote energy-efficient land use and circulation patterns by allowing mixed-use development in Employment Centers, Town Centers and Neighborhood Business/Commercial districts.

## Recommended Action Measures

- A. Utilize full life-cycle cost analysis for new public buildings, and strive to achieve zero net energy and water consumption that produces no wastes or toxics.
- B. Periodically review and update the City of Lake Oswego Sustainability Plan, to reduce carbon emissions, and energy and water consumption in City operations and facilities.
- C. Assess the development code to identify barriers to implementation of small-scale renewable energy generation, storage, and delivery systems, including compatibility with surrounding uses.
- D. Prepare and maintain development standards that promote energy efficiency and address compatibility with surrounding land uses by balancing a range of options:
  - i. Maintain and improve the City's Solar Access standards to encourage development and redevelopment projects to maximize natural heating/lighting.
  - ii. Encourage development and redevelopment projects to maximize natural cooling by retaining native trees.
  - iii. Provide standards for the placement of energy generating equipment, such as solar panels and wind turbines, and for the installation of systems that collect renewable energy or water, such as cisterns for rain water.
  - iv. Maintain development standards and building codes that are consistent with the current technology in energy-efficiency and water conservation.
- E. Encourage development to achieve energy efficiencies beyond state codes through a mix of incentives, technical assistance, and education.
- F. Support deconstruction (selective dismantlement of building components, specifically for reuse, recycling, and waste management) rather than demolition of structures where a site is cleared of its building by the most expedient means.

## ACCESS TO LOCAL FOOD

According to the Centers for Disease Control and Prevention (CDC), “The way we design and build our communities can affect our physical and mental health. Healthy community design integrates evidence-based health strategies into community planning, transportation, and land-use decisions.”<sup>1</sup> One element of healthy community design is providing access to healthy food.

Until recently, access to food was not considered a part of local planning and zoning. Recently, the health and planning fields have been working together to demonstrate the importance of access to local foods and the impacts it has on community health. Lake Oswego is fortunate to have access to locally grown produce, fish, meat, and dairy products. During public workshops on the Comprehensive Plan update, the community expressed an interest in maintaining and improving access to local food as well as providing education to the community about the benefits of local food.



### Clackamas County

The Clackamas Agricultural Investment Plan (June 2012) is a comprehensive strategy to increase local food production, processing, distribution and consumption in Clackamas County and the region. The plan recommends substituting local food for imported food as a primary economic strategy. Research indicates that the county currently has productive farmland capacity to meet future demand for most regional fruits and vegetables. Under Oregon’s statewide planning program, cities are not expected to plan and zone land for agricultural uses. However, Lake Oswego can take advantage of its proximity to local farms, including its own Luscher Farm.

According to the 2025 Parks Plan, “food production has re-emerged in the urban landscape in the form of community gardens that have popped up in vacant lots, parks, and even rooftops. These gardens, along with farmer’s markets, community-supported agriculture, food co-ops, and seed-savers groups are part of a larger movement to localize food production—an alternative to the global corporate model of our food industry. The local food system connects consumers with growers, supports small farmers, preserves agricultural heritage, and ensures the availability of nutritious organic food.”

1 <http://www.cdc.gov/healthyplaces>

The City currently has one community garden at Luscher Farm, which has over 180 garden plots. Many schools, garden clubs, local merchants, nurseries, civic groups and individuals help make the garden a community gathering place and great source of pride.

### **Community Supported Agriculture (CSA)**

Community Supported Agriculture (CSA) consists of a network of individuals who have pledged to support one or more local farms, with growers and consumers sharing the risks and benefits of food production. Members or “share-holders” of a CSA farm pledge to cover the anticipated costs of the farm operation and farmer’s salary, and in return receive a weekly box of produce through the growing season. Luscher Farm currently hosts one CSA farm.

### **Lake Oswego Farmers’ Market**

The Lake Oswego Farmers’ Market takes place on Saturdays from mid-May through mid-October on the east end of town at Millennium Park. Vendors include farms from the Metro area as well as a few other vendors selling crafts, furniture, food items, etc. The market is part of Lake Oswego’s culture and has proved to be a place to connect with friends and neighbors.

### **Farm Stands**

Farm stands are businesses that sell produce and seasonal items such as flowers, and trees and wreaths during the holidays, typically from an unenclosed space. Farm stands often sell local food but may sell other produce as well, and they may or may not be owned and operated by a local farmer. Farm stands have been an important part of the social life of the Lake Oswego residents. Farm stands may be smaller than farmers’ markets but they can also be more intensive than a farmers’ market if they are a daily use of the site. Potential land use considerations include traffic, parking and aesthetics. In summary, farm stands can contribute to making local food available, and should be addressed in the City’s land use codes.

### **Local Education Opportunities**

The City manages a demonstration garden at Luscher Farm. The garden features a variety of organic food growing demonstrations, from year-round gardening to urban composting techniques. The garden is a teaching tool for the public to learn about organic gardening techniques and serves as a hands-on classroom during workshops. The goal is to educate urban gardeners about the ease and abundance of organic gardening and supply them with the resources needed to put organic techniques into practice. The farm is open daily to the public from dawn until dusk.

## **Goals And Policies**

### **Goal**

Provide the opportunity for residents to access a variety of local food options.

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## Policies

1. Allow farmers' markets, farm/produce stands\* and community gardens where they are compatible with the surrounding uses.
2. Preserve agricultural land as designated in the Luscher Farm Master Plan.
3. Allow gardens as an accessory use in all residential zones where residents may grow and raise their own food.

## Recommended Action Measures

- A. Review and update the Community Development Code to remove regulatory barriers to providing local food options within Employment Centers, Town Centers, and Neighborhood Villages.
- B. Review and update the Community Development Code to provide standards for the raising of fowl.
- C. Maintain access to Community Supported Agriculture.

## NATURAL HAZARDS\*

### Background

There are three major drainage basins within the City's Urban Service Boundary: Oswego Lake, the Tualatin River, and the Willamette River. The City has many steep wooded hillsides and streams that drain into these basins. The 2010 City of Lake Oswego Natural Hazards Mitigation Plan (NHMP) identifies six major hazards that potentially affect the City: floods, landslides, severe storms (wind and winter), wildfires, earthquakes, and volcanoes. The 1994 Comprehensive Plan only addressed three: floods, earthquakes, and landslides. The risks associated with natural hazards increases as more lands affected by natural resources are developed. The inevitability of hazard events creates a need to develop strategies, coordinate resources, and increase public awareness to reduce risk and prevent loss of property and life. For example, preserving natural areas along river and stream banks allows those areas to act as flood storage areas, and preserving and managing woodlands on steep slopes may reduce the likelihood of landslides and/or wildfires.



Since the 1994 Comprehensive Plan Update, the City has experienced a number of events related to hazards, including the following:

- Rising flood levels\* with the 1996 storm.
- Significant landslides.
- 2008 floodplain\* map adjustments, which brought more properties and/or more area of specific properties under floodplain regulations.
- Dam improvements completed by the Lake Corporation that modify the floodplain elevation for other properties.
- Along with other critical facilities and infrastructure,\* the City's sewer and water systems are vulnerable to flooding, landslides, and seismic events; the Lake Oswego Sewer Interceptor project, completed in 2012, realigned and updated the City's main sewer line within Oswego lake. The City's municipal water system is undergoing repairs and updates in partnership with the City of Tigard.

## Lake Oswego Natural Hazard Mitigation Plan (NHMP)

In coordination with Clackamas County and other jurisdictions, the City began efforts to address the interconnectedness of disaster impacts and to take a more regional approach to natural hazard planning. The City drafted and adopted the Natural Hazards Mitigation Plan (NHMP) in 2004 as a local response to the larger Clackamas County NHMP, which must be updated and approved by Federal Emergency Management Agency (FEMA\*) every three years. The City's NHMP is a community-wide inventory of assets that are vulnerable to natural hazards and an analysis of an asset's risk exposure to each hazard. The most recent NHMP update was adopted by the City Council in 2010. If kept up-to-date, the City remains eligible for hazard mitigation project federal grants.

The plan is non-regulatory in nature and includes goals and action items. It provides a foundation for coordination and collaboration among agencies and the public, identifies and prioritizes future mitigation activities, and aids the City in meeting federal planning requirements and qualifying for assistance programs. The NHMP works in conjunction with the City's Comprehensive Plan, the Capital Improvement Plan, Building Codes, Development Codes, as well as other county and state plans.

## Summary of Major Issues

### Bridges

There are sixteen bridges located in the City, all of which are vulnerable to flooding, landslides, and seismic events. Four of the bridges are not under the City's purview:

- Oswego Creek/Highway 43 bridge (maintained by Oregon Department of Transportation-ODOT),
- Briarwood Road Railroad Trestle (maintained by Willamette Shore Consortium),

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- Stampher Road Railroad Trestle (maintained by Willamette Shore Consortium and Willamette Pacific Railroad), and
- Summit Drive Railroad Bridge (maintained by Clackamas County).

The Public Works Department visually monitors bridge conditions to establish baseline condition information for comparison after a disaster. There is a disaster response plan attached to the manual with bridge closure/detour routes. The City's Public Works Department also maintains comprehensive inspection records on all bridges dating back 10–15 years. A full bridge condition assessment is planned in order to prioritize work in the upcoming years. Bridges recently upgraded include the following:

### Recently Upgraded Bridges

Bridge	When updated	Jurisdiction performing work
Oswego Canal Bridge (Kelok Road)	2008	City of LO
Oswego Canal Bridge on Childs Road	late 1990s, prior to annexation into the City.	Clackamas County
Springbrook Creek (to armor footings affected by water flow)	2011	City of LO
West Bay (to armor footings affected by water flow)	2011	City of LO

Federal funding is available to upgrade a bridge if it serves as a trucking/freight route, is the only way in or out of an area, is near a fire station/emergency provider, or serves as an official evacuation route. This funding would only apply to the Oswego Creek/Hwy 43 Bridge, which serves as a regional transportation route. All areas served by the 12 other bridges can be accessed using alternate local street routes and are not essential for evacuation or emergency services. These bridges would be closed in the event of an earthquake until further inspections are completed, as physical upgrades to current seismic standards have not been undertaken.

### Flooding

In 1996, a low elevation snowstorm followed by a major storm event led to massive flooding along the Willamette Valley's waterways. The Clackamas and Willamette River and their tributaries swelled beyond the 100-year flood\* level. This also caused unstable soil conditions, leading to landslides and debris flows throughout the region. The highest recorded flood levels

on the Tualatin River were documented, which impacted the Tualatin Canal and the level of Oswego Lake.

In 2002, the City of Lake Oswego partnered with Clean Water Services, a water resources management utility in the Tualatin River Watershed, to have a new flood study completed for Oswego Lake and the Oswego Canal. Clean Water Services was in the process of conducting a major flood insurance study of the entire Tualatin Basin. The Lake Oswego portion of the study generated new flood insurance rate maps (FIRMs) that depict a rise in the level of the base flood\* along the Tualatin River, the Oswego Canal, and Oswego Lake.

## **Landslides**

As noted in the 2010 NHMP, landslides and soil erosion\* hazards exist at different locations throughout the City due to the presence of hilly terrain, steep ridges, and ravines underlain by unstable geology and overlaid by soils which have low carrying capacity for structures. Expanded impervious surfaces can increase the volume and velocity of storm water runoff after a rainfall event. Since the last Comprehensive Plan update in 1994, a number of landslides (both minor and major) have occurred on Iron Mountain, in George Rogers Park and a landslide above Green Bluff Drive in the Marylhurst area. In 2010, a hillside at the rear of the Adult Community Center washed away sending dirt and debris into nearby Tryon Creek State Park.

## **Earthquakes**

The City's GIS Department has mapped the geographic extent of seismic hazards with zones ranging from Zone A (highest hazard areas) down to Zone D throughout the City.

## **Wildfires**

The City is characterized by numerous natural areas and open spaces, along with significant tree canopy and wildlife habitat. Recognizing that these natural features provide an essential part of the overall community character, the 2010 NHMP does not recommend removal of trees or habitat to reduce the risks of wildfires. Instead, the Plan recommends the preparation of an Urban Forest Fire Management Plan with research focused on wildfire and habitat protection in coordination with the City's Tree Code and natural resource protection regulations.

Clackamas County's Community Wildfire Protection Plan is a non-regulatory plan that representatives from the City's Fire Department participated in creating with Clackamas County and other local jurisdictions.

## **Goals And Policies**

### **Goal**

Minimize impacts and risk to life and property from natural hazards and disasters.

## Policies

### A. General Hazards Policies

- A-1. Promote consistency and implementation of the City's hazard planning through coordination between departments, programs, agencies, and jurisdictions.
- A-2. Work with DOGAMI,\* DLCD,\* Clackamas County and other agencies to maintain updated hazard inventories that inform potential development.
- A-3. Minimize development in hazard areas by promoting innovative site design, building design and density transfer.
- A-4. Locate new City infrastructure, public functions, major structures, and hazardous facilities in non-hazard areas where possible.
- A-5. Reduce the vulnerability of the City's critical facilities and infrastructure.
- A-6. Prioritize hazard mitigation projects listed in the City's Natural Hazards Mitigation Plan Addendum (NHMP).

### B. Flood Hazard Policies

- B-1. Apply flood management standards to areas defined and mapped as being within the City's Flood Management Area, which includes:
  - a. Land within the 100-year flood boundary as depicted on the most recent Flood Insurance Rate Maps (FIRM) and Flood Boundary and Floodway\* Maps created for the National Flood Insurance Program\* by the Federal Emergency Management Agency (FEMA).
  - b. The area of inundation by the February 1996 flood along the Willamette River, along the Tualatin River, and along the Oswego Canal south of Bryant Road.
- B-2. Continue to participate in the National Flood Insurance Program and comply with Federal Emergency Management Agency (FEMA) standards.
- B-3. Limit new development in the FEMA-regulated floodway, including filling\* and removal of earth, to the following uses provided that no increase in base-year flood levels occurs:
  - a. Public and private open space\* and recreational uses;
  - b. Water-dependent structures\* such as docks, piers, bridges, and floating marinas; and,
  - c. Public facilities, such as utilities, bridges or other improvement structures.
- B-4. Implement regulations and standards to ensure public facilities and development meet City, FEMA and Metro Title 3 and other regulatory agency requirements, and the following:
  - a. Reasonable protection of public facilities;
  - b. The flow, velocity and elevation of flood waters are not changed so as to endanger other property;

- c. Other problems associated with flooding such as ponding, poor drainage, high water tables and unstable soils are addressed.
- B-5. Improve flood control by protecting, restoring and maintaining the natural systems of floodplains including riparian vegetation, wooded areas and wetlands.
- B-6. Ensure public and private storm water systems are planned, developed, and maintained to prevent flooding, protect water quality, and preserve natural surface water systems to protect aquatic habitat (*See also, Surface Water Management policies*).
- B-7. Reduce flooding by promoting Low Impact Development practices that reduce impervious surfaces and promote infiltration of surface water (*See also, Surface Water Management Policies*).

### **C. Earth Quake Hazard Policies**

- C-1. When siting essential public facilities,\* evaluate hazard risk and location based on the most recent geologic and seismic studies.
- C-2. Require compliance with the current edition of the Oregon Structural Specialty Code regarding building design for earthquake resistance.
- C-3. Provide education and public awareness of earthquake risks and public safety.

### **D. Landslides, Erosion, and Unstable Soils Policies**

- D-1. Continue updating Community Development Code maps with the best and most current information to minimize hazards associated with soil erosion, landslides and unstable soils.
- D-2. Implement regulations, standards and incentives that ensure:
  - a. Appropriate engineering and site development measures to prevent damage from hazards associated with erosion, landslides and unstable soils;
  - b. Protection and restoration of natural and topographic features such as ridge lines and vegetation to preserve slope and soil stability;
  - c. Preservation of undisturbed slopes due to severe landslide and erosion hazard;
  - d. Protection of natural resources associated with steep slopes such as stream corridors, trees and other vegetation and wildlife habitat;
  - e. Erosion control measures; and,
  - f. Property owners include erosion and drainage control measures in site planning, during and after development, to prevent increases in surface water runoff, erosion and siltation.
- D-3. Control erosion through the following measures:
  - a. Minimize the disturbance of existing vegetation.
  - b. Preserve land identified with a potential for high erosion hazard as undisturbed slope, unless appropriate evidence demonstrates that engineering can effectively overcome soil and slope limitations.

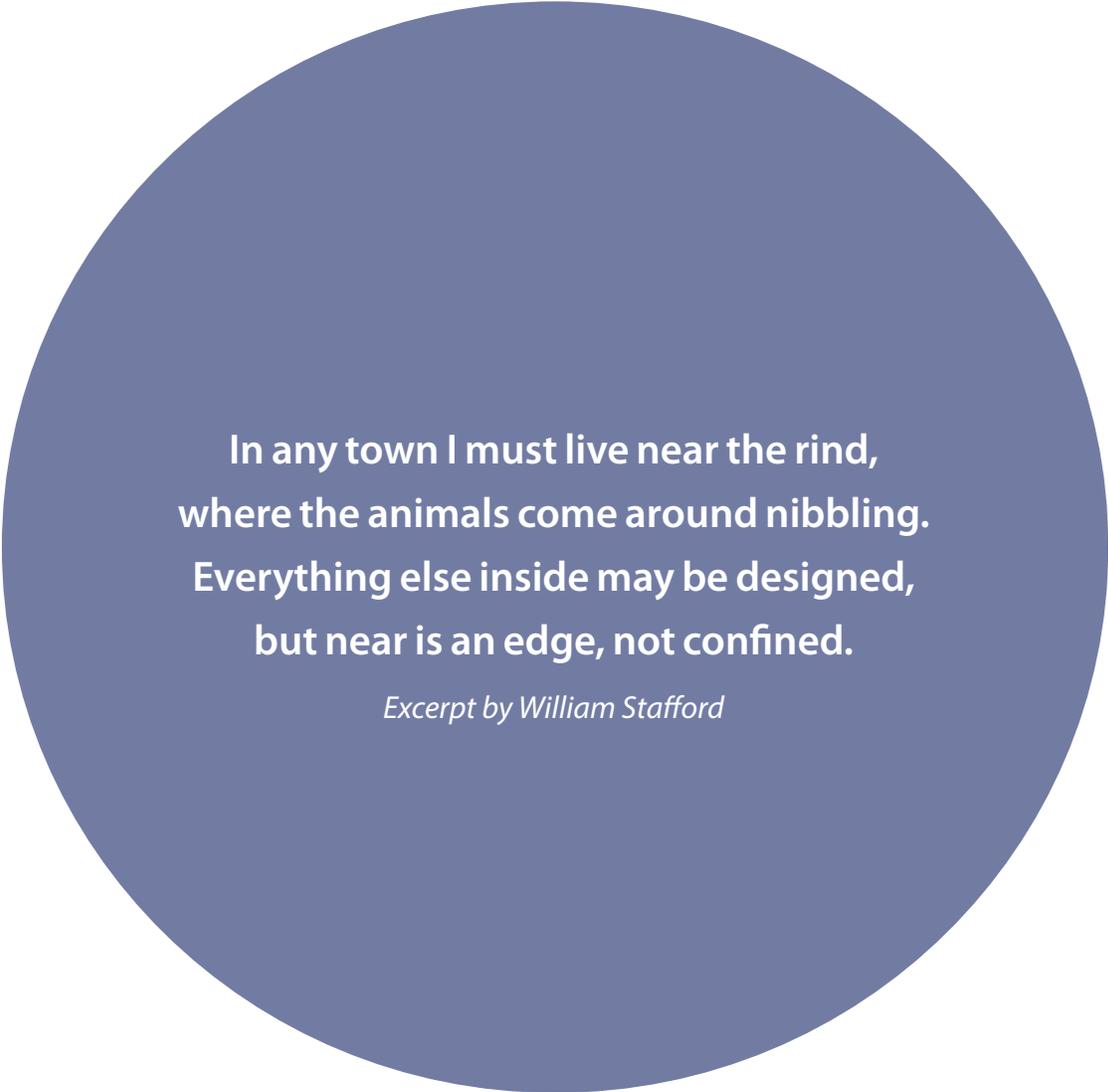
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- c. Promote Low Impact Development practices to reduce surface water volume and velocity.
- D-4. Ensure that public facilities\* and services are designed to withstand movement of soil and rock if locating in hazard areas is unavoidable.

## Recommended Action Measures

- A. Consider for park or open space acquisition undeveloped areas subject to high hazard ratings, consistent with the Parks Plan 2025 recommendations and City policy.
- B. Periodically update natural hazards inventory maps based on current information published by DOGMI, FEMA, and other applicable agencies.
- C. Update code provisions relating to hillside protection standards and weak foundation soils as new data and LIDAR maps become available, including clarifying the definition of high erosion hazard.
- D. Consider amending the Community Development Code to expand the use of density transfers as a way to avoid or reduce development impacts in areas subject to natural hazards.
- E. Encourage community/neighborhood-based emergency preparedness and response teams.
- F. Maintain current floodplain information for the Lake Oswego Urban Services Boundary and make it easily available to the public.
- G. Coordinate with the Army Corps of Engineers, Federal Emergency Management Agency and other responsible state, regional and local agencies regarding:
  - i. Periodic review and update of floodplain information;
  - ii. Review of major development which could have flood impacts across jurisdictional boundaries; and,
  - iii. Emergency operations planning necessary to protect life and property during a major flood.
- H. Encourage acquisition within the flood plain, of property and easements, as designated by the Lake Oswego Surface Water Management Plan, for conveyance and storage of floodwaters and for natural open space\* and passive recreation uses.
- I. Encourage Clackamas County not to approve on-site sewage treatment systems within the unincorporated Urban Services Boundary which would be impaired during flooding and which could contaminate floodwaters.
- J. Utilize other federal, state and local sources to estimate the floodplain's location if an area suspected to be subject to flooding has not been mapped by FEMA. If these sources are not available, the required information shall be provided by the developer.
- K. Encourage uses within the floodplain that do not require protection by dams, dikes or levees such as parks, open space areas, wetlands, and storm water detention facilities.
- L. Establish development regulations and standards to protect and restore watercourses within the floodplain that require:

- i. Buffers between development and water courses;\*
  - ii. Maintenance and restoration of natural vegetation; and,
  - iii. Erosion control and protection of water quality.
- M. Implementation of other measures necessary to maintain the water carrying capacity of water-courses and preserve their natural functions.
- N. Review and modify the City's Emergency Operations Plan as necessary to achieve a reduction in loss of life, personal injury and property damage in the event of an earthquake.
- O. Integrate earthquake safety planning into all City operations.
- P. Maintain and provide current earthquake information and Oregon Structural Specialty Code seismic requirements to developers and other interested citizens.
- Q. Assess potential seismic influences, damage potential and possible corrective actions to City sewer and water systems, bridges and other City facilities.
- R. Use DOGAMI's inventory of relative earthquake hazards in the Lake Oswego area to determine areas that will likely experience the greatest effects from any earthquake. This information can be used in refining the Emergency Operations Plan and determining relative damage potential of various locations.
- S. Supply information brochures on earthquake preparedness, to residents, schools and civic groups and make brochures available at the Library.
- T. Minimize ground disturbance during construction by retaining natural vegetation and topographic features such as natural drainage swales, rock outcroppings and ridge lines, to the greatest extent possible, and by using measures to minimize runoff during development and after construction.
- U. Require expected surface water runoff for all development to be controlled on site, where practical, in order to protect property, stream channels and stream corridors from present and future runoff and sedimentation.
- V. Promote slope and soil stability and use of the natural drainage system in areas of landslide potential, by retaining areas of existing vegetation to the greatest extent possible.
- W. Maintain a current inventory of landslide and unstable soil hazards.
- X. Reduce soil erosion problems by inspecting construction site controls, responding to complaints and providing enforcement.
- Y. Reduce intensity of development from that permitted by the zoning code or previous development approval, if necessary, to eliminate or reduce an erosion, landslide or unstable soil hazard.
- Z. Create a public awareness program to educate developers and the general public regarding the importance of erosion control, the City's erosion control program, and ways in which they can promote erosion control.



**In any town I must live near the rind,  
where the animals come around nibbling.  
Everything else inside may be designed,  
but near is an edge, not confined.**

*Excerpt by William Stafford*

# Urbanization



# Urbanization

## Statewide Land Use Planning Goal

The Urbanization chapter implements Statewide Planning Goal 14: Urbanization.

## Updates To Lake Oswego 1994 Comprehensive Plan

The Urbanization chapter updates the Lake Oswego 1994 Comprehensive Plan chapter by the same name (Goal 14: Urbanization). This element of the 1994 Plan was updated during 1997–1999 to address the Metro 2040 Growth Concept Plan. The current Comprehensive Plan Land Use Map is not proposed to change. Figures 17 through 20 (formerly Figures 26 through 29) have been updated to reflect the current Comprehensive Plan Land Use Map (Figure 2) and Employment Area designations in the Metro Functional Plan, which replace similar designations in the 2040 Growth Concept Plan; unlike the 2040 Growth Concept, the Metro Functional Plan does not designate the area between Kruse Way, Carman Drive and Boones Ferry Road as part of the regionally significant Employment Area to the east along Kruse Way and Meadows Drive. Figure 21 (formerly Figure 30), which shows properties eligible for sewer services prior to annexation, has also been carried forward.

# Urbanization

## Background

### Statewide Planning Goal 14: Urbanization

*“To provide for an orderly and efficient transition from rural to urban land use.”*

Urban growth boundaries shall be established to identify and separate urbanizable land from rural land. Establishment and change of the boundaries shall be based upon consideration of the following factors, pursuant to Statewide Planning Goal 14:

- Demonstrated need to accommodate long range population growth requirements consistent with LCDC goals;
- Need for housing, employment opportunities and livability;
- Orderly and economic provision for public facilities and services;
- Maximum efficiency of land uses within and on the fringe of the existing urban area;\*
- Environmental, energy, economic and social consequences;
- Retention of agricultural land as defined, with Class I being the highest priority for retention and Class VI the lowest priority; and,
- Compatibility of the proposed urban uses with nearby agricultural activities.

Lake Oswego grew from 33,145 to 36,770 people between 1995 and 2013 (Portland State University Population Research Center). This growth was anticipated and planned for by the Comprehensive Plan and public facilities plans. The residents of Lake Oswego have financed the facilities necessary to provide high quality urban services both for existing residents and in anticipation of serving the growth that will occur inside the City’s Urban Services Boundary (USB).\*

The Portland Metropolitan Urban Growth Boundary (UGB) coincides with the City’s urban services boundary. The UGB defines the limit of urban development and Lake Oswego’s sense of open space and community character is strongly influenced by the distinction created between the urban and rural landscapes.

The urban growth boundary is one of the primary tools that Oregon’s land use planning program has used to control sprawl, preserve valuable resource lands, and promote the coordinated and logical provision of public facilities and services. UGB’s are intended to provide sufficient buildable lands to accommodate urban growth for a minimum twenty year planning period. Within the Portland metropolitan area, Metro has the responsibility for establishing and managing the regional urban

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growth boundary. Pursuant to ORS 268.390 Metro is charged with “Adopt(ing) an urban growth boundary....in compliance with applicable goals adopted under ORS Chapters 195, 196 and 197”.

The task of developing the Portland Metropolitan Area UGB was initiated in 1976 when Metro’s predecessor, Columbia River Association of Governments (CRAG) adopted a “land use framework element” for establishing urban, rural, and natural resource designations for all land in Washington, Clackamas and Multnomah counties. Four years later, in 1980 the Metro urban growth boundary was adopted by the Metro Council and acknowledged by the Land Conservation and Development Commission (LCDC) as being in compliance with the statewide planning goals.

In 1987, as part of its urban growth management responsibility, Metro received notice from the Department of Land Conservation and Development (DLCD) to conduct periodic review of the urban growth boundary. Through this process, Metro determined that there was sufficient buildable land within the urban growth boundary to accommodate urban land supply needs beyond the year 2010.

Concurrent with periodic review of the urban growth boundary, Metro adopted the Regional Urban Growth Goals and Objectives (RUGGOs) in 1991. Development of the RUGGOs were required pursuant to ORS 268.380 (1), which states, “A district council shall: (1) Adopt land use planning goals and objectives for the district consistent with goals adopted under ORS 197.005 to 197.465.” The RUGGOs have a regional scope. They are intended to provide a policy framework for Metro’s management of the urban growth boundary and for coordination of Metro functional plans with that effort and each other.

In 1991 Metro initiated the 2040 Growth Concept. This process was intended to identify the approximate amount of land needed to accommodate the population and employment growth, and commensurate urban services for a 50 year period. The 2040 Concept Plan was intended to result in a more compact urban form, as each city in the region uses its land efficiently to accommodate increased densities and prevent urban sprawl.

The City of Lake Oswego actively participated in the development of the Metro 2040 Concept Plan from 1991 to 1996. The City provided leadership in coordinating the establishment of the North Stafford Area Policy Task Force as well its ongoing activities from 1992 through 1995. The Task Force was formed to coordinate local government and affected citizens groups’ involvement in planning for the North Stafford Area and participation in the Metro 2040 planning process. In December 1993, the Task Force unanimously adopted a Joint Position Statement regarding the impact of urbanization on public facilities, the environment, and the quality of life in the area and the adjoining cities of West Linn, Lake Oswego, and Tualatin.

The Task Force concluded that the Stafford Area should not be urbanized. The Task Force also found that the future land use pattern of the Stafford area should be comprehensively planned to:

- Preserve the air, water, and land resource quality of the area, and;

- Provide safe and efficient transportation consistent with the area's needs, and;
- Ensure that future development is consistent with the capacity of existing public facilities and services; and,
- Preserve the rural character and open space values of the area.

In addition, the Task Force agreed that it was important to establish criteria to evaluate any future Urban Growth Boundary Expansion. This joint position statement represented the collective view of the cities of Lake Oswego, West Linn, Tualatin, Clackamas County, the West Linn-Wilsonville School District and most residents of the North Stafford area. The City of Lake Oswego and its Task Force partners participated in numerous Metro meetings and hearings subsequently regarding the 2040 Growth Concept and RUGGO's.

Despite the City of Lake Oswego's consistent opposition to the expansion of the UGB and urbanization of the North Stafford area, the Metro Council designated 2,056 acres in the North Stafford area as urban reserve study areas on March 6, 1997. Metro Council's action raised the possibility that the City of Lake Oswego would be expected to provide urban services to approximately 1,200 of those acres. This would have profound consequences on Lake Oswego's fiscal resources and livability. Lake Oswego voters subsequently approved a City Charter amendment November 3, 1998 (Section 57) requiring a citywide vote on any proposed annexation of land within the Stafford basin, except for lands designated by Metro as First Tier Urban Reserve Areas\* pursuant to Metro Ordinance 96-655E. Section 57 does not apply to an annexation necessary to alleviate a health hazard in the area proposed to be annexed.

In 2007, the Oregon Legislature passed Senate Bill 1011, which allows Metro and the three counties within the Portland metro area to designate urban and rural reserves for a 40–50 year planning period based on factors other than the quality of agricultural soils. On August 21, 2010, Clackamas County adopted Urban Reserve Areas 4A and 4B (North Stafford Area), 4C (Borland Road), and 4D (South Stafford), under an intergovernmental agreement with Metro. The area comprises all of the land between the current Urban Services Boundary and I-205, and extends south of I-205 toward Wilsonville. The areas closest to Lake Oswego, Areas 4A, 4B, and 4C, combined, comprise approximately 4,700 acres. Currently, no city is willing or able to provide urban services to this area, and the cities of West Linn and Tualatin have appealed the County decision. As of 2013, the issue is unresolved.

Although Lake Oswego does not support urban levels of development in the Stafford area, the City believes that it is important to participate in discussions regarding future planning and development, in the event the area is included in a future expansion of the urban growth boundary. Therefore, it is in Lake Oswego's best interest to develop policies regarding how growth will be financed, and to develop a growth management program and implementing measures that will maintain the City's quality of life. For example, the City maintains Systems

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Development Charges for infrastructure to minimize public subsidy of City services for the limited growth that can occur within the current USB.

Specific urban growth boundary amendment procedures have been adopted by the Metro Council and acknowledged by the LCDC, which include maintenance by Metro of regional population and employment forecasts, and buildable lands inventories.

The City of Lake Oswego has adopted Metro's 2035 population and employment forecasts, as contained in the Complete Neighborhoods and Housing and Economic Vitality chapters of the Comprehensive Plan. The City has also adopted a Housing Needs Analysis and Economic Opportunities Analysis, pursuant to State and Metro requirements.

The City and School District have constructed the basic facilities needed to serve the ultimate population anticipated for the current Urban Service Boundary (USB). The City and School District have been preempted by state law from charging new development for the costs of providing additional school capacity or police, fire and library facilities.

## Summary of Major Issues

The following are some of the issues and changed circumstances and conditions considered in the 1997 update of this element of the Comprehensive Plan that remain relevant in 2013:

- In 2010, Clackamas County adopted Urban Reserve Areas 4A (North Stafford), 4B (Rosemont), 4C (Borland Road) and 4D (South Stafford/Norwood) pursuant to its intergovernmental agreement with Metro. The area comprises the land between the current USB and Interstate 205, and extends south of Interstate 205 toward Wilsonville.
- Growth outside the current USB would require substantial expansion of the capacity of the City's utility and transportation systems and School District facilities. Urban growth outside the current USB would also require annexation and extension of City urban services into the annexed territory, which could not occur without approval through a citywide vote pursuant to the City Charter.
- Growth outside the current USB would have fiscal impacts that could adversely affect the level of urban services the City provides; if not mitigated, it could reduce quality of life in the City. Full cost recovery impact fees will need to be established for any growth outside the USB or current residents will be required to pay for the cost of such growth.
- Growth that occurs outside the current USB could have adverse impacts on the natural environment, which if not mitigated could reduce the quality of life in the City.
- It is not in the interests of the citizens of Lake Oswego to subsidize the extension of City services to provide for development on urban reserves south of the current USB.
- It is in the City's interest to plan for the orderly annexation of land and extension of urban services within the USB, so as to provide for the efficient delivery of services and to avoid premature expansion of the USB.

- City policy on annexations has shifted over the years. While state law allows the City to compel islands of unincorporated land to annex, the current policy favors a voluntary approach.

## Goals And Policies

### Goals

Ensure that, as population increases, the City of Lake Oswego:

1. Supports a compact form of urban growth, compatible with the City's neighborhood character, that uses land efficiently, focusing redevelopment within the current urban service boundary to discourage urban sprawl, and preserving rural lands outside the boundary;
2. Is well planned with carefully organized patterns of growth and strategic investment in infrastructure within its borders; and
3. Maintains full provision of services within the current urban service boundary.

### **A. Urban Service Boundary and Urban Growth Boundary Policies**

#### Policies

- A-1. The City will not expand the existing Urban Service Boundary\* (USB) and will resist efforts to require expansion, except in those areas designated Teir 1 Urban Reserves as of February 1998, or where properties are needed for the development of public parks and recreation facilities.
- A-2. In any areas where the Urban Service Boundary has been expanded, new development will be required to pay for the full cost of extending urban services.\*
- A-3. The Urban Services Boundary (as depicted on the Comprehensive Plan Map) is the area within which the City shall be the eventual provider of the full range of urban services.
- A-4. Unless created in partnership with the City, oppose the formation of any new service district within the Urban Services Boundary.
- A-5. Support expansion of an existing service district's boundaries only if:
  - a. It can be shown that it is the only feasible way to provide a particular service. City services, rather than district services shall be provided when they are, or can be made available and are adequate;
  - b. The provision of service is consistent with the City's Public Facility Plan and Comprehensive Plan goals and policies;
  - c. Annexation agreements are recorded for the property receiving service, to the extent permitted by law; and
  - d. The service district can maintain an adequate level of service over both the short and long term.

Adopted March 18, 2014

- A-6. When expanding the USB, inventory historic resources and provide incentives to designate and preserve the resources as historic landmarks.

## **B. Stafford Basin Policies**

### **Policies**

- B-1. Maintain the rural character of the Upper Stafford Basin to support land uses such as sustainable agriculture and parks in close proximity to the City center, consistent with the provisions of the Inspiring Spaces & Places chapter.
- B-2. In the Upper Stafford Basin, support a rural buffer between any urbanized areas and the existing communities of Lake Oswego, Tualatin and West Linn to maintain the individual character of each community.
- B-3. If concept planning occurs in the Stafford Basin Urban Reserve;\*
- a. Participate in a primary decision-making role for Urban Reserves 4A, 4B and 4C.
  - b. Advocate for the following plan features to be included:
    - i. A design and development pattern that results in strong transportation and transit connections to the east and west along I-205.
    - ii. Concurrent provision for accommodating increased demand for travel along I-205, including transit.
    - iii. In the Upper Stafford Basin, retention of the rural character and related land uses (Policy B-1) and a rural buffer between existing communities and future urbanized areas (Policy B-2).
  - c. Support the area's inclusion in the Urban Growth Boundary only if i-iii, above, are part of the final plan.

## **C. Annexation Policies**

### **Policies**

- C-1. Extend sanitary sewer and water services in the City's Urban Service Boundary as follows:
- a. Require unincorporated property to annex prior to the receipt of City sanitary sewer service except as provided in section (b).
  - b. Any of the properties designated in Figure 21 may be provided with City sanitary sewer service prior to annexation if all of the following conditions are met:
    - i. The property is within the Lake Oswego Urban Services Boundary;
    - ii. An existing sanitary sewer line operated by the City, to which connection can be made in accordance with subsection (iv) below, is within 300 feet of the property;

- iii. The County has found that the septic system serving the property is failing and the County has directed connection to a sanitary sewer system;
  - iv. The plan for extension of a sanitary sewer line to be connected to the City sanitary sewer line has been approved by the City Engineer; and
  - v. Immediate annexation of the property is not feasible and the Owner has executed a consent for future annexation.
- c. Require unincorporated property to annex or execute a consent for future annexation prior to the receipt of City water service. In no case will consent for future annexation be accepted where immediate annexation is feasible.
- C-2. The City may initiate island annexations as allowed by state law to:
- a. Create logical City boundaries; and,
  - b. Provide economic and efficient provision of City services to existing and proposed development within the subject area, and to adjacent land.
- C-3. Ensure that annexation of new territory or expansion of Lake Oswego's Urban Services Boundary does not detract from the City's ability to provide services to existing City residents.
- C-4. Prior to the annexation of non-island properties, ensure urban services\* are available and adequate to serve the subject property or will be made available in a timely manner by the City or a developer, commensurate with the scale of the proposed development.
- C-5. Require annexation of unincorporated property proposed for development when the development requires City sanitary sewer or water facilities.
- C-6. Encourage owners of property within the Urban Services Boundary to voluntarily annex to the City.

## **D. Planning and Coordination Policies**

### **Policies**

- D-1. Enter into and maintain intergovernmental agreements with any sanitary sewer or water service provider within the Urban Services Boundary, and include a requirement for annexation agreements for unincorporated lands to receive either service.
- D-2. The City may enter into intergovernmental agreements to extend sanitary sewer, water, storm water management and other services to other cities outside the USB, and continue or enter into new agreements with existing service districts to provide public safety services and domestic water provided:
- a. These arrangements are in the City's financial interests;

Adopted March 18, 2014

- b. Adequate capacity exists to provide services;
  - c. The quality and quantity of services to existing and future City residents are not diminished;
  - d. Such actions are consistent with the City's Public Facility Plan; and
  - e. Comprehensive Plan goals and policies pertaining to public facilities and services and urbanization are met.
- D-3. Enter into and maintain an Urban Growth Management Agreement with Clackamas County for lands within the Urban Services Boundary to:
- a. Promote compatibility of land uses, neighborhood character and public facilities when territory is annexed to Lake Oswego;
  - b. Preserve neighborhood character and livability through a coordinated City and County planning program;
  - c. Ensure high standards of urban design compatible with the surrounding community;
  - d. Provide certainty and predictability through consistent development standards and policies;
  - e. Protect and enhance natural resources;
  - f. Ensure the provision of public facilities and services is consistent with the City's Public Facility Plans;
  - g. Promote orderly annexation of territory;
  - h. Clearly define responsibility of the City, County, special districts, and franchise holders (e.g. cable, gas, electric power, solid waste) in providing services and managing growth within the Dual Interest Area;
  - i. Foster cooperation among all parties involved in land use planning and service delivery;
  - j. Obtain timely decisions pertaining to land use and service delivery issues; and
  - k. Achieve fair and equitable financing for public facilities and services needed to accommodate development.
- D-4. Develop, coordinate and implement the Public Facility Plan (PFP) for lands within the Urban Services Boundary to ensure predictable and logical provision of urban services.
- D-5. Enter into and maintain intergovernmental agreements with service districts operating within the Urban Services Boundary. These agreements shall:
- a. Define short and long term service provision roles of the City and service districts;

- b. Specify the terms and conditions of withdrawal of territory from service districts and the transition of capital facility ownership and administration to the City;
- c. Provide for coordination of plans and programs between the City and service districts; and
- d. Ensure services are provided consistent with the City's adopted Public Facility Plan.

## Recommended Action Measures

- A. Update System Development Charge rates annually and adjust rates to reflect increases in construction costs.
- B. Consider and, as appropriate, encourage changes in state legislation to allow the collection of System Development Charges for schools, fire stations, law enforcement facilities, and libraries.
- C. Maintain and update the Quality of Life Indicators.\*
- D. Incorporate Quality of Life Indicators into development regulations as criteria for determining the impacts of future development on the community.
- E. Participate in Metro's Urban Growth Management planning process and evaluate the feasibility of providing urban services to areas adjacent to Lake Oswego's Urban Services Boundary that Metro designates as urban reserves. As appropriate, develop urbanization plans\* for land use and facilities in urban reserve areas designated by Metro. (See also, Annexation Policies.)
- F. Prior to any expansion of the Metro Urban Growth Boundary, encourage Metro to work with affected jurisdictions and property owners to develop specific land use plans for these areas that ensure:
  - i. An efficient and compact urban form, thereby minimizing the need for expansion;
  - ii. Preservation of open space and other natural resources;
  - iii. That all urban level public facilities and services will be made available concurrent with development; and,
  - iv. That negative impacts will not accrue to neighboring communities.
- G. Maintain design and zoning standards for development within designated Town Centers and Employment Centers that:
  - i. Promote compact urban form, thereby avoiding urban sprawl;
  - ii. Are compatible with surrounding development;
  - iii. Ensure pedestrian scale design; and,
  - iv. Encourage alternatives to automobile use in order to reduce automobile dependence.

Adopted March 18, 2014

- H. Implement a neighborhood planning program in coordination with Clackamas County to include portions of the Urban Services Boundary (USB).
- I. Encourage the City, County and service districts to adopt compatible facility design standards.
- J. Coordinate the development and implementation of the City's Capital Improvement Plan with Clackamas County, service districts and other service providers within the USB.
- K. Monitor and implement annexation agreements to ensure annexation of eligible property occurs as specified.
- L. Establish System Development Charge rates for urban reserve areas to recover the full cost of providing urban services.
- M. Explore the feasibility of adopting measures to ensure that the incremental costs of operating and maintaining urban services in any urban reserve area are fully assessed to that area.
- N. Within the Urban Services Boundary encourage Clackamas County to:
  - i. Apply relevant policies from the Lake Oswego Comprehensive Plan;
  - ii. Review development, using City standards and review procedures;
  - iii. Share in the responsibility of providing park facilities; and,
  - iv. Apply System Development Charges derived from development to projects that directly benefit the area.
- O. Work cooperatively with Clackamas County on regional planning issues, including the designation of urban reserve areas or amendments to the Portland Metropolitan Urban Growth Boundary, which may affect the interests of either jurisdiction.
- P. Provide public information to explain the costs and benefits associated with being within the City limits.
- Q. Develop a list of methods for encouraging annexation of properties within the USB.
- R. Encourage Clackamas County to require legislative and quasi-judicial Plan amendments\* within the Dual Interest Area to be consistent with the nearest or most similar City Comprehensive Plan designation.
- S. Recognize that public service districts may continue to operate within the Urban Services Boundary until:
  - i. An entire district, or portions thereof, are annexed by the City and subsequently withdrawn from district; or,
  - ii. Other arrangements are made for the assumption of district responsibilities by the City pursuant to intergovernmental agreement.



*Exerpt from a poem by William Stafford*

# Metro Design Type Boundaries

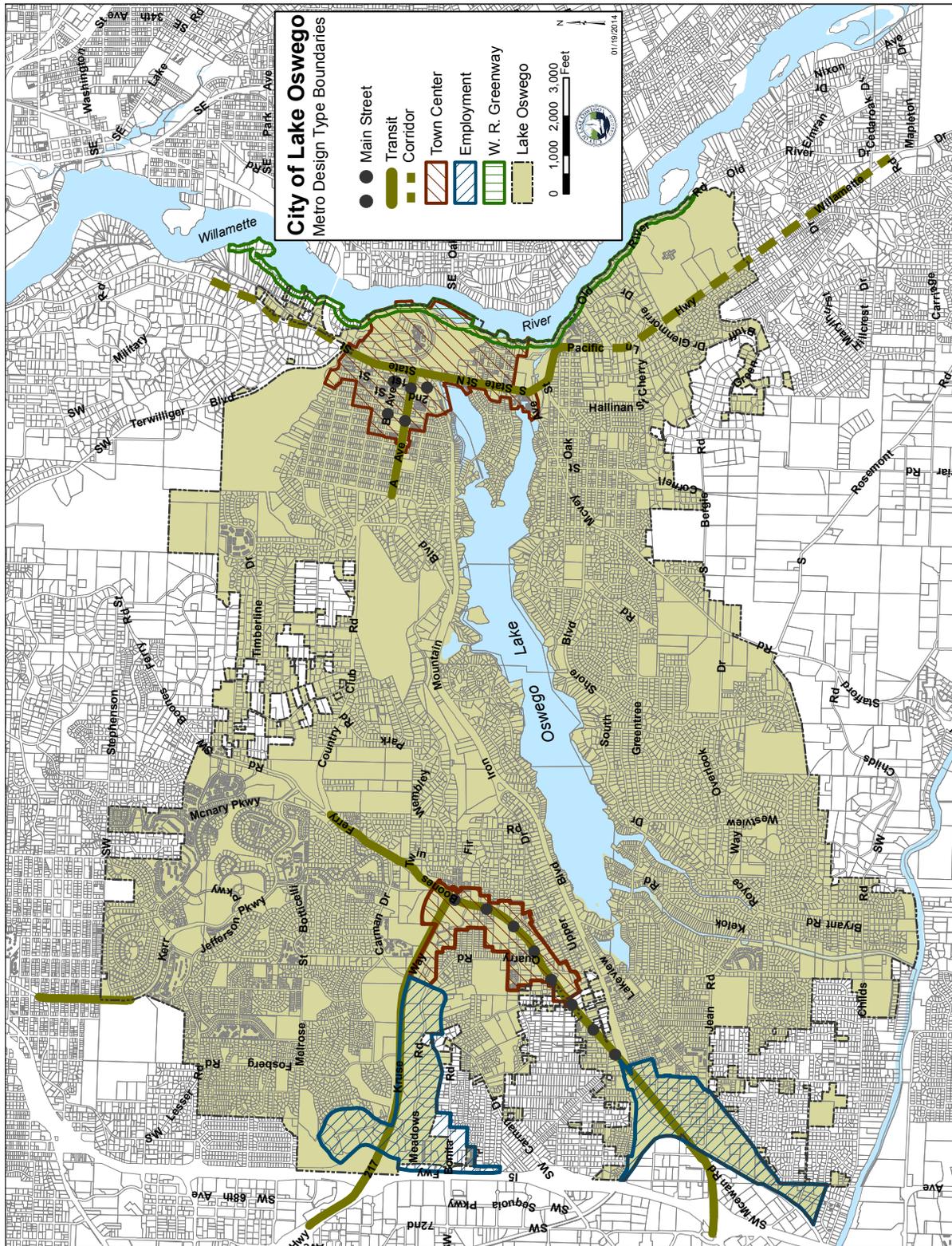


Figure 17

# Metro Design Type Boundaries

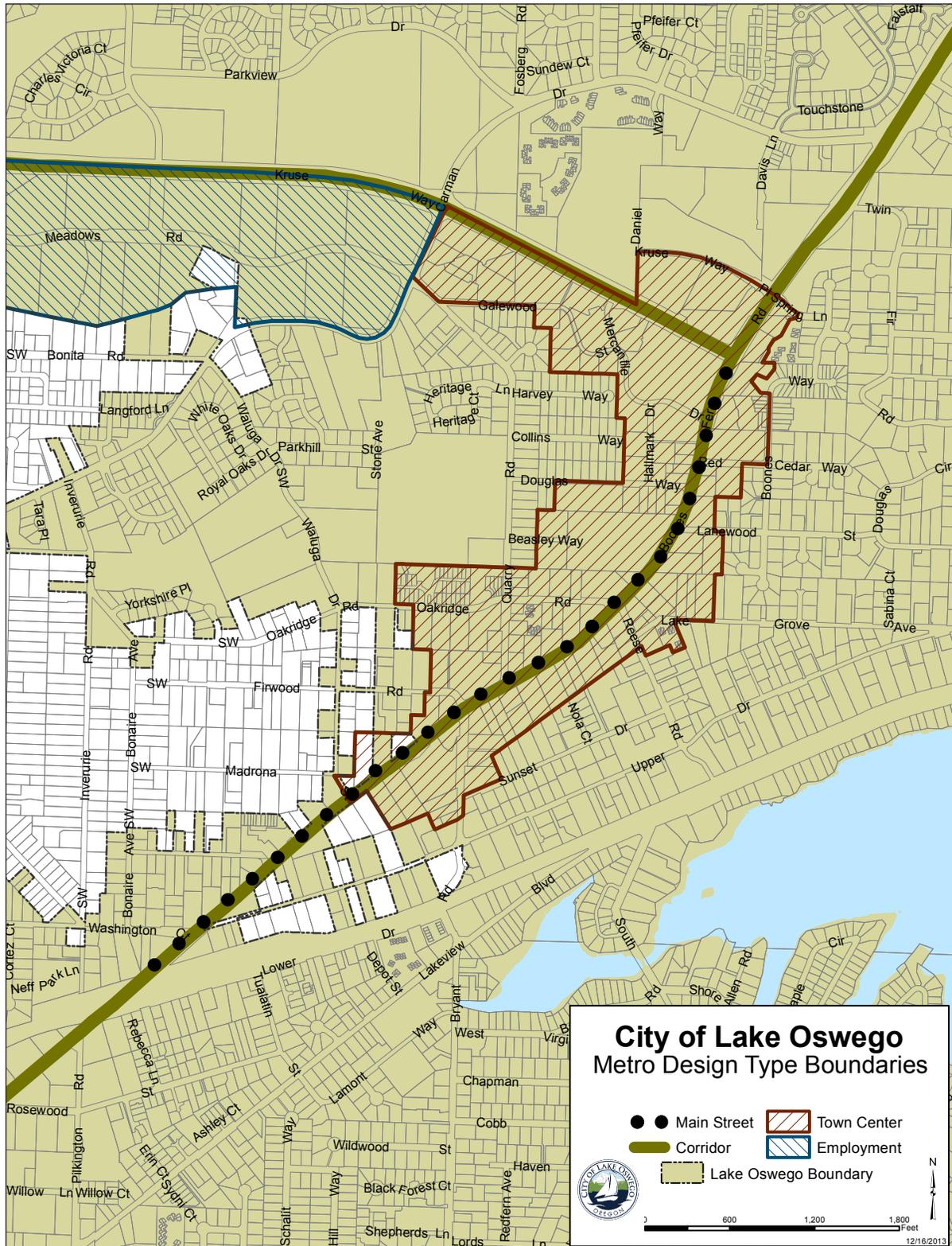


Figure 18

## Metro Design Type Boundaries



Figure 19

# Metro Design Type Boundaries

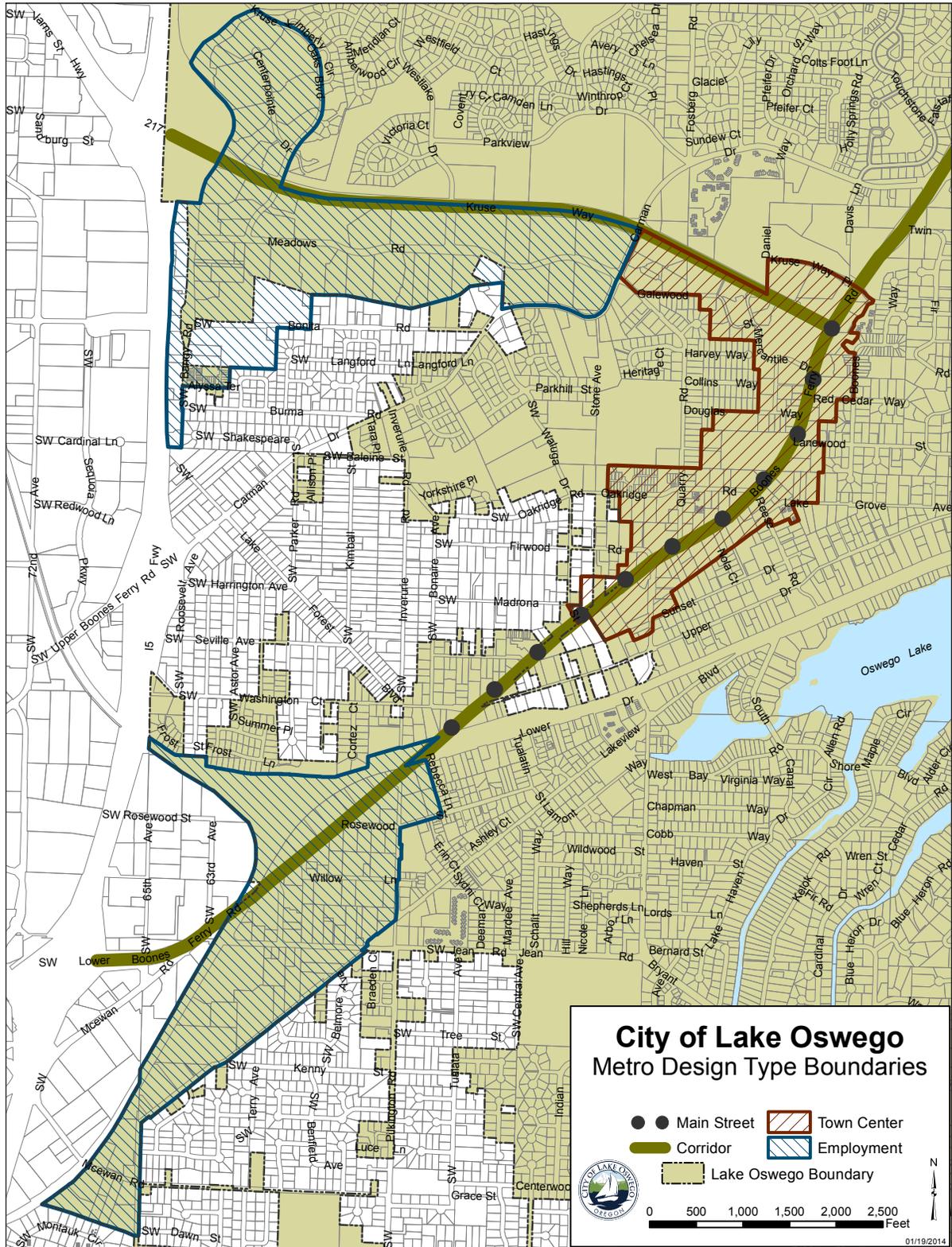


Figure 20





**LAKE OSWEGO CINQUAIN**

**Village**

**Peaceful, beautiful**

**Welcoming, absorbing, enchanting**

**Unique and lush contour**

**Lake Oswego**

*by Mark Yazhari*

# Chapters Carried Forward from 1994 Comprehensive Plan

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**Goal 5    Open Spaces, Scenic & Historic Areas & Natural Resources**

**☐    Section 1, Fish and Wildlife Habitat**

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***Goal 5: Open Spaces and Natural Areas***

***Section 8, Historic and Cultural Resources, is incorporated into the Community Culture chapter.***

***Sections 1-7 are to be updated and incorporated into a new Healthy Ecosystems chapter as the City makes revisions to its Sensitive Lands\* program.***

# Goal 5: Open Spaces, Historic & Natural Areas

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## □ Section 1, Fish and Wildlife Habitat

*Lily Bay (Frog Pond)*



*Lake Oswego shall preserve and restore environments which provide fish and wildlife habitat.*

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ **Section 1, Fish and Wildlife Habitat**

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#### **BACKGROUND**

#### **Statewide Planning Goal 5: ~~Open Spaces, Scenic and Historic Areas,~~ and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Statewide Planning Goal 5 requires communities to provide programs that will 1) ensure open space; 2) protect scenic and historic areas and natural resources for future generations; and 3) promote healthy and visually attractive environments in harmony with the natural landscape character. Goal 5 also requires communities to inventory Goal 5 resources, including fish and wildlife areas and habitats. The inventory is required to include a description of the location, quality and quantity of these resources, and an identification of conflicting uses. Where no conflicting uses have been identified, resources shall be managed so as to preserve their original character. Where conflicting uses have been identified, the economic, social, environmental and energy (ESEE) consequences shall be determined and programs developed to achieve the goal.

A variety of environments exist in Lake Oswego which provide fish and wildlife habitat. These areas include remnants of native woodlands, open fields, wetlands and waterbodies such as Oswego Lake, the Willamette River and numerous year-round and intermittent streams. Mature landscapes and trees within developed areas are also valuable to several wildlife species. Furthermore, properly managed private property, including residential lots, can provide valuable nesting, food and cover.

Two natural resource inventories for the Lake Oswego planning area have been conducted over the past 18 years. The 1975 LOPRI (Lake Oswego Physical Resources Inventory) was conducted by community volunteers. It provided much of the information needed to develop the natural resource element of the 1978 Comprehensive Plan. In 1992 a new natural resources inventory was developed by an environmental consulting firm. It consisted of more location-specific data than the 1975 inventory, and specifically; rates the quality of water resources such as wetlands, streams and lakes according to their wildlife habitat values.

The following summarizes the major findings and recommendations of the 1992 Natural Resources Inventory:

- Water is critical to all wildlife species, and should be the basis of establishing a comprehensive network of open spaces to host wildlife. Water must be of good quality and be accessible.
- The habitat immediately adjacent to water resources should be protected to provide food, cover, and shelter for wildlife.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ **Section 1, Fish and Wildlife Habitat**

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- Linkages between various habitats to ensure safe passage to food, water, nesting, and cover is critical for wildlife survival.
- There has been a decline in certain wildlife habitat types within the Lake Oswego planning area. Areas of oak/ash wetlands, open agricultural fields which assist migratory birds, and forested slopes, have been lost due to development.
- Improper management of public and private lands, such as removal of native vegetation, planting of invasive flora, and use of herbicides and pesticides have contributed to the decline of wildlife populations.
- Urban open spaces do not maintain their quality without active management. There has been a serious invasion of nuisance plants which have degraded the quality of wildlife habitat in many open spaces within the City. Blackberries and English ivy have eliminated native ground cover over large areas of stream corridors in the planning area, and purple loosestrife is a problem in wetlands.
- Most streams have been degraded by erosion, tree cutting and removal of undergrowth vegetation and course changes resulting from construction, especially sanitary sewers. Illegal dumping in wetlands and along streams has also degraded these resources. Stormwater-borne chemicals used in landscape maintenance and agriculture, and petroleum residues from streets and parking lots also have negative impacts on Lake Oswego's stream corridors.

The following four major recommendations were made by the 1992 Lake Oswego Natural Resources Inventory.

1. Wetlands and water resources should be protected and enhanced by using buffers, removing invasive plants,\* planting native vegetation and providing stream corridor setbacks that leave steep, forested banks intact.
2. Trees and tree groves should be preserved. The remaining large forested stands should be protected from fragmentation, and forested areas on steep slopes should remain undeveloped as they are one of the last refuges for wildlife.
3. Linkages between uplands and wetland/water resources should be created and protected where already existing to provide wildlife travel corridors. Urban deer populations and other wildlife species, require safe passages to access food, water, and cover.
4. New City policies, ordinances and zoning and development standards are required to protect natural resources.

### **Summary of Major Issues**

The following are some of the issues and changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ **Section 1, Fish and Wildlife Habitat**

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- A new location-specific natural resources inventory was conducted in 1992.
  
- A decline in wildlife habitat has occurred since the Comprehensive Plan was first adopted as a result of urban development; lack of proper management of urban open spaces; restriction of access to a variety of habitats; tree cutting and fragmentation of forested areas; and, degradation of stream corridors.

### **GOALS, POLICIES, AND RECOMMENDED ACTION MEASURES**

#### **GOAL**

Lake Oswego shall preserve and restore environments which provide fish and wildlife habitat.

#### **POLICIES**

1. Preserve and restore natural resources and lands which are important to fish and wildlife habitat including:
  - a. Wetlands, water bodies, stream corridors and associated vegetation;
  - b. The Willamette Greenway and the Urban Service Boundary's (USB) floodplains and floodways;
  - c. Surfacewater and groundwater quality;
  - d. Tree cover and understory vegetation, including downed trees and nesting snags; and,
  - e. Upland areas, especially forested hillsides.
2. Protect rare, threatened, and endangered fish and wildlife species and their associated habitats.
3. Preserve and restore fish and wildlife habitat through:
  - a. Land and habitat management practices on public and private lands; and,
  - b. Providing linkages to various habitats for access and safe passage of wildlife to food, water, nesting and cover.
4. Require developers to preserve and restore inventoried and identified fish and wildlife habitat through:
  - a. Site design and development standards and construction methods;

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 1, Fish and Wildlife Habitat

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- b. Preservation of habitat associated with floodways and floodplains and their meandering channels;
  - c. Protection, restoration and buffering of wetlands, stream corridors, water bodies; and,
  - d. Protection and restoration of upland habitat, especially forested hillsides.
- 5. Require the preservation or establishment and ongoing maintenance of vegetated buffer areas\* when development occurs on property adjacent to stream corridors and wetlands.
  - 6. Preserve and restore native plant communities\* to provide wildlife food, cover and nesting opportunities.
  - 7. Provide public education to promote preservation and enhancement of fish and wildlife habitat.
  - 8. Utilize a systems-wide management approach to preserve, restore and manage fish and wildlife habitat.
  - 9. Ensure linkage among wildlife habitat areas as a key component of the Lake Oswego parks, open space and surface water management systems.
  - 10. The City shall emphasize protection rather than mitigation of fish and wildlife habitat functions and values.

### **RECOMMENDED ACTION MEASURES**

- i. Provide for a combination of incentives and regulatory measures to influence development to preserve and restore fish and wildlife habitat.
- ii. Provide for fish and wildlife habitat through measures such as:
  - a. Preservation and reestablishment of wetlands and waterbodies and native plant communities; and,
  - b. Maintenance practices and landscaping to provide food, nesting and cover.
- iii. Participate with state and federal agencies and private groups to protect rare and endangered species identified within the Urban Services Boundary.
- iv. Develop a connected open space network within the Lake Oswego Urban Services Boundary which:

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 1, Fish and Wildlife Habitat

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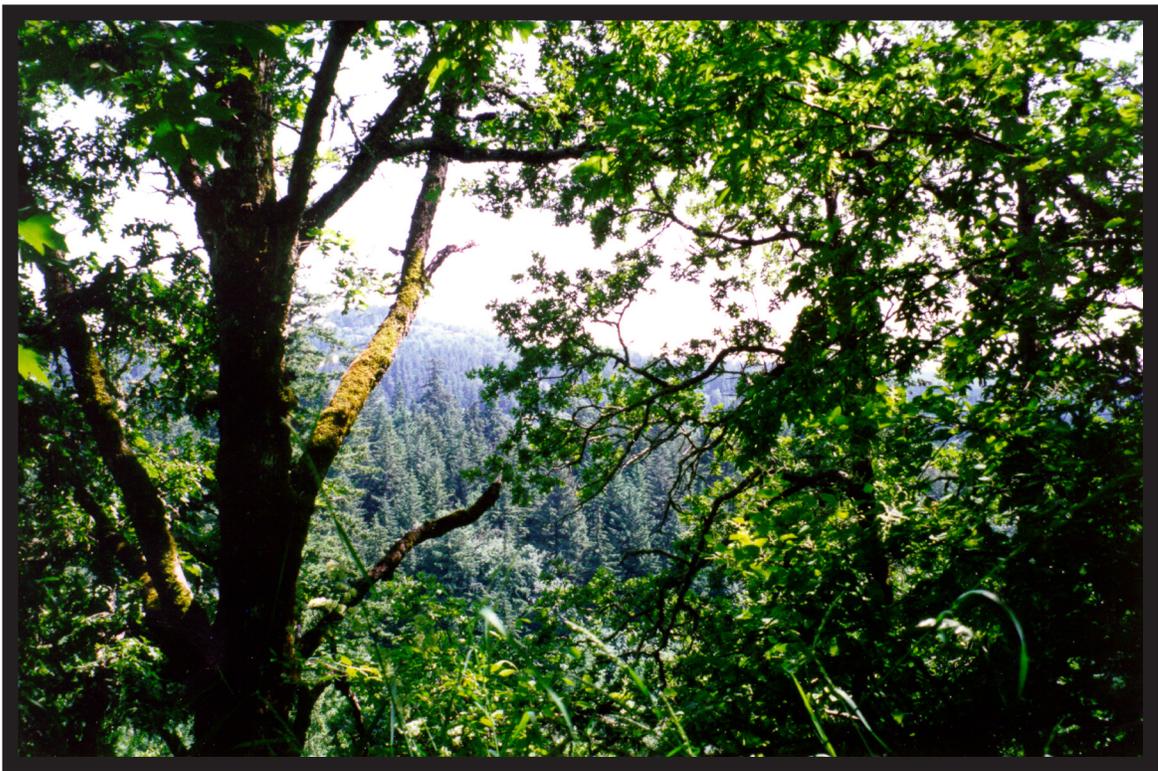
- a. Provides fish and wildlife habitat in conjunction with passive recreation opportunities, and;
  - b. Connects to open space lands in surrounding jurisdictions.
- v. Preserve sensitive and critical wildlife habitat through methods such as special development regulations, land acquisition, purchase of development rights, land trades, transfer of development rights, etc.
- vi. Implement a systems-wide management approach to protect, restore and manage fish and wildlife habitat which:
- a. Monitors the health of the area's fish and wildlife habitat through periodic surveys and inventories;
  - b. Determines those responsible for public and private open space maintenance and restoration activities;
  - c. Sustains a program to remove invasive plant species;
  - d. Coordinates with conservation groups, other agencies, and jurisdictions; and,
  - e. Provides public education and awareness of habitat issues.
- vii. Encourage fences to be designed and built so as not to restrict wildlife access to habitat and waterbodies.
- viii. Cooperate with the Oregon State Parks Division, conservation groups and other jurisdictions and agencies to enhance the unique fish and wildlife habitat values of the Willamette River Greenway.
- ix. Encourage Metro and Clackamas County to identify and protect fish and wildlife habitat in areas outside the Urban Growth Boundary and adjacent to Lake Oswego, especially in the Stafford Area.
- x. Provide ongoing funding to implement fish and wildlife habitat and open space acquisition and management programs.
- xi. Establish environmental overlay zones to protect significant wildlife habitat areas.
- xii. Encourage schools and local organizations to provide public education opportunities regarding preservation and improvement of wildlife habitat within northwest ecosystems.

# Goal 5: Open Spaces, ~~Historic~~ & Natural Areas

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## ☐ Section 2, Vegetation

*View From Iron Mountain Cliffs*



*The City shall protect and restore the community's wooded character and vegetation resources.*

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 2, Vegetation

---

#### **BACKGROUND**

#### **Statewide Planning Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Statewide Planning Goal 5 requires communities to provide programs that will: 1) ensure open space; 2) protect scenic and historic areas and natural resources for future generations; and 3) promote healthy and visually attractive environments in harmony with the natural landscape character. Goal 5 requires communities to inventory Goal 5 resources, including ecologically significant natural areas, of which vegetation is an important element. The inventory is required to include a description of the location, quality and quantity of these resources, and an identification of conflicting uses. Where no conflicting uses have been identified, resources must be managed so as to preserve their original character. Where conflicting uses have been identified, the economic, social, environmental and energy (ESEE) consequences shall be determined and programs developed to achieve the goal.

Vegetation is an integral part of Lake Oswego’s environment. It is valuable for its aesthetic qualities and contribution to air and water quality, wildlife habitat, shade, and erosion control. Vegetation resources also support recreational opportunities and contribute substantially to Lake Oswego’s distinctive character.

Much of the native vegetation in Lake Oswego’s Urban Services Boundary (USB) has been displaced, first by agriculture and logging, and more recently, by urban development. Also, competition from introduced species such as English ivy, reed canary grass, and blackberries has made it difficult for native plant communities to reestablish themselves. However, many areas of environmentally significant vegetation still remain within the USB. These natural resource sites include vegetation in and around Oswego Lake, the Willamette River, wetlands, stream corridors and native tree groves. In addition, Lake Oswego has many outstanding non-native trees and ornamental plant materials.

Some of Lake Oswego’s vegetation resources have been inventoried by two studies: the 1975 Lake Oswego Physical Resources Inventory (LOPRI), and the Lake Oswego Natural Resources Inventory, completed in 1992. The 1992 study described and evaluated tree groves, and the natural values and functions of vegetation within wetlands and stream corridors as follows:

- Tree Groves: Tree groves within Lake Oswego’s Urban Services Boundary include coniferous, and mixed deciduous/coniferous stands of trees. The area’s remaining forested areas and tree groves are located mostly on steep hillsides, dry rocky bluffs, in or near wetlands and along streams. Tree

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ Section 2, Vegetation

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groves are valuable wildlife habitat, recreation and aesthetic resources. In addition, forested areas improve air quality, provide wildlife habitat, shade and stabilize steep slopes.

- Wetlands: The Lake Oswego area has both emergent wetlands, where grasses are the dominant plant community, and forested wetlands, which are dominated by trees and woody vegetation. Vegetation is essential for wetlands to perform the important natural functions of storm water storage, improvement of water quality, erosion control, ground water recharge and the provision of fish and wildlife habitat.
- Stream Corridors: Stream corridors are located throughout the Lake Oswego Area. Vegetation within stream corridors lessens downstream flooding and benefits water quality by slowing runoff and preventing erosion. Also, stream corridors provide vegetated corridors necessary for wildlife habitat and travel.

The Lake Oswego Tree Cutting Ordinance (LOC 55) regulates the removal of trees. In addition, the City's land use regulations also provide some protection for individual trees and tree groves and vegetation within stream corridors, wetlands, floodplains, hillsides and the Willamette Greenway. Further, conditions of approval can be applied through the development review process to preserve significant vegetation. Lake Oswego's regulations also require the preservation of certain rare plant species.

Landscaping and tree plantings on private and public property enhance the aesthetic character of Lake Oswego and also provide other benefits such as shade, wildlife habitat and buffering and screening among different types of land uses. Landscaping is required by the City's development standards for all major development. Also, the City's erosion control and hillside protection standards require the use of vegetation as a means to control soil erosion.

### **Summary of Major Issues**

The following are some of the issues, changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan.

- The 1975 Lake Oswego Physical Resources Inventory (LOPRI) was updated in 1992 by the Lake Oswego Natural Resources Inventory.
- There has been an overall loss of native vegetation in Lake Oswego since the 1975 LOPRI.
- Lake Oswego's development regulations provide for varying levels of protection for vegetation. Landscaping is required to be installed as part of all major development.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### Section 2, Vegetation

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#### ***GOALS, POLICIES AND RECOMMENDED ACTION MEASURES***

##### ***GOAL***

The City shall protect and restore the community's wooded character and vegetation resources.

##### ***POLICIES***

1. Protect, restore and maintain existing vegetation which has environmental, wildlife habitat and aesthetic qualities, including tree groves and forested hillsides and vegetation associated with wetlands, stream corridors and riparian areas.
2. Protect, restore and maintain native plant communities, including identified threatened plant species.
3. Require developers to maximize the preservation of trees and to maintain and enhance the cohesive quality of tree groves through:
  - a. Site design and construction methods; and,
  - b. Open space dedication of areas which contain these resources.
4. Require the protection of significant or historic individual trees pursuant to a heritage tree protection program.
5. Ensure vegetation is maintained, protected and restored through:
  - a. Regulation of tree removal;
  - b. Conditions of development approval;
  - c. Monitoring of development to ensure compliance with the City's regulations and conditions of development approval; and,
  - d. Enforcement of regulations.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 2, Vegetation

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6. Require landscaping for all development other than individual single family dwellings and duplexes to:
  - a. Visually enhance development projects;
  - b. Provide buffering and screening between differing land uses;
  - c. Reduce surface water runoff, improve water quality and maintain soil stability;
  - d. Provide wildlife habitat; and,
  - e. Reduce energy use by using vegetation for shade and windbreaks.
7. Require the establishment and maintenance of landscaped areas in all new parking lots and expansion of existing lots, to provide shade and visual amenity. Parking lot landscaping shall emphasize:
  - a. The planting of broad spreading trees for shade and to mitigate the negative visual and environmental impacts of parking lots; and,
  - b. Effective screening and buffering between parking lots and adjacent uses.
8. Require tree planting for all development other than individual single family homes and duplexes, unless landscape standards are met by existing vegetation. When required, trees shall be planted along the street and throughout the development site.
9. Allow innovative site and building design including the clustering of buildings to preserve trees and other vegetation.
10. Ensure the continued maintenance of vegetation required pursuant to development approval, within landscaped and common areas.
11. Design and construct public works projects to preserve existing vegetation to the extent practical.
12. Protect and enhance vegetation resources within rights-of-way and other public lands through measures such as:
  - a. Regulations to protect public trees;
  - b. The provision of adequate right-of-way to ensure sufficient space for tree planting; and,
  - c. An ongoing planting and maintenance program for trees and other vegetation in public rights-of-way, open spaces and parks.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ Section 2, Vegetation

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13. Preserve natural resource sites, through public acquisition and other methods such as conservation easements, to permanently limit development.
14. The City shall emphasize protection rather than mitigation of the functions and values of vegetation.

### **RECOMMENDED ACTION MEASURES**

- i. Maintain a database of overall tree cover, threatened plant species, tree groves and significant individual trees within Lake Oswego's Urban Services Boundary.
- ii. Support neighborhood and community efforts to reestablish native plant communities, especially on hillsides, and in wetlands and stream corridors.
- iii. Provide information to the general public and developers regarding:
  - a. Tree maintenance and preservation;
  - b. Landscape design and the appropriate use of plant materials;
  - c. Protection of trees and other vegetation during construction;
  - d. Native plant materials that are low maintenance, drought tolerant and which enhance wildlife habitat; and,
  - e. The value that vegetation resources lend to both private property and the community.
- iv. Encourage Clackamas County to protect tree groves and other significant vegetation within the unincorporated portion of the USB, and to require landscaping and tree planting for all development other than individual single-family homes and duplexes within the area.
- v. Promote landscapes on public lands which are low-maintenance, drought-tolerant, require minimal chemical application and which support wildlife habitat.
- vi. Encourage neighborhood associations, schools and service clubs to participate in community improvement activities such as tree planting and natural area rehabilitation projects.
- vii. Encourage private property owners to protect and restore vegetation resources through measures such as:

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 2, Vegetation

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- a. Improvement and maintenance of existing landscapes, including replanting when vegetation is removed;
  - b. Tree planting on the grounds of institutions such as schools and churches; and,
  - c. A voluntary protection program, such as a “Heritage Tree Program” for significant trees.
- viii. Encourage the use of native plant materials on both public and private property.
- ix. Establish regulations which prevent the use of destructive and nuisance plant materials such as English ivy as part of required landscaping.

**Goal 5    Open Spaces, Scenic & Historic Areas & Natural Resources**

**Section 3, Wetlands**

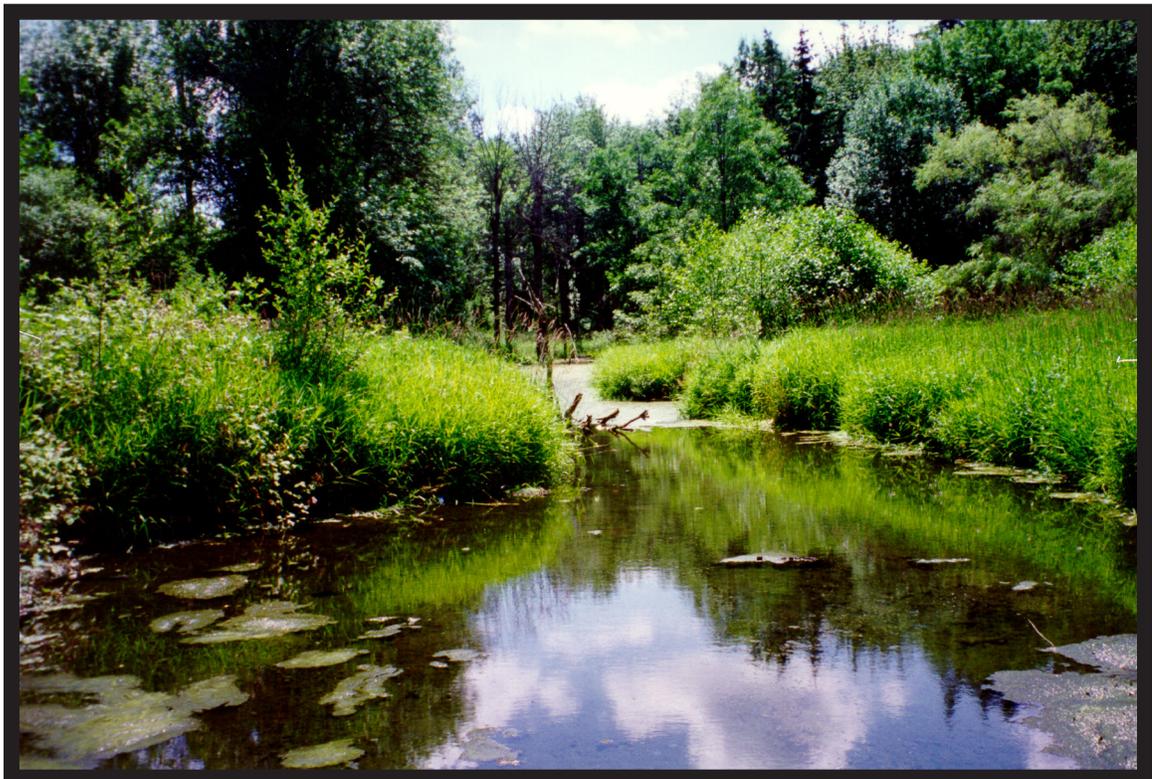
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# Goal 5: Open Spaces, ~~Historic~~ & Natural Areas

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## ☐ Section 3, Wetlands

*Bryant Woods Nature Park*



*The City shall protect, maintain, enhance and restore wetlands.*

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 3, Wetlands

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#### **BACKGROUND**

#### **Statewide Planning Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Wetlands are an important part of Lake Oswego’s environment. They are valuable for many reasons including storm water storage, erosion control, water quality enhancement, ground water recharge and fish and wildlife habitat. Also, wetlands contribute to the community’s aesthetic quality and provide opportunities for recreation and education.

Many of the wetlands within Lake Oswego’s Urban Services Boundary (USB) have been lost or significantly degraded by development. In the past, development activities have filled and drained wetlands, removed vegetation and interrupted or diverted water flows. However, wetlands still exist within the City’s USB.

Lake Oswego’s wetlands have been inventoried by two studies: the 1975 Lake Oswego Physical Resources Inventory (LOPRI) and the Lake Oswego Natural Resources Inventory, completed in 1992. The 1992 study described three different types of wetland sites within the USB as follows:

- Emergent Wetlands: The dominant plant communities in these wetlands are rushes, sedges and grasses. Although many of these wetlands often appear to be dry grassy meadows in the summer, they are wet in the winter and early spring. They often serve as significant habitat for migrating and wintering waterfowl. They often function as temporary storage areas for runoff and traps for sediment, nutrients and pollution carried by storm water.
- Forested Wetlands: These wetlands are seasonally flooded and located in low lying areas, near springs or seeps or adjacent to stream corridors. The typical plant community consists of a multi-layered canopy of cottonwoods, oaks, ashes, willow and a complex understory shrub community. This multi-layered canopy provides cover, food, nesting and perching sites for wildlife. Forested wetlands also provide flood storage and water quality enhancement by filtering sediment and nutrients from storm water.
- Ponds: These resources consist of natural ponds, abandoned quarries, and ponds created for storm water detention and agricultural uses. Ponds provide a year-round water source for wildlife including waterfowl. Their value as wildlife habitat increases when they are located adjacent to upland wildlife habitat. When ponds are adjacent or within stream corridors they may slow storm water runoff and alleviate flooding in downstream areas. Also ponds can serve to enhance water quality by trapping and filtering sediment, nutrients and pollutants.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ **Section 3, Wetlands**

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Wetlands are regulated at the federal, state and local levels under the 1977 Clean Water Act (CWA), which is administered by the Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers (COE). The objective of the CWA is to restore and maintain the physical and biological integrity of the nation's waters, including wetlands. Filling and dredging of jurisdictional wetlands is prohibited without a permit from the COE. "Jurisdictional" wetlands occur in any instance where the three indicators of wetlands are present, including hydric soils that exhibit distinct characteristics of soils that have been fully inundated, vegetation typically adapted for life in saturated soils (hydrophytic vegetation\*), and saturation by surface water or ground water at a sufficient duration to support hydrophytic vegetation.

In Oregon, the Division of State Lands (DSL) regulates wetlands and issues permits in conjunction with the COE. However, regulatory authority of these agencies pertains only to dredging and filling, with only limited oversight over other activities such as draining and clearing vegetation. In Oregon, the Oregon Revised Statutes, ORS 837, the Wetland Protection Act, requires cities to notify DSL of development activities for wetlands on National Wetland Inventory maps. ORS 196 regulates removal and fill activities in waters of the state, including all natural waterways, rivers, lakes, ponds and wetlands. Only activities that propose removal, filling or alteration of more than 50 cubic yards of material from a wetland require a permit from the state.

Oregon Administrative Rules for Oregon Statewide Planning Goal 5 allow jurisdictions to develop wetland protection programs specific to their communities. Local jurisdictions may provide expanded protection to wetlands beyond what state agencies have authority over. For instance, a jurisdiction may control vegetation clearing and draining and may require buffer areas when a wetland is developed.

Oregon Statewide Planning Goal 5 requires communities to inventory Goal 5 resources, including ecologically significant natural areas, of which wetlands are an important element. The inventory is required to include a description of the location, quality and quantity of these resources and an identification of conflicting uses. Where no conflicting uses have been identified, resources must be managed so as to preserve their original character. Where conflicting uses have been identified, the economic, social, environmental and energy (ESEE) consequences shall be determined and programs developed to provide an appropriate level of protection.

Wetlands are protected pursuant to the City's Sensitive Lands Program.

#### **Summary of Major Issues**

The following are some of the issues, changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas~~ & Natural Resources

### □ Section 3, Wetlands

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- The 1975 Lake Oswego Physical Resources Inventory (LOPRI) was updated in 1992 by the Lake Oswego Natural Resources Inventory. An ESEE analysis of wetlands identified in the Natural Resources Inventory was conducted in 1994.
- Many of the wetlands within Lake Oswego's USB have been lost or significantly degraded by development.
- Development activities which could impact wetlands are regulated at the federal, state, and local levels. Statewide Planning Goal 5 allows jurisdictions to protect additional wetlands and apply more stringent regulations subject to the (ESEE) process.

### **GOALS, POLICIES AND RECOMMENDED ACTION MEASURES**

#### **GOAL**

The City shall protect, maintain, enhance and restore wetlands.

#### **POLICIES**

- 1 Protect, maintain, enhance, and restore the natural functions and values\* of wetlands including enhancement of water quality, flood protection, fish and wildlife habitat, open space and natural areas.
- 2 Designate wetlands within a Resource Protection District overlay zone on the Comprehensive Plan Land Use Map.
- 3 Enact and enforce standards and ordinances which regulate development, including filling and grading, within delineated wetlands, wetland buffer\* areas and buffer edges.\* These regulations shall require:
  - a. Preservation of the natural functions and values of wetlands;
  - b. No net loss of the total inventoried area of wetlands within Lake Oswego;
  - c. That wetlands which are designated as "distinctive natural areas," are forested or which contain rare or endangered plant or animal species, shall have the highest level of protection; and,
  - d. Preservation of wetlands, wetland buffer areas and buffer edges through dedication, deed restrictions, covenants and other means as a condition of development on properties containing such features.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### Section 3, Wetlands

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4. Require activities which use wetlands to be compatible with the preservation of wetland functions and values.\* These activities include uses such as public and private recreation, surface water management and flood control.
5. Require the review of any development proposal that could impact a wetland with the appropriate local, state and federal agencies.
6. Require all public and private development, including fill, removal and grading, proposed within or adjacent to wetlands to:
  - a. Incorporate and maintain wetland features, functions and values in the project design, such as ponds, streams, marshes, wetland vegetation, and fish and wildlife habitat;
  - b. Preserve non-invasive vegetation and provide and maintain buffer areas around wetlands; and,
  - c. Prevent the placement of contaminants or discharge of water pollutants into wetlands or buffer areas.
7. Allow development density on parcels containing wetlands to be transferred to other portions of the development site when wetlands and the required buffer areas are permanently dedicated as open space.
8. Allow innovative site and building design, including the clustering of buildings to preserve wetlands.
9. The City shall emphasize protection rather than mitigation of the functions and values of wetlands.

### ***RECOMMENDED ACTION MEASURES***

- i. Utilize wetlands as part of the City's Surface Water Management Program to enhance water quality, recharge groundwater and retain surface runoff.
- ii. Encourage Clackamas County to protect wetlands within the unincorporated portion of the Lake Oswego Urban Services Boundary (USB).
- iii. Develop and maintain an inventory of wetlands and their respective natural resource functions and values within Lake Oswego's Urban Services Boundary.
- iv. Support community efforts to restore and maintain wetlands.
- v. Preserve wetlands and other natural resource sites through public acquisition, conservation easements and other methods which permanently limit development.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### Section 3, Wetlands

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- vi. Provide information to the general public and developers regarding the importance of wetlands to the community and ways in which they can be protected and restored.
- vii. Discourage activities and uses within the Urban Services Boundary which could harm wetlands, such as those whose effects could result in:
  - a. Interruption or diversion of water flows;
  - b. Discharge of water pollutants or contaminants, including sediment, into wetlands or buffer areas; and,
  - c. Negative impacts on adjacent natural systems such as forested areas, wildlife habitat and stream corridors.

# Goal 5: Open Spaces, ~~Historic~~ & Natural Areas

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## ☐ Section 4, Stream Corridors

*Ball Creek*



*The City shall protect, restore, and maintain stream corridors to maintain water quality and to provide open space and wildlife habitat.*

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 4, Stream Corridors

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#### **BACKGROUND**

#### **Statewide Planning Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Statewide Planning Goal 5 requires communities to provide programs that will: 1) ensure open space; 2) protect scenic and historic areas and natural resources for future generations; and 3) promote healthy and visually attractive environments in harmony with the natural landscape character. Goal 5 requires communities to inventory natural resources, including streams. The inventory is required to include a description of the location, quality and quantity of these resources, and an identification of conflicting uses. Where no conflicting uses have been identified, resources must be managed so as to preserve their original character. Where conflicting uses have been identified, the economic, social, environmental and energy (ESEE) consequences shall be determined and programs developed to achieve the goal.

Lake Oswego has a complex geography with many steep, wooded hillsides and streams that flow from the higher areas into the Tualatin River, Oswego Lake and the Willamette River. The community has grown around its streams, which course through residential and commercial areas. In the older areas of the community, most streams have been placed in pipes and culverts below the surface. In more recent developments, most streams are in open channels and are often within protected open space areas. Current planning practices discourage channelization because streams left in an open, natural state can be utilized for effective, economical water conveyance and water quality management.

A stream corridor is the stream channel and adjacent stream banks formed by erosion and water flow over time. Streams were initially identified and described in the 1975 Lake Oswego Physical Resources Inventory (LOPRI) and selected streams were also included in the 1992 Natural Resources Inventory. There are 28 major stream corridor drainage basins within Lake Oswego’s Urban Services Boundary (USB), according to the 1992 Surface Water Management Plan. Streams can be seasonal or year-round, and sometimes run below the surface or into canals that feed Oswego Lake. Stream corridors provide many valuable functions in the community. They are essential components of Lake Oswego’s surface water management system because they convey and store storm water and help control flooding. Streams also provide habitat and travel corridors for wildlife, and are valued by residents for their open space and aesthetic aspects. They are often found in conjunction with other natural areas such as wetlands and tree groves.

Stream corridors and their associated riparian vegetation are especially sensitive natural areas that are susceptible to environmental degradation. Many stream corridors in Lake Oswego are naturally unstable and prone to erosion due to steep banks, the inherent characteristics of soils which occur in these areas

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ **Section 4, Stream Corridors**

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and the constant action of the water. Erosion and loss of water quality can be exacerbated by removal of vegetation, polluted storm runoff and development practices such as diversions of streams from their natural banks and water impoundment. These practices are discouraged by the Oregon Department of Fish and Wildlife (ODFW) and the Division of State Lands (DSL).

A combination of methods is used by the City to prevent and remedy stream degradation problems, including building setbacks, application of development standards and enforcement of regulations. Physical improvements are also made to deteriorated streams through the Surface Water Management Program. The City's Resource Protection District overlay zone and Development Standards recognize the importance of stream corridors and establish measures to control erosion hazards, preserve natural features, protect water quality and limit adjacent land uses. There are Development Standards for Erosion Control, Major and Minor Drainage, and Hillside Protection. The Stream Corridor standards most directly address stream protection, and require a 25 foot buffer zone and a building setback. [ZC 1-95-1204 Revised; 5/20/97]

Streams in Lake Oswego are also subject to water quality regulations under the federal Clean Water Act (CWA), administered by the Oregon Department of Environmental Quality (DEQ). In 1990, the DEQ found that the Tualatin river basin did not meet Federal and State water quality standards, and determined it to be "water quality limited."\* (See also Goal 6, Water Quality). As a result, the City adopted the Lake Oswego Surface Water Management Plan (SWMP) and new Erosion Control Standards in 1992. The SWMP guides efforts to improve water quality, including stream corridor protection, enhancement and rehabilitation as essential components of surface water management.

### **Summary of Major Issues**

The following are some of the issues, changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan.

- The Tualatin River drainage basin and Oswego Lake have been designated as "water quality limited" by the Oregon Department of Environmental Quality (DEQ).
- Degradation of stream corridors is caused by erosion, polluted storm runoff, removal of native vegetation and other problems related to urbanization.
- The Lake Oswego Surface Water Management Plan has been adopted.
- State and federal agencies discourage diversion and impoundment of streams as unsound environmental practices.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 4, Stream Corridors

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- Placement of public utilities, such as water and sewer lines, in stream corridors can result in infiltration and environmental disruption.
- The City has adopted Zoning and Development Standards for Erosion Control, Hillside Protection, Drainage and Sensitive Lands. [ZC 1-95-1204 Revised; 5/20/97]

### **GOALS, POLICIES AND RECOMMENDED ACTION MEASURES**

#### **GOAL**

The City shall protect, restore and maintain stream corridors to maintain water quality and to provide open space and wildlife habitat.

#### **POLICIES**

1. Protect, maintain, enhance and restore the functions and values of stream corridors, including maintenance of water quality, storm and flood water conveyance, fish and wildlife habitat, open space and aesthetic values.
2. Identify stream corridors within the USB and designate stream corridors with Resource Protection overlay zones on the Comprehensive Plan Land Use Map. [ZC 1-95-1204 Revised; 5/20/97]
3. The City shall emphasize protection rather than mitigation of stream corridor functions and values.\*
4. Enact and enforce standards and ordinances which regulate development, including filling and grading, within delineated stream corridors, stream corridor buffer\* areas, and buffer edges. These regulations shall require:
  - a. Preservation of the functions and values of stream corridors;
  - b. No net loss of the total inventoried area of stream corridors within Lake Oswego;
  - c. That stream corridors which are designated as “distinctive natural areas,” or which contain rare or endangered plant or animal species shall have the highest level of protection;and,

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 4, Stream Corridors

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- d. Preservation of stream corridors, stream corridor buffer areas and buffer edges through dedication, deed restrictions, covenants and other means as a condition of development approval for properties containing such features.
5. Require activities which use stream corridors to be compatible with the preservation of stream corridor functions and values. These activities include uses such as private development, public and private recreation, surface water management and flood control.
6. Require the review of any development proposal that could impact stream corridors with the appropriate local, state and federal agencies.
7. Require all development proposed within or adjacent to stream corridors to:
  - a. Incorporate and maintain stream corridor features, functions and values in the project design such as stream banks, riparian vegetation, and fish and wildlife habitat; and,
  - b. Dedicate land or easements to preserve stream corridors and adjacent riparian areas.
8. Allow development density on parcels containing stream corridors to be transferred to other portions of the development site when stream corridors and the required buffer areas are permanently dedicated as open space.
9. Allow innovative site and building design, including the clustering of buildings to preserve stream corridors.
10. Prohibit diversion or impoundment of streams from their natural channels, except where:
  - a. Diversion would return a stream to its original location; or,
  - b. A stream channel occupies all or most of a legally created lot; or,
  - c. An impoundment is designed to reduce flooding or improve water quality.
11. Restore and enhance the environmental quality of streams.
12. Design and construct public works projects to preserve existing stream banks and adjacent riparian vegetation.
13. The City shall emphasize protection rather than mitigation of the functions and values of stream corridors.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 4, Stream Corridors

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#### **RECOMMENDED ACTION MEASURES**

- i. Use streams as part of the City's Surface Water Management Program to enhance water quality and control.
- ii. Develop and maintain a database of stream corridors and their respective functions and values within Lake Oswego's Urban Services Boundary, and periodically update, through the Goal 5 ESEE inventory process.
- iii. Preserve environmentally sensitive stream corridor sites through public acquisition, dedication, conservation easements and other methods which permanently limit development.
- iv. Prohibit activities and uses within stream corridors, buffer areas and buffer edges, which could harm stream corridors, such as those whose effects could result in:
  - a. Interruption or diversion of water flows;
  - b. Discharge of pollutants or contaminants, including sediment, into stream corridors or buffer areas; and,
  - c. Negative impacts on adjacent natural systems such as forested areas, wildlife habitat and wetlands.
- v. Prohibit development in stream corridors, except:
  - a. For public storm drainage, water and sanitary sewer facilities; and,
  - b. Where site size and configuration prohibits all reasonable and economic use of the property.

The above public facilities may only be permitted within stream corridors when other locations have been evaluated, and it is shown that no other practical alternative exists. Stream corridor crossings by public or private utilities or roads may be permitted where disruption is minimized and mitigation measures are taken to compensate for any reductions in stream corridor functions and values resulting from the crossing.

- vi. Prevent the placement of contaminants or discharge of pollutants into stream corridors or buffer areas.
- vii. Minimize negative impacts from development on the functions and values of stream corridors.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 4, Stream Corridors

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- viii. Avoid negative impacts such as flooding and siltation on stream corridor areas both upstream and downstream of development sites. If negative impacts are found, require the responsible party to mitigate for any damage found.
- ix. Limit fences and other obstacles that would impede wildlife travel along stream corridors, and cause localized flooding due to debris accumulation.
- x. Regulate excavation, stockpiling of soil, grading, cutting and earthwork construction within the vicinity of stream corridors.
- xi. Require Erosion Control Plans as a condition of development approval to prevent increases in surface water runoff, erosion and siltation that can damage stream corridors.
- xii. Establish clearly defined Development Standards which require a buffer area and an additional building setback adjacent to stream banks.
- xiii. Monitor development adjacent to stream corridors to ensure compliance with the City's regulations and conditions of development approval.
- xiv. Support community efforts to restore, maintain and enhance stream corridors.
- xv. Restore and enhance the environmental quality of streams currently beneath pavement or in culverts by returning them to their natural, above-ground state where appropriate.
- xvi. Provide information to the general public and developers regarding the location and importance of stream corridors and ways in which they can be protected and restored.
- xvii. Encourage appropriate jurisdictions to protect stream corridors and adjacent riparian corridors within the unincorporated portion of the Lake Oswego Urban Services Boundary (USB).
- xviii. Coordinate with state and federal agencies and private organizations in stream restoration and water quality improvement efforts.

**Goal 5    Open Spaces, Scenic & ~~Historic~~ Areas & Natural Resources**

**Section 4, Stream Corridors**

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# Goal 5: Open Spaces, ~~Historic~~ & Natural Areas

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## ☐ Section 5, Sensitive Lands

*Forested Wetlands Near Carman Drive*



*The City shall protect, enhance, and maintain the wooded character and natural features of Lake Oswego that are sensitive lands prized by residents.*

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 5, Sensitive Lands

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#### **BACKGROUND**

#### **Statewide Planning Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Statewide Planning Goal 5 requires communities to provide programs that will 1) ensure open space; 2) protect scenic and historic areas and natural resources for future generations; and 3) promote healthy and visually attractive environments in harmony with the natural landscape character. Goal 5 requires communities to inventory these natural resources. The inventory is required to include a description of the location, quality and quantity of these resources, and an identification of conflicting uses. Where no conflicting uses have been identified, resources must be managed so as to preserve their original character. Where conflicting uses have been identified, the economic, social, environmental and energy (ESEE) consequences shall be determined and programs developed to achieve the goal. [ZC 1-95-1204 Revised; 5/20/97]

The Comprehensive Plan originally identified 85 Distinctive Natural Areas.\* DNA's included a broad range of resource types from tree groves and streams to individual trees and plant specimens.

Distinctive Natural areas were originally identified in the 1975 Lake Oswego Physical Resources Inventory (LOPRI). All of the LOPRI-nominated sites were designated as Distinctive Natural Areas on the resulting DNA Comprehensive Plan map. The inventory was part of a broader effort to adopt the City's first Comprehensive Plan under Goal 5 of the Statewide Land Use Goals. [ZC 1-95-1204 Revised; 5/20/97]

In the years following 1976, the LOPRI data was used to create policies and development standards to protect open spaces and natural resources. The inventory was also used to identify initial priority sites for public acquisition as open space. Five DNA sites identified for public acquisition in the Comprehensive Plan have been purchased by the City or otherwise protected, including land on Iron Mountain, the “Frog Pond” at Village on the Lake (private) the Hallinan Woods, the South Shore Natural Area, and a large section of Kruse Oaks in the Westlake area. [ZC 1-95-1204 Revised; 5/20/97]

Under Goal 5, local jurisdictions are required to inventory and provide protection programs for a variety of natural resources, including:

- Land needed or desirable for open space;
- Fish and wildlife areas and habitats;
- Ecologically and scientifically significant natural areas;

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ **Section 5, Sensitive Lands**

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- Outstanding scenic views and sites; and,
- Water areas, wetlands, watersheds and groundwater resources.

All of the above-listed resources must be evaluated and mapped on a site-specific basis through the Goal 5 Environmental, Social, Energy and Economic (ESEE ) analysis and a conflicting use analysis. If no conflicting uses are identified, the resource must be managed to preserve its original character. If conflicting uses are found, programs must be developed to resolve the conflicts and one of three alternatives applied:

- a. Preserve the resource site;
- b. Fully allow the conflicting use [the use(s) allowed by the zone]; or,
- c. Specifically limit the conflicting use [the use(s) allowed by the zone].

The ESEE and conflicting use analysis was begun in 1991/92 by an environmental consulting firm with an inventory update of wetlands, stream corridors and tree groves. The ESEE analysis of the sites that were inventoried was begun by a planning consultant in 1994. The results were used to assist the City in determining the boundaries and relative values of DNA sites inventoried in 1975 and to develop appropriate regulations and protection programs for listed DNA's and new significant resources discovered through the inventory.

In 1996 and 1997, this new information was used to develop a new “sensitive lands program”. This new program replaces the Distinctive Natural Area/Protection Open Space protection program with a more clear and objective protection program, to better identify, describe and rank significant natural areas, and to more clearly resolve the conflicts between preservation and development on a site containing significant natural resources. It is designed to improve protection for wetlands, stream corridors and tree groves, by designating such resources with Resource Protection (RP) District\* and Resource Conservation (RC) District\* overlay zones. [ZC 1-95-1204 Revised; 5/20/97]

### **Summary of Major Issues**

The following are some of the issues, changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan:

- Statewide land use Goal 5 requires site specific mapping and an ESEE analysis for distinctive natural areas. The Goal 5 process must be used to protect new sites as additional distinctive features are brought to the City's attention and as endangered species are identified. [ZC 1-95-1204 Revised; 5/20/97]

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 5, Sensitive Lands

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- The Endangered Species Act requires protection of sensitive, threatened and endangered species. Some species of plants and animals in the USB may fall within these categories.
  
- Under Goal 5, the highest valued natural resources within Lake Oswego's USB, such as wetlands and stream corridors, may merit full preservation when there are no conflicting uses identified. Other natural areas such as tree groves may merit a more limited level of protection. [ZC 1-95-1204 Revised; 5/20/97]

### ***GOALS, POLICIES, AND RECOMMENDED ACTION MEASURES***

#### **GOAL**

The City shall protect, enhance and maintain the wooded character and natural features of Lake Oswego that are prized by residents. [ZC 1-95-1204 Revised; 5/20/97]

#### **POLICIES**

1. Protect, enhance, maintain and restore the functions and values\* of existing and future wetlands, stream corridors, tree groves and other sensitive nature areas, such as:
  - a. Water and air quality enhancement;
  - b. Fish and wildlife habitat;
  - c. Community identity benefits;\*
  - d. Open space, passive recreation, and visual enjoyment; and,
  - e. Public protection from natural hazards, such as areas subject to flooding, geological instability, or high erosion potential.
  
2. Designate the specific locations of significant Goal 5 resources through development of a Sensitive Lands Atlas\* and special overlay zone designations.
  
3. Supplement the Sensitive Lands Atlas, pursuant to Statewide Planning Goal 5, as additional distinctive features are brought to the City's attention and as sensitive, threatened or endangered species are identified.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 5, Sensitive Lands

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4. The City shall emphasize protection rather than mitigation of the functions and values of sensitive lands areas.
5. Enact and maintain regulations and standards which require:
  - a. Preservation of the functions and values of sensitive lands;
  - b. No net loss in the quantity or volume of wetland or stream corridor functions or values when development is allowed within such resource, buffer or edge. Such development shall only be allowed after an alternatives analysis and a finding that a development cannot practicably be placed entirely outside of the resource and its buffer and edge areas;\*
  - c. Preservation of the most significant resources (i.e. no loss of area, functions, or values);
  - d. Protection of sensitive lands designated as RC or RP;
  - e. Establishment and maintenance of buffer and edge areas; and,
  - f. Establishment of wider buffer areas around the most significant sensitive lands.
6. Allow development density on parcels containing sensitive lands overlay zones to be transferred to other portions of the development site.
7. Allow innovative site and building design, including the clustering of buildings to preserve sensitive lands.
8. Require activities within sensitive lands overlay zones to be compatible with the preservation of resource functions and values. These activities include uses such as public and private development, public and private recreation, surface water management and flood control.
9. Require all development proposed within or adjacent to sensitive lands to:
  - a. Incorporate and maintain sensitive lands resource features, functions and values in the project design;
  - b. Preserve vegetation and provide and maintain buffer areas;
  - c. Prevent the placement of contaminants or discharge of water pollutants or sediments into sensitive lands and their buffer areas; and,
  - d. Restore and enhance disturbed sensitive lands with restoration landscaping to match the plant community of the resource.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 5, Sensitive Lands

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#### **RECOMMENDED ACTION MEASURES**

- i. Identify and protect sensitive lands through imposition of overlay zones designed to protect the functions and values of such lands. Provide a process for protecting new or newly discovered sensitive lands.
- ii. Preserve sensitive lands that are found to have the highest levels of significance through a variety of means, including: fee simple acquisition, gifts, long-term leases, life estates, purchase of development rights, scenic or conservation easements and other similar methods.
- iii. Create development standards that provide specific protection measures for sensitive lands. Such standards should allow appropriate variances, density transfers and/or clustering of structures to protect valued features.
- iv. Provide information to the general public and developers regarding the importance of sensitive lands to the community and ways in which they can be protected and restored.
- v. Make public the location of sensitive lands in order to call attention to the need for public stewardship and protection.
- vi. Support the efforts of community groups to enhance and maintain public and private sensitive lands, and to encourage volunteer participation and stewardship of such lands within the USB.
- vii. Use a natural resources advisory body\* to prioritize sensitive lands sites, and to assist Council in protecting such lands by acquisition, easements and management.
- viii. Coordinate with the Oregon Department of Parks and Recreation and other responsible jurisdictions, agencies and groups to preserve and enhance sensitive lands which benefit Lake Oswego citizens, such as Tryon Creek State Park and the Willamette Greenway.
- ix. Utilize the methodology established in the April 4, 1997, Resource Areas Report and ESEE Analysis for determining the significance of particular sensitive lands.

# Goal 5: Open Spaces, ~~Historic~~ & Natural Areas

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## Section 6, Open Space

*Cooks Butte*



*The City shall protect, enhance, maintain, and expand a network of open space areas and scenic resources within and adjacent to the Urban Service Boundary.*

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 6, Open Space

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#### **BACKGROUND**

#### **Statewide Planning Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Lake Oswego’s character and identity are closely tied to its natural assets and scenic resources. Such resources include Oswego Lake, the Willamette and Tualatin Rivers, streams, steep wooded slopes, and areas of undisturbed natural vegetation and associated wildlife habitat. Open space includes diverse elements such as wildlife preserves, scenic views, parks, wetlands, stream corridors, ball fields and golf courses. Open space serves several important functions:

Protection of wildlife areas, such as stream corridors, tree groves and wetlands.

Aesthetic character for the urban environment, including natural features such as rows of trees, wooded hillsides and scenic views.

Land for active recreational use, such as ball fields and play grounds. Land for passive recreational use,\* such as wildlife viewing and nature walks.

Public welfare and safety , such as flood protection, erosion control and filtering of surface water.

Economic benefits, such as enhanced property values due to the presence of large trees, views, or other natural features.

Lake Oswego’s open space is comprised of parks, natural areas and private lands. Open space may be grouped into two broad categories: 1) natural open space; and, 2) developed open space as follows:

#### **Natural Open Space\***

Natural open space consists of natural areas that may be publicly or privately owned as follows. Natural open space typically includes such areas as stream corridors, wetlands, tree groves and steep slopes.

- A. **Public Open Space:** Public open space is property that is publicly owned and designated as “Open Space” on the Comprehensive Plan Map; or, property that has been dedicated to the public, designated as a public open space tract or protected through a conservation easement or similar mechanism.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

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Public open space is land that is to remain in a natural condition for the purpose of providing a scenic, aesthetic appearance, protecting natural systems, providing passive recreational uses or maintaining natural vegetation.

- B. Private open space (natural areas):** Privately owned open space also contributes to the community's identity or sense of openness where natural or formally landscaped open areas are visible to the public, even though access is limited to members or land owners. The Oswego Country Club, Oswego Lake, and the Hunt Club are examples of private open spaces. Private open space may also be protected within residential and commercial developments through legal instruments such as private open space tracts and conservation easements.

#### Developed Open Space

Developed open space includes both public parks and private open space that is formally landscaped. It includes such areas as ball fields, play grounds, neighborhood pocket parks, tot lots, picnic facilities, accessory buildings, paved areas, lawns and similar uses.

- A. Parks:** A park is a publicly owned area that is intended primarily for recreational uses or park purposes, and is designated as "Park" on the Comprehensive Plan Map. Specific parks policies are found in the Parks and Recreation policies of the Comprehensive Plan.
- B. Private landscaped areas:** Privately-owned open space includes areas such as golf courses and cemeteries. It also includes private open space tracts and common areas within subdivisions. Private open space is intended to be used by members or residents only within a private development or subdivision.

Both natural and developed open space are integral components of the community's open space system.

Open space and natural areas are important to Lake Oswego residents, as evidenced since the mid-1970s. In 1975, numerous community volunteers participated in the first natural resources inventory, called the Lake Oswego Physical Resources Inventory (LOPRI). The inventory data was used to create policies and development standards to protect open spaces and natural resources.

Open space has also been designated and purchased by the City over time. In 1978 the Springbrook Park Charter Amendment was passed, setting aside a large tract of land as public open space. Since the original Comprehensive Plan was approved in 1978, five of six areas identified for public acquisition have been purchased by the City or otherwise protected, including land on Iron Mountain, the "Frog Pond" at Village on the Lake (private), the Hallinan Woods, the South Shore Natural Area and a large section of Kruse Oaks in the Westlake area. Other areas within Lake Oswego's open space system include a wetland area south of Childs Road, the River Run Park site on the Tualatin River and the Beth

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

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Ryan Nature Preserve (owned by the Lake Oswego Land Trust). Many of the City's public parks also contain natural open space, such as the wetlands in Waluga Park and the Willamette River Greenway in George Rogers Park and Roehr Park. [ZC 1-95-1204 Revised; 5/20/97]

As Lake Oswego's population has increased, housing has replaced many previously undeveloped lands. The need for preserving more open spaces has become an ever increasing concern for residents. This was demonstrated by voter approval of a \$12 million bond issue in 1990 to fund the purchase of park and open space lands and to develop pathways. Most of the open space bond fund was depleted by 1994. It is expected that a high demand will continue for undeveloped residential lots, many of which contain natural areas, as Lake Oswego approaches a fully developed state. While substantial progress has been made toward acquiring open spaces, a need still exists for additional land.

Larger open space lands (20+ acres) abut the City limits to the south of Lake Oswego. These areas represent an opportunity for the City, neighboring jurisdictions, and responsible agencies to preserve open space and to provide open space buffers as a transition between neighborhoods and communities far in advance of development pressure.

#### **Summary of Major Issues**

The following are some of the issues, changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan:

- Open space serves many important functions in Lake Oswego
- Both developed and natural open spaces are integral components of the community's open space system.
- Much of Lake Oswego has been developed, but opportunities still exist to preserve and acquire sensitive natural areas as open spaces. Undeveloped lands abutting the City Limits present an opportunity to preserve and acquire future open space and buffer areas.

#### **GOALS, POLICIES AND RECOMMENDED ACTION MEASURES**

##### **GOAL**

The City shall protect, enhance, maintain and expand a network of open space areas and scenic resources within and adjacent to the Urban Services Boundary.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

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#### ***POLICIES***

1. Establish an open space network within and adjacent to the Urban Services Boundary (USB) which:
  - a. Preserves natural areas in an intact or relatively undisturbed state;
  - b. Provides for maintenance of scenic resources and distinctive aesthetic qualities such as views of Mount Hood, Oswego Lake, the Willamette River, the Tualatin Valley and forested ridge lines;
  - c. Preserves areas valued for community identity benefits\* such as stands of trees and rock outcroppings;
  - d. Protects the public from natural hazards, such as areas subject to flooding, geological instability or high erosion potential;
  - e. Provides buffers between incompatible uses;
  - f. Preserves fish and wildlife habitat; and,
  - g. Provides land which meets the open space and recreation needs of the community.
2. Preserve open space through dedication, deed restrictions, covenants, or other methods as conditions of development approval which, when possible, shall be consistent with the City's parks, open space and pathways plans.
3. Promote an open space network that:
  - a. Maintains the existing tree canopy;
  - b. Provides aesthetic and visual relief from urban development;
  - c. Provides opportunities for pedestrian and bicycle linkage; and,
  - d. Preserves essential natural systems.\*
4. The City shall emphasize protection rather than mitigation of open space functions and values.
5. Manage publicly-owned, natural open space areas to control access and to maintain a balance of protected natural areas and areas open to the public.
6. Provide regulations such as the Sensitive Lands program and the Open Space Development Standard to preserve natural resources, including essential natural systems, lands containing natural hazards and unique natural areas valued for scientific, educational, recreational, scenic resource and community identity benefits.\* Development will be allowed when compatible with natural systems that are present. [ZC 1-95-1204 Revised; 5/20/97]

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

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7. Require a higher level of protection where all or a portion of a resource is designated within an RP or RC Zone (see Sensitive Lands Policies). [ZC 1-95-1204 Revised; 5/20/97]
8. Establish community open space buffers and protected view corridors between Lake Oswego and adjacent communities, for the purpose of defining the edge of the urban area and preserving the open, rural character of lands outside of the city.
9. Consider the following resources eligible for protection: [ZC 1-95-1204 Revised; 5/20/97]
  - a. Stream corridors and natural drainage ways;
  - b. Flood plains;
  - c. Willamette River Greenway;
  - d. The Tualatin River corridor;
  - e. Wetlands;
  - f. Oswego Lake, its bays and its canals;
  - g. Tree groves;
  - h. Forested ridge lines;
  - i. View points;
  - j. Steep slopes;
  - k. Weak foundation soils;
  - l. High ground water areas;
  - m. Areas of geologic hazard (unstable soils); and,
  - n. Scenic resources.

### **RECOMMENDED ACTION MEASURES**

- i. Develop a comprehensive open space plan, in coordination with the Metropolitan Greenspaces Plan, to inventory and protect open space and to provide a connected open space network. The open space plan should utilize the City's open space, parks and pathways to provide linkages among open spaces.
- ii. Develop an open space management program for public and private open space areas to include:
  - a. An inventory and evaluation of maintenance needs;
  - b. Monitoring to ensure continued environmental health and benefit; and,
  - c. Enforcement of conditions of development approvals.
- iii. Preserve open space through measures such as acquisition of land, purchase of development rights and conservation easements to preserve open spaces, buffer areas and views within the

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 6, Open Space

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- unincorporated Urban Services Boundary and on adjacent County lands outside of the Urban Growth Boundary.
- iv. Use a variety of means for a continuing program of open space protection within the City, including fee simple acquisition, gifts, long-term leases, life estates, scenic or conservation easements and other similar methods.
  - v. Use a natural resources advisory body\* to advise Council on methods of open space acquisition, open space acquisition priorities and the designation and management of Public Open Space.
  - vi. Support the efforts of community groups to enhance and maintain public and private open spaces and to encourage volunteer participation and stewardship of open space land within the City.
  - vii. Coordinate with the development of a regional greenspaces system in the Portland Metropolitan area, including an open space buffer for Lake Oswego and adjacent communities in lands just outside the Urban Growth Boundary.
  - viii. Coordinate with appropriate jurisdictions to manage development to preserve the open space and rural qualities of the Stafford Area.
  - ix. Coordinate with the efforts of the Oregon Department of Parks and Recreation and other responsible jurisdictions, agencies and groups to enhance adjacent public open spaces, such as Tryon Creek State Park and the Willamette Greenway, which benefit Lake Oswego citizens.
  - x. Coordinate with appropriate jurisdictions and citizen groups to preserve open space lands within and adjacent to the USB.
  - xi. Develop ordinances and standards to protect view corridors within the Urban Services Boundary for scenic resources, including views of Mount Hood, Oswego Lake, the Willamette River, the Tualatin Valley and other views valued by the community.

**Goal 5    Open Spaces, Scenic & Historic Areas & Natural Resources**

**Section 7, Oswego Lake**

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# Goal 5: Open Spaces, ~~Historic~~ & Natural Areas

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## □ Section 7, Oswego Lake

*Oswego Lake*



*The City shall protect the natural resource, energy, aesthetic, and recreation values of Oswego Lake.*

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 7, Oswego Lake

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#### **BACKGROUND**

#### **Statewide Planning Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

*“To conserve open space and protect natural and scenic resources.”*

Oswego Lake is the City’s largest natural feature and its geographic center. The main portion of the Lake covers 385 acres (USGS), with an additional 7 acres in West Bay and 28 acres in Lakewood Bay. The Lake is 3.5 miles long. The Lake, a reservoir, is privately owned and managed by Lake Oswego Corporation, commonly known as “The Lake Corporation.” The Corporation has owned and maintained the Lake since 1942.

Rolling hills, steep hillsides and rocky bluffs surround Oswego Lake, with elevations ranging from 98 feet on the Lake to 970 feet on Mt. Sylvania to the north. The surrounding hills are bisected by many streams that direct surface water into Oswego Lake, the most notable of which is Springbrook Creek. The Tualatin River is a major source of water for the Lake, and enters through the Oswego Canal.

Before the pioneer settlement period in the 1860s, Oswego Lake was a natural, smaller body of water, fed by streams and springs. It was called Waluga Lake by the Clackamas Indians, meaning “wild swan.” Early settlers called it “Sucker Lake” for a type of whitefish that may have dwelled in its warm waters. The Lake was renamed “Oswego Lake,” after the turn of the century, by the owner of the Oregon Iron & Steel Company, to promote surrounding residential real estate development as a supplement to the Lake’s primary use as a reservoir.

The Lake has commercial and industrial functions important to the culture of the community. The Oswego Canal was dug between the Lake and the Tualatin River to increase water flow and raise the reservoir’s level. The Lake was used for a short time on a trial basis to transport people and goods between the Willamette and Tualatin Rivers, via ferry boat across the Lake and horse drawn railroad cars along the canal’s bank. Lake waters that flow into Oswego Creek were used to operate the Durham sawmill when Oswego was first settled. Much more significantly, the increased flow was used to operate first iron and then steel foundries operated by Oregon Iron & Steel Company. A hydroelectric power generating plant was built on Oswego Creek in 1909, and the Corporation continues to operate this plant today, selling surplus power to PGE. A spillover dam was completed in 1921 that raised the Lake and greatly increased its size, creating Blue Heron Bay and West Bay on the west end and Lakewood Bay on the east end.

## Goal 5 ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### □ Section 7, Oswego Lake

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Oswego Lake was initially described in the 1975 Lake Oswego Physical Resources Inventory (LOPRI), and was also included in the 1992 Natural Resources Inventory. Its natural features have been highly modified, first by logging in the late 1800s and later by residential development, which cleared much of the original forest that surrounded the Lake. Today, homes with formal lawns stretching to the Lake's edge and waterfront seawalls and docks are interspersed among second growth and ornamental trees. Shoreline development, including seawalls, docks and boathouses, is strictly controlled by the Lake Corporation.

There are a few remaining undeveloped natural areas surrounding the Lake at the mouths of streams, and forested areas on steep slopes. A few natural riparian areas and small pockets of wetlands remain along the streams which enter the Lake. These natural edges are important for wildlife nesting, food and shelter. The remaining forest is typically Douglas fir on the north-facing slopes and oak/madrone and fir on the south-facing rocky bluffs. These remaining forested areas provide perch sites for birds of prey such as osprey and heron. The Lake is also an important habitat for resident and migratory waterfowl including dabblers, diving ducks, Canada geese and great blue heron. Fish species in the Lake include bass, catfish, bluegill, carp, crappie and yellow ring tail perch. [ZC 1-95-1204 Revised; 5/20/97]

In addition to its natural resource values, Oswego Lake is a multiple-use facility that serves the community in a variety of roles. It is a hydroelectric reservoir at the center of a 7,400 acre drainage basin. The Lake receives the majority of its water from the Tualatin River via a canal and also surface water from tributary streams, storm drain outfalls and surface runoff. Also, there are several City sanitary sewer interceptors below the Lake's normal surface water elevation that have been constructed at an engineered grade to convey sewage to the Tryon Creek Sewage Treatment Plant.

The Lake offers shoreline recreation opportunities to specific residents at the Lake Grove Swim Park and the Lake Oswego Swim Park. A new City Park at Lakewood Bay offers visual access, but not physical access, to the Lake. Oswego Lake is heavily used for water-related recreation by lakeside residents and others with Lake easements\* recognized by the Corporation. The Lake is also valued by residents for its open space and aesthetic aspects and for its historical and cultural importance. Residents consider the Lake to be a vital part of Lake Oswego's identity, and a natural resource valuable to the community.

The multiple roles of the Lake can cause conflict. Silt caused by erosion and nutrients from lawn fertilizers can diminish water quality, and construction by private owners on lakeside lots has eliminated most public view points. Improperly functioning septic systems immediately adjacent to the Lake or tributary streams adversely impact water quality. The reservoir's level is lowered from time to time by the Corporation to maintain its hydroelectric facilities. During these periods, the Corporation may dredge sediments, private landowners may maintain seawalls, boathouses and docks and the City has scheduled maintenance of public sanitary sewer interceptors. Periodically, a lowering of the Lake to

## Goal 5      ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### ❑      **Section 7, Oswego Lake**

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greater depths is requested by the City for major maintenance of public sanitary sewer interceptors. The lowering of the Lake temporarily affects small areas of fish and wildlife habitat.

The Corporation has ongoing programs to maintain and improve the Lake's water quality. It has an aquatic vegetation inspection and control program, a water quality management program and monitors activities on the Lake on a regular basis. The Corporation has commissioned studies of the Lake to address problems caused by high phosphate levels, macrophytes and sediments. It prepares a Water Quality Management Plan each year to preserve the beneficial uses of the Lake. The plan includes preventive actions, water treatments, sediment removal and continuous sampling. The Corporation is very attentive to the potential of invasion by non-native vegetation. In the opinion of the Corporation, the sedimentation of the Lake over time creates the greatest hazard to its use as a hydroelectric reservoir, its recreational uses and its fish and wildlife habitat. Removal of these sediments is required from time to time.

The City's Development Standards and procedures recognize the importance of the Corporation's efforts to maintain the Lake and establish measures to control erosion hazards, preserve natural features, protect water quality and regulate adjacent land uses. Relevant Development Standards include Stream Corridors, Erosion Control, Flood Plain, Drainage, Parks and Open Space, Tree Cutting and Hillside Protection. In addition, there are zoning regulations related to Oswego Lake, including the Cabana (WR) Zone and Supplementary Standards. The Cabana Zone is limited to the north side of Lakewood Bay. It permits single family residential or cluster developments on pilings. The Supplementary Standards of the Development Code require a 25 foot building setback from the shore of the Lake except seawalls, boathouses, docks and other improvements as approved by the Corporation.

In addition to City development regulations, Oswego Lake is subject to State and Federal regulations. The perimeter of the Lake is in the 100-year flood plain regulated by FEMA (Federal Emergency Management Agency). The State considers the waters of Oswego Lake to be "waters of the State," and subject to certain water quality regulations under the Federal Clean Water Act (CWA), administered by the Oregon Department of Environmental Quality (DEQ). In 1990, the DEQ found that the Tualatin River basin and Oswego Lake Basin did not meet Federal and State quality standards and determined them to be "water quality limited"\* because of higher than allowable levels of phosphorus and other pollutants. The Lake's characterization arises from the condition of its tributaries and other sources of inflow. (See also Goal 6, Water Quality.) As a result, the City adopted the Lake Oswego Surface Water Management Plan (SWMP) and new Erosion Control Standards in 1992. The SWMP guides efforts to improve water quality, including rehabilitation of streams that drain into the Lake and public education programs.

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 7, Oswego Lake

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#### Summary of Major Issues

The following are some of the issues, changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan.

- Oswego Lake has multiple uses and values, including electrical power generation, reservoir storage capacity, surface water storage, single family residences, water recreation, aesthetic values and scenic views, habitat for fish and wildlife and social values.
- The Lake Oswego Surface Water Management Plan has been adopted by the City, in cooperation with the Corporation's water quality management program.
- The City has adopted erosion control standards and other regulations which are intended to help protect the natural resource and scenic values of Oswego Lake.
- The Tualatin River drainage basin and Oswego Lake have been designated as "water quality limited" by the Oregon Department of Environmental Quality (DEQ). The Lake's condition follows from the condition of its tributaries and other sources of inflows.

#### **GOALS, POLICIES AND RECOMMENDED ACTION MEASURES**

##### **GOAL**

The City shall protect the natural resource, energy, aesthetic and recreation values of Oswego Lake.

##### **POLICIES**

1. Cooperate with the Lake Oswego Corporation to protect the natural resource, energy, aesthetic and recreation values of Oswego Lake.
2. Establish significant public viewpoints to assure that residents of the community can identify with and enjoy Oswego Lake.
3. Identify wetlands, mouths of streams and tree groves on the shores and hillsides surrounding Oswego Lake and protect them with a sensitive lands overlay on the Comprehensive Plan Land

## Goal 5 Open Spaces, Scenic & Historic Areas & Natural Resources

### □ Section 7, Oswego Lake

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Use Map. Regulate development and other activities in ways which provide protection of these resources and ensure the smooth functioning of the reservoir and removal of silt. [ZC 1-95-1204 Revised; 5/20/97]

4. Provide and support programs that improve the water quality of Oswego Lake. This could include silt prevention and silt removal programs in streams and storm water inflows where sediment buildups have the potential to limit beneficial uses.
5. Require all development proposed within or adjacent to Oswego Lake to:
  - a. Minimize negative impacts on upland vegetation, slopes, fish and wildlife habitat, wetlands, stream corridors and scenic views, while allowing reasonable recreational use by landowners;
  - b. Incorporate and maintain natural features, functions and values in the project design such as tree groves, steep slopes, riparian vegetation, scenic views and habitat for fish and wildlife;
  - c. Prevent damage caused by upstream erosion and siltation; and,
  - d. Prevent the placement of pollutants or contaminants, including sediments, into the Lake and its tributaries.
6. Allow development density on parcels containing natural resources associated with Oswego Lake to be transferred to other portions of the development site when steep slopes, tree groves, or wetlands are permanently protected as open space.
7. Allow innovative site and building design, including the clustering of buildings to preserve natural features associated with Oswego Lake.
8. Work with the Lake Oswego School District to preserve its rights to the existing swimming easement in the Lake Grove Area Swim Park.
9. Design, construct and operate public works projects to preserve natural features of the Lake and to preserve the water quality of the Lake.
10. Cooperate with the Corporation to safeguard the hydroelectric potential of the Lake as an energy source.

## Goal 5    ~~Open Spaces, Scenic & Historic Areas & Natural Resources~~

### **Section 7, Oswego Lake**

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#### ***RECOMMENDED ACTION MEASURES***

- i.        Coordinate with DEQ and other State and Federal Agencies, and cooperate with the Lake Corporation to enhance the water quality of the Lake through the City's Surface Water Management Program.
- ii.        Cooperate with DEQ and the Tualatin Basin Designated Management Agencies to enhance the water quality of the Tualatin River and other tributaries of Oswego Lake.
- iii.        Provide information to the general public and developers regarding the location and importance of resources associated with the Lake, and ways in which they can be protected and restored.
- iv.        Support efforts to prevent and remove sedimentation from Oswego Lake.
- v.         Explore alternatives for City-requested deep lake draining, such as the use of divers and video cameras to do inspections and conduct major maintenance of City sewer lines within the Lake.
- vi.        Consider adoption of regulations designed to protect Oswego Lake from damage caused by upstream erosion, siltation and other pollutants.
- vii.        Explore ways to remove sanitary sewer lines from Oswego Lake.

Goal 6 ~~Air, Water & Land~~ Resources Quality

**Section 1, Air Resources Quality**

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***Goal 6, Section 1: Air Resources Quality***

***The Air Resources Quality section of Goal 6 is carried forward from the 1994 Comprehensive Plan with no updates or revisions. It is to be updated and incorporated into a new Healthy Ecosystems chapter as the City makes revisions to its Sensitive Lands program. Water and Land Resources sections have been updated and incorporated into the Community Health and Public Safety chapters of the Plan.***

# Goal 6: ~~Air, Water & Land~~ Resources Quality

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## Section 1, Air Resources Quality



*Reduce air pollution and improve air quality in Lake Oswego and the Portland Metropolitan Area.*

## Goal 6 ~~Air, Water & Land Resources Quality~~

### □ Section 1, Air Resources Quality

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#### **BACKGROUND**

#### **Statewide Planning Goal 6: ~~Air, Water and Land Resources Quality~~**

*“To maintain and improve the quality of the air, water and land resources of the state.”*

Statewide Planning Goal 6 requires communities to develop plans and implementing measures so that waste and process discharges from existing and future development do not threaten to violate, nor violate, applicable state or federal environmental statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not 1) exceed the carrying capacity of such resources, considering long range needs; 2) degrade such resources; or, 3) threaten the availability of such resources.

Air pollution is both a regional and local problem. Lake Oswego and the rest of the Portland Metropolitan Region are part of the Willamette Valley air-shed which is influenced by the topography and climate of the Willamette Valley basin and the concentration of human activities in the metro area which emit air contaminants. Air pollutants which affect Lake Oswego and the rest of the Metropolitan area originate from three broad categories: 1) point sources which emit large volumes of pollutants from specific locations such as industrial sites; 2) area sources which discharge small levels of pollutants from numerous sites, such as woodstoves, garden equipment, solvents and backyard burning; and, 3) mobile sources, which are predominately automobiles.

Under the authority of the Federal Clean Air Act, the Environmental Protection Agency (EPA) has established national ambient air quality standards for six classes of pollutants: ozone, carbon monoxide, nitrogen oxides, sulfur dioxide, fine particulate matter and lead. The Oregon Department of Environmental Quality (DEQ) is responsible for monitoring and enforcing these standards and is also responsible for monitoring and regulating pollutants which are either known or probable human carcinogens. DEQ has a coordinated review system to enable local jurisdictions to review air discharge permits to determine compliance with local plans and ordinances.

The Willamette Valley is prone to prolonged periods of poor ventilation because physical and climatic conditions retard the dispersal of air pollutants. The Coast Range and Cascade Mountains confine air movement, and westerly winds are not generally strong enough to disperse pollution eastward. In the winter, surface cold air creates temperature inversions that reduce air mixing near ground level, resulting in high concentrations of carbon monoxide. Pollution problems also occur in the summer and early fall when winds are light and variable, coinciding with high concentrations of suspended particulates and ozone.

## Goal 6 ~~Air, Water & Land Resources Quality~~

### □ **Section 1, Air Resources Quality**

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The air-shed in the Portland Metropolitan Region is a finite resource. Air pollution is growing in the region due to increased vehicle use, growing industrial activity, and increases in the number of area sources associated with a growing population. The region was designated by DEQ in 1991 as not meeting Federal Clean Air Act standards for ground level ozone and carbon monoxide. These pollutants are produced primarily by automobile emissions. Unless increasing air pollution is brought under control within the next five to ten years, mandated control programs will be enforced by the Department of Environmental Quality. In addition to environmental well-being, uncontrolled air pollution would significantly impact the region's economy.

The region's existing and future anticipated air quality problems are being addressed in the following ways.

- Planning for the regional transportation system is required by DEQ to conform to air quality standards. Prior to the construction of new roads, the impacts that additional automobile travel will have on the regional air-shed's "emission's budget" must be evaluated. Mass transit alternative travel modes are being promoted to reduce congestion and dependency on the private automobile.
- Mandatory motor vehicle emission tests are required for all automobiles less than twenty years old.
- The Oregon Transportation Planning Rule (OAR 660-12) requires vehicle miles traveled (VMT\*) to be maintained to the year 2005 and reduced by 10% by 2015. Also, jurisdictions are obliged to amend land use regulations to encourage alternative transportation modes; such as bicycling, walking and transit by November, 1993.
- The 1992-93 Oregon Legislature adopted legislation which enacted ORS 468 A.363 which will implement the following:
  - a. Emission standards for the sale of new gasoline powered lawn and garden equipment;
  - b. Improvements in the Portland area vehicle inspection program including more extensive testing and expanded boundaries;
  - c. Maximum parking space\* limits for new construction to result in a reduction of less vehicle trips;
  - d. Elimination of the 20 year old vehicle rolling emissions exception;
  - e. Bicycle, pedestrian and transit friendly land use patterns; and,
  - f. A mandatory employer trip reduction program whereby employers with more than fifty employees would be required to submit plans for reducing commute trips.

## Goal 6 ~~Air, Water & Land~~ Resources Quality

### □ Section 1, Air Resources Quality

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#### Summary of Major Issues

The following are some of the issues and changed circumstances and conditions which were considered in the update of this element of the Comprehensive Plan.

- The Portland Metropolitan Region was declared a non-attainment area for ground level ozone and carbon monoxide in 1991.
- Anticipated growth in population and traffic is expected to cause the region to exceed the ozone standard after the mid 1990's unless further measures are taken to reduce emissions.
- Air quality is a complex regional problem which must be addressed by the region's governments, business community and individual citizens.
- The Oregon Legislature adopted a number of specific measures to reduce air pollution in the region.

#### **GOALS, POLICIES AND RECOMMENDED ACTION MEASURES**

##### **GOAL**

Reduce air pollution and improve air quality in Lake Oswego and the Portland Metropolitan Area.

##### **POLICIES**

1. Cooperate with federal, state and regional agencies to meet the air quality standards of the Federal Clean Air Act.
2. Ensure commercial and industrial developments comply with all required state and federal air quality regulations and mitigate the impacts of air pollution through design and abatement measures.
3. Preserve and enhance the City's open space and natural resources to sustain their positive contribution to air quality.

## Goal 6 ~~Air, Water & Land Resources Quality~~

### Section 1, Air Resources Quality

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4. Increase the opportunity to use alternative transportation as a means to reduce air pollution by:
  - a. Requiring safe and comfortable pedestrian and bicycle pathways as part of all new street construction projects, where feasible;
  - b. Ensuring new street projects accommodate existing and future transit requirements;
  - c. Requiring the design of new development to be supportive of pedestrian, transit and bicycle users;
  - d. Requiring payment of a systems development charge to be applied to the City's pedestrian and bicycle path system;
  - e. Providing appropriate pedestrian and bicycle facilities as part of new park projects; and,
  - f. Maintaining an ongoing program to build and maintain pedestrian and bicycle paths.
5. Encourage land use patterns which, while reducing dependency on the automobile, are also compatible with existing neighborhoods.
6. Reduce air pollution associated with municipal operations.
7. Reduce congestion and delay on major streets to lessen localized pollution impacts of automobile travel through methods such as signal timing, access management, intersection improvements, etc.

### **RECOMMENDED ACTION MEASURES**

- i. Reduce the local effects of air pollution by requiring commercial and industrial development to undertake measures such as:
  - a. Locating discharge sources where impacts can be minimized;
  - b. Utilizing state of the art abatement equipment and processing technology; and,
  - c. Planting trees and other plant materials on the development site.
- ii. Ensure that industrial and commercial development with the potential for air pollution is reviewed by the Department of Environmental Quality to determine impacts on local and regional air quality.

## Goal 6 ~~Air, Water & Land Resources Quality~~

### □ Section 1, Air Resources Quality

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- iii. Implement measures to reduce air pollution associated with City operations, such as utilizing lesser or non-polluting fuels in City vehicles, replacing chlorinated fluorocarbons in air conditioners and limiting the application of chemicals as part of grounds maintenance activities.
- iv. Work with Metro and DEQ to provide information on regional air shed characteristics and air quality regulations to new and expanding industry.
- v. Promote public education to communicate ways that individual action can reduce air pollution, such as limiting use of automobiles, wood burning stoves and fireplaces, outboard motors and gasoline powered lawn and garden equipment.
- vi. Reduce air pollution by decreasing the need for vehicle trips through:
  - a. Promoting pedestrian, bike and transit friendly land uses, including high density mixed use developments that are compatible with existing neighborhoods;
  - b. Implementing the Oregon Transportation Planning Rule;
  - c. Establishing limits on the number of new parking spaces within commercial and industrial zones;
  - d. Providing opportunities to utilize alternative transportation modes; and,
  - e. Encouraging employers, including the City of Lake Oswego, to implement programs to reduce single occupant trips to and from work.
- vii. Encourage the preservation and planting of trees to improve air quality.

**Goal 6    ~~Air, Water & Land Resources Quality~~**

**Section 1, Air Resources Quality**

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Goal 15 Willamette River Greenway

**Section 15, Willamette River Greenway**

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***Goal 15: The Willamette Greenway –***

***The Willamette River Greenway chapter is carried forward from the 1994 Comprehensive Plan with no updates or revisions. It is to be updated and incorporated into a new Healthy Ecosystems chapter as the City makes revisions to its Sensitive Lands program.***

# Goal 15: Willamette River Greenway

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*View of Lake Oswego Water Sports Center On The Willamette River*



*The City shall protect, conserve, enhance and maintain the natural, scenic, historic, economic, and recreational qualities of the Willamette River Greenway.*

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#### **BACKGROUND**

#### **Statewide Planning Goal 15: Willamette River Greenway**

*“To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway.”*

The Willamette River Greenway is a valuable natural asset of the City of Lake Oswego and the State of Oregon. The first suggestion that the Willamette River be somehow protected from becoming a heavily developed urban corridor, was broached in the late 1960's. Several bills relating to the protection of the River were enacted by the State Legislature. The Willamette River Greenway was finally created in 1973 with the enactment of House Bill 2497 (ORS 390.310-368). Statewide Planning Goal 15, Willamette River Greenway, sets forth the overall framework within which state and local governments carry out protection and enhancement of the Greenway, including its natural, scenic, historical, agricultural, economic and recreational qualities. The Greenway boundary includes all lands within 150' of ordinary low water.

The City received Land Conservation and Development approval of its Greenway goals and policies and Zoning Code Greenway Management Overlay in 1984. Goal 15 requires localities to adopt Greenway boundaries, specify uses permitted within those boundaries, indicate areas of potential acquisition along the Greenway and adopt provisions, by ordinance, requiring a compatibility review permit for any intensification, change of use or development within the Greenway boundaries. The City's Greenway Management Overlay provides design review procedures for any of these activities in the Greenway.

One of the features of the Greenway law, is that the Oregon Department of Transportation, State Parks Division, may determine sites appropriate for purchase. The State has identified a nine acre natural feature with scenic, natural, and recreational qualities for future acquisition at the confluence of the Willamette River and Tryon Creek. This property is currently within Clackamas County and within the City's Urban Service Boundary. Since this property is adjacent to Tryon Creek State Park, it has potential for connecting public land with a recreational trail that would reach the Willamette River.

On the Lake Oswego Comprehensive Plan Map, Greenway boundaries are 150 feet from ordinary low water (see Comprehensive Plan Map), except where they widen to include Roehr Park and George Rogers Park, which are City owned properties. In Lake Oswego, the largest portion of the Greenway contains residential uses. Commercial, recreation and public uses, such as the Tryon Creek Sewage Treatment Plant, are also present.

Beginning in 1993, the City participated in the Willamette River Corridor Coordination Plan. This project will result in a coordinated, regional vision and management plan for the River between the

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Multnomah/Clackamas County line and the Willamette Falls dam, and is scheduled for completion in 1994–95.

#### **Summary Of Major Issues**

The following are some of the issues, changed circumstances and conditions which were considered in the update of this chapter of the Comprehensive Plan:

- The City participated in the Willamette River Corridor Plan wherein several jurisdictions developed a coordinated, regional vision for the portion of the river lying within the Clackamas County urban area.
- Since the Willamette River Greenway was created in 1973, there has been a recognition that limiting water pollutants through surface water management is important for the health of the Willamette River and its tributaries. In 1991, the City adopted a Surface Water Management Plan to enhance water quality within the City's USB. This chapter recognizes this with the inclusion of surface water policies.

#### **GOALS, POLICES AND RECOMMENDED ACTION MEASURES**

##### **GOAL**

The City shall protect, conserve, enhance and maintain the natural, scenic, historic, economic, and recreational qualities of the Willamette River Greenway.

##### **POLICIES**

1. Designate the Willamette Greenway Boundary on the City's Comprehensive Plan Map, consistent with the location established by the Oregon Land Conservation and Development Commission.
2. Require non-water related and non-water dependent structures\* to be set back from the Willamette River.
3. Manage lands within and adjacent to the Greenway to protect and restore natural vegetation.

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4. Protect, enhance, and restore the fish and wildlife habitat values of the Willamette River and the Greenway.
5. Minimize the visual impact of development on the Willamette River and the Greenway through measures such as setbacks, height restrictions, building materials and color choices and landscape screening.
6. Protect the water quality of the Willamette River by:
  - a. Regulating development to prevent pollutants and soil erosion from entering the River;
  - b. Ensuring discharge practices conform to state and federal standards, and other requirements; and,
  - c. Protecting and enhancing the natural functions and values of the ground and surface water systems which drain into the River.
7. Preserve significant view corridors to the Willamette River.
8. When appropriate, require dedication of public access easements within the Greenway and to the Willamette River, as part of the development review and approval process.
9. Designate the Willamette Greenway as Protection Open Space.

### ***RECOMMENDED ACTION MEASURES***

- i. The Willamette River Greenway Boundary shall include the potential nine acre acquisition site identified by the Oregon State Parks and Recreation Department at the confluence of the Willamette River and Tryon Creek.
- ii. Coordinate Greenway planning activities with Clackamas County, the Oregon State Parks and Recreation Department and other responsible jurisdictions and governmental agencies.
- iii. Acquire land and easements to protect the Greenway's natural resources and provide for continuous public access along, and to, the River.
- iv. Maintain public safety and protect public and private property from vandalism and trespass along the Greenway.
- v. Coordinate with other involved agencies and jurisdictions and users of the Willamette River to promote safe public use of the River and Willamette Greenway in compliance with local and state goals, policies and regulations.

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- vi. Protect, enhance and restore natural vegetation along the Willamette River.
- vii. Identify significant view corridors to the Willamette River Greenway and develop standards to protect them.

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# Glossary

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**20-Minute Neighborhood:** (See Twenty-Minute Neighborhood)

**100 Year Flood:** (See Base Flood)

**Adaptive Reuse:** To change a landmark building from its original use to another use. For instance, a train station that is remodeled into a restaurant. This is commonly done to preserve the structure while allowing a contemporary use

**Adequate:** Adequate is used in multiple contexts, and is defined as much or as good as necessary to meet the appropriate requirement or purpose, such as the statewide planning goals and the associated rules.

**Advisory Body:** A board, commission, standing or ad-hoc committee appointed by the City Council to advise it on issues pertaining to land use, natural and historic resources, parks and recreation, traffic, or other matters as prescribed by the Council.

**Affected Governmental Units:** Those local governments, state and federal agencies and special districts which have programs, land ownerships or responsibilities within the area included in the plan.

**Affordable Housing:** Housing where a household pays no more than 30 percent of its annual income on housing.

**Ageing In Place:** The ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income or ability level.

**Alteration, Minor:** An exterior alteration to a historic landmark which changes the appearance or material of the landmark or contributing resource as it exists and which does not duplicate or restore the affected exterior features and materials as determined from historic photographs, historic period building plans or other evidence of original features or materials.

**Alteration, Major:** An exterior alteration to a historic landmark which is not a minor alteration.

**Alternative Transportation:** Transportation modes that provide alternatives to single occupant vehicles (SOV). Examples include mass transit, walking and bicycling.

**Archaeological Resource:** An archaeological object or site of archaeological significance that is defined as follows:

- a. **Archaeological Object is an object that:**
  - i. Is at least 50 years old;

- ii. Comprises the physical record of an indigenous (and subsequent) or other culture found in the state or waters of the state; and
  - iii. Is material remains of past human life or activity that are of archaeological significance including, but not limited to, monuments, symbols, tools, facilities, technological byproducts and dietary by-products.
- b. **Site of Archaeological Significance:**
- i. Any archaeological site\* on, or eligible for inclusion on, the National Register of Historic Places as determined in writing by the State Historic Preservation Officer; or,
  - ii. Any archaeological site that has been determined significant in writing by an Indian tribe; or,
  - iii. Any archaeological site on the Lake Oswego Landmarks list.

**Archaeological Site:** A geographic locality, including but not limited to submerged and submersible lands within the state's jurisdiction, that contains archaeological objects and the contextual associations of the archaeological objects with:

- Each other; or,
- Biotic or geological remains or deposits.

**Automatic Aid Agreement:** An agreement between Lake Oswego and other cities and fire districts whereby each agrees to respond automatically to certain fire alarms within each other's jurisdiction.

**Average Daily Traffic (ADT):** The average daily number of automobiles passing a given point on a given street or road.

**Base Flood:** The flood having a one percent chance of being equaled or exceeded in any given year. The base flood is also known as the 100 year flood.

**Bicycle Lane:** A bicycle lane is that portion of the roadway designated by a wide stripe (8 inches) and bicycle pavement markings, for the exclusive or preferential use of bicycles. Bike lanes along Boones Ferry, between Jean Road and Upper Drive are an example of this type of bicycle facility. Bike lanes can be marked between on-street parking and the auto travel lane or can be shoulder bikeways designated by a wide stripe.

**Buffer Area:** An undeveloped natural area adjacent to a wetland or stream corridor Distinctive Natural Area (DNA) or other resource area that helps to enhance the functions and values of the resource, and provides insulation from human disturbances and domestic animals.

**Buffer Edge:** An area adjacent to the buffer area within which development may occur but within which certain activities are regulated to prevent negative impacts on nearby wetlands or stream corridors.

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**Buildable Land:** Residentially designated vacant and redevelopable land within the Urban Growth Boundary that is not severely constrained by natural hazards, or subject to natural resource protection measures. Publicly owned land is not considered available for residential use. Land with slopes of 25 percent or greater and land within the 100-year floodway is considered unbuildable for purposes of density calculations.

**Campus Institutional:** Land uses allowed in Campus Institutional areas are all Office Campus uses, including those for educational, religious, social services, governmental agencies, related residential uses and facilities for care of the handicapped or other special care needs, located in a campus setting which preserves a substantial amount of landscaping and open space and the character of existing institutions.

**Campus Research and Development (CR&D):** A land use designation intended to provide a mix of clean, employee-intensive industries, offices and high density housing with associated services retail commercial uses in locations supportive of mass transit and the regional transportation network.

**Capital Improvement Program (CIP):** A financial planning tool in which needed improvements to the City's facilities are identified, priced and prioritized. Funding from a variety of sources, including local property taxes and utility fees, is matched with the projects. The City approves the CIP on a periodic basis, and projects are implemented using the CIP as the guiding document.

**Certified Local Government:** A preservation partnership between local, state and national governments focused on promoting historic preservation at the grassroots level. The program is jointly administered by the National Park Service (NPS) and the State Historic Preservation Office, pursuant to 36 CFR Part 61, the implementing regulations for the National Historic Preservation Act of 1966, as amended.

**Citizen Involvement Guidelines:** A set of program guidelines intended to establish an effective and responsible program for citizen involvement in the land use planning process in Lake Oswego. The guidelines were developed by the Lake Oswego Commission for Citizen Involvement and adopted by the City Council, pursuant to Statewide Planning Goal 1 (Citizen Involvement).

**Commercial Corner:** An area that accommodates a mix of limited, lower-intensity commercial and residential uses providing services for nearby residents. These locations are smaller in scale and size than Neighborhood Villages, typically located on one corner of an intersection, not more than one lot deep, and zoned commercial or mixed-use.

**Community Identity Benefits:** Elements of the physical environment that characterize Lake Oswego and are valued for their aesthetic appearance, their environmental values,

or their association with the character of a neighborhood or the community. Examples include stands of trees and forested ridgelines, views, rock outcroppings, water features, and individual tree and plant specimens.

**Community Needs (for goods and services):** These are needs which encompass the range of goods and services desired by the market area defined by Lake Oswego's Urban Services Boundary. These are needs met by the following:

- **Convenience goods and services.** Merchandise that is consumed daily and purchased frequently, such as food and drugs.
- **Primary goods.** Merchandise with a cost, rate of depletion, and frequency of purchase in-between that of convenience goods and secondary shopper's goods. Apparel, shoes and books are examples.
- **Durable goods.** Those goods that are intended to last five years or more such as furniture, appliances, and automobiles. Because of their cost and long life these goods are purchased less frequently than primary goods intended to provide for frequently recurring needs. Consumers typically travel greater distances to shop for durable goods than for other types of goods. These goods are also referred to as secondary goods.

**Compact Urban Form:** Uses land efficiently, focusing redevelopment within the current urban service boundary to discourage urban sprawl, and preserving rural lands outside the boundary.

**Comprehensive Plan:** Comprehensive Plan is defined in ORS 195.015 as a generalized, coordinated land use map and policy statement of the governing body of a local government that interrelates all functional and natural systems and activities relating to the use of lands, including but not limited to sewer and water systems, transportation systems, educational facilities, recreational facilities, and natural resources and air and water quality management programs. "Comprehensive" means all-inclusive, both in terms of the geographic area covered and functional and natural activities and systems occurring in the area covered by the plan. "General nature" means a summary of policies and proposals in broad categories and does not necessarily indicate specific locations of any activity or use.

**Conflicting Land Use:** The development or redevelopment planned for a property which may result in demolition, alteration or moving of a landmark. In the absence of a development proposal, the identified conflicting use is the most intensive use allowed in the zone.

**Contaminant:** Any physical, chemical, biological or radiological substance in water which makes it unfit for human consumption.

**Coordinated:** A plan is coordinated when the needs of all levels of governments, semi-public and private agencies and the citizens of Oregon have been considered and accommodated as well as possible.

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**County Housing Authority:** The County agency responsible for administering affordable housing programs.

**Crime Prevention Through Environmental Design:** Site and building design methods that minimize opportunities for crime and increase public safety.

**Cultural Node:** Community gathering places where people come together to learn and participate in the culture of the City.

**Cultural Resource:** Evidence of an ethnic, religious or social group with distinctive traits, beliefs and social forms.

**Critical Facilities and Infrastructure:** As defined by the Natural Hazards Mitigation Plan Addendum. Critical facilities are City Hall: Dispatch, Law Enforcement; Fire Stations; the Adult Community Center; and Public Works Operations. Critical infrastructure includes infrastructure that provides services for the City of Lake Oswego, including treatment plants, major public facility lines, gas pipelines, transportation networks, substations, fiber optic lines and communications towers.

**Dedication:** A transfer of property or property rights as a condition of development approval to the City of Lake Oswego for public facilities such as streets, utilities, pathways, sidewalks, surface water management and street trees or for open space protection.

**Demand Management:** Actions designed to alter travel patterns to improve the efficiency of current transportation facilities and reduce the need for additional facilities. Examples include encouraging the use of alternative transportation systems and trip reduction ordinances.

**DLCD:** Department of Land Conservation and Development. This state agency administers the statewide land use planning program.

**Developed Open Space:** Open space that consists of ball fields, play grounds, neighborhood pocket parks, tot lots, picnic areas, accessory buildings, paved areas, lawns, formal landscaped areas or similar uses.

**Development:** Any man-made change to improved or unimproved property, including, but not limited to, construction, installation or alteration of a building or other structure, change of use, land division, establishment or termination of a right of access, storage on the land, grading, clearing, removal or placement of soil, paving, dredging, filling, excavation, drilling or removal of trees.

**DOGAMI:** The Oregon Department of Geology and Mineral Industries' (DOGAMI) primary function is to map the state's varied geology and natural hazards to help Oregonians

understand and prepare for the vast array of natural hazards that accompany the state's spectacular geology.

**Dwelling Units per Acre on Vacant Buildable Land:** The number of dwelling units allowed on a net buildable acre. A net buildable acre consists of 43,560 square feet of residentially designated, buildable land after excluding present and future rights-of-way, hazard areas, public open spaces and restricted resource protection areas.

**Edge Area:** An area adjacent to the buffer area within which development may occur but within which certain activities are regulated to prevent negative impacts on nearby resource areas.

**Employment Centers:** The City's economic drivers, providing land primarily for office, research, education, and industrial uses. Employment Centers support Lake Oswego's current leading employment sectors of Finance, Insurance, and Professional Consulting Services, and can support the future target industries as well. Employment Centers focus on higher intensity employment uses in the City, and can accommodate medium and large employers (50+ jobs per business) that seek business park, industrial, or institutional settings. Employment Centers may contain the following Comprehensive Plan designations: Commercial Research and Development (CR&D), Highway Commercial (HC), Mixed Commerce (MC)\*, Office Campus (OC), Office Campus/High Density Residential (OC/R-3), Campus Institutional (CI), Open Space (OS); Parks and Natural Areas (PNA), Park (P), Industrial Park (IP) and, in the Mary's Woods Center, Low Density Residential (R-10).

Although the focus is on employment, Employment Centers do allow mixed use: limited retail, residential and commercial uses that are designed to support the primary employment purpose and provide additional vibrancy to its daily activities without supplanting each Center's primary employment focus. Centers should be well connected to the surrounding community. They are located around major arterials and highway facilities to facilitate access, movement of goods and employees, and are well-served by all modes of transportation. The City has three Employment Centers (Figures 3–5), Kruse Way, the SW Employment District, and Marylhurst—each with its own character and economic function. Kruse Way functions as the City's primary office commercial employment area, the SW Employment District functions as the City's primary Industrial and Industrial Park area, and Marylhurst's focus is on campus institutional uses (education).

**Employment Uses:** Defined as the commercial, industrial, campus institutional, public function and mixed-uses allowed in the Comprehensive Plan employment zones.

**Employment Zones:** Includes all Comprehensive Plan Map zones that allow employment uses: commercial, industrial, campus institutional, public functions and mixed-use zones.

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**Energy Systems, Small-Scale Renewable:** Energy generation, storage and delivery systems that can be centralized (such as electricity and natural gas), or small-scale distributed energy systems, which are modular, decentralized, grid-connected or off-grid energy systems located in or near the place where energy is used.

**Enhanced 911 (E-911):** A regional emergency communications system which utilizes the existing phone network linked to a computerized system to locate emergencies and coordinate response in the shortest possible time.

**Equitable Allocation:** The allocation of the costs of expanding the capacity of public facilities within the Urban Service Boundary proportionate to the demand placed on the public facility by new development and the demand required by existing development.

**Erosion:** Detachment and movement of soil, rock fragments, mulch, fill or sediment by water, wind, gravity, frost and ice or by development activities.

**ESEE:** Refers to Environmental, Social, Energy and Economic (ESEE) analysis, pursuant to Statewide Planning Goal 5 (OAR 660, Division 23).

**Essential Natural Systems:** Natural systems with functions that contribute to flood protection, erosion control or surface water quality, including floodplains, stream corridors, wetlands and other living systems.

**Essential Public Facilities:** As defined by ORS 455.447 (a) “Essential facility” means:

- (A) Hospitals and other medical facilities having surgery and emergency treatment areas;
- (B) Fire and police stations;
- (C) Tanks or other structures containing, housing or supporting water or fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures;
- (D) Emergency vehicle shelters and garages;
- (E) Structures and equipment in emergency-preparedness centers;
- (F) Standby power generating equipment for essential facilities; and
- (G) Structures and equipment in government communication centers and other facilities required for emergency response.

**Essential Recreational Services:** Provision of a wide range of recreation options under the following essential service categories: play for children, exercise and sports, and access to nature.

- Farm/Produce Stand:** A building or structure used for the retail sales of fresh fruits, vegetables, flowers, herbs, and/or plants, and accessory sales.
- FEMA:** The Federal Emergency Management Agency is the federal agency that administers the National Flood Insurance Program.
- Filling (Fill):** A deposit of earth by artificial means.
- Finished Water:** Water which has been treated, is ready for use and can be safely consumed.
- Flood or Flooding:** A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland waters or the unusual and rapid accumulation of runoff of surface waters from any source.
- Floodplain:** The area bordering a watercourse subject to flooding. The floodplain includes both the floodway fringe\* and the floodway. The floodplain is further defined as being flooded by the 100-year flood, also referred to as the base flood.
- Floodway:** The area within the floodplain that includes the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
- Floodway Fringe:** The area within the floodplain lying outside the floodway. This is the area, in addition to the floodway, that is inundated by the 100 year or base flood.
- Floor Area Ratio (FAR):** The ratio of the combined floor area of all stories of a building excluding vent shafts, courtyards, enclosed or covered parking areas, allowable projections, decks, patios, uncovered exit stairs and uncovered, above-grade driveways, to the net buildable area.
- Frequent Bus:** Frequent Bus provides high frequency local service along major transit routes with frequent stops. This service includes a high level of transit preferential treatments and passenger amenities along the route such as covered bus shelters, curb extensions, reserved bus lanes, lighting, median stations and/or signal preemption. The future Line 78, between downtown Lake Oswego and the Tigard Transit Center, via Country Club, Boones Ferry and Meadows Road, and the segment of Line 35 south of downtown Lake Oswego are planned as Frequent Bus lines.
- Frequently Recurring Needs (for goods and services):** The continuous demand for goods and services that are used on a regular or daily basis such as food, drugs, dry cleaning, etc. These are often referred to as convenience goods and services.
- Full Costs of Extending Urban Services:** Means the costs of constructing all public improvements needed to serve the development of an urban reserve area including both

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those facilities that need to be constructed within the area as well as the expansion in capacity of any facilities outside the area that are required either to serve the urban reserve area or to maintain existing levels of service within the City's 1996 Urban Service Boundary. Full Costs also includes the costs of maintaining and operating facilities needed to serve the urban reserve area as well as the operational costs of providing police, fire, parks, library and general governmental services to the area.

**Functional Street Classification:** A description of a street by its size (in lanes), function and level of service.

**Functions and Values:** The beneficial characteristics of natural resources including but not limited to:

- Water and air quality enhancement;
- Fish and wildlife habitat;
- Native vegetation preservation;
- Community identity and aesthetic benefits;
- Neighborhood character enhancement;
- Wildlife corridors that provide linkages to other natural areas;
- Ground water recharge and storage of flood and storm waters;
- Open space and visual enjoyment;
- Cultural, social, education and research potential;
- Maintenance of scenic resources and distinctive aesthetic qualities such as views of Mount Hood and forested ridge lines;
- Public protection from natural hazards, such as flooding, geological instability or high erosion potential;
- Buffering from noise and incompatible uses; and,
- Passive recreation and future recreational development opportunities.

**General Commercial (GC):** A land use designation intended to provide lands for commercial activities supplying a broad range of goods and services to a market area which includes the planning area identified in the Comprehensive Plan. This is the area within the Lake Oswego Urban Services Boundary.

**Green Building:** the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle, from siting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. (This definition is from the EPA.)

**Hazardous Substances:** Any substance listed or described in ORS 453, “Hazardous Substances.” Hazardous substances are toxic, corrosive, irritants, strong sensitizers, flammable, combustible, or generate pressure through decomposition, heat or other means. Hazardous substances or mixture of substances may cause substantial personal injury or illness during, or as a proximate result of any customary or reasonably foreseeable handling or use.

**Higher Intensity:** Defined as a use that provides services for a market area beyond the City (planning area) or the City market area.

**Highest and Best Use (recycling):** Prioritizing end use recyclable materials to maximize resource conservation and minimize environmental and economic impacts for reuse.

**Highway Commercial (HC):** A land use designation intended to provide lands for commercial activities which meet the needs of the traveling public as well as other highway-oriented retail uses which require access to a market area larger than the general commercial zone. This district is not intended for regional shopping centers.

**Home Occupation:** A lawful occupation, profession, activity or use conducted in a dwelling unit that is clearly incidental and secondary to the use of the dwelling for dwelling purposes.

**HUD:** U.S. Department of Housing and Urban Development.

**Hydrophytic Vegetation:** Plant life growing in water or in soil that is at least periodically deficient in oxygen as a result of excessive water content.

**Implementation Measures:** These are the means used to carry out the plan. These are of two general types: 1) management implementation measures such as ordinances, regulations or project plans, and 2) site or area specific implementation measures such as permits and grants for construction, construction of public facilities or provision of services. The Lake Oswego Comprehensive Plan utilizes the term “Recommended Action Measures.”

**Infiltration/Inflow (I/I):** These are the extraneous components of wastewater flow. Infiltration occurs when groundwater leaks into the sanitary sewer through such defects as cracked or broken pipes, poor joints or dilapidated manholes. Inflow occurs when storm runoff flows directly into the sanitary sewer at storm sewer cross connections, roof and foundation drains, catchbasins and faulty or submerged manholes.

**Invasive Plants:** Non-native vegetation that displaces or dominates native plant communities, such as Himalayan blackberry, English ivy, reed canary grass, morning glory and scotch broom.

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**Lake Easement:** A conditional right to access Oswego Lake granted by Lake Oswego Corporation to certain designated properties. Lake easements were originally granted by the Oregon Iron and Steel Company, a previous owner of Oswego Lake, when it developed property in the Lake Oswego area.

**Landmark:** Any site, object or structure, and the property surrounding it, that is designated as a Landmark by the City according to OAR 660-16, as having historic, architectural or environmental significance.

**Legislative Comprehensive Plan Amendment:** A legislative amendment is a change to the text, including the goals, policies and recommended action measures of the Comprehensive Plan, or to the Plan map, which affects a large number of properties. A legislative amendment is oriented toward affecting land use policy and is broad in scope.

**Level of Service (LOS):** A level of comfort afforded to drivers as they travel. It is based on the amount of roadway capacity, average delay, and the volume/capacity ratio along an arterial. There are six levels of service: A through F. LOS "A" is the best rating, indicating a smooth flow of traffic. LOS "F" indicates a failure to the system.

**Level of Service "D":** This level is characterized by fairly substantial delays, such as waiting through two signal cycles to pass through an intersection after stopping. These queues will occasionally clear during the peak hour, but approximately 70% of green lights fail to deliver the waiting queues.

**Locational Criteria for Land Uses:** The guiding principles and standards for the placement of activities on land. They are derived from the values stated in the Plan goals and policies and are based on the need for compatible relationships between the urban and natural environment and the need for interaction among residents, businesses and institutions.

**Low Impact Development:** An engineering design approach to managing storm water runoff. Low Impact Development emphasizes conservation and use of on-site natural features to protect water quality. This approach implements engineered small-scale hydrologic controls to replicate the pre-development, hydrologic regime or condition of watersheds through infiltrating, filtering, storing, evaporating and detaining runoff close to its source.

**Low and Very Low Income:** The definition of low and very low income is based on regional (Portland Metropolitan Statistical Area) income levels. Low income is defined as earning less than 80% of median income. Very low income is considered as earning less than 50% of regional median income.

**Lower Intensity:** Defined as a use that provides services or activities for a neighborhood market area.

**Main Streets:** Main Streets are business districts that contain areas of higher density land uses, with concentrations of shopping, services and entertainment or restaurants. Multi-family residential is often located around the Main Street district and may exist on second or third stories above retail or offices. Main Streets are to have high quality transit service and a good pedestrian environment. In Lake Oswego there are two mapped Main Street Areas, Lake Grove (Boones Ferry Road, between Washington Court on the north side of Boones Ferry and the Southern Pacific Railroad right-of-way on the south side of Boones Ferry, and Kruse Way, as specified in Figure 7); and Lake Oswego (A Avenue between State Street and 6th Street, B Avenue between State Street and 5th Street and 1st Street, between C Avenue and Evergreen Road).

**Major Development:** A major development is one which requires a permit from the City involving the greatest level of review. “Greatest level of review means” any land use action that is required to go to a public hearing such as planned developments, zoned changes, comprehensive plan amendments, conditional use permits and major variances.

**Major Transit Corridors:** Roads classified as arterials within the Lake Oswego City limits which are used as transit routes. Major transit corridors consist of Highway 43 (State Street), A Avenue, Country Club Road, Boones Ferry Road and Kruse Way.

**Major Transportation Facilities:** Freeways and major arterials, as well as facilities such as bus barns that service a transportation fleet.

**Mass Casualty Incident:** A mass casualty incident is a single incident resulting in the need for 10 or more patients to be treated by emergency responders. The primary objective is to manage the delivery of patients to the appropriate area hospitals.

**Metropolitan Planning Organization (MPO):** An organization located within the State of Oregon and designated by the Governor to coordinate transportation planning in an urbanized area. Lake Oswego lies within the MPO governed by Metro.

**Minimum Stream Flow:** A level of stream flow which is necessary to support aquatic life and to minimize pollution. Use of water under rights and permits with priority dates junior to the ruling date is curtailed when minimum stream flow conditions cannot be met. Use of water under rights and permits with seniority dates senior to the ruling are not affected.

**Mitigation:** To rectify, repair or compensate for adverse impacts to a natural resource which are caused by development.

**Mixed Commerce (MC):** To provide for a mix of uses requiring highway access and which provide a strong visual identity. Intended uses include local and regional convention type facilities, office uses and supporting retail uses.

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**Mixed Use Development:** The development of a tract of land, building, or structure with a variety of complementary and integrated uses, such as, but not limited to, residential, office, retail, public or entertainment land uses.

**Multi-Use Pathway:** A path that is separated from motorized vehicular traffic, is a minimum of 10 feet in width, where possible, and either within the street right-of-way or within an independent right-of-way, for use by bicyclists, pedestrians, joggers or other means of non-motorized transportation.

**Mutual Aid Agreement:** An agreement between Lake Oswego and other cities and fire districts whereby fire fighting resources are dispatched to other jurisdictions upon their request.

**National Flood Insurance Program:** This program was established by the National Flood Insurance Act of 1968 and is further defined by the Flood Disaster Protection Act of 1973. The Flood Insurance Program established minimum floodplain management requirements which enables communities to receive federally subsidized flood insurance.

**Native Plant Communities:** Native vegetation adapted to a particular environment or ecosystem which does not displace or dominate other plant communities.

**Natural Area:** An area of land and/or water that has a predominantly undeveloped character. Natural areas may be pristine, or may have been affected by human activity such as vegetation removal, agriculture, grading or drainage if such areas retain significant natural characteristics, or have recovered to the extent that they contribute to the City's natural systems including hydrology, vegetation, or wildlife habitat. The purpose of natural areas is to provide a scenic, aesthetic appearance and/or protect natural processes, providing passive recreational uses, and/or maintaining natural vegetation. Natural areas shall be either dedicated to the public or by other means committed to use for the general public, or may also be permanently reserved by common ownership among the owners of a development. (See also, Significant Natural Resource/Area.)

**Natural Ground and Surface Drainage Systems:** Ground water is water held underground in the soil or in pores and crevices in rock. The water table is the level beneath which the ground is completely saturated with water. Surface water is water that collects on the surface of the ground. Natural systems are channels (creeks, rivers, streams, etc) formed in the existing surface topography of the earth prior to changes made by unnatural causes.

**Natural Hazards:** Floods, earthquake, landslides, wildfire, severe storms and volcanic eruption, as defined in statewide planning Goal 7 and the City of Lake Oswego's Natural Hazards Mitigation Plan Addendum (2010).

**Natural Open Space:** Property that is public or privately owned and is protected as a natural area by public ownership, legal instrument or regulation. Such areas typically include stream corridors, wetlands, tree groves and steep slopes. When privately owned, natural open space may be protected through legal instruments such as private open space tracts and conservation easements. In the absence of public or private protection, natural open space is protected through regulations such as through individual development standards.

**Neighborhood Business/Commercial:** Refers to zoning districts within a designated Neighborhood Village or Commercial Corner where both commercial and residential uses are allowed but are limited in scale and primarily serve the adjacent neighborhood(s).

**Neighborhood Commercial (NC):** A land use designation intended to provide land near or within residential areas for commercial activities to provide for the frequently recurring needs of surrounding residential neighborhoods.

**Neighborhood Commons:** Neighborhood-scale gathering places that allow for occasional limited commercial or community activities, which support the surrounding neighborhoods and may provide a temporary market for small businesses. They are centered on parks, schools, and other public places.

**Neighborhood Plan:** Neighborhood Plans are policy documents which provide specific guidance on matters such as land use, urban design and provision of public facilities for specific neighborhood areas. They are intended to become part of Lake Oswego's Comprehensive Plan. Neighborhood Plan goals, policies, recommended action measures and implementing land use regulations are required to be consistent with, and reinforce Lake Oswego's Comprehensive Plan and Statewide Planning Goals.

**Neighborhood Villages:** Provide goods and services to meet the daily needs of nearby residents. They serve as neighborhood centers of commerce and community. Neighborhood Villages allow for a mix of residential with retail, services, and other employment but with less intensity than Town Centers and Employment Centers.

These smaller-scaled, mixed-use centers are located near residential areas, and development in the villages should reflect this relationship in design, character, and connections to the surrounding neighborhoods. Neighborhood Villages support area residents' daily needs within a 20-minute walk, or bike ride, reducing daily car trips and promoting community health. Here, due to the scale of Villages, the 20-minute neighborhood concept extends past Village boundaries to focus on serving adjacent neighborhoods, as well as Village residents.

Neighborhood Villages are present at key intersections and are accessible by minor arterial roads and major collectors. To further promote community activity, Neighborhood

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Villages may include gathering spots such as parks, plazas and paths; and, where compatible with neighborhood plans and if existing in 2013, medium- and high-density residential areas may be located within Neighborhood Villages. Because of the close relationship between neighborhoods and their centers, each Neighborhood Village differs in its character, mix, and size. Examples of Neighborhood Villages include Mountain Park, West Lake Grove, Bangy Road, Rosewood, and Grimm's Corner/Palisades.

**Net Area Per Unit:** The minimum lot area required per dwelling unit, calculated on gross site area, excluding existing and future rights-of-way.

**Net Loss:** A permanent loss in surface area of a Distinctive Natural Areas (DNA), wetland or other resource area, or a permanent loss in functions or values resulting from development action.

**Negative Noise Impacts:** When background sound levels increase past 65 dBA (A-weighted decibel scale) and disruption is increased for conversation and other human activities. Other effects include noise impacts from large transportation facilities on sleep disruption, adverse impacts on residences and other land uses sensitive to noise, such as schools, open or natural spaces, libraries and hospitals.

**Noise-Sensitive Land Uses:** Buildings and parks where quiet is an important element of their intended purpose, residences, hospitals, hotels, schools, libraries, churches and similar uses.

**Non-Structural Methods:** A design that does not use pipes to store or convey surface water, but instead uses features such as street trees, landscaped swales and/or special paving materials that limit or reduce runoff by retaining surface water, allowing it to infiltrate. A detention basin, sometimes called a "dry pond," temporarily stores water after a storm, but eventually empties out at a controlled rate to a downstream water body. A retention basin also stores stormwater, but the storm water is retained, as the water remains in the retention basin until it infiltrates into the ground or evaporates.

**Non-Durable Goods:** Goods which have a life of less than five years. Typically these are convenience and secondary goods.

**ODOT:** Oregon Department of Transportation.

**Office Campus (OC):** A land use designation intended to provide lands for major concentrations of regionally oriented offices and employment opportunities for a market area larger than the planning area.

**Open Drainage Ways:** Commonly used open surface drainage systems include, but are not limited to, shallow ditches, open channels, grassed waterways and sloped banks.

**Open Space:** Parks and natural areas.

**Operation and Maintenance Costs:** The annual costs for personnel, supplies, and equipment necessary to operate and maintain existing public facilities and to provide other governmental services such as police, fire, library, recreation, engineering, planning, finance, legal, and administrative.

**Park:** Public or private land providing for the active or passive recreational needs of the community, or providing for the scenic and aesthetic appearance and/or protection of natural processes on land that is to remain in natural or landscaped condition, that is either dedicated to the public or by other means committed to use for the general public, or permanently reserved by common ownership among the owners of a development.

**Parking Spaces:** Parking and loading in areas planned for industrial, commercial, institutional, residential or public use.

**Passive Recreation:** Recreation not requiring developed facilities that can be accommodated without change to the area or resource (sometimes called low-intensity recreation).

**Periodic Review:** A requirement of ORS 197.640 which compels cities and counties to review their comprehensive plans and land use regulations periodically.

**Plans:** Plans are documents which guide land use decisions, including both comprehensive and single purpose plans of cities, counties, state and federal agencies and special districts.

**Point- and Non-Point Sources:** Point source pollution comes from a single source, such as a wastewater treatment plant, pipes, ditch, etc. Non-point source pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

**Preservation (Stream Corridor):** Action which ensures that stream corridors are maintained intact and unharmed, and otherwise protected from actions that might degrade their functions and values.

**Preservation (Wetland):** Ensuring that wetlands are maintained intact and unharmed, and otherwise protected from actions that might degrade their functions and values.

**Primary Bus:** Primary Bus service operates with maximum frequencies of 15 minutes with conventional stop spacing along the route. Transit preferential treatments and passenger amenities such as covered bus shelters, lighting, signal preemption and curb extensions are appropriate at high ridership locations. The future Line 41, between the Tualatin Park and Ride and the Barbur Transit Center, via Boones Ferry, McNary, Jefferson and Kerr, is planned as Primary Bus line.

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**Private Open Space:** Open space that is privately owned. Private open space may include open space tracts and common areas within subdivisions or planned developments. Private open space is intended to be used by members or residents only within a private development or subdivision.

**Private Streets:** Roadway surface improvements whose primary purpose is to convey traffic and provide vehicle access to a tract of land retained in private ownership by an individual or individuals, an association, a corporation or other legal entity having fee title to that tract of land. Examples of private streets are the major vehicular thoroughfares in shopping malls and office campuses\* and dead end streets owned and maintained by homeowners associations in condominiums, apartment complexes and single family subdivisions.

**Public Facility:** Public water, sanitary sewer, storm water, transportation facilities and other governmental facilities. (See also, Public Facilities Plan and Urban Services.)

**Public Facilities Plan:** A public facility plan, for the purposes of compliance with Statewide Planning Goal 11 (OAR 660-11-45), is a support document or documents to a comprehensive plan that describes the water, sanitary sewer, storm water management and transportation facilities needed to support the land uses designated in the Comprehensive Plan.

**Public Functions:** Use such as government services, education and similar activities, as well as major and minor public facilities. Many of these uses are conditional. The Public Functions Zone is intended to accommodate Public Functions.

**Public Open Space:** Open space that is publicly owned and may be designated as “Open Space” on the Comprehensive Plan Map; or property that has been dedicated to the public, designated as a public open space tract, or protected through a conservation easement or similar mechanism providing for public use.

**Public Services:** Those services provided by the City of Lake Oswego, Lake Oswego School District, and West-Linn Wilsonville School District that would be needed by development within urban reserve areas including, but not limited to: water, sewer, storm drainage, transportation, parks and open space, library, fire and police protection, and schools.

**Public Street:** The surface improvements in a designated public right-of-way whose primary purpose is to convey traffic and provide access to abutting properties.

**Quality of Life Indicators:** Quantitative measurements of the elements of a community’s quality of life. Collectively the Indicators measure the extent to which a community has achieved its goals for a livable city. Individually the Indicators can be used to evaluate the impact of future development on the City’s quality of life.

**Quasi-Judicial Plan Amendment:** A quasi-judicial Plan amendment applies to a small number of identified properties or is required to effect a particular development permit application.

**Redevelopment (of Commercial and Industrial Areas):** Development action which increases the value, vitality and aesthetic quality, and commercial and industrial areas.

**Regional Draw Business:** Business that draws customers from not only the Lake Oswego market area but also from throughout the Portland Metropolitan Area. For the purposes of the Comprehensive Plan a regional draw business shall be any single tenant commercial establishment with a floor area of greater than 35,000 square feet.

**Regional Shopping Center:** For the purposes of the Comprehensive Plan, Regional Shopping Centers consist of one or more commercial establishment of 60,000 square feet of floor area or larger, planned, constructed, and managed as a total entity, with customer parking provided on-site, provision for goods delivery separated from customer access, aesthetic considerations and protection from the elements, and landscaping and signage in accordance with a plan approved through Development Review.

**Regional transportation system:** The regional transportation system consists of transportation facilities of regional significance, including regional arterials and throughways, high capacity transit and regional transit systems, regional multi-use trails with a transportation function, bicycle or pedestrian facilities that are located on or connect directly to other elements of the regional transportation system, and regional pipeline and rail systems.

**Regional Rapid Bus:** Regional Rapid Bus provides high frequency, high-speed service along major transit routes with limited stops. This service is a high-quality bus that emulates Light Rail Transit (LRT) service in speed, frequency and comfort. A high level of transit amenities is provided at major transit stops, including schedule information, ticket machines, lighting, benches, covered bus shelters and bicycle parking. The portion of existing Line 35, between Lake Oswego and Portland, is planned as a Regional Rapid Bus line.

**Relative Earthquake Hazard Map:** A map provided by DOGAMI (Oregon Department of Geology and Mineral Industries), illustrating the areas where earthquakes present the greatest hazard, on average, to least hazard.

**Renewable Energy:** Energy from solar, wind, geothermal, biomass and similar renewable resources. (See also, Energy System, Small-Scale.)

**Resilience:** A community's ability to effectively respond to disruptions that threaten both natural and human systems.

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**Resource Conservation (RC) District:** The Resource Conservation (RC) District is an overlay zone designed to protect significant tree groves. A tree grove may be placed within an RC District if the tree grove has:

- A HAS ranking of at least 35 in the 1994/95 ESEE study; or
- A “high” ranking for scenic values in the study; or
- Is adjacent to a stream corridor or wetland that has an RP ranking.

**Resource Protection (RP) District:** The Resource Protection (RP) District is an overlay zone designed to protect environmentally significant stream corridors and wetlands. The following resources may be placed within the RP District:

- Stream corridors and wetlands that have a HAS ranking of 50 or more (defined as “Class I stream corridors and wetlands”).
- Stream corridors and wetlands that have a HAS ranking of 35–49 or have a “high” ranking for scenic values (defined as “Class II” stream corridors and wetlands).

**Riparian:** Lands which are adjacent to rivers, streams, lakes, ponds, and other water bodies. They are transitional between aquatic and upland zones, and as such contain elements of both aquatic and terrestrial ecosystems. They have high water tables because of their close proximity to aquatic systems, soils are comprised largely of water-carried sediments, and contain some vegetation that requires free (unbound) water or conditions that are more moist than normal.

**Rural Area:** Land outside the Urban Growth Boundary.

**Rural Buffer:** Land that is not urbanized and allows agricultural and other supportive uses such as open space.

**Scenic Resources:** Elements of the physical environment that are valued for their aesthetic appearance and characterize Lake Oswego, such as trees, steep hillsides, forested ridge lines, rock outcroppings, water features, and views of Mount Hood, Oswego Lake, the Willamette River, and the Tualatin Valley.

**Secondary Bus:** Secondary Bus service provides coverage and access to higher level transit services. Secondary bus service runs as often as every 30 minutes on weekday. Weekend service is provided as demand warrants.

**Secondary (Accessory) Dwelling Unit:** A dwelling unit that has been created within, by means of addition to, or as an accessory structure to, a single family dwelling; with separate parking, kitchen and bathing facilities.

**Seismically Active Areas:** An area which has had earthquakes in historic times.

**Sensitive Lands:** Lands containing natural resources that have environmental significance within the Lake Oswego planning area (Urban Service Boundary) including wetlands, stream corridors, and tree groves. Such lands are more sensitive or easily damaged by development impacts than non-resource lands.

**Sensitive Lands (SL) Atlas:** The bound volume of maps on file in the Planning Department showing the boundaries of RP and RC Overlay districts on individual property maps at a scale of 1:200. The SL Atlas is a component of the Comprehensive Plan and Zoning Maps and is created and modified pursuant to the standards and criteria contained in LOC Article 48.17 (Sensitive Lands). The districts shall also be shown on the City-wide Comprehensive Plan and Zoning Maps for convenience, but the more specific boundaries as shown in the Atlas shall control regulation pursuant to LOC Article 48.17.

**Settlement and Annexation Agreement:** A legal agreement among the City, Unified Sewerage Agency of Washington County (USA) and property owners in the Kruse Way portion of the Lake Oswego's Urban Service Boundary. The agreement area was the result of a court case brought by the property owners to develop Kruse Way in Clackamas County to the County's development standards and be provided water and sewer service by USA and the Lake Grove Water District. Upon occupancy, each development is to be annexed to the City. The agreement was entered into in 1988.

**Shared Roadway:** On shared roadways, bicyclists and motorists share the same travel lanes. There are two variations: 1) a shared roadway is a wider than normal curbside travel lane, on streets with higher volumes and speeds, provided to give extra room for bicycle operation where there is insufficient space for a bicycle lane\* or shoulder bikeway. An example of a shared roadway is the 14-foot wide curb lanes on State Street. On neighborhood streets with low traffic volumes (3,000 ADT\* or less) and speeds (25mph or less), wide outside lanes are not necessary for safe conduct of bicycle traffic.

**Shopping Centers:** For the purposes of the Comprehensive Plan, Shopping Centers are a group of commercial establishments, planned, constructed, and managed as a total entity, with customer parking provided on-site, provision for goods delivery, separated from customer access, aesthetic considerations and protection from the elements, and landscaping and signage in accordance with an approved plan.

**Significant Natural Resource/ Area:** A natural resource or area that the City has found to be significant pursuant to Statewide Planning Goal 5: Natural Resources.

**Single Occupant Vehicle (SOV) Trip:** An auto trip made by a driver with no passenger. Reducing SOV trips and auto trips in general is the goal of encouraging alternative transportation (bicycling, walking, transit) and car pooling programs.

**Specialized Services and Unique Goods:** Goods and services, which cater to a specific or distinctive market and are specifically sought out by clientele within the community and throughout the region. Businesses in this category include establishments, which provide uncommon merchandise, high quality eating, entertainment, and cultural opportunities, arts and crafts, etc. Professional services, such as medicine, law, finance, etc., are considered to be specialized services and capable of attracting clients from beyond the community.

**Stable City:** A city which has constructed the basic public facilities needed to serve its present and projected population and which has limited land available for major expansion that would require major expansion of its public facilities to serve the additional growth.

**Stafford Basin Urban Reserve:** Land south of Lake Oswego outside the current Urban Growth Boundary but designated by Metro as suitable for urban development for the next 40 to 50 years; it includes reserves 4A, 4B, 4C and 4D.

**Stream:** A natural body of running water flowing continuously or intermittently in a channel on or below the surface of the ground.

**Stream Corridor:** A stream corridor is an area of land that includes a stream, and a set of natural features generally associated with the stream. These natural features include, stream channels, flood plains, wetlands, riparian vegetation, associated vegetation, steep slopes, and habitat features. A stream corridor generally includes the following:

- Hydrological Characteristics. Physical features that affect stream flow capacity, rates of channel erosion and patterns of sedimentation including but not limited to stream alignment, cross section and profile, roughness of channel and banks, and drainage patterns.
- Plant Communities and Wildlife Habitat. The association of trees, shrubs, ground cover, and aquatic plants that affects the hydrological characteristics of a stream corridor, reduces runoff turbidity, provides shade which lessens thermal pollution, filters out nutrients carried by runoff, protects stream corridors soils and slopes from erosion, and provides habitat for fish, wildlife and aquatic organisms.
- Soils with Potential for Severe Erosion. Soils within stream corridors tend to be very erosion-prone by nature. This feature affects channel erosion rates, patterns of sedimentation downstream, and potential for hazards to property within and adjacent to the stream corridor.
- Ravines and Steep Slopes. Lake Oswego stream corridors frequently include ravines and steep slopes.
- Associated Aquatic Elements. Floodplains and wetlands may be adjacent to or associated with the stream.

**Stream Corridor Functions and Values:** The beneficial characteristics of stream corridors, including, but not limited to:

- Protection of wildlife habitat and travel corridors,
- Protection of riparian vegetation,
- Erosion control,
- Flood and storm water control,
- Water quality enhancement,
- Open space, passive recreation, and visual enjoyment, and;
- Cultural, social, education and research values.

**Strip Commercial Development:** Commercial or retail uses, usually one-story high and one store deep, that front on a major street and are oriented towards access by the automobile. Strip commercial development is typically characterized by street frontage parking lots serving individual stores or strips of stores. Strip commercial development differs from central business districts in at least two of the following: 1) there are no provisions for pedestrian access between individual uses; 2) the uses are only one store deep; 3) buildings are arranged linearly rather than clustered; and 4) there is no design integration among individual uses.

**Supporting Retail Uses:** Supporting retail uses are limited to those appropriate in type and size to serve businesses, employees and residents of the employment center in order to preserve the majority of vacant or redevelopable land for the City's identified target industry clusters.\* Supporting retail uses do not include regional or lifestyle shopping centers, or concentrations of retail uses greater than 60,000 square feet.

**Surface Water Pollution:** The contamination that occurs when pollutants are directly or indirectly discharged into water bodies (e.g., lakes, rivers, streams, wetlands), and which may enter aquifers and groundwater, without adequate treatment to remove harmful compounds. Water pollution affects plants and organisms living in these bodies of water, and can harm entire biological communities.

**System Development Charges (SDC):** An SDC is a reimbursement fee, an improvement fee, or a combination thereof, assessed or collected at the time of increased usage of a capital improvement or issuance of a development permit, building permit or connection to the capital improvement. System development includes that portion of a sewer or water connection charge that is greater than the amount necessary to reimburse the governmental unit for its average cost of inspecting and installing connections with water or sewer facilities. An "improvement fee" means a fee for costs associated with capital improvements to be constructed. A "reimbursement fee" means a fee for costs associated with capital improvements already constructed or under construction.

**Target Industry Clusters:** Defined as the types of businesses that may be attracted to Lake Oswego. The 2011 Economic Opportunities Analysis names these clusters as Finance and Insurance; Professional, Scientific, Technical Services and Information; Real Estate; Corporate or Regional Headquarters; Green Businesses; Health Care; Services for Residents; Services for Seniors; Government and Public Services; Advanced Continuing Education and the Arts.

**Town Centers:** The City's mixed-use anchors, include the Lake Grove Village Center on the west side of the City, and Downtown, including Foothills, on the east side. These Centers provide a mix of commercial uses (for example, restaurants, offices, retail, grocery stores, services) and residential development at higher densities than Neighborhood Villages. Having a mix of uses promotes the 20-minute neighborhood concept within the Center, providing services within walking distance to residents in the Center and the adjacent neighborhoods.

Town Centers are located around arterial roads and are supported by public transit to facilitate access, including pedestrian and bicycle connections within the Center and with adjacent neighborhoods. Additionally, these areas incorporate civic uses, public spaces, and public facilities that generate activity levels to support economic vitality of the Center. The Downtown Center also supports cultural uses, such as the library, community theater, and public art. The Metro Urban Growth Concept Plan also identifies Downtown and Lake Grove as Town Centers. (See Figures 6 and 7.)

**Traffic Calming:** A physical measure that reduces the negative effects of motor vehicle use, alters driver behavior and improves conditions for non-motorized street users. There are many different types of traffic calming measures, including but not limited to physical changes to a roadway, urban design techniques, traffic control devices, and signage, among others.

**Transit Corridors:** Within these corridors, development may be continuous, such as along portions of Boones Ferry Road in the Lake Grove area, or organized around major intersections or transit stops with sections of residential development in between, based on appropriate criteria. Transit corridors are to receive frequent, high-quality transit service. There are four transit corridors designated in Lake Oswego: 1) State Street, 2) A Avenue, 3) Boones Ferry Road, between Country Club and 1-5 and 4) Kruse Way (See Figure 16). Those segments with solid lines in Figure 16 represent Transit Corridors which contain commercial, high density residential, employment intensive, or mixed use development. The broken lines represent the portions of the Transit Corridor which link the nodes of higher intensity uses described above.

**Transit Supportive Uses:** Land uses and developments that encourage the use and development of alternative transportation facilities such as rail, bus, car-pooling, bicycle and pedestrian modes.

**Transportation Disadvantaged:** Those individuals who have difficulty in obtaining transportation because of their age, income, physical or mental disability.

**Transportation System:** Transportation facilities that are planned, operated and maintained in a coordinated manner to supply continuity of movement between modes of travel (including: automobile, mass transit, pedestrian pathways, bike lanes, railways) and within and between geographic areas and jurisdictions.”

**Transportation System Plan (TSP):** A plan for one or more transportation facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, within and between geographical areas and jurisdictions.

**Tree Grove:** A stand of three or more trees (of the same species or a mixture) which form a visual and biological unit, including the area between the forest floor and the canopy, including skyline trees, and including any understory vegetation existing within the canopied area. The stand of trees must be at least 15’ in height and must have a contiguous crown width of at least 120’ to qualify as a tree grove.

**Turn Refuge Lane:** A turn lane which provides for left or right turns away from the vehicle travel lane. A turn refuge lane could be at an intersection of two streets or where other major turning movements are required.

**Twenty-Minute (20-Minute) Neighborhood:** A neighborhood with access to commercial and community services (e.g., parks and schools) within a ¼-mile to ½-mile walking distance, an approximate 20-minute walk. Pedestrian and bicycle connections and/or amenities facilitate safe access where feasible. The 20-minute neighborhood encourages active living, supports local businesses, provides diverse housing options, and builds community and neighborhood identity. The 20-minute neighborhood focuses on Town Centers and Neighborhood Villages and does not exclude the car.

**Underutilized (Commercial and Industrial Land):** Refers to a methodology used during periodic review of the Comprehensive Plan to comply with OAR 660-09(15)(A) to determine the total number of parcels of vacant or “significantly underutilized” parcels. A parcel is “underutilized” when there is a large difference between the value of improvements on a parcel and the land value. Where land value is significantly greater than the value of the improvements, redevelopment is probably profitable. A detailed description of the methodology is contained in the Economic Opportunities Analysis adopted with the Comprehensive Plan.

**Urban Area:** Land inside an Urban Growth Boundary.

**Urban Heat Island Effect:** When an urban area is warmer than the areas surrounding it because of the presence of urban development.

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**Urban Services:** Water, sanitary sewer, storm water management, police and fire protection, parks, and transportation including streets, transit, pedestrian and bicycle facilities, as defined by Metro Code 3.09.050.

**Urban Services Boundary:** Lake Oswego's ultimate growth area, within which the City will be the eventual provider of urban services.

**Urbanized Land:** Land inside an Urban Growth Boundary that is developed at urban levels and receives urban services.

**Urban Reserve Area:** Land designated by Metro outside the 1996 Urban Growth Boundary for future growth.

**Urban Services Boundary:** Lake Oswego's ultimate growth area, within which the City will be the eventual provider of the full range of urban services.

**Urbanization Plan:** A comprehensive document including maps and text which specifies the land uses that will be developed in an urban reserve area, the on-site and off-site public facilities that will be required to be constructed to serve the development and maintain current service levels to existing development, and the financial strategy which specifies how the public facilities will be funded and how the ongoing costs of providing public services to the urban reserve area will be funded.

**Vehicle Miles Traveled Per Capita (VMT):** The number of miles traveled in single person vehicles per person in a specified area during a specified time period.

**Walking Distance to a Transit Stop:** One-quarter mile from bus stops or one-half mile from light rail stations, according to "Planning and Design for Transit," Tri-County Metropolitan Transportation District of Oregon, March, 1993.

**Water Courses:** Water courses are ephemeral, intermittent, and perennial drainageways which exhibit defined channels. They also include perennial springs. They may be either the result of natural processes or human-made features such as canals, mill races, and open drainageways which are either historic in nature, or have come to function as natural water courses, thus contributing to the quality of an area's overall natural systems including hydrology, vegetation and wildlife habitat.

- **Ephemeral** means water courses which convey water associated with rainfall events.
- **Intermittent** means water courses whose conveyance of water is seasonal in nature.
- **Perennial** means water courses which convey water year-round.
- **Springs** means water courses which flow underground, or emanate from the ground.

**Water Dependent Structures:** Structures necessary for a use or activity which can be carried out only on, in or adjacent to water areas because the use requires access to the waterbody for water-borne transportation, recreation, energy production or source of water.

**Water Dependent Uses:** A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production or source of water.

**Water Quality Limited:** A body of water is said to be water quality limited when it does not meet water quality standards even after conventional secondary wastewater treatment and effluent limits for industrial sources are applied. Pollutants which affect these water bodies include varying amounts of excessive nutrients, sediments, fecal coliform bacteria, copper and other metals, household and industrial chemicals, oil and grease.

**Water Related Use:** Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or water use, and which if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories and trailer parks are not generally considered dependent or related to water location needs.

**Watershed:** The entire land area drained by a stream or system of connected streams from which a water provider acquires raw water for treatment and distribution.

**Weak Foundation Soils:** Also known as unstable soils. Those soils which may cause overall settlement or differential settlement resulting in damage to structures not designed to accommodate movements. Weak Foundation Soils have one or more of the following characteristics: Low strength, compressibility, high organic material content, high shrink-swell ratio or elasticity or slow percolation and wetness. (The Weak Foundation Soils and Potential Landslide Map is available at City Hall.)

**Wetland:** An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.\* Wetlands generally include but are not limited to swamps, marshes, bogs and area with similar vegetation.

**Wetland Functions and Values:** The beneficial characteristics of wetlands including but not limited to:

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- Wildlife and plant habitat protection,
- Protection of rare, threatened and endangered species,
- Erosion control,
- Flood and storm water storage,
- Water quality enhancement,
- Ground water recharge,
- Open space, passive recreation, and visual enjoyment, and; Cultural, social, education and research values.

**Willamette River Greenway:** An area along the Willamette River including all lands within 150 feet from the ordinary low water line on each side of the channel of the Willamette River and such other lands considered necessary. Development in the greenway is reviewed for compliance with the natural, scenic, historic and economic qualities of the greenway.