EAST BUTTES, TERRACES AND WETLANDS CONSERVATION PLAN -As Amended

INVENTORY, ANALYSIS AND REGULATIONS FOR THE PROTECTION OF EAST PORTLAND NATURAL, SCENIC AND OPEN SPACE RESOURCES

Adopted by City Council May 26, 1993
Effective June 25, 1993

Ordinance No. 166572

Amended by City Council XXXX, 2022
Effective XXXX, 2022

Ordinance No. XXXXXX

Bureau of Planning
Portland, Oregon
July 1993

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CHAPTER 1

INTRODUCTION

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Purpose

The *East Buttes, Terraces and Wetlands Conservation Plan* provides the inventory, analysis and recommendations for protection of significant natural, scenic and open space resources located in the East Buttes, Terraces and Wetlands planning area. The planning area is made up of a collection of ten resource sites including Mt. Tabor, Rocky Butte and Kelly Butte and seven additional upland sites in East Portland. Additionally, two sites located within separate resource planning areas are included in this plan. Beggars Tick Marsh *(Johnson Creek Basin Protection Plan)* and a portion of Smith and Bybee Lakes *(Columbia Corridor Plan),* were recently annexed into the city. Most of the inventory and analysis of these two sites was completed as part of the earlier planning efforts; implementation of resource conservation measures for these newly annexed areas is undertaken as part of the present plan.

This report is the seventh of eight natural resource conservation plans to be developed by the city, each covering a different geographic area. This plan is designed to comply with the Oregon Land Conservation and Development Commission (LCDC) Statewide Planning Goal 5 requirements. State Goal 5 requires all jurisdictions in Oregon to "conserve open space and protect natural and scenic resources." The Goal 5 Administrative Rule prescribes the following three-step planning process:

1) Inventory of the location, quantity and quality of Goal 5 resources;
2) Analysis of the economic, social, environmental and energy (ESEE) consequences of allowing, limiting or prohibiting land uses which conflict with identified resources; and
3) Development of a program to protect significant resources.

The three-step process outlined above is the subject of Chapters 5 and 6 of this report. The background for the plan is presented in Chapter 3. Policy framework is summarized in Chapter 4. This Conservation Plan serves as a policy document for the East Buttes, Terraces and Wetlands planning area, guiding development adjacent to identified resource areas.

Relation to Other Resource Planning Projects

The *East Buttes, Terraces and Wetlands Conservation Plan* is integrated with other resource projects. The East Buttes, Terraces and Wetlands are bounded by other resource planning areas: the *Willamette River Greenway Plan* (1987) to the west, the *Columbia Corridor Plan* (1989) to the north and the *Johnson Creek Basin Protection Plan* (1991) to the south. The *Scenic Resources Protection Plan* (1991) addresses Goal 5 (scenic) resources within the same planning area and covers several of the same resource sites. These sites include

Mt. Tabor, Kelly and Rocky Buttes, and the Overlook Bluff, all of which have significant scenic as well as natural resource values.

The *Outer Southeast Community Plan* and this Conservation Plan include four common sites: Beggars Tick Marsh Addition, Kelly Butte, Glendoveer Golf Course, and Rosemont Bluff (a sub-area of the Mount Tabor site). The Conservation Plan focuses on natural resources and is designed to bring the city into compliance with State Goal 5 by July 1, 1993; the Community Plan is broader in scope and will consider environmental protection of resource areas annexed into the city during its development.

The Conservation Plan is also integrated with the Metropolitan Greenspaces Program conducted by the Metropolitan Service District (Metro), a project aimed at identifying and protecting greenspaces within the four-county metropolitan region (see Chapter 4). The recently adopted *Metropolitan Greenspaces Master Plan* identifies the buttes as regionally significant natural area sites and the East Willamette Greenway Trail along the Overlook Bluff as a proposed trail of regional significance.

Organization of the Plan

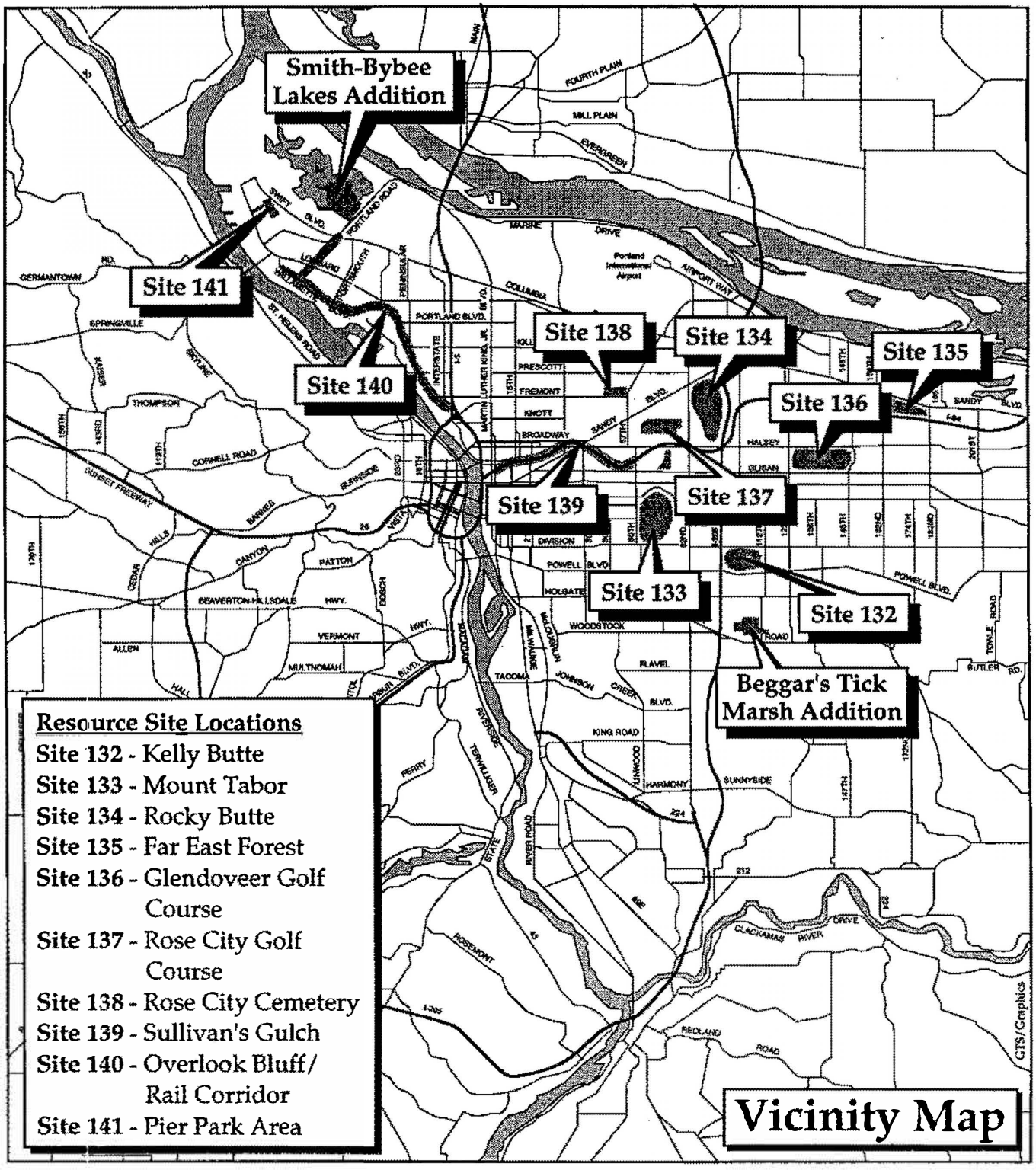
The *East Buttes, Terraces and Wetlands Conservation Plan* is organized into seven parts: six chapters and an appendices section. These parts are as follows:

1) Introduction
2) Plan Summary
3) Background
4) Policy Framework
5) Resource Inventory and Analysis
6) Plan Conservation Measures
7) Appendices

With the exception of Chapter 2 which provides a one-page summary of plan recommendations, each chapter is divided into sections which are identified at their beginnings and in the plan's table of contents.

How to Use this Document

This plan serves as a policy document for planning staff in evaluating development proposals through environmental review. The plan also serves as a reference for citizens, developers and neighborhood groups.



EAST BUTTES and TERRACES

Conservation Plan

Chapters 1, 3 and 4 provide an overview of the plan, its purpose, background and policy framework. Chapter 2 presents a summary of City Council actions. Chapter 5 covers the inventory and analysis of resources, and Chapter 6 presents the adopted implementing measures. The Appendices provide information on the adopting ordinance, wildlife habitat assessments, Statewide Planning Goal 5 and the Administrative Rule.

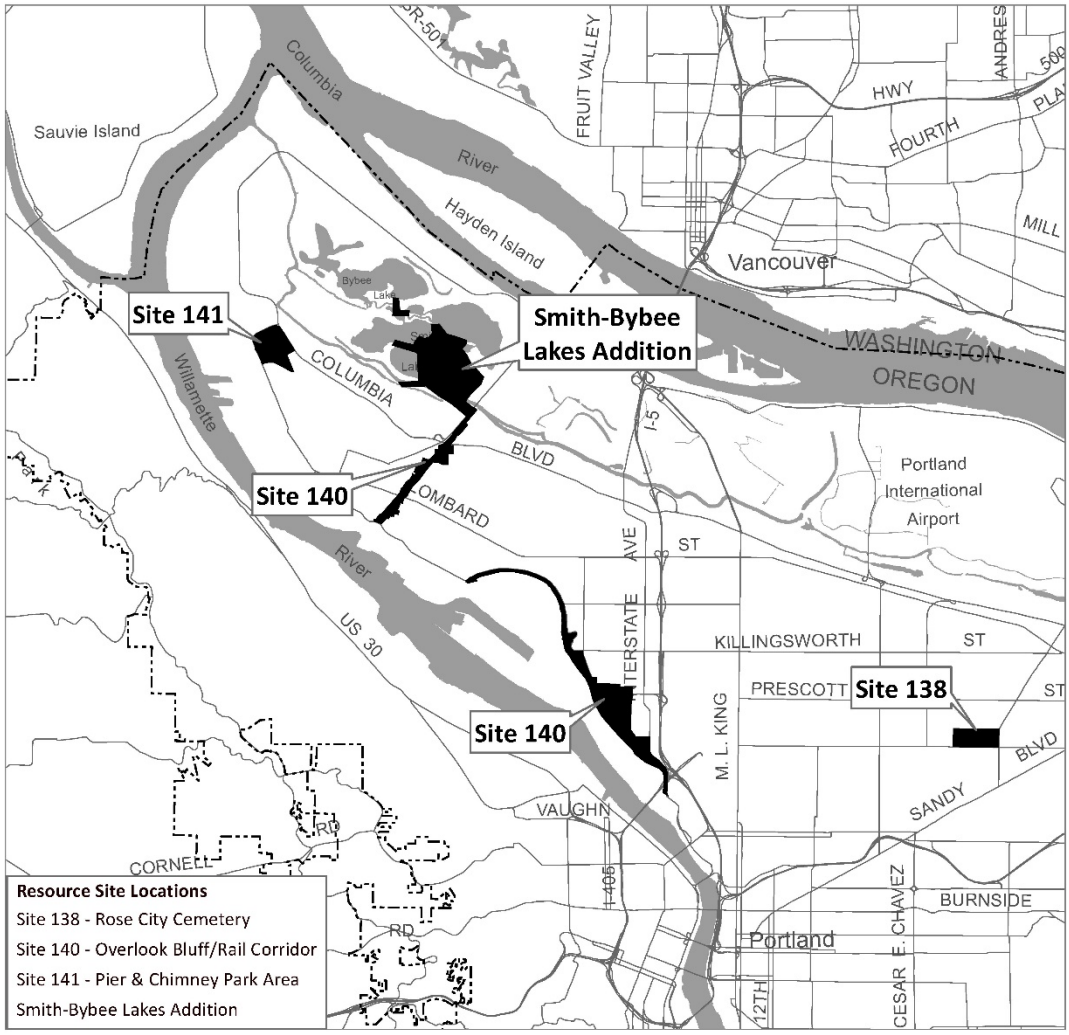
For a discussion of the resource site in which a particular property is located, refer to the Vicinity Map on the preceding page, locate the appropriate resource site, then turn to that site in Chapter 5. The site discussion includes the resource inventory findings for the site, an analysis of conflicting uses, and a conclusion that outlines which resources warrant protection and what level of protection is applied. An analysis of the consequences of allowing conflicting uses is contained in the first part of Chapter 5. Adopted zoning is shown on the city's Official Zoning Maps; map numbers are indicated in the top right-hand corner of each resource site section in Chapter 5.

The East Buttes, Terraces and Wetlands Conservation Plan has been amended. The chapters that applied to resource sites 132, 133, 134, 135, 136, 137, and 139 have been deleted from this volume. Resource sites 140 and 141 have been divided. Portions of 140 and 141 are still covered by this resource protection plan. The deleted chapters and portions of resource sites 140 and 141 are now covered by Volume 2 Part E - East Buttes and Terraces Natural Resource Inventory and Protection Decisions of the Environmental Overlay Zone Map Correction Project. Map 430-3 shows the locations where the resource inventories and ESEE decisions of this document still apply.

East Buttes, Terraces, and Wetlands Conservation Plan Area

Map 430-3

Map Revised Xxxxx X, 202X



Bureau of Planning and Sustainability
Portland, Oregon

CHAPTER 2

PLAN SUMMARY

Plan Overview

This Conservation Plan is the seventh of eight city plans designed to protect natural, scenic and open space resources in compliance with Statewide Planning Goal 5. The planning area contains twelve resource sites in East Portland including Rocky Butte, Mt. Tabor, Kelly Butte, Overlook Bluff and two recently annexed additions to existing city resource sites, Beggars Tick Marsh and Smith and Bybee Lakes. The combined area included within these sites is approximately 1,700 acres.

Following a brief review of the background and policy framework for the plan, resources are inventoried for individual sites. Some sites are found to contain no significant resources; others, such as the buttes and wetland sites, contain some of the highest valued resources in the city. Potential conflicting uses are then identified, based on the uses currently permitted by city zoning. Economic, social, environmental and energy (ESEE) consequences of resource protection are then analyzed and weighed against each other. Plan proposals are designed to balance these values with identified resource values.

The primary conservation measure of the plan is the application of the city's environmental zones. These zones protect identified resources and resource values and provide a mechanism through which conflicts between resources and human uses can be resolved. Environmental protection (the more restrictive zone) is applied to high valued resources at Kelly and Rocky Buttes and at the two annexed sites. Environmental conservation is applied to these and portions of five other sites. Rose City Cemetery and portions of other inventoried sites where resources are not significant or do not meet the ESEE test are not protected.

Summary of City Council Actions
On May 26, 1993, the Portland City Council adopted Ordinance No. 166572 authorizing the following actions. These actions became effective June 25, 1993. These actions are presented in more detail in Chapter 6.

- **Adoption of the *East Buttes, Terraces and Wetlands Conservation Plan* report** including the Goal 5 inventory, analysis and recommendations;
- **Amendments to Portland's Comprehensive Plan Goals and Policies** to refer to the *East Buttes, Terraces and Wetlands Conservation Plan;*
- **Adoption of the *East Buttes, Terraces and Wetlands Conservation Plan* Policies and Objectives** as the policy document for the area;
- **Amendments to Title 33, Planning and Zoning,** to implement the *East Buttes, Terraces and Wetlands Conservation Plan;* and
- **Amendments to the Official Zoning Maps** to apply the environmental zones, change certain base zones, and remove the interim SEC zone.

CHAPTER 3

BACKGROUND

INTRODUCTION •

GEOLOGIC HISTORY •

PRE-SETTLEMENT HISTORY •

PAST PLANNING EFFORTS •

SUMMARY •

Introduction

The East Buttes, Terraces and Wetlands are geologically and biologically significant elements of the Portland landscape. Together with the Columbia Corridor and the Johnson Creek Basin, they comprise the major natural and scenic resources of East Portland. This chapter reviews the geology, pre-settlement history and past planning efforts within the East Buttes, Terraces and Wetlands planning area.

Geologic History

The primary geologic formation underlying the East Buttes, Terraces and Wetlands planning area is Columbia River basalt. This formation is composed of lavas which erupted from volcanic vents east of the Cascades 17.6 million years ago and which flooded much of the Columbia River basin in one of the largest lava floods on earth.

The Columbia River basalt is locally overlain by up to 1,500 feet of sandstone and gravel deposits known as the Troutdale Formation. This formation has two distinct compositions: the lower facies consists of gravels containing quartzite, schists and granites which tie it to the ancestral Columbia River, the upper facies is primarily sandstone of basaltic origin presumably eroded from the Cascades. The deposition of these sands and gravels began ten million years ago and ceased nearly two million years ago (Price 1987).

Near the end of the Troutdale deposition until only a few hundred thousand years ago, a group of shield and cinder cone volcanoes erupted across the lower Willamette Valley. The Boring Volcanoes, as they are collectively known, are comprised mainly of high-aluminia basalts, but locally contain ash, cinders and other materials. These basalts are similar to those of Mt. Hood and other Cascade mountains and the Boring volcanism is believed to be tied to the uplift of the High Cascades. The Boring lavas[1] were viscous and did not flow far from their source vents with explosive eruptions being rare. Three of the cinder cone volcanoes are local landmarks located within the East Buttes, Terraces and Wetlands planning area: Rocky Butte, Kelly Butte and Mount Tabor. At Rocky Butte, an intrusive body of Boring lava has been exposed by erosion and uplift. Thickness of the lava ranges from over 600 ft. at a vent to less than 50 ft. for individual flows away from the vent. Age of the lava is reported to be 1.33 million years (Swanson 1986).

During the early part of the Pleistocene period (beginning 1.6 million years ago), extensive erosion occurred in the lower Willamette Valley lowlands,

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1 "Boring lava" was named by Treasher (1942, p. 10) for its occurrence near the town of Boring.

scouring the lowlands and leaving the prominent volcanoes. Treasher (1942) notes that the Clackamas River once had a course east and north of Mt. Scott and nearby hills. He surmises that the Clackamas and Columbia Rivers "shifted back and forth in various channels as they cut down to their present level and must have swept past the sides of these three buttes [Mt. Tabor, Rocky and Kelly]." The rocky masses of Rocky and Kelly Buttes were resistant to the erosive forces of the rivers, but evidence of deep cuts in the sides of the buttes can be found. Unlike these two buttes, Mt. Tabor is composed mostly of sand and gravel. Treasher speculates that a combination of factors, including deflection of the rivers by Mt. Scott and Kelly Butte and the presence of erosion-resistant lava on the lower slopes, enabled Tabor to withstand the erosive forces.

The most spectacular geologic event of recent times, the series of catastrophic floods known as the Missoula Floods, is most directly responsible for the creation of the East Portland terraces. Advancing glacial ice had blocked the Clark Fork River valley in western Montana forming Lake Missoula--a lake 250 miles long and 2,000 feet deep. Repeatedly, between 16,000 and 12,000 years ago, the glacial dam failed causing some of the largest floods known on earth. The flood waters spilled across Idaho and eastern Washington, surged down the Columbia River and through the Gorge, and met head-on with the Boring volcanoes. Rocky Butte in particular stood in the immediate path of the flood waters and its facing slope was cut into a nearly vertical bluff. With the exception of the Boring volcanoes, the entire east side of Portland was submerged under up to 400 ft. of water. The East Portland terraces were formed primarily through deposition of unconsolidated sand and gravel from the flood waters and the short-lived lake in the Portland Basin.

As many as five distinct terraces are now evident in east Portland (see Physiographic Map). Perhaps the best example of the first terrace (at 150 ft. mean sea level) is the Overlook Bluff, discussed later in this report. Other terrace levels can be observed along NE Glisan Street and other east-west streets in the area. Evidence of erosion during and after the time of the Missoula Floods can be seen in several deep swaths cut into the depositional surfaces and bedrock. One such swath passes from Rocky Butte and Mt. Tabor to the southwest toward Lake Oswego. The most easily recognized example of this erosion is Sullivan's Gulch, a resource site covered later in this report.

Pre-Settlement History

Evidence of early human use of the East Terraces and Buttes includes Late Archaic[2] artifacts found in the Mt. Tabor and Reed College areas, and the Nemalquinner village near the present University of Portland campus

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2 Late Archaic refers to the period from 2,000 years ago to the time of historic contact in the late 1700s.

PHYSIOGRAPHIC MAP OF
EAST BUTTES and TERRACES

Key: Approximate Terrace Elevations
(from mean sea level)

- 0' - 150'
- 150' - 200'
- 200' - 250'
- 250' - 300'
- 300' - 350'
- 350' +

Kelly Butte elevation: 596'

Mt. Tabor elevation: 640'

Rocky Butte elevation: 610'

Water level during height of
Missoula Floods: 400'

Scale:
1" = Approx. 6,500'

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SMITH & BYBEE LAKES
Hayden Island
Bybee Lake
Smith Lake
N. PORTLAND RD.
Columbia River
MARINE DR.
PORTLAND INTERNATIONAL AIRPORT
AIRPORT WAY
Government Island
ST. JOHNS BRIDGE
OMBAGD ST.
WILLAMETTE BLVD.
OVERLOOK BLUFF
INTERSTATE AVE.
I-5 FREEWAY
KILLINGSWORTH ST.
MLK JR. BLVD.
Willamette River
Alameda Ridge
ROCKY BUTTE
SANDY BLVD.
SULLIVAN'S GULCH
FREMONT BRIDGE
I-84 FREEWAY
Prescott Terrace
BURNSIDE BRIDGE
BURNSIDE
39TH AVE.
82ND AVENUE
KELLY BUTTE
MARQUAM BRIDGE
DIVISION ST.
ROSS ISLAND BRIDGE
POWELL BLVD.
MT. TABOR
POWELL VALLEY RD.
BEGGARS TICK MARSH
WOODSTOCK BLVD.
FOSTER RD.
GIS/Graphics

recorded by Lewis and Clark (see Chapter 5 for further discussion). Additional reports of archaeological findings in Powell and Mt. Tabor Parks have not been confirmed. The East Buttes, Terraces and Wetlands are generally considered to have a "moderate density" of archaeological sites (Ellis 1992). The Buttes (Kelly Butte, Rocky Butte and Mt. Tabor) have a projected density of 1 site/220 acres, or approximately one site per butte. The relic drainages in the area have a high projected density (1 site/20 acres).

The presence of Native American people in the Portland area dates back over 10,000 years. The Chinook tribes lived in the Lower Columbia area which includes the Columbia and Willamette River valleys. The Chinook tribes consisted of approximately 12 smaller tribes including the Multnomah and Clackamas, the tribes located closest to the buttes and terraces of East Portland. The various tribes were distinguished from one another by dialect and in some cases cultural differences. The base of Chinookan social organization was large, permanent and independent villages linked together by trade and marriage alliances. Social organization was stratified by wealth and heredity.

The confluence of the Columbia and Willamette Rivers was one of the most densely populated areas of Oregon, due to the availability of extensive salmon runs and the large trade network along the rivers. Travel was accomplished by canoe and wood plank houses were typically constructed for winter shelter. Important resources in the upland terraces included black-tailed deer, elk, ground birds, camas, berries, hazelnuts and acorns. The upland forests also provided an important source of cedar, fir and pine which were used to make tools, shelters and canoes. The natural resources of the area also had deep spiritual significance for the various tribes. Mountains and forests were believed to be places where humans could contact the spiritual world and fish, animals and plants were seen as spirit beings who assisted the human race. The indigenous peoples of the Portland area had a unique relationship with the land, one of stewardship, or guardianship.

Past Planning Efforts

Since the early 1900s, resource areas within the East Buttes, Terraces and Wetlands have been a concern of both the parks and planning commissions. Previous studies have focused on the unique natural, geologic and scenic features of these areas and their importance to the local communities. This section summarizes past planning efforts in chronological order.

Olmsted Brothers Report to the Portland Parks Board
In 1903, as a part of the Report of the Park Board, John Charles and Frederick Law Olmsted conducted a study of Portland parks. Their report proposed a system of parks for Portland and provided a comprehensive framework for the development and maintenance of Portland's parks and parkways.

The Olmsteds believed, for example, that the Overlook would present an "opportunity for a picturesque pleasure drive and walks for the especial benefit of the residents of the large portion of the city east of the river," (Olmsted 1903:43) as the bluffs were of considerable height above the city. Mount Tabor was deemed by the brothers as "the only important landscape feature for miles around," (Olmsted 1903:45) and therefore a valuable location for a public park. They believed that Rocky Butte was also of considerable importance, with its woods and scenic lookout point. The Olmsted brothers wrote that, "only recently has it begun to be realized what enormous advantages are gained by locating parks and parkways so as to take advantage of beautiful natural scenery" (Olmsted 1903:19).

The Olmsted report recommended that the Lower River Bluff Parkway (the Overlook), Mount Tabor and Rocky Butte should be incorporated into the Portland Parks System. Mt. Tabor now hosts one of the city's largest parks; the Willamette Boulevard parkway is established along the Overlook Bluff; and Rocky Butte has a small park at its summit. Despite these efforts, implementation of the Olmsted recommendations was never fully realized.

The Bennett Plan of 1912

The Greater Portland Plan of 1912 was devised by Edward H. Bennett as an attempt to plan for a predicted population explosion, which was to occur in the upcoming decades. The plan outlines "the equipment which the city must continually acquire by way of street circulation, municipal centers, parks and boulevards, rail and water terminals, to serve convenience, utility and beauty, in progressive stages of this expected growth" (Bennett 1912:5).

In this plan, Bennett mentions the Overlook as a superb view and that the forest growth should be preserved as well as reserving the road for light and pleasure traffic. In addition, he said that the hills are important elements of the city system and that "they will serve a splendid purpose...and form delightful incidents of a ride, walk or drive over the hills, and should be continuously joined by the parked roads..." (Bennett 1912:22).

The CRAG Urban Outdoors Plan

In 1971, the Columbia Region Association of Governments (CRAG), predecessor to Metro, developed "The Urban Outdoors: A New Proposal for Parks and Open Space." The Urban Outdoors plan built on the proposals of the Olmsteds, Bennett and others, calling for the creation of a system of local and regional parks, open spaces, trails and natural areas. A primary goal of the plan was "preserving and enhancing those environmental features (the rivers, streams, flood plains, high points and historic sites) that have already stamped the region with their unique form and character, which make it a very special place to live" (CRAG 1971).

Portland Future Focus

In 1991, the City of Portland adopted the Portland Future Focus: Strategic Plan. The purpose of the strategic plan is to guide the shared efforts of government, businesses, community organizations and citizens in ensuring a healthy city in the following decades. The strategic plan includes an action plan for managing regional growth. Strategy #1 of this action plan is:

> "Maintain livability in the Portland Metropolitan region through an integrated planning process which focuses appropriate growth in the Central City, protects the natural environment and open spaces, strengthens cultural programs and enhances neighborhoods."

Implementation of the *East Buttes, Terraces and Wetlands Conservation Plan* will support several action items under Strategy #1. These items include:

"1.2 Create a regional system of linked greenways and greenspaces. As part of its Metropolitan Greenspaces Program, Metro should institute a cooperative regional system of natural areas, open space, recreational trails, crop lands and greenways. The system should integrate landscape features, natural areas, wildlife refuges, rivers and streams. The Greenspaces network should be served by a regional trail system: the 40-Mile Loop, Chinook Trail and other trails.

1.3 Institute ecosystem protection, restoration and management program that integrates landscape ecology, protection of open space, wildlife refuge parks, crop lands and the maintenance of air and water quality with economic development.... Functions of the Bureau of Environmental Services, Planning, Parks and Recreation, Transportation and Water should be integrated as they relate to ecosystem protection."

The implementation of the *East Buttes, Terraces and Wetlands Conservation Plan* will aid in reaching the goals of these actions items. Other ongoing planning efforts such as the Greenspaces Program mentioned above are discussed in Chapter 4 of this report.

Summary

The East Buttes, Terraces and Wetlands were formed through a series of geologic events beginning millions of years ago. The Chinook tribes were the first humans to inhabit the area, beginning some 10,000 years ago. Past planning efforts within the East Buttes, Terraces and Wetlands began in the early 1900s and emphasized preservation of neighborhood livability, natural and scenic resources. These elements are present in this plan as are measures to balance preservation of natural resources with future development.

CHAPTER 4

POLICY FRAMEWORK

INTRODUCTION •

STATE •

LOCAL •

REGIONAL •

FEDERAL •

SUMMARY •

Introduction

This chapter presents the policy framework which guides the development and implementation of the *East Buttes, Terraces and Wetlands Conservation Plan.* The discussion covers coordination with legislation and public agencies from the federal to the local level. The chapter begins with a discussion of the state-mandated land use planning program, followed by a review of local, regional and federal policies and programs.

State

Statewide Planning Goals

Oregon's statewide land use planning program was established by Senate Bill 100 and adopted by the Legislature in 1973. The bill is included in the Oregon Revised Statutes (ORS) as Chapter 197. The legislation created the Land Conservation and Development Commission (LCDC) and gave it the authority to adopt mandatory Statewide Planning Goals. These goals provide the framework for Oregon's cities and counties to prepare and maintain comprehensive plans.

After local governmental adoption, comprehensive plans are submitted to the Department of Land Conservation and Development (DLCD) for review to ensure compliance with and implementation of the Statewide Planning Goals. A comprehensive plan is acknowledged by DLCD when it is found to comply with the goals. The City of Portland's Comprehensive Plan was adopted by City Council in 1980, effective January 1, 1981, and acknowledged by DLCD in May of 1981.

Periodic Review

Also in 1981, the Legislature amended ORS Chapter 197 to require periodic review by the state of acknowledged comprehensive plans. As stated in ORS 197.640 (1), the purpose of periodic review is to ensure that each local government's comprehensive plan and land use regulations are in compliance with the Statewide Planning Goals and coordinated with the plan and programs of other state agencies. Under Chapter 197, new Statewide Planning Goals or Rules adopted since a comprehensive plan was acknowledged must be addressed in the Periodic Review. In the fall of 1981, subsequent to acknowledgment of the city's Comprehensive Plan, the Land Conservation and Development Commission adopted, as part of the Oregon Administrative Rules Chapter 660, Division 16: Requirements and Application Procedures for Complying with Statewide Planning Goal 5.

The *East Buttes, Terraces and Wetlands Conservation Plan* updates the city's Comprehensive Plan inventory and analysis of natural, scenic and open spaces

within the project planning area and addresses the new administrative rule requirements.

Statewide Planning Goal 5
Goal 5 requires cities and counties "to conserve open space and protect natural and scenic resources." The administrative rule requires local governments to follow a three-step planning process.

An inventory of resources is the first step. This involves determining the location, quantity and quality of the resources present. If a resource is not important, it may be excluded from further consideration for purposes of local land use planning, even though state and federal regulations may apply. If information is not available or is inadequate to determine the importance of the resource, the local government must commit itself to obtaining the necessary data and performing the analysis in the future. At the conclusion of this process, all remaining sites must be included in the inventory and are subject to the remaining steps in the Goal 5 process.

The next step is identification of conflicts with protection of inventoried resources. This is done primarily by examining the uses allowed in broad zoning categories. A conflicting use, according to OAR 660-16-005, is one which, if allowed, could negatively impact the resource. These impacts are considered in analyzing the economic, social, environmental and energy (ESEE) consequences of resource protection.

The final step is adoption of a program to protect identified resources.
If there are no conflicting uses for an identified resource, a jurisdiction must adopt policies and regulations to ensure that the resource is preserved. Where conflicting uses are identified, the economic, social, environmental and energy (ESEE) consequences of resource protection must be determined. The impacts on both the resource and on the conflicting use must be considered as well as other applicable statewide planning goals. The ESEE analysis is adequate if it provides a jurisdiction with reasons why decisions are made regarding specific resources.

Other Applicable Statewide Planning Goals
There are 19 Statewide Planning Goals. Of these, 11 apply to the East Buttes, Terraces and Wetlands planning area. Some of these goals establish a decision-making process, such as Goal 1, Citizen Involvement, and Goal 2, Land Use Planning. These procedures were applied during the preparation, review and presentation of this conservation plan.

State Goal 5 is the focus of the present study and is discussed above; Goals 6 through 13 include topics such as air, water and land resources quality; areas subject to natural disasters and hazards; recreational needs; economic development; housing; public facilities and services; transportation; and energy

conservation. Certain uses addressed by these goals are identified in this plan as conflicting with natural resource protection and require analysis under OAR 660-16-005. This conservation plan incorporates the requirements of these goals with the ESEE analysis.

Goal 3, Agricultural Land, Goal 4, Forest Lands, and Goal 14, Urbanization, do not apply to this study. The requirements of Statewide Planning Goal 15, Willamette River Greenway, were addressed in the *Willamette River Greenway Plan* (1987). Statewide Planning Goals 16, 17, 18 and 19 address coastal and ocean resources and therefore do not apply to the City of Portland.

Local

The City of Portland Comprehensive Plan

The city's Comprehensive Plan provides a coordinated set of guidelines for decision-making to guide future growth and development of the city. The Comprehensive Plan is implemented through the use of public facilities and land use policies, the Comprehensive Plan map, and the city's regulations for development and redevelopment, including the Zoning Code. The City Council, City Planning Commission and city's hearings officers make all decisions affecting the use of land in conformance with the Comprehensive Plan. Since the state acknowledged the city's Comprehensive Plan in 1981, land use decisions in conformance with the policies and objectives of the Comprehensive Plan are in compliance with the Statewide Planning Goals. The *East Buttes, Terraces and Wetlands Conservation Plan's* policies, objectives and recommendations are consistent with the Comprehensive Plan Goals and Policies, particularly Goal 8 - Environment. Below is a summary of some of the goals that bear directly on the current study.

Portland Comprehensive Plan Goal 2 - Urban Development

The purpose of Goal 2 is to maintain Portland's role as a major regional employment, population and cultural center through public policies that encourage expanded opportunity for housing and jobs, while retaining the character of established residential neighborhoods and business centers. Implementation of the *East Buttes, Terraces and Wetlands Conservation Plan* will help to retain the character of East Portland neighborhoods and will preserve and enhance Portland's quality of life and, in turn, its attractiveness as a place to live and work.

Portland Comprehensive Plan Goal 3 - Neighborhoods

The purpose of Goal 3 is to "preserve and reinforce the stability and diversity of the city's neighborhoods while allowing for increased density in order to attract and retain long-term residents and businesses and insure the city's residential quality and economic vitality." Policy 3.6 "Neighborhood Plan" ensures maintenance and enforcement of neighborhood plans adopted by the City

Council. Applicable neighborhood plans are addressed in the analysis of individual resource sites in Chapter 5.

Portland Comprehensive Plan Goal 4 - Housing
The City of Portland is responsible for providing certain housing densities to meet its proportionate share of housing opportunities within the metropolitan area. Lands excluded from the housing goal consist of areas located in a floodway, 100-year flood plain, where land hazards are present, and in areas zoned Residential Farm/Forest (RF). This goal was addressed in the evaluation of economic, social, environmental and energy consequences of resource protection in Chapter 5.

Portland Comprehensive Plan Goal 8 - Environment
The purpose of Goal 8 is to "maintain and improve the quality of Portland's air, water and land resources and protect neighborhoods and business centers from detrimental noise pollution." The policies and objectives of this goal generally meet or exceed the requirements of Statewide Planning Goal 5. Ordinances adopted through 1991 added new Comprehensive Plan Goal 8 policies committing the city to regulate development in groundwater areas, drainage ways, natural areas, scenic areas, wetlands, riparian areas, water bodies, uplands, wildlife habitats, aggregate sites and in areas affected by noise and radio frequency emissions. These ordinances also established new Goal 8 objectives, which commit the city to:

- Control hazardous substances;
- Conserve aquifers, drainage ways, wetlands, water bodies, riparian areas, and fish and wildlife habitat;
- Prioritize properties for public acquisition;
- Coordinate city regulations with similar regulations state, federal and other local governments;
- Avoid harm to natural resources;
- Mitigate unavoidable harm to protected natural resources;
- Maintain vegetative cover;
- Improve water quality; and
- Prevent soil erosion and stormwater flooding.

Other Portland Comprehensive Plan Goals
There are seven additional Comprehensive Plan Goals. These goals address metropolitan coordination, economic development, transportation, energy, citizen involvement, plan review and administration, and public facilities. As with the Statewide Planning Goals, required procedures are applied in the preparation, review and presentation of this plan. Economic development, energy and related goals are addressed in more detail in Chapter 5.

Scenic Resources
City Council adopted the *Scenic Resources Protection Plan* on March 13, 1991.

The plan's purpose is to protect and enhance significant scenic resources in Portland for future generations. The plan protects specific scenic views, sites, drives and corridors in compliance with Statewide Planning Goal 5.

The plan identifies numerous scenic resources within the East Buttes, Terraces and Wetlands planning area. The scenic resources corresponding to individual East Buttes, Terraces and Wetlands resource sites are noted below (see Chapter 5 for further discussion). Scenic resources along the Overlook terrace: Willamette Boulevard (scenic drive); University of Portland Bluff (panorama); Albina Railyards from Overlook House (view from the city); Fremont Bridge from Overlook Park (view of bridge); East Willamette Riverbank near the Railroad Bridge and Willamette Boulevard at N. Jessup St. (viewpoints). Scenic resources at Rocky Butte: Rocky Butte and The Grotto (panoramas); Shriner's Hospital and The Grotto (scenic sites). Scenic resources at Mt. Tabor: Above Mount Tabor Reservoir and Top of Mount Tabor (panoramas). Additional scenic resources include Kelly Butte and Rose City Golf Course (panoramas).

The Rocky Butte plan district was adopted as part of the *Scenic Resources Protection Plan*. The purpose of the plan district was to preserve and enhance the forested areas of Rocky Butte, views from the butte, its historical architectural elements and its natural scenic qualities. Plan district development standards include a tree preservation plan, a limitation on the height of structures, street setback limitations, access limitations, lighting limitations, fencing specifications and screening specifications.

The analysis of the *Scenic Resources Protection Plan* is incorporated by reference and is not repeated in the ESEE analysis of this report. Scenic value is only one factor weighed in the Bureau of Planning's decision to recommend environmental protection for sites in the East Buttes, Terraces and Wetlands planning area. When an environmental zone is applied at the location of a designated scenic resource, the environmental review must include consideration of the scenic qualities of the resource as identified in the ESEE Analysis for Scenic Resources. The development standards of the *Scenic Resources Protection Plan* are considered as part of that review.

Bureau of Buildings

The Bureau of Buildings oversees geotechnical regulations for the city. Development on lands of severe landslide potential, such as the steep slopes of the East Buttes, requires a geotechnical survey. Many areas of landslide hazard are also areas of environmental concern due to potential soil erosion, slope failure, habitat loss and detrimental effects on related Goal 5 resources.

The Bureau of Buildings Code Enforcement and Special Inspections sections are responsible for enforcement of zoning code regulations and of certain conditions of approval for land use cases.

Bureau of Environmental Services
The Bureau of Environmental Services (BES) has authority for management of storm drainage and sewerage systems in the city, and is charged with maintaining or improving water quality in the watercourses and waterbodies within city limits. BES is currently developing management plans for the city's drainage basins, including the Johnson Creek and Columbia Slough Basins which lie to the south and north (respectively) of the East Buttes, Terraces and Wetlands planning area. The Bureau has produced several handbooks including *Erosion Control Plans Technical Guidance Handbook* (1990) and *Surface Water Quality Facilities Technical Guidance Handbook* (1991).

Regional

Metropolitan Greenspaces Program
The Metropolitan Greenspaces Program was initiated in 1989 by the Metropolitan Service District (Metro) to identify and protect natural areas within the Portland metropolitan area and Clark County, Washington. The program is a cooperative effort with cities, counties, special districts, nonprofit conservation organizations and citizens. The goal is to establish a regional system of natural areas, parks and open spaces which are connected by trails and greenways.

The *Metropolitan Greenspaces Master Plan* (July, 1992) identifies several of the resource areas contained in the *East Buttes, Terraces and Wetlands Conservation Plan*. All three of the east buttes, Kelly, Rocky and Mt. Tabor, are identified on the Greenspaces Inventory Map. The two wetland additions, Beggars Tick Marsh and Smith and Bybee Lakes, are also recognized as "regionally significant natural area sites." Chimney and Pier Parks in North Portland and the East Willamette Greenway Trail along the Overlook Bluff are also identified in the inventory. These areas are discussed in more detail in Chapter 5 of this report.

Metro Regional Urban Growth Goals and Objectives
In addition to the Greenspaces Program, Metro has developed RUGGOs, or *Regional Urban Growth Goals and Objectives* (September, 1991). These goals and objectives are largely consistent with the city's East Buttes, Terraces and Wetlands planning efforts.

RUGGO Goal II.1, "Natural Environment," states: "Preservation, use and modification of the natural environment of the region should maintain and enhance environmental quality while striving for the wise use and preservation of a broad range of natural resources."

Objective 7, Water Resources, and Objective 8, Air Quality, are supported by the resource protection measures in this plan. Objective 9, Natural Areas, Parks and Wildlife Habitat, directs Metro to acquire, protect and manage (1) open spaces to provide passive and active recreational opportunities, and (2) an open space system providing habitat for native wildlife and plant populations. The development and implementation of the *East Buttes, Terraces and Wetlands Conservation Plan* addresses this objective by applying environmental overlay zoning to and recommending management actions for significant open spaces within the planning area. Open space acquisition and management efforts are normally carried out by the Portland Bureau of Parks and Recreation.

Metro's Region 2040 Project
The Region 2040 Project is an ongoing process aimed at identifying a collectively-shared vision for the future urban form of the region. The project is rooted in the RUGGOs and closely knit with the efforts of the Greenspaces program. Currently three possible growth pattern concepts are out for public review; all three concepts preserve the significant resource areas identified in the *East Buttes, Terraces and Wetlands Conservation Plan*. Metro will facilitate the public debate and a preferred growth pattern is expected to be chosen in 1993.

Metropolitan Housing Rule
In addition to regional coordination with Metro, the city is responsible for meeting its share of regional housing needs. The regulations of the *East Buttes, Terraces and Wetlands Conservation Plan* will not prevent the city from meeting its housing obligations. Resource areas protected by this plan are: 1) constrained lands which by the Metropolitan Housing Rule definition are not needed for housing; 2) areas from which housing densities may be redistributed to less constrained, "buildable" land; or 3) areas which allow housing provided impacts are controlled. Certain areas which, by the Metropolitan Housing Rule definition, are not needed for housing, may still provide limited infill opportunities. To the extent housing density can be increased in or adjacent to these areas, urban services can be provided in a more cost effective manner. For this reason, the city encourages compact development forms which accomplish the dual objectives of resource conservation and housing development.

Federal

The Federal Clean Water Act applies primarily to water resources in the East Buttes, Terraces and Wetlands planning area. The Act's primary objective is to maintain and restore physical, chemical and biological integrity of the nation's waters, including wetlands. Another objective of the Act is "to maintain a balanced indigenous population of species." Implementation of the *East*

Buttes, Terraces and Wetlands Conservation Plan is consistent with these objectives.

Permitting Agencies
Federal and state governments, as well as special districts, have jurisdiction over wetland modification. Following is a brief synopsis of the agencies involved and their roles as they relate to wetlands and water bodies.

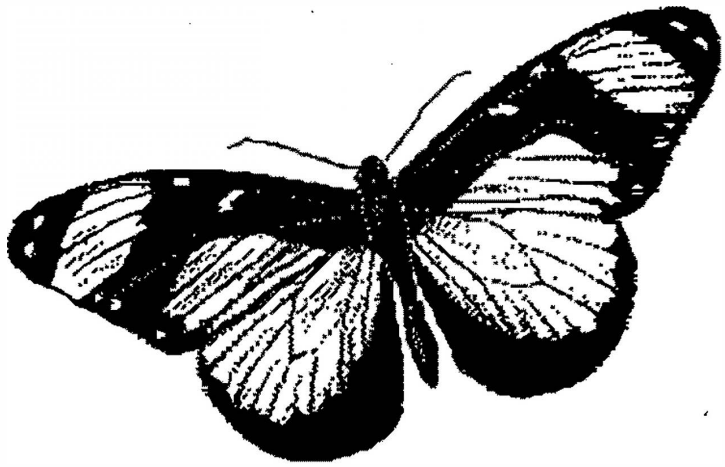
U.S. Environmental Protection Agency: Under Section 309 of the Clean Water Act, EPA reviews environmental impact statements required for all developments involving federal funding and assessed as having significant impacts on the environment.

U.S. Army Corps of Engineers: The Clean Water Act, primarily through the Section 404 process, requires a permit for the dredge or fill of material into the waters of the United States. Permits which are proposed for issuance by the Corps of Engineers under the Section 404 process are subject to review by the U.S. Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service (USFWS).

Oregon Division of State Lands: In accordance with ORS 541.605 - 541.695 and 541.990, a state permit is required for any activity that proposes filling, removal or alteration of 50 cubic yards or more of material within the bed or banks of the waters of Oregon.

Summary

This chapter examined the policy framework for the *East Buttes, Terraces and Wetlands Conservation Plan*. This framework includes compliance with Statewide Planning Goal 5 and Portland Comprehensive Plan Goals and Policies for the environment. The plan is consistent with federal and regional resource conservation programs. Coordination with regional and federal agencies and regulations will occur during implementation.



CHAPTER 5

RESOURCE SITE INVENTORY AND ANALYSIS

INTRODUCTION •

RESOURCE FUNCTIONS AND VALUES •

COMPATIBLE AND CONFLICTING USES •

CONSEQUENCES OF ALLOWING CONFLICTING USES •

CONSEQUENCES OF LIMITING OR PROHIBITING CONFLICTING USES •

SITE SELECTION •

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SITE INVENTORY AND ANALYSIS •

BEGGARS TICK MARSH & SMITH AND BYBEE LAKES ADDITIONS •

Introduction

The two previous chapters outlined the background and policy framework for the present plan. The first part of this chapter provides an overview of resource functions and values, followed by a discussion of conflicting uses. The method used to select, inventory and evaluate resource sites is then outlined, followed by an explanation of the format used in examining resource sites. The inventory and analysis of individual resource sites is then presented. The two area additions, Beggars Tick Marsh and Smith and Bybee Lakes, are reviewed at the end of the chapter.

Resource Functions and Values

The resources of the East Buttes, Terraces and Wetlands provide important values which are summarized below. The planning area is generally resource poor according to a study prepared as part of the *Metropolitan Greenspaces Master Plan*. In some East Portland neighborhoods, few if any greenspaces remain. Because they are scarce, greenspaces often are considered the jewels of the neighborhood; in cases like the three buttes, they become major defining elements of the landscape. Protection of these scarce resources is essential for the maintenance of a healthy urban population, a healthy work environment and business climate, and will become increasingly important as the East Portland population continues to grow. To maintain a balance, efforts to protect, restore and enhance neighborhood greenspaces need to grow with the population.

The forest, an element of virtually every site in this study, provides important neighborhood resource values. Forest vegetation moderates the effects of winds and storms, stabilizes and enriches the soil, and slows runoff from precipitation. These functions control erosion and enable the forest floor to filter out sediments and pollutants as the water soaks down into groundwater reserves or passes into surface drainages. By filtering water, the forest maintains good quality drinking water for residents who use wells. By stabilizing soil, increasing groundwater infiltration and reducing runoff and erosion, the forest protects the local community from landslides and other hazards such as flooding.

The forest also provides habitat for local birds, mammals, herptiles and insects. The structural components of the forest, the tree canopies, branches, trunks, snags, downed logs, shrubs and herbaceous plants on the forest floor, all provide breeding, feeding and refuge areas for many species of wildlife. The planning area contains a diverse bird population with some sites exceeding 70 species. Of special interest is the endangered peregrine falcon, bald eagle, osprey, band-tailed pigeon, black-crowned night heron, yellow-headed blackbird, and the only known tri-colored blackbird colony in the Willamette

River Valley. Also within the planning area is the northernmost nesting site of the Anna's hummingbird. Other wildlife species include the pacific tree frog, beaver, muskrat, nutria, coyote, rabbits and 17 species of fish. Urban wildlife have many beneficial values ranging from vector control and plant pollination to the enjoyment and education they provide for local residents, school children and nature enthusiasts.

The forest provides additional values which accrue to local landowners and broader segments of society. The mixed coniferous and deciduous forest acts as a buffer from the sights and sounds of the urban metropolis. The forest mutes the noise of highways and nearby industrial activities and helps absorb air pollutants caused by auto and industrial emissions. The forest also moderates climate extremes. The microclimate of the forest, created in part by the shade of the vegetation and the transpiration of water from the leaves, keeps surrounding air at an even temperature. The forest thus acts as a natural air conditioner for adjacent residential areas, cooling the air during the day and warming it at night.

Soil and water resources have values similar to forests, but which are not always fully appreciated. Soil provides habitat for complex plant and animal communities. Soil is a living organism without which the forest values discussed above would not exist. Soil microorganisms, seeds and root stocks, nutrients, oxygen and moisture play essential roles in supporting life above the ground. Soil also provides water management functions, effecting water recharge, discharge and storage. Water resources such as wetlands, surface drainages, groundwater reservoirs and precipitation are contributing features of the hydrological (water) cycle. Water is essential to plant and animal survival and, like soil, is an irreplaceable resource.

Several wetlands, both large and small, are located within the planning area. Two wetlands in particular are among the most significant habitat areas in the metropolitan region: Smith and Bybee Lakes and Beggars Tick Marsh. Just as with the East Buttes forest ecosystem, wetlands provide multiple values—left undisturbed, wetlands filter and purify water, recharge groundwater, control erosion and provide flood storage functions. Situated at the water-land interface, wetlands also provide incredibly rich habitats for aquatic birds, mammals, reptiles, amphibians and fish.

Greenspaces provide important educational values described by some 35 high school students who provided testimony on this Conservation Plan. These values include hands-on learning about ecology and environmental issues, basic life skills training (communication, problem solving skills, etc.), community benefit projects (such as trash clean-ups, environmental monitoring), and development of pride, self respect and sensory awareness. In the students own words: "Greenspaces teach you how to think."

Mt. Tabor, Rocky Butte and Kelly Butte, the most prominent resource sites in the planning area, are formerly active cinder cone volcanoes, part of a group known as the Boring Volcanoes (see discussion in Chapter 3). Portland is one of very few cities in the United States with a volcano within its limits. Another unique characteristic is that within Mt. Tabor Park is the best and most accessible example of the exposed volcanic vent of a Boring Volcano. Though the scenic and natural qualities of the buttes are better known, their volcanic origins are important resources in themselves, with significant geologic and educational values.

The vegetation at Kelly and Rocky Buttes provides additional educational values. The south slope of Kelly Butte is home to the trout lily *(Erythronium oregonum)*. This is the only known population of wild trout lilies in the city, and is perhaps the largest population in the region. The hairy manzanita *(Arctostaphylos columbiana)* is another Kelly Butte species not found elsewhere in the city. Another locally rare plant, branching montia *(Montia diffusa)*, was recorded at Rocky Butte. This plant is limited in abundance throughout its range and is listed on the Oregon Natural Heritage Data Base (1991) watch list. Both Kelly and Rocky Buttes are also home to the pacific yew *(Taxus brevifolia)*, uncommon in the Portland area and significant for its "taxol," a cancer-fighting substance found in its bark. Kelly and Rocky Buttes are the only remaining examples of the Pacific Northwest's western hemlock forest community within the planning area. This community is unique among all temperate forests in the world (see Kelly Butte discussion below).

Geologic formations, soils, ground and surface waters, vegetation and wildlife are interdependent elements of the natural community. The ability of these elements to function properly is an important measure of the general health and vitality of the local environment. A healthy environment preserves a neighborhood's scenic, recreational and educational values, and contributes to Portland's high quality of life.

Another distinguishing feature of the East Buttes is that they are major Portland landmarks. At elevations of 600 ft. or more, rising 300 ft. to 400 ft. above the relatively flat East Portland landscape, the buttes can be seen from miles away in all directions. The buttes provide a backdrop to the local community, adding visual relief to urbanized areas of the city with limited open space. The buttes are important reference points that help to define neighborhoods and contribute to their unique identity.

Several archaeological resources within the East Buttes, Terraces and Wetlands planning area provide cultural value. Late Archaic artifacts in the Mt. Tabor area and the Nemalquinner village site at the Overlook Bluff are among several known sites in the area. The potential for additional sites is believed to be high according to Ellis (1992). In addition to the known site at Mt. Tabor, one site at both Kelly and Rocky Buttes is predicted. The relic drainages on the

terraces are expected to contain as many as one site for every 20 acres (see Chapter 3 and end of this chapter for further discussion).

The East Buttes, Terraces and Wetlands contain locally-significant and in certain cases regionally-unique resources with a broad range of values. These values include the provision of habitat for wildlife, domestic water supplies, groundwater recharge and discharge, slope stabilization, sediment and erosion control, flood storage and desynchronization, neighborhood livability and scenic amenities, and recreational, educational and cultural values. The primary beneficiaries of these resource values are neighborhood residents, but many of the benefits accrue to residents and businesses throughout the Portland metropolitan area. The individual resources are interdependent elements of a complex natural system; the impacts of conflicting uses, described in the following section, rarely will affect one resource without affecting others. For similar reasons, the cumulative impacts of conflicting uses can have far reaching effects on resources.

Compatible and Conflicting Uses

City zoning allows residential, commercial, institutional, industrial and a variety of other uses within the East Buttes, Terraces and Wetlands planning area. None of these uses is completely compatible with identified resources.

Ten broad conflicting uses have been identified within the East Buttes, Terraces and Wetlands planning area based on the zoning within resource areas. They are: housing, commercial businesses, industry, institutional uses, agriculture, aviation and surface passenger terminals, detention facilities, mining, radio and TV broadcast facilities and rail lines and utility corridors. If these uses actually occurred at the intensities allowed by city land use regulations, without mitigating measures to protect resources, they would diminish or destroy identified values of one or more resources in the planning area. The consequences of allowing conflicting uses are discussed in the following section. The consequences of limiting or prohibiting these uses is analyzed for individual sites at the end this chapter.

Consequences of Allowing Conflicting Uses

Uses permitted within the East Buttes, Terraces and Wetlands planning area are regulated by city zoning. Uses may be allowed outright in a zone, they may be subject to certain limitations or they may require a conditional use review. Non-conforming uses are also permitted to continue subject to certain restrictions. The impacts of permitted uses on East Buttes, Terraces and Wetlands resource areas are described below. Where the same impacts are

identified for different conflicting uses, a reference is made to the relevant analysis and that analysis is not repeated.

Housing

Housing is permitted in residential and commercial zones, and as a conditional use in industrial zones. In addition to the construction of homes, housing may include the construction of garages and other accessory buildings, access drives, parking areas, landscaped areas, utility connections and related development.

Preparing land for housing often includes removal of vegetation. Removal of vegetative cover denudes or eliminates habitat for many native animals. Lost habitat includes feeding, nesting, perching and roosting places for birds, and loss of feeding, breeding and refuge areas for mammals, herptiles and insects. Vegetation clearing removes plants which produce edible seeds, berries, nuts, bark, leaves, stems and roots for animals. Clearing also removes important structural features of the forest such as multiple layered canopies, dead and downed logs, large trees and snags. These important habitat components are removed and replaced with ecologically barren buildings, fences, driveways, parking lots and other impervious surfaces.

Forest fragmentation caused by the clearing of vegetation for residential uses increases the isolation of one habitat area from another. This can impede or form barriers to wildlife migration and can limit the flow of genetic material. Roads, traffic and fences can also form barriers to wildlife migration. As the range of habitat for indigenous wildlife becomes restricted and isolated, opportunities for recruitment from other areas are limited and wildlife populations become vulnerable to disease, predation and local extinction.

Household lights, loud noises, and other outdoor activities can disturb the breeding and predator instincts of animals. Litter and garbage in wetlands, woodlands and along trails degrades scenic and habitat values. Household pets can kill or injure native wildlife and compete for limited habitat area.

The steep slopes of the East Buttes and other resource sites within the planning area become susceptible to erosion, slumping and landslides when forest cover is removed and when cuts and fills are made for roads and buildings. Vegetation clearing and site grading activities accelerate soil loss and erosion, and can precipitate landslides and flooding, posing significant hazards to people and property. Soil loss and erosion can result from common construction activities such as vegetation removal, grading and compaction even on sites with gentle slopes. These activities also can reduce the capacity of soil to support vegetation and effect groundwater recharge by reducing fertility, soil microorganisms, seeds and root stocks and damaging soil structure.

The construction of homes, roads and other impervious surfaces has adverse consequences in addition to those described above. There are no limits on

impervious surfaces in single-dwelling zones; R5 and R2.5 zones have required outdoor areas but these areas can be paved. Multi-dwelling zones have required landscape areas, though up to one third of the area may be covered by impervious surfaces. The adverse impacts of impervious surfaces include the following:

- *Increases erosion, flooding and landslides;*
  - Increased impervious surfaces increase surface runoff and peak flows, resulting in soil loss and erosion, and potential landslides and floods;
  - These activities can damage soil structure and fertility, degrade or eliminate wildlife habitat as well as result in public safety hazards.
- *Alters hydrology;*
  - Increased impervious surfaces reduce groundwater recharge, lower the volume of water in wetlands and surface drainages contributed by groundwater, form a barrier to plant growth and wildlife movement, and interfere with the transfer of air and gases;
  - This can alter an area's hydrology by lowering surface water levels or groundwater tables and removing a local source of water and moisture essential to the survival of amphibians and aquatic organisms as well as terrestrial animals.
- *Increases pollution;*
  - Leaks (oil, gas, tar, antifreeze, etc.) from vehicles, heating and cooling systems, and roofs degrade habitat and water quality;
  - Pesticides, herbicides and fertilizers applied to landscaped areas can pollute ground and surface waters, and degrade habitat;
  - Dirt and mud eroded from cultivated land or deposited from vehicles can cause sedimentation of wetlands and drainages;
  - Septic drain fields can contaminate ground and surface waters.

Other detrimental impacts of housing include reduction of open space, scenic and recreational values. Common residential landscaping practices also can have detrimental impacts. The removal of native vegetation and the establishment of lawns and other non-native landscape features reduce resource values as described earlier. Lawns in particular can be ecological deserts. Lawns and similar uniform groundcover treatments are maintained as monocultures (with herbicides, fertilizers and pesticides which can degrade nearby habitat areas and water quality). They require regular irrigation which drains drinking water supplies and causes particular problems during summer water shortages. Landscape trees, shrubs and groundcover often are invasive, non-native species that escape into natural areas and compete aggressively with natives. Ivy, blackberry, holly and laurel are commonly used in landscaped areas and are particular problems within the East Buttes, Terraces and Wetlands. Landscaping does not diminish open space, but can degrade scenic and recreational values.

Commercial Businesses
Commercial businesses are permitted in commercial zones, as well as in certain industrial and multi-dwelling zones. Two limited commercial uses are permitted in the open space zone: commercial outdoor recreation and retail sales and service associated with park and open areas use.

Within the East Buttes, Terraces and Wetlands resource areas, commercial zoning is limited to a small area within the Sullivan's Gulch site. At Sullivan's Gulch, the Central Commercial (CX) zone poses high potential conflict because development in this zone is "intended to be very intense with high building coverage, large buildings and buildings placed close together." The CX zone is the only commercial zone with no limit on building coverage. Allowing conflicting uses fully will therefore eliminate all resources since the site can be completely covered with buildings and other impervious surfaces. However, the resource area within the CX zone is located in the public right-of-way between NE Lloyd Blvd., NE 16th Drive and the MAX light rail. The area is steeply sloping and not large enough to support commercial uses. Removal of forest cover and planting of exotic vegetation is permitted and generally has the same effects as those described for housing above.

Commercial businesses are also permitted in the General Industrial 2 (IG2) zone which is found within the Sullivan's Gulch, Kelly Butte and Overlook/ Rail Corridor resource sites. Most commercial uses are conditional uses or subject to other limitations which generally result in less resource impact than industrial uses in the same zone. IG2 is the less developed of the General Industrial zones, "with sites having medium and low building coverages and buildings which are usually set back from the street." Maximum building coverage is 85 percent of site area and there is a minimum required landscaped area of 15 percent. One third of landscaped areas may be covered with walkways and other impervious surfaces. A total of 90 percent coverage is therefore allowed, with potentially severe consequences. All the housing effects described above apply. As a practical matter, commercial business lot coverage normally exceeds that of housing, and this compounds the problem of impervious surfaces (e.g., reduced water penetration and supply of nutrients to the soil, lower groundwater levels, interference with the transfer of air and gases, etc.). Commercial uses in this zone can significantly diminish or destroy open space, scenic and recreational values.

The Overlook Bluff and Pier Park sites contains Heavy Industrial (IH) zoning which permits commercial use and has no minimum landscaped area. However, at Overlook Bluff, the River Natural (n) overlay zone is applied to this area and fully protects the resource. At Pier Park, the effects of commercial uses in this area are similar to those in CX zones described above.

Commercial uses are conditional uses in the High Density Residential (RH) zone which occurs in the Sullivan's Gulch area. One of the requirements is

that the site must be located within 1,000 ft. of a light rail station or stop. Though part of the RH-zoned area meets this requirement, this area is all right-of-way and not available for commercial development.

Industry
Industrial uses are allowed outright in industrial zones and with special limitations or as conditional uses in commercial-zoned areas. Small areas of industrial zoning (IG2) are located within the Kelly Butte and Sullivan's Gulch sites. The Overlook/Rail Corridor site contains both IG2 and Heavy Industrial (IH) zoning. A portion of the Pier Park site is also zoned IH. Allowed uses in these zones include manufacturing and production, warehouse and freight movement, wholesale sales, industrial service and railroad yards. Waste-related uses are limited or conditional uses.

The consequences of allowing industrial uses within the IG2-zones areas are similar to those described above for commercial uses within the IG2 zone. The conditions and limitations usually imposed on commercial uses in the IG2 zone do not apply to industrial uses. Therefore, full (90 percent) build out of the site is more likely for industry, resulting in greater impervious surface impacts. Industrial uses also have more detrimental impacts on nearby resource areas than do commercial uses. These impacts include industrial emissions into the air and water and waste storage and disposal.

Industrial uses in the IH zone are generally more intensive than those in the IG2 zone. Because no minimum landscaped area is required, complete site build-out is possible and would result in complete resource elimination. The River Natural overlay protects the resource within the IH zone at Overlook.

Institutional Uses
Institutional uses are limited or conditional uses in most zones except commercial. In commercial zones, Essential Service Providers are limited but other institutional uses are allowed outright. Basic Utilities and Parks and Open Areas are allowed outright in the industrial IG2 and IH zones; Daycare and Community Service uses are allowed as limited or conditional uses. In residential zones, institutional uses are limited or conditional uses.

There are nine different categories of institutional uses ranging from Parks and Open Areas (with relatively few adverse impacts) to Schools and Medical Centers (with greater impacts). Because of the wide range of impacts, the impacts of each category is reviewed briefly below.

Basic Utilities are infrastructure services that need to be located in or near the area where the service is provided. Although operation of existing facilities has few adverse environmental effects, construction and maintenance practices for new basic utilities have a variety of adverse effects. These activities often create cleared corridors which increase wind and light penetration into the

forest providing opportunities for the establishment of invasive, non-native plant species. Construction often fragments wildlife habitat, degrades wetlands and drainages, increases stormwater runoff and erosion, and reduces forest cover. Forest cover removal has the same effects as those described for housing. Certain types of basic utilities, such as stormwater detention areas, retention areas, sediment traps and constructed wetland pollution treatment facilities can have beneficial environmental effects if located without disruption to existing resources. Replacement of existing resource areas with these facilities normally has detrimental effects.

Community Service uses provide a local service to people of the community (examples include libraries, museums and community centers). Essential services uses provide on-site food or shelter beds and include emergency shelters, soup kitchens and surplus food-distribution centers. These two uses have the same effects as commercial businesses.

Parks and Open Areas uses focus on natural areas, community gardens or public squares. These lands tend to have few structures and include parks, golf courses, cemeteries, recreational trails and botanical gardens. Parks and Open Areas are the predominant land use in the East Buttes, Terraces and Wetlands planning area. Parks and Open Areas construction and maintenance practices can cause erosion and damage vegetation and habitat. Removal of vegetation, creation of impervious surfaces such as roads, parking lots and tennis courts, and construction of certain types of buildings are activities commonly associated with development of Parks and Open Areas. The potential environmental consequences of these activities are similar to those described for housing except that normally a substantially smaller percentage of land area is covered by impervious surfaces. Intensive recreation such as cycling, motoring and equestrian sports also cause erosion, particularly when these activities occur off maintained trails. Unleashed domestic animals in parks and open areas can injure or kill wildlife.

Schools, Colleges, Medical Centers and Religious Institutions are separate institutional categories but have similar effects. Schools include public and private schools through high school level. Colleges include universities, colleges and seminaries. Medical Centers include hospitals and tend to be on multiple blocks or in campus settings. Religious Institutions provide meeting areas for religious activities and include churches, temples, synagogues and mosques. The construction and maintenance of School, College, Medical Center and Religious Institution grounds have the same effects as parks and open space. Structures and facilities (including parking areas) have the same effects as commercial development.

Daycare includes preschools, nursery schools and adult daycare programs. Daycare uses are normally small in size and often are contained within other institutional use buildings (e.g., Medical Centers, Schools, Colleges, Religious

Institutions and Community Service Providers). When within such existing buildings, daycare impacts are limited to the additional new parking or building facilities required for the use. These new facilities have the same impervious surface effects as housing. Daycare centers independent of other uses have the same effects as housing, except that larger buildings and parking areas increase the effects of impervious surfaces.

The new Residential Institutional (RI) zone proposed as part of Albina Community Plan does not apply to East Buttes, Terraces and Wetlands resource sites.

Agriculture
Agriculture is allowed in the open space and industrial zones and is a conditional use in R10, R7 and CX zones. It is prohibited elsewhere within the East Buttes, Terraces and Wetlands planning area.

Clearing of vegetation, plowing of fields, exposing bare soils and other farm practices cause erosion which degrades water quality and can adversely impact aquatic habitat. The removal of forest cover has the same effects as those for housing. The conversion of forest to farm land replaces diverse forest plant communities with few, cultivated species. Vegetation is particularly valuable on farmland where herbicides, fertilizers and pesticides are used because it acts as a filter, cleansing runoff which can degrade habitat and harm aquatic wildlife. These chemicals may also contaminate groundwater reserves. Animal fecal contamination occurs as a result of pasture use and has similar environmental effects.

Agriculture often draws irrigation water from wells. Extensive use of groundwater can result in draw down of the water table, which in turn can reduce surface drainage flows and eliminate a water source for wildlife. Agriculture use normally does not diminish open space, but can degrade scenic areas and reduce recreational opportunities by limiting access.

Aviation and Surface Passenger Terminals
Aviation and surface passenger terminals are conditional uses in CX commercial zone and in the IG2 and IH industrial zones. These uses completely destroy natural resources. However, development of aviation and surface passenger terminals within the small, steep lots of CX, IG2 or IH zoning is not feasible.

Detention Facilities
Detention facilities are prohibited in the East Buttes, Terraces and Wetlands planning area, except as conditional uses in the IG2 and IH industrial zones and the CX commercial zone. Their effects on resources are the same as commercial uses.

Mining
Mining is a conditional use in all open space zones and in the IG2 and IH zones. It is prohibited all other zones within the planning area. Mining has the most severe adverse environmental impacts of any use: it completely destroys natural resources including the removal of geologic resources.

Radio and TV Broadcast Facilities
Most low powered transmitters such as cordless telephones and citizen band radios are allowed in all zones. Other radio and television broadcast facilities are allowed outright in the industrial zones and as conditional uses in open space, residential and commercial zones. Their effects are the same as basic utilities, but with greater adverse visual effects.

Rail Lines and Utility Corridors
Rail lines and utility corridors are allowed outright in industrial zones and as conditional uses in all other zones. Their effects are the same as basic utilities, except that construction of rail lines often requires substantial excavation and fill to meet 0-3 percent slope standards. Generally, additional grading results in a greater area of resource disturbance and greater degradation of soil, vegetation and habitat resources.

Summary
Ten conflicting uses are identified in the East Buttes, Terraces and Wetlands planning area. If these uses occurred at the intensities allowed by existing city land use regulations, they would have significant adverse environmental consequences.

Consequences of Limiting or Prohibiting Conflicting Uses

The environmental consequences of limiting or prohibiting conflicting uses are summarized below. Other consequences are discussed in the ESEE analysis of individual resource sites later in this chapter.

Limiting or prohibiting uses which conflict with identified natural resources clearly has direct benefits for these same resources. The natural resource functions and values described earlier in this chapter are protected through the control or elimination of conflicting uses. Since these resources are part of an interconnected natural system, protection of one resource has beneficial consequences for other resources. Protection of forest vegetation, for example, will maintain food and cover habitat for wildlife, stabilize and protect soils and steep slopes, filter out potential air and water pollutants, and sustain surface and ground water resources.

Limiting or prohibiting conflicting uses protects forests, soils, geologic features, wildlife habitat, surface drainages, wetlands, groundwater reserves and

domestic water supplies. Slope stabilization, dissipation of erosive forces, and flood storage functions would be protected, reducing the area's susceptibility to landslides, floods and similar hazards. The volcanic character and geology of the East Buttes would be preserved. Open space, recreation, scenic and heritage resources would also be protected. Limiting or prohibiting conflicting uses also would preserve the significant contribution of the East Buttes, Terraces and Wetlands to local neighborhood identity and livability.

Site Selection

In 1986, a city-wide inventory of natural resources was conducted by biologists Esther Lev and Michael Jennings. A technical advisory committee consisting of natural resource experts from conservation groups, private industry and public agencies was established to review inventory methodology and inventory areas. Local wildlife literature was consulted and letters were sent to neighborhood associations, special interest groups and city agencies informing them of the study. With the information compiled by Planning Bureau staff, the technical advisory committee, biologists and neighborhood residents, inventory sites were then delineated and mapped.

In 1991 and 1992, additional resource inventories were conducted in the East Buttes, Terraces and Wetlands planning area. These resource inventories include information on wildlife habitats, plant communities, wetlands and water bodies, and open space. Additional information is provided on scenic, recreational, historic and cultural resources.

The planning area is made up of twelve resource sites covering a total of approximately 1,700 acres in area. Two of these sites, Beggars Tick Marsh and Smith and Bybee Lakes, were inventoried under previous city Goal 5 plans but only recently annexed into the city. Several sites contain sub-areas (e.g., Rosemont Bluff, a Mt. Tabor sub-area, and the Banfield Grove, a sub-area of Rocky Butte). The sites are numbered beginning with 132, following previous city resource site numbers. Kelly Butte is the first site, followed by Mt. Tabor (site 133) and Rocky Butte (site 134). The remaining sites are numbered moving from east to west. Additional information on site assessments and habitat scores is compiled in the Wildlife Habitat Assessment sheets.[3]

Inventory and Analysis Methods

Field inventory work was conducted during the past year between October, 1991 and October, 1992. Several of the sites were previously evaluated by biologists

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3 On file in the Bureau of Planning, East Buttes, Terraces and Wetlands Inventory notebook.

Michael Jennings and Esther Lev in 1986 or by Esther Lev and Lynn Sharp as part of the Metro Urban Greenspaces Inventory (1990-1991).

Wildlife Habitat Assessments were completed for each site. The Wildlife Habitat Assessment (WHA) forms are a narrative description of the site, including information on weather, topography, vegetation, wildlife, habitat function, human use and management potential. The WHA form was originally developed by the City of Beaverton and subsequently modified with input from state and federal resource agencies and the Audubon Society of Portland. This rating system was previously used by the City of Portland for resource inventories along the Willamette Greenway, the Columbia Corridor, the West Hills and the Johnson Creek basin. It has also been used with minor modifications by Multnomah County and the cities of Gresham, Milwaukie, Eugene, Springfield, Hillsboro and other Oregon jurisdictions in the course of their Goal 5 inventory process.

The habitat assessment process involves analysis of physical environments for which wildlife have known preferences. The WHA form is used to rate habitat values numerically based on the presence and availability of three basic elements: food, water and cover. Values for human and physical disturbance, interspersion with other natural areas, and unique or rare habitats or plant and animal occurrences are also noted. Habitat scores for the East Buttes and Terraces ranged from a low of five to a high of 65.

In addition to field reconnaissance, the location, quantity and quality of Goal 5 resources were determined using United States Geologic Survey (USGS) and city topographic maps, National Wetlands Inventory maps, Multnomah County Soil Conservation Service maps, local inventories or land use cases and 1989 and 1991 infra-red aerial photographs. Additional references are cited in the Bibliography (Appendix F).

The method used for inventorying resources provides an acceptable base of information while allowing augmentation from other sources. It has been used successfully by the city and other jurisdictions in the state, and has been reviewed by LCDC and found acceptable for Goal 5 compliance.

Based on the resource inventory information, the following steps were taken to analyze conflicting uses:

1) Identify the conflicting uses allowed by the zoning of the resource site;
2) Determine the consequences of allowing existing and potential conflicting uses on the site's resources;
3) Determine economic, social, environmental and energy consequences of allowing, limiting or prohibiting conflicting uses; and
4) Conclude which resources warrant protection and determine the appropriate level of protection.

Discussion Format

The inventory and analysis of resource sites in the following section summarizes material gathered during field visits as well as resource information collected from other sources as noted above. The elements of the resource site summaries and the discussion format are reviewed below.

Resource Site #: Name Map: Quarter section map numbers

Resource Site Size: Approximate acreage of resource site

Approx. Boundaries: Approximate north, east, south and west boundaries

Neighborhoods: Names of local neighborhoods

Inventory Dates: Dates of field inventories within the resource site

Habitat Classification: Based in part on the National Wetlands Inventory classification system; see Glossary for definitions

Types of Resources: List of resources, described in more detail below

Functional Values: List of resource values, discussed earlier in this chapter

Resource Location and Description
Provides a description of the location and significant resource features of individual sites.

Resource Quantity and Quality
Resource quantity and quality is evaluated using information from field inventories, local and regional planning efforts and other sources.

Habitat Rating:
The habitat rating provides a summary of the relative quality of wildlife habitat within a particular resource site. At the top of the habitat rating box, the site's habitat score and the range of scores for all sites in the planning area is indicated. The functional value of the three principal habitat components (water, food and cover) is then summarized with assessments ranging from "low" to "high" based on the following scores for these components:

	Low	Moderately Low	Medium	Moderately High	High
Water	2 - 7	8 - 12	13 - 18	19 - 24	25 - 30
Food	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24
Cover	0 - 5	6 - 11	12 - 16	17 - 22	23 - 28

The three remaining categories, interspersion, uniqueness and disturbance, are classified in a similar fashion using "low," "medium" and "high." *Uniqueness* is a combination of the site's unique features (habitat type, flora and fauna); *disturbance* is a combination of physical and human disturbance (note: a high score corresponds to a "low" disturbance); *interspersion* is assessed directly from the WHA form.

	Low	Medium	High
Interspersion	0 - 1	2 - 4	5 - 6
Uniqueness	0 - 3	4 - 7	8 - 12
Disturbance	8 - 6	5 - 3	2 - 0

Summary
Summarizes the inventory and the significance of individual resources.

Consequences of Limiting or Prohibiting Conflicting Uses
The analysis of limiting or prohibiting conflicting uses begins in this section. Consequences of allowing conflicting uses are reviewed earlier in this chapter.

Conflicting Uses: Applicable conflicting uses for the resource site are listed

Economic Consequences
Analysis of economic consequences involves a comparison of the value of the resource to the economic impact to the local jurisdiction and the region if the land were used for development permitted by zoning. Economic factors considered in this analysis include the effects on property values, development potential and tax revenues; effects on local business and quality of life; and effects on infrastructure improvement and maintenance costs.

Social Consequences
Social consequences considered in this analysis include effects on adopted neighborhood plan policies; cultural, recreational and scenic values; regional identity and local landscape character; housing and education; and effects on public health, safety and welfare.

Environmental Consequences
Limiting or prohibiting conflicting uses protect natural resources and resource values. These consequences are discussed further in the Consequences of Limiting or Prohibiting Conflicting Uses section above.

Energy Consequences
This subsection reviews energy consequences such as effects on heating and cooling of structures and on transportation and infrastructure costs.

Conclusion
Summarizes consequences of limiting or prohibiting conflicting uses and outlines what levels of protection are applied to what areas. A summary table shows the effects of environmental zoning by zone.

Current Zoning	Estimated Acreage of EC Zoning	Estimated Acreage of EP Zoning

Applicable Statewide Planning Goals
Addresses any Statewide Planning Goals that are affected by plan regulations.

Management Recommendations
Presents recommendations for management measures to protect resources.

Site Inventory and Analysis

The following section presents the inventory and analysis of the ten resource sites within the planning area. The inventory provides information on resource location, quality and quantity. The analysis reviews the economic, social, environmental and energy consequences of limiting or prohibiting conflicting uses. The consequences of allowing conflicting uses are evaluated above. The next chapter develops a plan to conserve identified resources based on the inventory and analysis of this chapter. The Vicinity Map on page 5 provides a key to the location of resource sites discussed in this section. Each site summary also contains a map of the site (with key and legend) showing certain resource features. The last section of the chapter reviews two recently annexed areas, Beggars Tick Marsh and Smith and Bybee Lakes, that are located within the boundaries of previous Goal 5 plans.

The natural resource inventory and ESEE decisions that apply to resource site 132: Kelly Butte and Floyd Light Forest have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 132 has been renumbered. It is now signified as two different resource sites: EB12 and EB13. The natural resource inventory and protection decisions that apply to EB12 and EB13 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

The natural resource inventory and ESEE decisions that apply to resource site 133: Mt Tabor and Rosemont Bluff have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 133 has been renumbered. It is now signified as EB9 and EB10. The natural resource inventory and protection decisions that apply to EB9 and EB10 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

The natural resource inventory and ESEE decisions that apply to resource site 134: Rocky Butte have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 134 has been renumbered. It is now signified as EB11. The natural resource inventory and protection decisions that apply to EB11 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

The natural resource inventory and ESEE decisions that apply to resource site 135: Wilkes Creek have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 13 has been renumbered. It is now signified as EB15. The natural resource inventory and protection decisions that apply to EB15 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

The natural resource inventory and ESEE decisions that apply to resource site 136: Glendoveer Golf Course have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 136 has been renumbered. It is now signified as EB14 . The natural resource inventory and protection decisions that apply to EB14 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

The natural resource inventory and ESEE decisions that apply to resource site 137: Rose City Golf Course have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 137 has been renumbered. It is now signified as EB8. The natural resource inventory and protection decisions that apply to EB8 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

Resource Site 138: Rose City Cemetery Map: 2635, 2636

Resource Site Size: 75 acres

Approx. Boundaries: NE Shaver St., north; NE 57th Ave., east; NE Fremont St., south; NE 47th Ave., west

Neighborhood: Cully

Inventory Date: July 28, 1992

Habitat Classification: N/A

Types of Resources:
Open space and historic cemetery

Functional Values:
Scenic, recreational and historic values

Resource Location and Description
Rose City Cemetery is located in a residential area of northeast Portland. The site encompasses 75 acres, all of which is developed as cemetery grounds or buildings. The cemetery is set in a park-like setting with manicured trees, flower and shrub beds, and lawns. The area is divided into grave plots, using various spiral and grid-like patterns, with a mausoleum at its north end. Several other buildings are also present and paved roads wind through the cemetery.

Resource Quantity and Quality
This site is the lowest scoring habitat area within the East Buttes, Terraces and Wetlands planning area.

Habitat Rating:

Wildlife Habitat Score: 5 Range for All Sites: 5 - 65

Water	: Low
Food	: Low
Cover	: Low
Interspersion	: Low
Uniqueness	: Low
Disturbance	: High

The cemetery's principle resource value is open space and its historic cemetery use. Limited scenic and recreational values area also provided.

Summary
This site's resource value is its provision of neighborhood open space and the historic features of the cemetery itself.

Consequences of Limiting or Prohibiting Conflicting Uses

An analysis of the economic, social, environmental and energy consequences of limiting or prohibiting conflicting uses is presented in this section. The consequences of allowing conflicting uses are addressed earlier in this chapter.

Conflicting Uses: None

Economic Consequences
The cemetery's open space resources are already protected by the Open Space (OS) zoning.

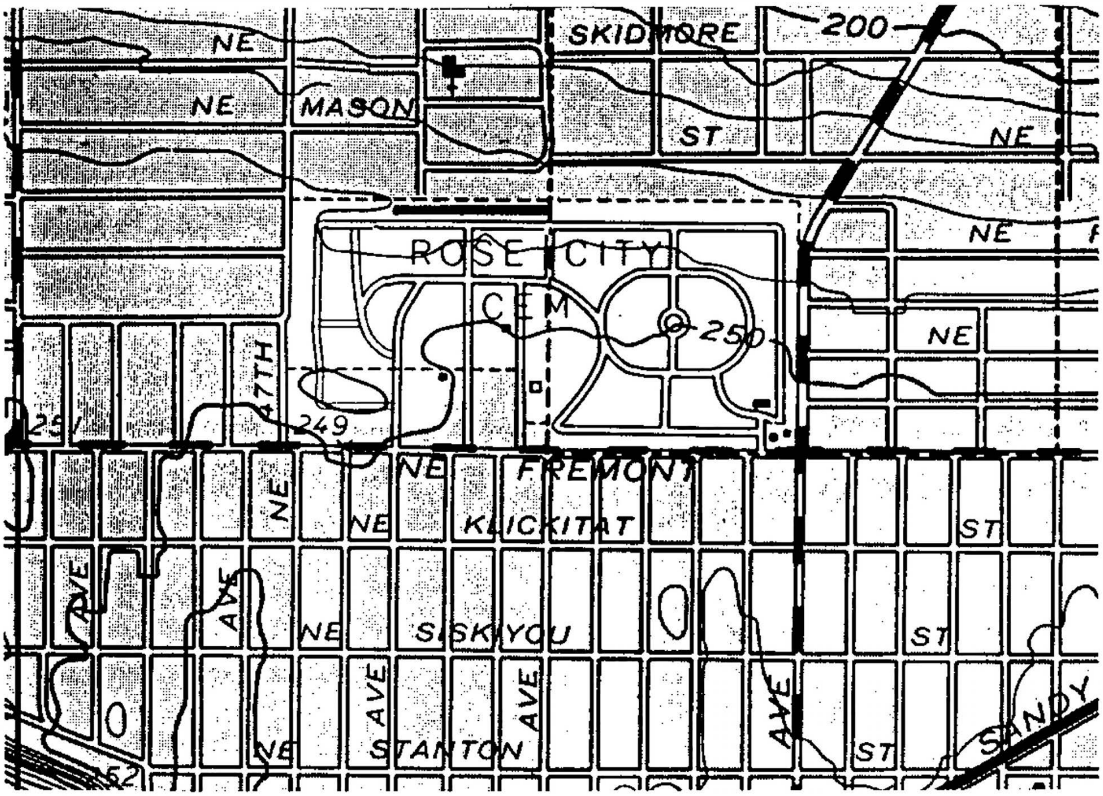
Social Consequences
Historic, scenic and recreational resources are currently protected by zoning and current site development.

Environmental Consequences
The site's natural resource values are extremely limited. Uses permitted under the Open Space zone will not diminish these values.

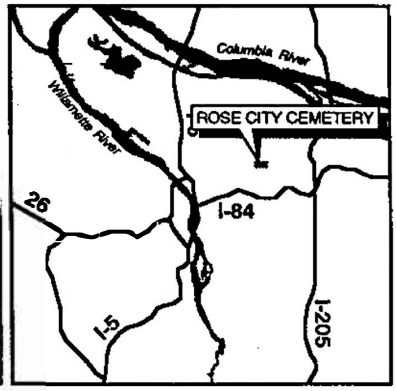
Energy Consequences
There are no energy consequences.

Conclusion
The resources of this site are adequately protected by the current Open Space zoning. No additional protection measures are necessary.

Management Recommendations
Limiting or eliminating use of herbicides and chemicals, and ensuring that all burials are properly lined will reduce risk of possible groundwater contamination.



Resource Site 138: Rose City Cemetery



Legend

650 Contours (50' Intervals)

Forests/Habitat

Wetlands

Key Map

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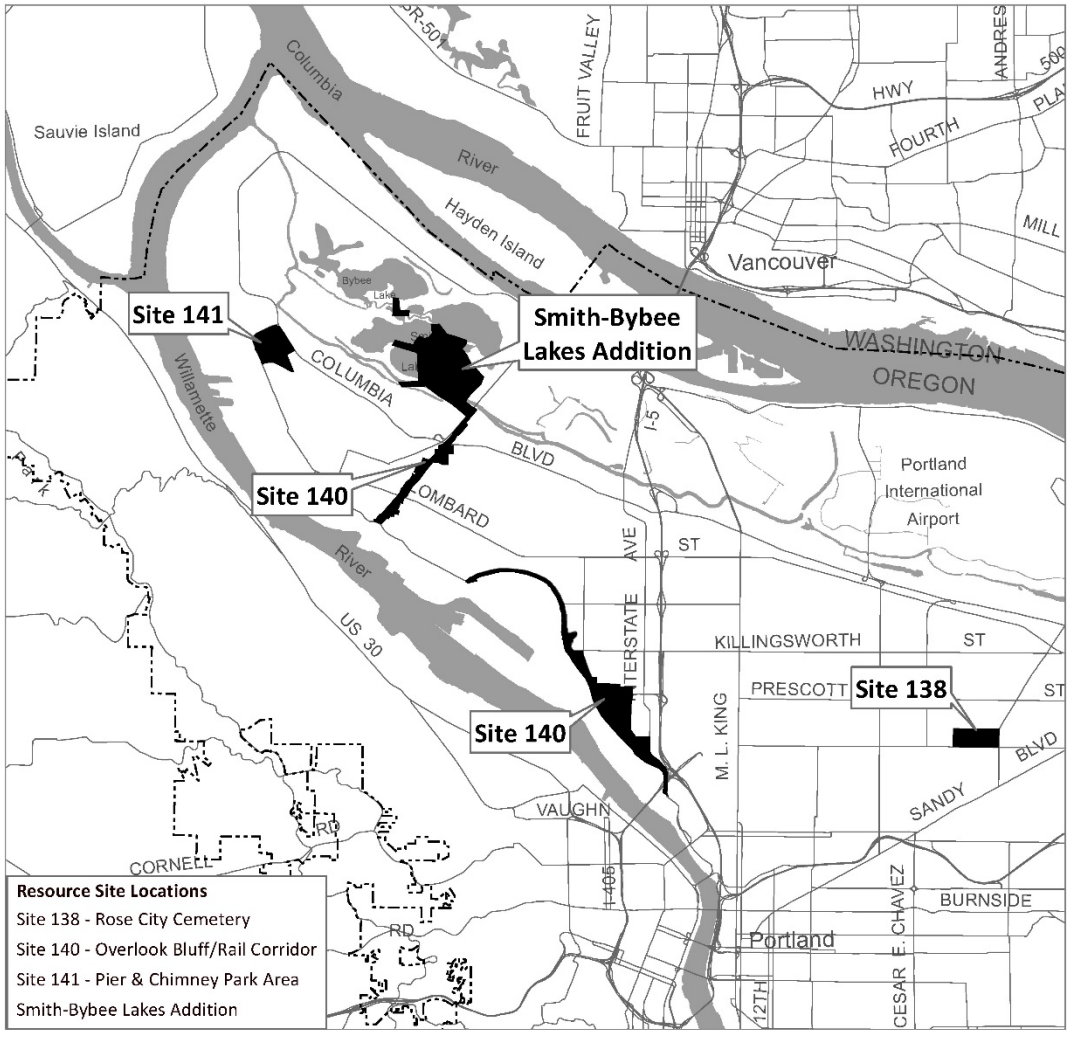
The natural resource inventory and ESEE decisions that apply to resource site 139: Sullivan's Gulch have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 139 has been renumbered. It is now signified as EB6. The natural resource inventory and protection decisions that apply to EB6 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*.

Resource Site 140 has been divided into four different resource sites by the *Environmental Overlay Zone Map Correction Project*. It is now signified as EB2, EB3, EB4, and EB5. The natural resource inventory and protection decisions that apply to EB2 and EB4 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*. The natural resource inventory and protection decisions that are contained in this plan continue to apply in the portions of Resource Site 140 that are signified as EB3 which is the rail corridor and EB5 which is portions of Waud Bluff that are located to the southeast of the University of Portland Campus. Map 430-3 illustrates the locations where the resource protection decisions of this plan continue to apply.

East Buttes, Terraces, and Wetlands Conservation Plan Area

Map 430-3

Map Revised Xxxxx X, 202X



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Portland, Oregon

Resource Site 140: Overlook Bluff

Map: 1925, 2024-5, 2123-4, 2222-3.5, 2323-7, 2427, 2527-8, 2627, 2728

Resource Site Size: 115 (Overlook), 45 acres (Rail Corridor sub-area)

Approx. Boundaries: Willamette Blvd., east; N Tyler Ave., north; N Morris St., south; Willamette River, west
(Rail Corridor: N Columbia Blvd., north; N Carey Blvd., east; Willamette Blvd., south; N Ida Ave., west)

Neighborhoods: Arbor Lodge, Friends of Cathedral Park, Overlook, Portsmouth, St. Johns and University Park

Inventory Dates: February 13 and September 22, 1992

Habitat Classification:

- Upland Broadleaf Deciduous Forest
- Riverine, Intermittent Drainage

Types of Resources:
Open space, forest, habitat, groundwater, intermittent drainage; archaeological resources

Functional Values:
Food, water, cover and territory for wildlife; groundwater recharge and discharge; slope stabilization; sediment and erosion control; air and water quality protection; cultural, scenic and recreational values

Resource Location and Description
The Overlook Bluff is a 100 to 500 ft. wide serpentine resource site along the east rim of the Willamette River. Willamette Boulevard borders the site for much of its five-mile stretch between the Fremont and St. Johns Bridges. The bluff represents the transition from the Willamette River lowlands to the first East Portland Terrace at an elevation of approximately 150 ft. The slopes of the Overlook Bluff are vegetated and steep, averaging 40 degrees. At the north end of the bluff is the Burlington Northern rail corridor, a sub area of the resource site. The rail corridor extends northeast from the Willamette River Greenway to the Columbia Corridor and the Smith and Bybee Lakes area. The corridor is a narrow cut approximately 300 ft. wide and 80 ft. deep with railroad tracks on the floor and steep, vegetated banks (also averaging 40 degrees in slope). Most of the vegetation, habitat and scenic resources within the resource site are located on the steep banks of the Overlook Bluff and the rail corridor.

The city's *Scenic Resources Protection Plan* (1991) identifies numerous scenic resources along the Overlook terrace: Willamette Boulevard (scenic drive); University of Portland Bluff (panorama); Albina Railyards from Overlook House (view from the city); Fremont Bridge from Overlook Park (view of bridge); East Willamette Riverbank near the Railroad Bridge and Willamette Boulevard at N. Jessup St. (viewpoints). Because of the excellent view, for which the Overlook area is named, the bluff is frequently used for recreational purposes. The Olmsted report of 1903 (see Chapter 3) noted that the bluff presented an "opportunity for a picturesque pleasure drive and walks for the especial benefit of the residents of the large portion of the city east of the river." Though the Olmsteds could not have foreseen the traffic congestion that today can take some of the "pleasure" out of the drive, the Willamette Boulevard was designed to serve as a scenic drive in keeping with the Olmsted vision. More recently, the Olmsted proposals have resurfaced as part of the *Metropolitan Greenspaces Master Plan* which identifies the Overlook Bluff area as the location of a "proposed trail of regional significance."

Land uses on the upland plateau are predominantly single dwelling residential, with scattered parks, commercial and institutional uses (e.g., University of Portland and the Keiser Medical Center). Below the Overlook Bluff is the Swan Island industrial area, and the railroad and a service road occupy the bottom of the rail corridor.

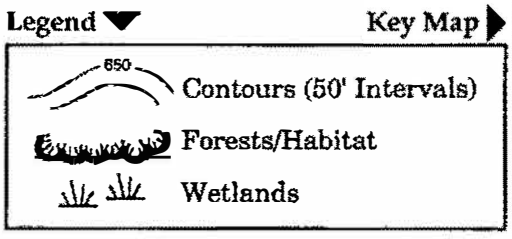
The University of Portland is the approximate location of the Nemalquinner village site recorded by Lewis and Clark. Nemalquinner was a small Chinookan village consisting of four houses and about 100 residents (200 in the spring season). Nemalquinner was one of only two Chinookan villages within the present Portland city limits recorded by Lewis and Clark in the early 1800s (the other site is near the Portland International Airport). The bluff itself was described as a "sacred burial site."

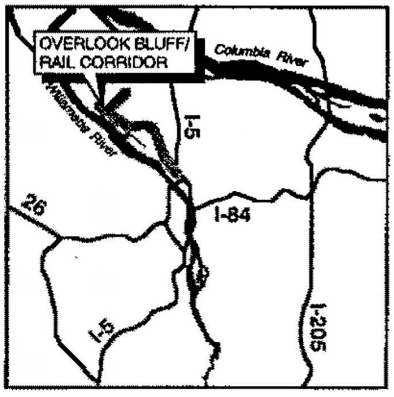
Resource Quantity and Quality

The high quality scenic and recreational resources along the Overlook Bluff are described above. The site's natural resources are also of local, if not regional, significance. The Overlook Bluff supports a oak/madrone forest community rare within Portland. Ponderosa pine, a common tree east of the Cascades, is also present in the area of the University of Portland campus.

Other tree species along the bluff are bigleaf maple, black cottonwood, pacific dogwood, bitter cherry, red alder, willows and the occasional Douglas fir and western red cedar. Most of the vegetation is early to mid-seral second growth. Shrubs observed include Oregon grape, mockorange, oceanspray, snowberry, western hazel, Indian plum, serviceberry, vine maple and red elderberry. Sword fern is the dominant herbaceous species but is succumbing to

Resource Site 140: Overlook Bluff/ Rail Corridor





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aggressive English ivy and other invasive exotic species such as clematis, Himalayan blackberry, English holly and Scot's broom.

The bluff is exposed to intensive human use at its top and at its base but is otherwise unmanaged and relatively undisturbed. At a few places roads or foot trails cross the resource area. This lack of management means that snags, down woody debris and other structure habitat features are more common. The oak/madrone forest community supports a range of wildlife species and is a rare habitat type within Portland. Also, intermittent drainages located in small west-trending ravines along the bluff provide a nearby source of water.

Habitat Rating (Overlook Bluff):

Wildlife Habitat Score:	**36**	**Range for All Sites:**	**5 - 65**
Water	: Moderately Low		
Food	: Medium		
Cover	: Moderately Low		
Interspersion	: Medium		
Uniqueness	: Medium		
Disturbance	: Medium		

The Burlington Northern rail corridor sub-area is approximately 45 acres in area and is slightly more disturbed than the Overlook Bluff. The corridor follows a ravine that provides wildlife habitat and corridor values, in essence linking the Willamette River Greenway with the Columbia Slough habitat area. This habitat is limited to the forested banks of the corridor however, since the ravine bottom is lined by railroad tracks, service roads and other railway facilities.

Habitat Rating (Rail Corridor sub-area):

Wildlife Habitat Score:	**31**	**Range for All Sites:**	**5 - 65**
Water	: Moderately Low		
Food	: Medium		
Cover	: Moderately Low		
Interspersion	: Medium		
Uniqueness	: Low		
Disturbance	: Medium		

The site's vegetation on the banks is comprised of a deciduous overstory and large shrub zone containing numerous native and exotic plant species. The dominant tree species is the bigleaf maple, approximately 30 to 40 years in age. Other occasional trees include Douglas fir, apple, cherry and hawthorn. Shrubs include western hazel, snowberry, oceanspray, Oregon grape, poison oak,

thimbleberry, vine maple, Himalayan blackberry, laurel and holly. The herbaceous layer contains sword fern, lady fern, clematis and ivy.

The silt loam Goble soils that are found along the Overlook Bluff and the rail corridor susceptible to erosion, slumping and landslides. These hazards are compounded by the fact that the slopes in the area average about 40 degrees.

Summary
The Overlook, because of its panoramic views, serves as a popular scenic and recreational area. Due to its close proximity to the Willamette River, many businesses are located below the bluff for easy access to water transportation. Residential areas, parks, railroad corridors, a university and a medical center are located within the site. The variety of plant species, the rare plant community and unusual habitat type provide significant values for wildlife and for local residents and workers.

Consequences of Limiting or Prohibiting Conflicting Uses

An analysis of the economic, social, environmental and energy consequences of limiting or prohibiting conflicting uses is presented in this section. The consequences of allowing conflicting uses are addressed earlier in this chapter.

Conflicting Uses: Commercial, institutional uses, housing, agriculture, mining, radio and TV broadcast facilities, rail lines and utility corridors

Economic Consequences
Limiting or prohibiting conflicting uses on the forested bluffs would have positive consequences including protection of local residential and business property values and tax revenues, and would protect the slope from landslides and reduce potential demand on disaster relief agencies and bureaus (and subsequent demand on tax dollars). Guiding development away from hazardous areas would reduce infrastructure and public facility construction and maintenance costs.

Prohibiting conflicting uses on the forested bluffs would preclude new development and expansion opportunities. Most of the Overlook site is zoned Open Space and housing, commercial and industrial uses are therefore prohibited. The rail corridor is for all practical purposes fully developed with tracks, service roads and other facilities. The 40 degree slopes and weak, silt loam soils make most development activities in either area unfeasible. However unfeasible new development or expansion may be, prohibiting all such actions could have negative economic consequences. Limiting such actions allows significantly greater flexibility for development and use of the site and is not likely to have economic impacts.

Social Consequences
The *Arbor Lodge Proposed Neighborhood Plan* contains several applicable policies: protect and emphasize the scenic and recreational beauty and value of North Willamette Boulevard; enhance the appearances of the neighborhood parks; and develop alternative modes of recreational scenic transportation such as hiking and biking trail next to the Willamette River. The protection of the Overlook Bluff area, in particular, is consistent with the proposed neighborhood plan policies. The scenic and recreational values of the Overlook and rail corridor bluffs will be preserved. The existing parks and open spaces will be afforded additional protection, and the plan will have a positive impact on neighborhood livability.

The *Metropolitan Greenspaces Master Plan* identifies the Overlook Bluff area as the location of a "proposed trail of regional significance." Resource protection will preserve the views and forest cover adjacent to this trail.

Positive social consequences would result from the retention of forest cover and the avoidance of possible public health and safety hazards associated with slumping and landslides.

Environmental Consequences
Limiting or prohibiting conflicting uses will protect the site's natural resources and natural resource values identified in the inventory.

Energy Consequences
The forest provides a tempering effect on climate and reduces energy needs for heating and cooling of nearby residences, medical centers and university buildings. Trees shade buildings in the summer, reducing energy demands for cooling. Plants also absorb sunlight and transpire during growing seasons, reducing ambient air temperatures. Evergreen trees that shade nearby dwellings in winter reduce solar access, creating higher energy demands for heat. Trees and shrubs also act as a wind break during winter. By diverting winter winds around and over buildings, heat loss from convection is reduced, resulting in lower energy needs. On balance, protection of forest vegetation would have positive energy consequences locally.

Conclusion
Limiting conflicting uses along the forested slopes of the Overlook Bluff and the rail corridor has overall positive ESEE consequences. Prohibiting conflicting uses has potentially negative consequences.

The Environmental Conservation (EC) zone is applied primarily to forested areas on the bluffs. Where openings in the forest appear without large interruptions in canopy cover the EC zone spans these openings. However, larger areas of unforested slopes, such as those south of the railway bridge,

which are degraded by development or by exotic plants are not protected. Also, certain areas near the University of Portland and the railway bridge contain Willamette Greenway overlay zones which provide adequate resource protection. In the northwest corner of the University of Portland campus, an adjustment to the River Natural "n" zone boundary is made to reflect current site development.

Current Zoning	Estimated Acreage of EC Zoning	Estimated Acreage of EP Zoning
OS	51	0
R5	35	0
R2	0	0
CN2	0	0
IG2	37	0
IH	0	0

Applicable Statewide Planning Goals
Goal 6, Air, Water and Land Resources Quality, is intended to maintain and improve the quality of the air, water and land resources of the state. Protection of the forest, soil and water resources of the Overlook Bluff site will help ensure that this goal is accomplished.

Goal 7, Areas Subject to Natural Disasters and Hazards, provides for the protection of life and property from natural disasters and hazards. Protection of the site's steep slopes and vegetation is consistent with this goal.

Goal 9, Economy of the State, is intended to provide for the diversification and improvement of the economy of the state. On balance, the protection measures will have no measurable effect on the diversification and improvement of the economy of the state.

Goal 10, Housing, provides for the housing needs of citizens of the state. By the Metropolitan Housing Rule definition, resource areas at the Overlook Bluff are not needed for housing. Needed housing will be maintained.

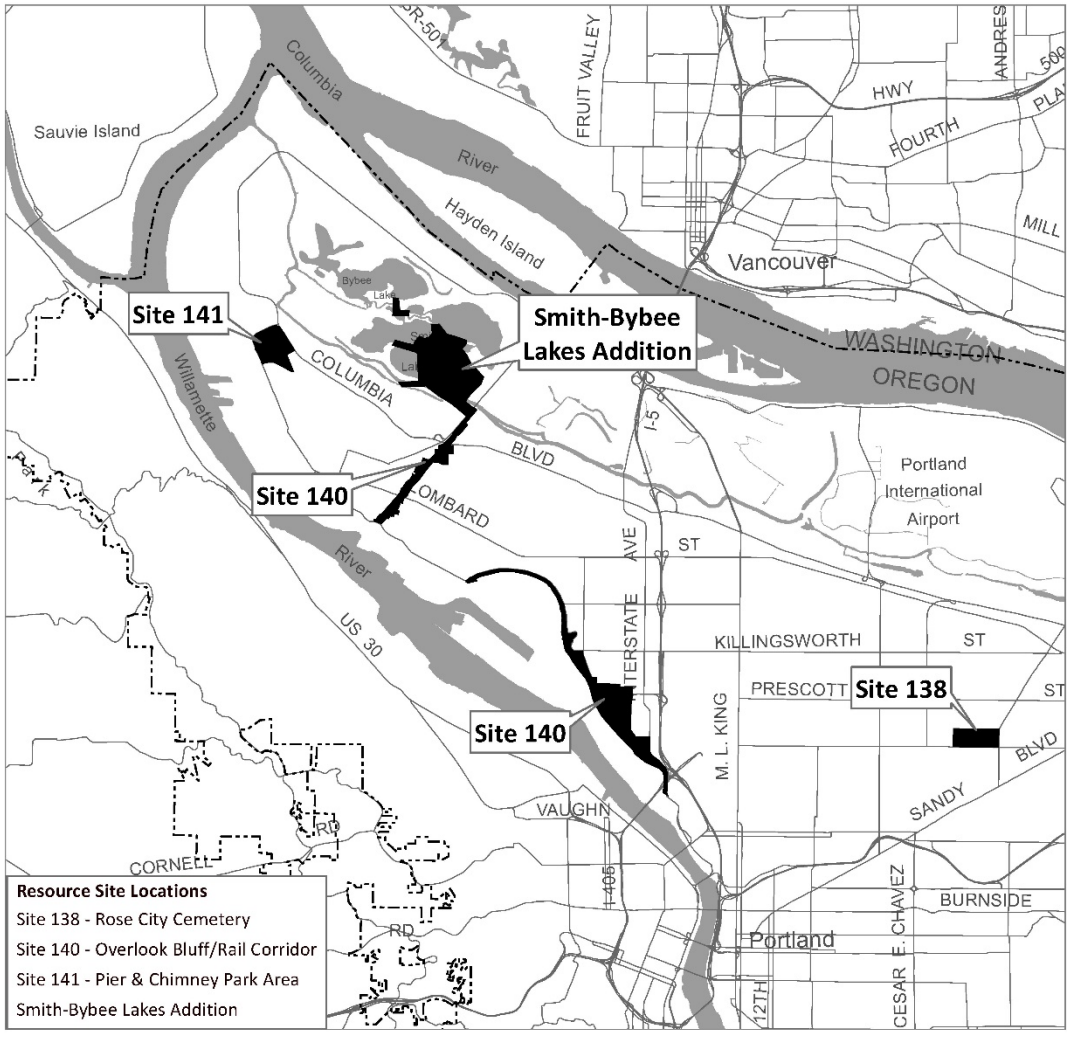
Management Recommendations
Remove exotic plants and plant additional native species to improve habitat values. Remove trash and debris. Creating a pedestrian pathway through the rail corridor, with links to each of the bridge crossings, would greatly enhance the recreational value of this area.

Resource Site 141 has been divided into two different resource sites by the *Environmental Overlay Zone Map Correction Project*. It is now signified as EB1 and EB16. The natural resource inventory and protection decisions that apply to EB1 can be found in *Volume 2 Part E - East Buttes and Terraces, Natural Resource Inventory and Protection Decisions*. The natural resource inventory and protection decisions that are contained in this plan continue to apply in the portions of Resource Site 141 that are signified as EB16. Map 430-3 illustrates the locations where the resource protection decisions of this plan continue to apply.

East Buttes, Terraces, and Wetlands Conservation Plan Area

Map 430-3

Map Revised Xxxxx X, 202X



Resource Site 141: Pier Park Area Map: 1821, 1921, 1922

Resource Site Size: 98 acres

Approx. Boundaries: N. Terminal Rd., north; N Bank St. and Columbia Blvd., east; St. John's Rd., south; N. James St., west

Neighborhood: St. Johns

Inventory Dates: September 22 and November 6, 1992

Habitat Classification:

- Upland Coniferous/Broadleaf Deciduous Forest

Types of Resources:
Open space, forest, habitat and groundwater

Functional Values:
Food, water, cover and territory for wildlife; groundwater recharge and discharge; sediment and erosion control; air quality protection; scenic and recreational values

Resource Location and Description
The Pier Park Area resource site includes Pier and Chimney Parks, and a small wooded area adjacent to Chimney Park. The site is located approximately two miles from the tip of a peninsula separating the Columbia and Willamette Rivers. The site is 98 acres (Pier Park is 75 acres, Chimney Park and the adjacent woodland are 23 acres). The site is bordered by residential and industrial areas and serves as a buffer between these two incompatible uses.

The parks are incorporated into the 40-Mile Loop Trail which encircles the city. Pier Park is an active use area with paved trails, tennis courts, playgrounds, an outdoor swimming pool, a baseball diamond and a soccer field. Most of the park is comprised of manicured lawns, with Douglas firs and occasionally cedars towering above. Rhododendrons and other shrubs are infrequently interspersed within the park.

Chimney Park and the adjacent woodland are distinguished primarily by their secluded setting and the presence of a forest understory. The park's only lawns are located in the vicinity of the Archives building. The primary use of the area is passive recreation, though evidence of bicycle and all terrain vehicle use is present. Railroad tracks and industrial development border the site to the north and west, while Pier Park is located to the south.

Resource Quantity and Quality

Pier Park provides important scenic, recreational and open space values to the city. Habitat values are very limited due to the absence of a forest understory and the park's high human use. The park provides little cover resources and food production.

Douglas fir, western red cedar, bigleaf maple, dogwood, European hawthorn, birch and oak trees are present. The Douglas fir are dominant, between 40 to 70 years of age, and thinned to a regular spacing. Under this tall tree canopy, very few plants can be found; this area is predominantly lawn with occasional vine maple, Oregon grape, rhododendron, laurel, snowberry and holly.

Habitat Rating (Pier Park):

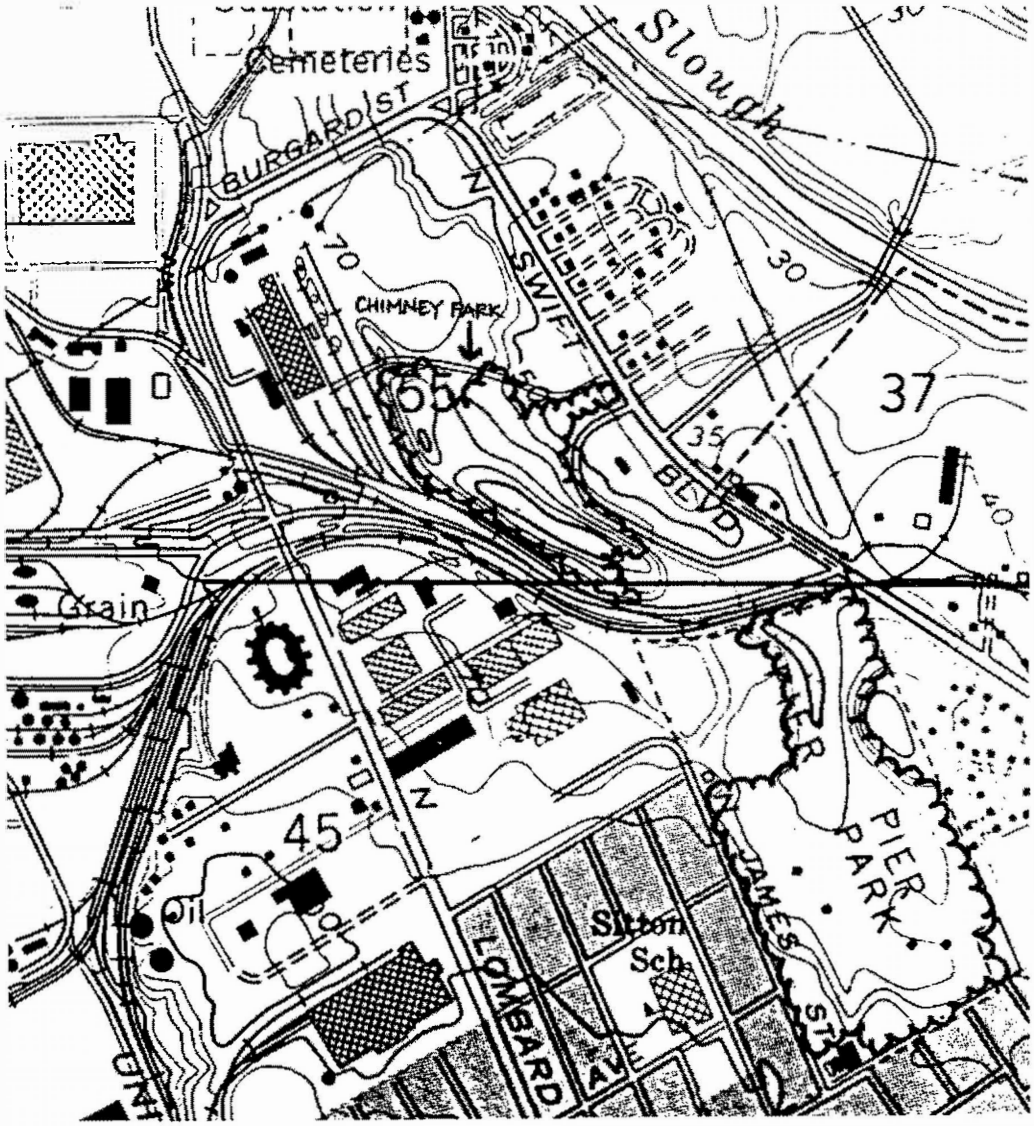
Wildlife Habitat Score:	**22** **Range for All Sites: 5 - 65**
Water	: Low
Food	: Moderately Low
Cover	: Low
Interspersion	: Medium
Uniqueness	: Low
Disturbance	: High

Chimney Park and the adjacent woodland offer more diverse and abundant vegetation and habitat. This area contains greater variety of trees and includes pacific madrone, cherry, cottonwood and willow.

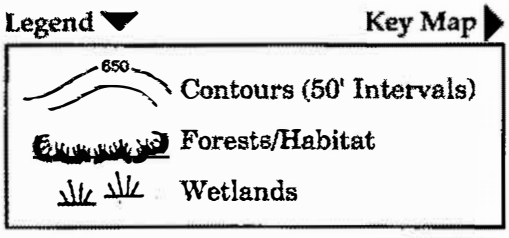
Habitat Rating (Chimney Park and vicinity):

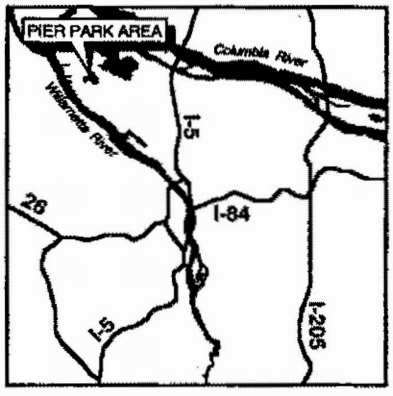
Wildlife Habitat Score:	**51** **Range for All Sites: 5 - 65**
Water	: Low
Food	: Moderately High
Cover	: Moderately High
Interspersion	: Medium
Uniqueness	: Low
Disturbance	: Medium

The forest understory sets this area apart from Pier Park: the shrub and herb layers are well-established with red huckleberry, western hazel, snowberry, thimbleberry, vine maple, Oregon grape, oceanspray, wild rose, salal, Indian plum and a complete complement of herbaceous flora. Himalayan blackberry and English ivy are beginning to become problems in the understory.



Resource Site 141: Pier Park Area





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This multi-layered forest provides significantly greater habitat values than those of Pier Park. Food sources are plentiful and cover for nesting and shelter is much more accessible. Small mammals, passerines and red tailed hawks frequent the area.

Summary
Pier and Chimney Parks are prominent urban parks in north Portland with extensive recreational use. Pier Park has several open space and scenic values but natural resource values are limited. Chimney Park and the adjacent land contain a less disturbed and more fully developed forest community, with significant habitat values.

Consequences of Limiting or Prohibiting Conflicting Uses

An analysis of the economic, social, environmental and energy consequences of limiting or prohibiting conflicting uses is presented in this section. The consequences of allowing conflicting uses are addressed earlier in this chapter.

Conflicting Uses: Parks/recreation commercial, industry, institutional uses, agriculture, mining, radio and TV broadcast facilities, rail lines and utility corridors

Economic Consequences
Limiting or prohibiting conflicting uses would not affect existing park facilities and development, or ongoing maintenance and repair activities. Under the current Open Space zoning and Comprehensive Plan designation, all major changes to the two parks require a conditional use review. Protection of the scenic, recreational and habitat resources would have a positive effect on local property values. Loss or further degradation of these resources is likely to reduce the attractiveness of this neighborhood for future residents and businesses.

The woodland adjacent to Chimney Park is located on industrial land. Most of the subject property is developed for industrial use. A large, lowlying undeveloped area adjacent to the existing development is a potential future expansion area. Limiting or prohibiting development there would have negative economic consequences in the form of loss of potential future jobs, taxes and revenues. The woodland area is located on sloping terrain which is poorly suited to industrial use. However, prohibiting conflicting uses there would preclude other possible uses of the land. Limiting conflicting uses allows controlled uses of the land, and has potentially positive consequences on local property values and land marketability.

Social Consequences
Pedestrian connections to the 40-Mile Loop recreation trail that crosses this site will be preserved. Pier Park is used extensively for recreation; Chimney Park is less used but offers a sense of refuge and escape from the stresses of urban life.

Environmental Consequences
Limiting or prohibiting conflicting uses will protect the site's natural resources and natural resource values which are primarily located at Chimney Park.

Energy Consequences
The parks' vegetation provides a tempering effect on climate and reduces energy needs for heating and cooling of nearby buildings. Trees shade buildings in the summer, reducing energy demands for cooling. Plants also absorb sunlight and transpire during growing seasons, reducing ambient air temperatures. Evergreen trees that shade nearby dwellings in winter reduce solar access, creating higher energy demands for heat. Trees and shrubs also act as a wind break during winter. By diverting winter winds around and over buildings, heat loss from convection is reduced, resulting in lower energy needs. Overall, protection of forest vegetation would have positive energy consequences locally.

Conclusion
Due to the already disturbed nature of Pier Park's resources, limiting or prohibiting conflicting uses is unwarranted and could preclude opportunities for restoration and enhancement. Limiting conflicting uses within Chimney Park and its adjacent woodland, which contain higher resource values, would allow some intervention to occur while protecting the area's natural character. The environmental conservation (EC) overlay zone is applied to forest and habitat areas in the Chimney Park vicinity.

Current Zoning	Estimated Acreage of EC Zoning	Estimated Acreage of EP Zoning
OS	3	0
IH	5	0

Applicable Statewide Planning Goals
Goal 8, Recreational Needs, provides for the satisfaction of the recreational needs of the citizens of the state and visitors. The recreational needs of citizens and visitors served by Pier and Chimney Parks will be protected.

Goal 9, Economy of the State, is intended to provide for the diversification and improvement of the economy of the state. On balance, the protection measures will have no measurable effect on the diversification and improvement of the economy of the state.

Management Recommendations
Remove exotic vegetation and plant additional native understory plants, particularly in Pier Park. Develop a long term plan and vision for the parks as part of a Master Plan or Natural Resource Management Plan.

Beggars Tick Marsh and Smith and Bybee Lakes Additions

This section reviews two resource areas that were contained within the planning boundaries of previous Goal 5 plans: Beggars Tick Marsh *(Johnson Creek Basin Protection Plan)* and Smith and Bybee Lakes *(Columbia Corridor Plan* and *Natural Resources Management Plan for Smith and Bybee Lakes).* These two areas were previously part of unincorporated Multnomah County and have recently been annexed into the city. Most of the inventory and analysis of these resource areas was completed as part of the earlier planning efforts; this information is incorporated here by reference. This section provides supplemental information on the resource areas and presents plan conservation measures consistent with Goal 5 Rule requirements and with previously adopted conservation measures for each area.

The natural resource inventory and ESEE decisions that apply to resource site 16: Beggars Tick Marsh have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 16 has been renumbered. It is now signified as JC14. The natural resource inventory and protection decisions that apply to JC14 can be found in *Volume 2 Part F - Johnson Creek, Natural Resources Inventory and Protection Decisions*.

Smith and Bybee Lakes Addition

This section addresses a portion of the Smith and Bybee Lakes resource area contained in the *Columbia Corridor Plan (1989)* and the *Natural Resources Management Plan for Smith and Bybee Lakes (1990)* and recently annexed into the city. The inventory and analysis contained in these previous plans is incorporated here by reference. Supplemental information focused on the newly annexed areas of the Lakes is presented below.

Supplemental Inventory
Two areas of the Lakes were recently annexed: an approximately 14-acre, L-shaped piece of Bybee Lake, and a 408-acre piece of Smith Lake and bordering wetlands and uplands. The boundaries of the areas are best shown graphically (see Resource Map). Over 95 percent of the site is open water (lake) or one of six different classes of wetlands.

Extensive resource inventories of this site were carried out as part of the *Columbia Corridor Plan (1989)* and the *Natural Resources Management Plan for Smith and Bybee Lakes (1990).* In particular, Volume 2 and Appendices K and L of the former plan and the Environmental Assessment section of the latter plan collectively provide a comprehensive inventory of the Lakes. Some of the findings of these earlier studies include the presence of "the only sizable ash forest within Portland's Urban Growth Boundary," "the only known tri-colored blackbird colony in the Willamette River Valley," and "17 species of fish" and "72 species of birds."

Sites visits on February 5 and 6, 1993, confirmed earlier inventory findings and showed equivalent habitat values. Thirty-nine species of birds were observed and evidence of beaver, nutria, coyote and rabbits was also present. In addition to the reported colony of tri-colored blackbirds, other significant sightings have included peregrine falcon, bald eagle, osprey, band-tailed pigeon, black-crowned night heron, and yellow-headed blackbird.

Other inventory information on Goal 5 resources contained in the earlier studies will not be repeated here. Those studies are incorporated by reference and will be entered into the public record.

Supplemental Analysis
A conflicting use analysis of Smith and Bybee Lakes is contained in the *Columbia Corridor Plan.* The subsequent *Natural Resources Management Plan for Smith and Bybee Lakes* includes the Smith and Bybee Lakes Addition area within its Management Area and also reviews conflicting use impacts. These analyses are incorporated by reference. This section provides supplementary conflicting use analysis.

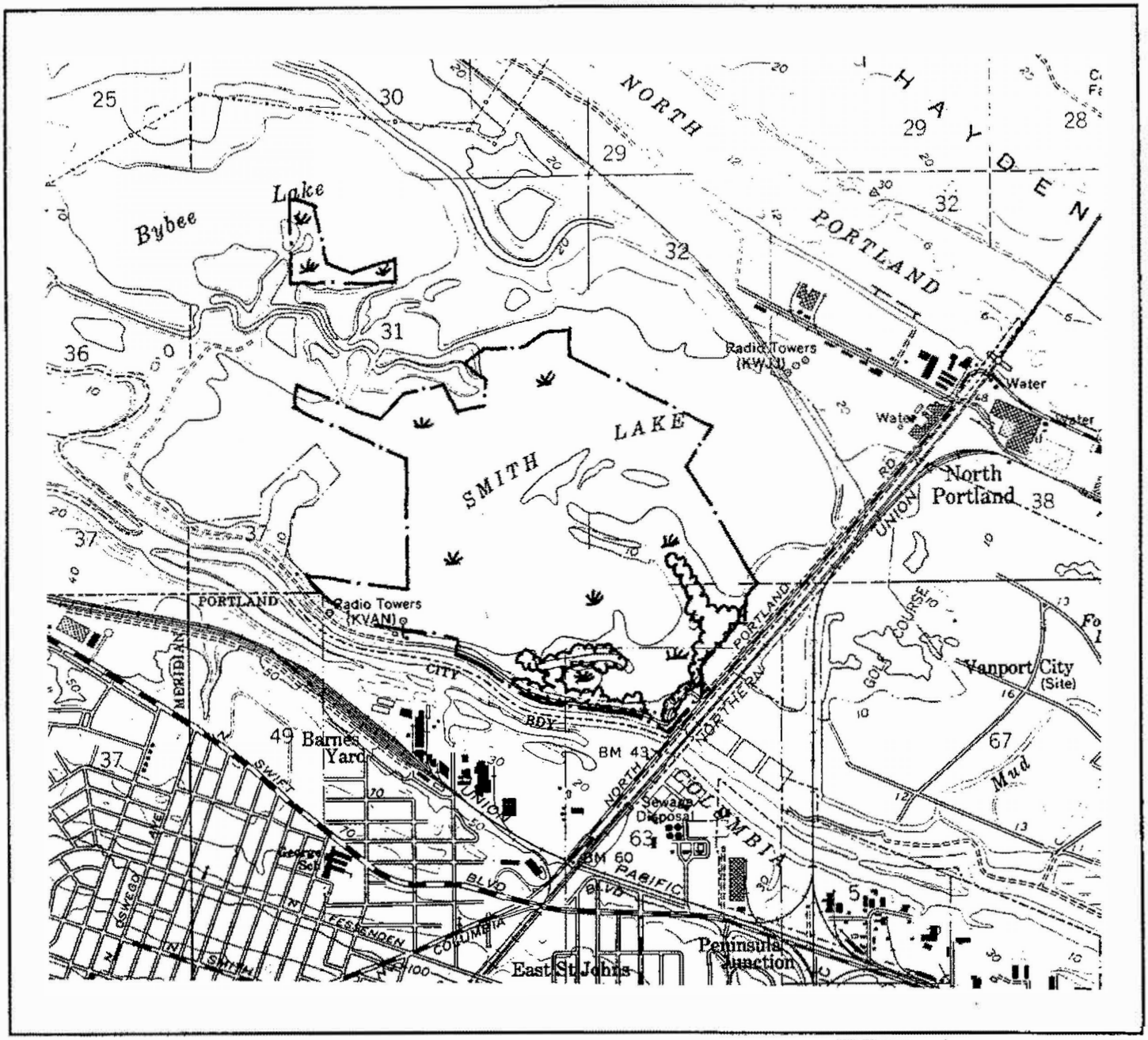
Possible conflicting uses within this resource site are tied to the RF base zone, which is the normal conversion from County F2 zoning. Uses allowed outright in this zone are housing (household living) and agriculture. Conditional uses are housing (group living), institutional uses, aviation and surface passenger terminals, mining, radio and TV broadcast facilities, rail lines and utility corridors. Industrial and commercial uses are prohibited. The consequences of allowing these conflicting uses are described in the first part of this chapter and are elaborated upon in the preceding discussion of Beggars Tick Marsh.

Economic Consequences

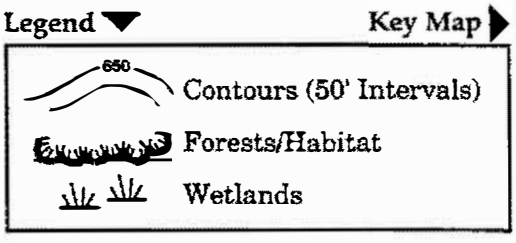
Resource protection will ensure that a major piece (420 acres) of the largest and highest valued wetlands system in the City of Portland is protected. The wetlands provide multiple benefits, not the least of which are economic. As described in the *Natural Resources Management Plan for Smith and Bybee Lakes,* the Lakes serve as a major recreational hub in north Portland, bordered on three sides by sections the 40-Mile Loop Trail. Recreational uses support local businesses and inject money into the local economy: expenditures include recreational equipment such as bicycles, canoes, binoculars and clothing as well as local purchases of food and other supplies. The Lakes also provide a place to retreat and recreate for local residents and employees of local businesses and industry. The Lakes scenic and recreational values attract residents and businesses to the area, and protection of these values has positive effects on nearby property values, on the marketability of homes and businesses, as well as on local business sales.

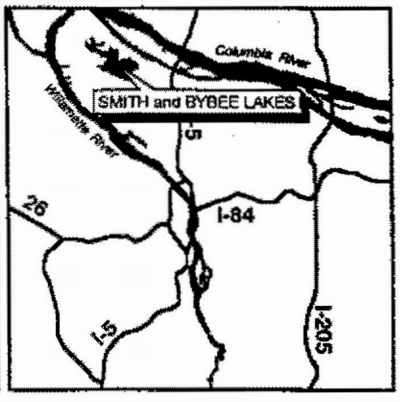
The wetland's flood storage functions, which retain flood waters and allow groundwater infiltration and aquifer recharge, protect local properties from extensive flooding and associated adverse economic consequences. Prohibiting conflicting uses which reduce the flood storage capacity of the Lakes will protect the general public from associated public health and safety hazards. This reduces potential demand on disaster relief agencies and bureaus (and subsequent demand on tax dollars), as well as individual expenses for replacement of destroyed property and treatment for injury. Limiting conflicting uses through measures that guide development away from the wetlands area, minimize excavation and fill and the removal of vegetation, will also have beneficial consequences.

Resource protection measures would not affect existing permitted development or the maintenance and repair of this development, including the maintenance of landscaping. By the Metropolitan Housing Rule definition, this land is not needed for housing; as a practical matter, with over 95 percent of the site being open water or jurisdictional wetlands, it is generally too wet to build on. The remaining area could be developed at the RF density. Presently, most of this area is in public ownership and is earmarked in the Management Plan as the primary site for park and



Resource Site Addition: Smith and Bybee Lakes





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recreational facilities. Prohibiting conflicting uses in this area would have detrimental economic consequences including loss of potential new tax base revenues, loss of potential new construction jobs, and loss of potential recreation facilities. Limiting conflicting uses will have fewer detrimental impacts: the form, location or method of development may be affected (and have associated costs), but development can still occur.

Limiting or prohibiting other permitted conflicting uses may have limited detrimental economic consequences. To the extent that agriculture, institutional uses, aviation and surface passenger terminals, mining, and rail lines and utility corridors are viable uses at this site, prohibiting their use would have negative impacts. Limiting conflicting uses so that opportunities to locate the use within the site remain would reduced or eliminate these impacts. In the case of radio and TV broadcast facilities, one such facility exists in the southeastern corner of the site presently. Expansion opportunities would be eliminated if conflicting uses were prohibited; however, limiting conflicting uses would permit adequate flexibility for future expansion.

Social Consequences
Smith and Bybee Lakes is identified as a regionally significant greenspace by the *Metro Greenspaces Master Plan.* Greenspaces such as Smith and Bybee Lakes provide scenic amenities and opportunities for recreation and education. The Management Plan identifies the southeast corner of the site as a recreational activity area. This area borders a proposed section of the 40-Mile Loop Trail and will become the recreational hub of the planned Smith and Bybee Lakes Park. This Park will provide "recreation, retreat, and renewal" for citizens throughout the Portland metropolitan region.

As the metropolitan area grows over the next decade, the preservation and maintenance of Portland's premier greenspace will be essential to maintaining the population's health. Such preservation will have positive social consequences.

Intensive or off-trail recreation uses within the wetland resource area cause erosion, damage vegetation and degrade habitat values. Recreational uses on dry, designated trails away from the wetlands are compatible uses. Controlled access points and use of designated trails maintains the ecological and scenic values of the wetlands and has positive social benefits.

The City of Portland's Scenic Resource Inventory identifies the Columbia Slough bordering the site to the south as a scenic drive providing "opportunities for canoeing, fishing and bird watching." Resource protection measures will preserve the scenic and recreational qualities of the slough and adjoining wetlands system.

Limiting or prohibiting conflicting uses that involve fill or removal of vegetation will maintain the wetlands flood storage capacity and minimize public health and safety hazards caused by flooding.

Environmental Consequences
Prohibiting conflicting uses will protect a major piece (420 acres) of the largest and highest valued wetlands system in the City of Portland. Critical resource values will be preserved including flood storage and desynchronization, groundwater recharge, sediment and erosion control, and nutrient removal. Equally significant values are the provision of habitat for wildlife, including habitat for the endangered peregrine falcon and other rare or protected species such as the bald eagle, osprey, band-tailed pigeon and the tri-colored blackbird.

Energy Consequences
The ash and willow woodland at Smith and Bybee Lakes ameliorates the local microclimate and reduces energy needs for heating and cooling of nearby buildings. Trees shade buildings in the summer, reducing energy demands for cooling. Plants also absorb sunlight and transpire during growing seasons, reducing ambient air temperatures. Few evergreen trees are present at the site, so solar access during winter is not measurably reduced (and energy demands for heating are not increased). Trees also act as windbreaks, diverting winds around buildings and reducing heat loss from convection. Overall, limiting or prohibiting conflicting uses by protecting the woodlands has positive energy consequences locally.

Resource protection measures promote the clustering of development on less significant and constrained sites while leaving significant resource areas undisturbed. This more compact form of development saves energy by reducing residential service and infrastructure needs, reducing utility usage, and increasing energy savings associated with common wall construction. Prohibiting development will have adverse economic consequences if development cannot by redistributed within the site and is forced to take place outside established cities causing inefficient use of public services and facilities and higher energy demands.

Conclusion
The economic consequences of resource protection are both positive and negative, depending in part on whether housing can be redistributed to less sensitive areas of the site. Resource protection is consistent with adopted regional greenspace objectives and scenic resource inventories and will have beneficial social consequences for area residents, workers, and citizens throughout the city. Environmental consequences are positive and include protection of unique habitats and endangered species. Energy consequences of limiting or prohibiting conflicting uses are positive unless, by prohibiting housing, replacement housing must be located outside city boundaries. On

balance, limiting or prohibiting conflicting uses has positive ESEE consequences.

The environmental protection (EP) overlay zone is applied to the lakes and wetlands area, consistent with current city zoning for other parts of Smith and Bybee Lakes. The environmental conservation (EC) zone is applied to the southern and southeastern areas of the site, including upland areas bordering wetland transition areas. This zone will allow housing in areas of lower resource quality that, with appropriate development controls, minimize adverse impacts on adjacent high quality natural resources.

Current Zoning	Estimated Acreage of EC Zoning	Estimated Acreage of EP Zoning
County F2/City RF	25*	195*

* This area is included within the management area of the NRMP for Smith & Bybee Lakes.

Applicable Statewide Planning Goals

Goal 6, Air, Water and Land Resources Quality, is intended to maintain and improve the quality of the air, water and land resources of the state. Protection of the wetlands system at this site will filter out pollutants from the water and minimize erosion of land in support of this goal.

Goal 7, Areas Subject to Natural Disasters and Hazards, provides for the protection of life and property from natural disasters and hazards. Protection of the wetland's flood storage functions is consistent with this goal.

Goal 8, Recreational Needs, provides for the satisfaction of the recreational needs of the citizens of the state and visitors. Smith and Bybee Lakes and the 40-Mile Loop serve the recreational needs of citizens and visitors and this plan will ensure that quality recreational opportunities are maintained.

Goal 10, Housing, provides for the housing needs of citizens of the state. Resource land at Smith and Bybee Lakes is not needed for housing.

Management Recommendations

Restore disturbed resource areas in the southeastern portion of the site. Remove invasive exotic vegetation. Establish controlled access points and designated trails; limit off-trail recreational uses.

CHAPTER 6

PLAN CONSERVATION MEASURES

INTRODUCTION •

GENERAL SUMMARY •

AMENDMENTS TO COMPREHENSIVE PLAN GOALS AND POLICIES •

PROTECTION PLAN POLICIES & OBJECTIVES •

AMENDMENTS TO TITLE 33, PLANNING AND ZONING •

AMENDMENTS TO OFFICIAL ZONING MAPS •

Introduction

This chapter provides a general summary of adopted resource conservation measures. Plan policies and objectives which form a foundation for these conservation measures are then presented, followed by adopted conservation measures and zoning code language.

General Summary

The East Buttes and Terraces contain a collection of distinct resource areas. Development pressure is high in the area and threatens to degrade natural, scenic and open space values. Measures are needed to limit and in certain areas prohibit conflicting uses so that development can be allowed to continue without degradation of identified wetlands, surface and ground water resources, native plant and animal communities, volcanic formations, and scenic, recreational and open space resources.

Statewide Planning Goal 5 requires that resources found to be significant, be protected. The administrative rule for the Goal requires that an inventory be conducted to determine the location, quantity and quality of resources. Where conflicting uses are identified, these resources must be analyzed to determine the economic, social, environmental and energy (ESEE) consequences of resource protection. In the course of this analysis, the various impacts of resource protection are weighed against each other, and reviewed by citizens and staff. From the analysis a plan was then formulated to balance the need for continued social, economic and energy uses with the need for resource protection. The resource inventory and analysis is presented in Chapter 5. This chapter contains the policies, objectives and regulations necessary to implement the required protection of significant resources. The implementation measures include:

- **Amendments to Portland's Comprehensive Plan Goals and Policies** to refer to the *East Buttes, Terraces and Wetlands Conservation Plan;*

- **Adoption of the *East Buttes, Terraces and Wetlands Conservation Plan* Policies and Objectives** as the policy document for the area;

- **Amendments to Title 33, Planning and Zoning,** to implement the *East Buttes, Terraces and Wetlands Conservation Plan;* and

- **Amendments to the Official Zoning Maps** to apply the environmental zones to designated resource areas, apply the open space (OS) zone to certain publicly-owned lands, and remove the Significant Environmental Concern (SEC) zone from Rocky Butte.

Environmental Overlay Zones
The primary resource protection measure of the *East Buttes, Terraces and Wetlands Conservation Plan* is the application of the city's environmental overlay zones. The environmental zones protect identified resources and resource values from adverse impacts and provide a mechanism through which conflicts between resources and human uses can be resolved.

The Conservation Plan applies the city's two environmental overlay zones to resource and impact areas within the planning area. The Environmental Conservation (EC) zone limits conflicting uses while the Environmental Protection (EP) zone is designed to prohibit conflicting uses. Each zone contains a transition area and a resource area. In the transition area, development is allowed subject to transition area development standards. In the resource area of the EC zone, development is allowed after review so long as impacts are controlled and mitigated. In the resource area of the EP zone, development may be permitted after review but approval criteria are extremely strict to ensure protection of resource functions and values.

Adopted environmental overlay zoning for the East Buttes, Terraces and Wetlands resource sites are shown on the city's Official Zoning Maps.

Amendments to Portland's Comprehensive Plan Goals and Policies

The following amendment to Comprehensive Plan Goal 8 is necessary to acknowledge the adoption of *East Buttes, Terraces and Wetlands Conservation Plan*. Language to be added is <u>underlined.</u>

- Amend Comprehensive Plan Goal 8, Policy 8.11, to add a new policy area for the East Buttes and Terraces. Reorganize (and re-letter) list to place special areas in alphabetical order.

  8.11, Special Areas
  Recognize unique land qualities and adopt specific planning objectives for special areas.
  - ~~A.~~ **Willamette River Greenway** (re-letter to G; no other change)
  - ~~B.~~ **Balch Creek Watershed** (re-letter to A; no other change)
  - <u>B. East Buttes, Terraces and Wetlands</u>
    <u>Conserve wildlife, forest and water resource values and the unique geology of the East Buttes, Terraces and Wetlands through implementation of the East Buttes, Terraces and Wetlands Conservation Plan.</u>
  - C. **Fanno Creek Watershed** (no change)
  - D. **Johnson Creek Basin** (no change)
  - E. **Northwest Hills** (no change)
  - F. **Southwest Hills** (no change)

Conservation Plan Policies & Objectives

This plan recognizes the human and natural resource values of the East Buttes, Terraces and Wetlands. The plan applies measures to protect the natural resource values while allowing human activity in locations that can sustain such activity, and guiding conflicting uses away from more sensitive resource areas. The plan's protection measures are based on a set of policies and objectives which are derived from the inventory and analysis of natural resources and human uses in preceding chapters.

The following policies and objectives will provide specific guidance for staff and applicants during review of development proposals within the environmental zones in the East Buttes and Terraces planning area.

Conservation Plan Policies & Objectives
This section identifies specific policies and objectives for the *East Buttes, Terraces and Wetlands Conservation Plan.* Protection measures needed to carry out these policies and objectives are listed in the following section. These measures are designed to protect significant functions and values of East Buttes and Terraces natural resources.

#1 Overall Policy

Recognize Portland's east side volcanoes as local and regional resources and protect their important natural, scenic and recreational values; conserve the significant natural resources of the East Buttes, Terraces and Wetlands.

#2 Natural Resource Policy

Protect significant natural resources by guiding conflicting uses and development away from these resource areas to less sensitive, buildable sites.

Objectives
The following objectives are intended to protect significant resources and resource values while allowing urban development to continue:

1. Establish development standards and approval criteria which retain and enhance native plant communities and animal habitats, and protect the quality of air, water and land resources;

2. Use development as a means of improving or repairing the natural and scenic qualities of the East Buttes, Terraces and Wetlands by locating buildings on less sensitive or formerly disturbed sites, planting native

vegetation to match surrounding natural conditions, and preserving healthier and more sensitive landscapes;

3. Protect and retain as much existing native vegetation as possible before, during and after site alteration or construction activities;

4. Manually remove English ivy, Himalayan blackberry and other invasive non-native species. Herbicides should be used only as a last resort and only in compliance with integrated pest management goals; and

5. In park-like areas characterized by tall trees and closely-trimmed ground cover and lawns, reduce maintenance of unused or steeply sloping areas, reduce use of herbicides, fertilizers and other chemicals, and add native shrub and herbaceous plants as an understory.

#3 Recreation Policy

Recognize the East Buttes, Terraces and Wetlands as important recreational resources for residents of the Portland metropolitan area.

Objectives
The following objectives can guide recreational use within the planning area:

1. Support development of Natural Resource Management Plans for parks within the planning area which protect natural resources while allowing appropriate continuation and expansion of recreation uses and activities;

2. Utilize rights-of-way, railway corridors and connected park land as major bicycle and pedestrian routes to provide access to and between parks, neighborhoods and activity centers, when the natural resource values of these areas can be protected;

3. Promote passive and low-intensity activities in parks and other recreation facilities in a manner which will not adversely impact significant natural resources;

4. Preserve indigenous plant and animal communities by minimizing park improvements which remove forest vegetation, introduce non-native plants or add impervious surfaces; and

5. Retain and enrich opportunities for learning about the western Oregon coniferous forest ecosystem by utilizing publicly-owned natural areas as resources that can increase the public's awareness of and sensitivity to its environment.

#4 Natural Hazards Policy

Protect soil and forest resources and reduce landslide and flood hazards by minimizing disturbance to natural terrain, vegetation and drainageways and by directing site development away from natural hazards.

Objectives
The following are objectives which can protect existing and future development from natural hazards in the East Buttes and Terraces:

1. Plan and orient development and roads so that ground- and vegetation-disturbing activities are minimized and steep slopes are avoided;

2. Disturbance of existing site terrain and vegetation should be limited to the minimum area necessary to complete construction activities;

3. Manage and control on- and off-site water runoff and soil erosion impacts before, during and after construction;

4. When possible, limit ground-disturbing activities to the dry season and complete all construction activities in one season; and

5. Re-vegetate bare soils as soon as possible after exposure.

Amendments to Title 33, Planning and Zoning

The following amendments to Title 33 are necessary to provide specific regulations for the area and clarify language in the Environmental Zones chapter. Language to be added is underlined, language to be deleted is shown in ~~strike-through~~.

- Amend Chapter 33.248, Landscaping and Screening, to distinguish requirements for mitigation plantings from general landscaping requirements (e.g., for parking lots).

CHAPTER 33.248
LANDSCAPING AND SCREENING

Sections:
33.248 010 Purpose
33.248.020 Landscaping and Screening Standards
33.248.030 Plant Materials
33.248.040 Installation and Maintenance

33.248.050 Landscaped Areas on Corner Lots
33.248.060 Landscape Plans
33.248.070 Completion of Landscaping
33.248.080 Street Trees
33.248.090 Mitigation and Restoration Plantings

33.248.010 Purpose
The City recognizes the aesthetic, ecological and economic value of landscaping and requires its use to:

- Promote the re-establishment of vegetation in urban areas for aesthetic, health, and urban wildlife reasons;
- Establish and enhance a pleasant visual character which recognizes aesthetics and safety issues;
- Promote compatibility between land uses by reducing the visual, noise, and lighting impacts of specific development on users of the site and abutting uses;
- Unify development, and enhance and define public and private spaces;
- Promote the retention and use of existing vegetation; ~~and~~
- Aid in energy conservation by providing shade from the sun and shelter from the wind;
- Restore natural communities through re-establishment of native plants; and
- Mitigate for loss of natural resource values.

This chapter consists of a set of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing of installation. Specific requirements for mitigation plantings are in 33.248.090.

(no change to text from 33.248.020 through 33.248.080)

33.248.090 Mitigation Planting
Plantings intended to mitigate for the loss of natural resource values are subject to the following requirements. Where these requirements conflict with other requirements of this chapter, these requirements take precedence.

A. **Plant Source.** Plant materials must be native and selected from the Portland Plant List. They must be non-clonal in origin, seed source must be as local as possible, and plants must be nursery propagated unless transplanted from on-site areas approved for disturbance. These requirements must be included in the Mitigation Plan specifications.

B. **Plant Materials.** The Mitigation Plan must specify that plant materials are to be used for restoration purposes. Generally, this means that standard nursery practices for growing landscape plants, such as use of

pesticides, fungicides or fertilizers and the staking of trees, must not be employed.

C. **Installation.** Plant materials must be supported only when necessary due to extreme winds at the planting site. Where support is necessary, stakes, guy wires or other measures must be removed as soon as the plant can support itself.

D. **Irrigation.** The intent of this standard is to ensure that plants will survive the critical establishment period when they are most vulnerable due to lack of watering. New plantings must be manually watered regularly during the first growing season. During later seasons, watering must be done as needed to ensure survival of the plants.

E. **Monitoring and Reporting.** Monitoring of landscape areas is the ongoing responsibility of the property owner. Plants that die must be replaced in kind. Written proof that all specifications of this section have been met must be provided one year after the planting is completed. The property owner must provide this documentation to the Bureau of Buildings.

- References to the above planting requirements will be added to the current Environmental Zones chapter, Section 33.430.360 Mitigation Plans. Upon acknowledgement of the amendments to this chapter adopted as part of the *Fanno Creek and Tributaries Conservation Plan,* the reference will be added to the corresponding new subsection 33.430.330 B.3. Mitigation as indicated below. Language to be added is underlined.

Amendment to the current Environmental Zones chapter:

33.430.360 Mitigation Plans

A. through D. (no change)

E. **Elements of a mitigation plan.** A mitigation plan must contain at least the following elements.

1. through 9. (no change)

10. Information showing compliance with the 33.248.090, Mitigation Plantings, is required.

This same reference will be moved to the corresponding new subsection upon acknowledgement of the *Fanno Creek and Tributaries Conservation Plan,* as follows:

33.430.330 Application Requirements

A. (no change)

B. Supplemental narrative. The following is required:

1. through 2. (no change)

3. Mitigation. Describe a program to rectify, repair, or compensate for unavoidable significant detrimental environmental impacts. Mitigation must not be proposed as a substitute for avoidable impacts. Mitigation programs must be comprehensive and long term.

   a. through b. (no change)

   c. Elements of a mitigation plan. A mitigation plan must contain the following elements:

      - Information showing compliance with the 33.248.090, Mitigation Plantings, is required.

      (no change to other elements)

- Also upon acknowledgment of the Fanno Creek and Tributaries Conservation Plan, Ordinance No. 166430 is amended to add the following standards for resource areas. References to the new code section are added to the list of contents at the beginning of the chapter. Language to be added is underlined.

Development Standards For Resource Areas

33.430.250 Purpose
The purpose of the these standards is to provide clear planting and erosion control requirements within resource areas. These standards are needed to help prevent significant detrimental environmental impacts on resource values within natural resource areas.

33.430.260 Procedure
Uses and development within resource areas must conform to the standards of this chapter. Uses and development within resource areas must also conform to the applicable approval criteria set out in Section 33.430.340, below.

33.430.270 Development Standards
The development standards of this section apply to all resource areas.

A. Erosion control. Erosion control must conform to Chapter 24.70, Clearing, Grading, and Erosion Control; the Erosion Control Technical Guidance Handbook, City of Portland, Bureau of Environmental Services, January, 1991; and the following standards.

1. Wet Weather. All development between November 1 and April 30 of any year, which disturbs more than 500 square feet of ground, requires wet weather measures described in the Erosion Control Technical Guidance Handbook.

2. Self inspection. Areas of ground disturbance must be inspected by or under the direction of the owner according to the following schedule: at least once every seven calendar days, within 12 hours of any storm event greater than one-half inch of rain in any 24-hour period, and once every 24 hours when runoff is occurring.

3. Minimum record keeping. Records must be kept of all self inspections. Instances of visible measurable erosion must be recorded with a brief explanation of corrective measures taken. This record must be made available to the City upon request and retained until final inspection.

4. Maintenance and Removal. Erosion control measures must be maintained until 90 percent of all disturbed ground is covered by vegetation. Ninety percent cover means that on any 100 foot line, live vegetation must be found on nine of eleven equal distant points measured at ten foot intervals.

B. Landscape materials. The following requirements apply to all landscaping whether required or optional. Where these requirements conflict with plant lists identified in other plans, this requirement will take precedence.

1. Landscaping must be of plant species native to the Portland Metropolitan Area and contained on the Portland Plant List.

2. The planting or propagation of any plant identified as a nuisance plant or prohibited plant on the Portland Plant List is prohibited.

- Amend Section 33.480.050 (of the Scenic Resource Zone) and Section 33.570.040 (of the Rocky Butte Plan District) to eliminate the last paragraph called "tree removal without permission." The Planning Commission supported this action as a means of reducing violations of environmental

regulations, particularly at Rocky Butte. The language was found to legitimize actions taken "without permission" and to create unintended incentives to cut trees without seeking land use approvals. Language to be deleted is shown in ~~strike through~~.

33.480.050 Tree Removal Review

A. through **D.** (no change)

~~**E. Tree removal without permission.** Trees over 6 inches in diameter measured at 5 feet above the ground that are removed without permission must be replaced with 2 trees from the approved tree list in the appendix of the Scenic Resources Protection Plan. The new trees must be at least 2 inches in diameter measured 5 five feet above the ground.~~

33.570.040 Tree Removal

A. through **C.** (no change)

~~**D. Tree removal without permission.** Trees over 6 inches in diameter measured at 5 feet above the ground that are removed without permission must be replaced with 2 trees from the approved tree list in the appendix of the Scenic Resources Protection Plan. The new trees must be at least 2 inches in diameter measured 5 five feet above the ground.~~

- Amend the Portland Plant List to add the National Wetland Indicator status of plants to the list, to place English ivy and Himalayan blackberry on the prohibited plant list, to place Norway maple on the nuisance plant list, and to add several native plants to the list.

  The addition of the wetland indicator status provides a useful reference for staff and applicants, both for purposes of conducting plant inventories and wetland determinations and for preparing landscape and mitigation plans. The new prohibited plants are aggressive and invasive exotic species whose intrusion into resource areas throughout the city have reached critical mass. These species pose a serious threat to the continued health and vitality of native plant and animal communities in the East Buttes, Terraces and Wetlands as well as many other parts of the city. Several possible substitutes for these plants, including numerous native plants, are indicated below. Norway maple, a plant that has ravaged native plant communities on the East Coast, is a growing problem in the Portland area. If allowed to

continue unchecked, the Norway maple's aggressive regeneration habits will soon create problems comparable to those caused by ivy and blackberry.

Himalayan blackberry is used primarily for commercial purposes. Its aggressive growth and fruit production and its large berries make it appealing to both humans and birds. These characteristics are also responsible for its escape and widespread invasion of local plant communities. Numerous less invasive species of blackberries are available commercially, including the native pacific blackberry *(Rubus ursinus)*. These species can be easily substituted for the "weedy" Himalayan blackberry.

English ivy is a commonly used groundcover plant in both residential and commercial settings. Numerous substitutes are also available for this problem plant. Among these possible substitutes are the following native plants: cutleaf goldthread *(Coptis laciniata)*, salal *(Gaultheria shallon)*, smallflowered alumroot *(Heuchera micrantha)*, smooth alumroot *(Heuchera glabra)*, twinflower *(Linnaea borealis)*, and snow queen *(Synthyris reniformis)*.

PORTLAND PLANT LIST

INTRODUCTION

The Portland Plant List is divided into four sections: Introduction, Native Plants, Nuisance Plants, and Prohibited Plants.

Description of Lists

The **Native Plants** section is a listing of native plants found in the City of Portland. The list divides the plants into three groups: trees, shrubs, and groundcover. For each group, the list includes the Latin name, common name, and the habitat types it is most likely to be found in. The habitat types are: wetland, riparian, forest, forested slopes, thicket, grass, and rocky.

The **Nuisance Plants** section is a listing of plants found in the City of Portland which can be removed without requiring an environmental review or greenway review. These plants may be native, naturalized, or exotic. They are divided into two groups: plants which are considered a nuisance because of their tendency to dominate plant communities, and plants which are considered harmful to humans.

Being on this list is not an indication that the City of Portland necessarily prohibits or discourages the use of these plants, although they may be regulated in certain situations. It simply means that they can be controlled

without having to go through one of the land use review procedures identified above. Being on this list does not exempt the applicant from having to obtain any necessary regional, state, or federal approvals before removing these plants. Unless included on the nuisance plant list, the removal of any plants in the environmental and greenway zones requires a review.

The **Prohibited Plants** section is a listing of plants which the City of Portland prohibits being used in ~~required~~ all reviewed landscaping situations. ~~At present, there are no plants on this list, although there may be adopted plans which prohibit certain species in specific areas or situations.~~ within the city limits. These plant species pose a serious threat to the health and vitality of native plant and animal communities within the city. Manual removal of these plants is exempt from land use review.

Modification of Lists

The process for adding or removing plants from the Native Plants and Nuisance Plants list is as follows. When a request is received, the City of Portland will consult with three or more knowledgeable persons with a botany, biology, or landscape architecture background to determine whether the plant in question should be added to or deleted from either list. This decision will be forwarded to the applicant and will be final. The primary source for native plant determination is the five volume set, *Flora of the Pacific Northwest* by Hitchcock and Cronquist.

Adding or removing plants from the Prohibited Plants list will be conducted through the legislative procedures as stated in Title 33.

NATIVE PLANTS

The native plant list in this section is a listing of native plants historically found in the City of Portland. The list divides plants into three groups: trees, shrubs, and groundcover. For each group, the list includes the scientific (Latin) name, common name, indicator status and the habitat types where the plant is most likely to be found.

The indicator status refers to the frequency with which a plant occurs in a wetland; the categories are derived from the National List of Plant Species That Occur In Wetlands: 1988 National Summary (USFWS, Biological Report 88(24), 1988). The indicator categories are as follows:

Obligate Wetland (OBL): Occur almost always (estimated probability >99%) under natural conditions in wetlands.

Facultative Wetland (FACW): Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.

Facultative (FAC): Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

Facultative Upland (FACU): Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

Obligate Upland (UPL): Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the Northwest region.

A positive (+) sign used with an indicator category means that the plant occurs more frequently at the higher end of the range (more frequently found in wetlands). For example, FACW+ indicates that the plant is typically found in Northwest wetlands with an estimated probability of 83%-99%. A negative (-) sign indicates a frequency toward the lower end of the range (less frequently found in wetlands). An NI (no indicator) was recorded for those species for which insufficient information was available to determine an indicator status; in some cases, a probable indicator category follows the NI symbol. If no category or symbol is indicated for a plant then either the plant does not occur in wetlands, or the species was not reviewed by the 1988 interagency panel that developed the list.

The habitat types are: wetland, riparian, forest, forested slopes, thicket, grass, and rocky. "Wetland" includes all forms of wetlands found in Portland. "Riparian" includes the riparian areas along the Willamette River, Columbia River, and other streams in Portland. "Forest" refers to upland forested areas with little or no slope. "Forested slopes" refers to steeply sloping upland forests such as the west hills and various buttes found in Portland. "Thicket" refers to edges of forests and meadows and includes hedgerows and clumps of vegetation that may be found in meadows. "Grass" refers to open areas or meadows. It may also include clearings in forested areas. "Rocky" refers to rocky upland areas, and may include cliffs.

Native Plant List

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Trees			
Abies grandis	Grand Fir		
Acer macrophyllum	Big-leaf Maple	*FACU*	
Alnus rubra	Red Alder	*FAC*	
Arbutus menziesii	Madrone		
Cornus nuttallii	Western Flowering Dogwood		
Crataegus douglasii douglasii	Black Hawthorn (wetland form)	*FAC***	
Crataegus douglasii suksdorfii	Black Hawthorn (upland form)	*FAC***	
Fraxinus latifolia	Oregon Ash	*FACW*	
Pinus ponderosa	Ponderosa Pine	*FACU-*	
Populus trichocarpa	Black Cottonwood		
Prunus emarginata	Bitter Chokecherry		
Pseudotsuga menziesii	Douglas Fir		
Quercus garryana	Garry Oak		
Rhamnus purshiana	Cascara	*NI-FAC*	
Salix fluviatilis	Columbia River Willow	*OBL*	
Salix lasiandra	Pacific Willow	*FACW+*	
Salix piperi	Piper's Willow	*FACW*	
Salix rigida, var. macrogemma	Rigid Willow	*OBL***	
Salix scouleriana	Scouler Willow	*FAC*	
Salix sessilifolia	Soft-leaved Willow	*FACW*	
Salix sitchensis	Sitka Willow	*FACW*	
Taxus brevifolia	Western Yew, Pacific Yew	*FACU-*	
Thuja plicata	Western Red Cedar	*FAC*	
Tsuga heterophylla	Western Hemlock	*FACU-*	
Shrubs			
Acer circinatum	Vine Maple	*FACU+*	
Amelanchier alnifolia	Western Serviceberry	*FACU*	
Arctostaphylos columbiana	***Hairy Manzanita***		
Arctostaphylos uva-ursi	***Kinnikinnick***	*FACU-*	
Berberis aquifolium (Mahonia a)	Tall Oregongrape		
Berberis nervosa (Mahonia n)	Dull Oregongrape		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Ceanothus sanguineus	Oregon Tea-tree	*NI-FACU*	
Ceanothus velutinus laevigatus	Mountain balm		
Cornus stolonifera occidentalis	Red-osier Dogwood	*FACW**	
Corylus cornuta	Hazelnut	*NI-FACU*	
Euonymus occidentalis	Western Wahoo		
Holodiscus discolor	Ocean-spray		
Lonicera hispidula	***Hairy Honeysuckle***		
Lonicera involucrata	Black Twinberry	*FAC*	
Mahonia aquifolium (Berberis a)	Tall Oregongrape		
Mahonia nervosa (Berberis n)	Dull Oregongrape		
Menziesia ferruginea	Fool's Huckleberry	*FACU+*	
Oemleria cerasiformis	Indian Plum		
Philadelphus lewisii	Mockorange		
Physocarpus capitatus	Pacific Ninebark	*FAC+*	
Prunus virginiana	Common Chokecherry	*FACU*	
Pyrus fusca	Western Crabapple		
Rhododendron macrophyllum	Western Rhododendron		
Rhus diversiloba*	Poison Oak*		
Ribes bracteosum	Blue Currant	*FAC*	
Ribes divaricatum	Straggly Gooseberry	*NI-FACW*	
Ribes laxiflorum	Western Black Currant		
Ribes lobbii	***Pioneer Gooseberry***		
Ribes sanguineum	Red Currant		
Ribes viscosissimum	Sticky Currant	*NI-FACW*	
Rosa gymnocarpa	Baldhip Rose	*NI-FAC*	
Rosa nutkana v. nutkana	Nootka Rose	*NI-FAC*	
Rosa pisocarpa	Swamp Rose	*FACU*	
Rubus leucodermis	Blackcap		
Rubus parviflorus	Thimbleberry	*FACU+*	
Rubus spectabilis	Salmonberry	*FAC*	
Sambucus cerulea	Blue Elderberry	*FAC-*	
Sambucus racemosa	Red Elderberry	*FACU*	
Spiraea betulifolia var. lucida	***Shiny-leaf Spiraea***	*NI-FAC-*	
Spiraea douglasii	Douglas's Spiraea	*FACW*	
Symphoricarpos albus	Common Snowberry	*FACU*	
Symphoricarpos mollis	Creeping Snowberry		
Vaccinium alaskaense	Alaska Blueberry	*NI-FAC*	
Vaccinium membranaceum	Big Huckleberry	*FACU+*	
Vaccinium ovatum	Evergreen Huckleberry		
Vaccinium parvifolium	Red Huckleberry		
Viburnum ellipticum	***Oval-leaved Viburnum***		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Ground Cover			
Achillea millefolium	Yarrow	*FACU*	
Achlys triphylla	Vanillaleaf		
Actaea rubra	Baneberry		
Adenocaulon bicolor	Pathfinder		
Adiantum pedatum	Northern Maidenhair Fern	*FAC*	
Agoseris grandiflora	Large-flowered Agoseris		
Alisma plantago-aquatica	American Water-plantain	*OBL*	
Allium acuminitum	***Hooker's Onion***		
Allium amplectens	Slim-leafed Onion		
Allium cernuum	Nodding Onion		
Alopecurus geniculatus	Water Foxtail, March Foxtail		
Amsinckia intermedia	***Fireweed Fiddleneck***		
Anaphalis margaritacea, v. occidentalis	Pearly-everlasting		
Anemone deltoidea	Western White Anemone		
Anemone lyallii	Small wind-flower		
Anemone oregana	Oregon Anemone	*FACU*	
Angelica arguta	Sharptooth Angelica	*FACW*	
Apocynum androsaemifolium	Spreading Dogbane		
Aquilegia formosa	Red Columbine	*FAC*	
Arenaria macrophylla	Bigleaf Sandwart		
Arnica amplexicaulis piperi	Clasping Arnica	*FACW***	
Artemisia douglasiana	Douglas's Sagewort	*FACW*	
Artemisia lindleyana	Columbia River Mugwort	*OBL*	
Aruncus sylvester	Goatsbeard		
Asarum caudatum	Wild Ginger		
Asplenium trichomanes	Maidenhair Spleenwort	*FACU***	
Aster chilensis hallii	Common California Aster	*FAC***	
Aster curtus	White-topped Aster		
Aster modestus	Few-flowered Aster	*FAC+*	
Aster oregonensis	Oregon White-topped Aster		
Aster subspicatus	Douglas's Aster	*FACW*	
Athyrium filix-femina	Lady Fern	*FAC*	
Azolla filiculoides	Duckweed	*OBL*	
Azolla cf. mexicana	***Water-fern***	*OBL*	
Beckmania syzigachne	***Slough grass***	*OBL*	
Bergia texana	Bergia	*OBL*	
Bidens cernua	Nodding Beggars-tick	*FACW+*	
Bidens frondosa	Leafy Beggars-tick	*FACW+*	
Bidens vulgata	Western Beggars-tick		
Blechnum spicant	Deer Fern	*FAC+*	
Bolandra oregana	Bolandra	*FACW*	
Botrychium multifidum	Leathery Grape-fern	*FAC*	
Boykinia elata	Slender Boykinia	*FACW*	
Boykinia major	Greater Boykinia	*FACW*	
Brasenia schreberi	Water-shield		
Brodiaea congesta	***Northern Saitas***		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Brodiaea coronaria	***Harvest Brodiaea***		
Brodiaea howellii	Howell's Brodiaea		
Brodiaea hyacintha	***Hyacinth Brodiaea***		
Bromus carinatus	California Brome-grass		
Bromus sitchensis	Alaska Brome		
Bromus vulgaris	Columbia Brome	***FACU-***	
Callitriche hetrophylla	Different-leaf Water-starwort	***OBL***	
Calypso bulbosa	Fairy Slipper	***FAC+***	
Camassia leichtlinii	Leichtlin's Camas	***FACW-***	
Camassia quamash	Common Camas	***FACW-***	
Campanula rotundifolia	***Round-leaf Bluebell***	***FACU+***	
Campanula scouleri	Scouler's Bellflower		
Cardamine angulata	Angled Bittercress	***FACW***	
Cardamine occidentalis	***Western Bittercress***	***FACW+***	
Cardamine oligosperma	Little Western Bittercress	***FACW***	
Cardamine penduliflora	Willamette Valley Bittercress	***OBL***	
Cardamine pensylvanica	Pennsylvania Bittercress	***FACW***	
Cardamine pulcherrima, v. tenella	Slender Toothwort		
Carex amplifolia	Big-leaf Sedge	***FACW+***	
Carex aperta	Columbia Sedge	***FACW***	
Carex arcta	Clustered Sedge	***FACW+***	
Carex atherodes	Awned Sedge	***OBL***	
Carex athrostachya	Slenderbeaked Sedge	***FACW***	
Carex canescens	Gray Sedge	***FACW+***	
Carex cusickii	Cusick's Sedge	***OBL***	
Carex deweyana	Dewey's Sedge	***FAC+***	
Carex hendersonii	Henderson's Wood Sedge	***NI-FAC***	
Carex interior	Inland Sedge	***FACW***	
Carex leporina	Hare Sedge	***FAC***	
Carex livida	Pale Sedge	***OBL***	
Carex obnupta	Slough Sedge	***OBL***	
Carex praticola	Meadow Sedge	***FACW***	
Carex rostrata	Beaked Sedge	***OBL***	
Carex sitchensis	Sitka Sedge	***OBL***	
Carex stipata	Sawbeak Sedge		
Carex vesicaria	Inflated Sedge	***OBL***	
Castilleja levisecta	Golden Indian-paintbrush		
Centaurium muhlenbergii	***Muhlenberg's Centaury***	***FACW***	
Cerastium arvense	***Field Chickweed***		
Ceratophyllum demersum	Coontail		
Chrysosplenium glechomaefolium	Pacific Water-carpet	***OBL***	
Cimicifuga elata	Tall Bugbane		
Cinna latifolia	***Woodreed***	***FACW***	
Circaea alpina	Enchanter's Nightshade	***FACW***	
Clematis ligusticifolia*	Western Clematis*	***FACU***	
Collinsia grandiflora	Large-flowered Blue-eyed Mary		
Collinsia parviflora	Small-flowered Blue-eyed Mary		
Collomia grandiflora	Large-flowered Collomia		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Collomia heterophylla	Varied-leaf Collomia		
Comandra umbellata californica	Bastard Toad-flax	*UPL***	
Conyza canadensis glabrata	Horseweed	*FACU***	
Coptis laciniata	Cutleaf Goldthread	*FAC*	
Corallorhiza maculata	Pacific Coral-root	*FAC-*	
Corallorhiza mertensiana	Coral-root		
Corallorhiza striata	Hooded Coral-root	*FACU*	
Cornus canadensis	Bunchberry	*FAC-*	
Corydalis scouleri	***Western Corydalis***	*FAC+*	
Cryptantha intermedia grandiflora	Common Forget-me-not		
Cynoglossum grande	Pacific Hound's-tongue		
Cypripedium montanum	***Mountain Lady-slipper***	*FACU*	
Cystopteris fragilis	Brittle Bladder Fern	*FACU*	
Delphinium leucophaeum	Pale Larkspur	*FACU*	
Delphinium menziesii pyramidale	Menzies' Larkspur		
Delphinium nuttallii	Nuttall's Larkspur		
Deschampsia cespitosa	Tufted Hair grass	*FACW*	
Dicentra formosa	Pacific Bleedingheart		
Disporum hookeri	Hooker Fairy-bell		
Disporum smithii	Large-flowered Fairy-bell		
Dodocatheon dentatum	White Shooting Star	*FAC-*	
Dodocatheon pulchellum	***Few-flowered Shooting Star***	*FACW*	
Draba verna	Spring Whitlow-grass		
Dryopteris arguta	***Wood Fern***		
Dryopteris austriaca	Spreading Wood Fern		
Dryopteris filix-mas	Male fern		
Eburophyton austiniae	Snow-orchid, Phantom orchid		
Echinochloa crusgalli	Large Barnyard-grass	*FACW*	
Elatine triandra	Three-stamen Waterwort	*OBL*	
Eleocharis acicularis	Needle Spike-rush	*OBL*	
Eleocharis palustris	Creeping Spike-rush	*OBL*	
Elodea densa*	South American Waterweed*		
Elymus glaucus	Blue Wildrye	*FACU*	
Epilobium angustifolium	Fireweed	*FACU+*	
Epilobium glandulosum	Common Willow-weed		
Epilobium paniculatum var. paniculatum	***Tall Annual Willow Herb***		
Epilobium watsonii	Watson's Willow-weed		
Equisetum arvense*	Common Horsetail*	*FAC*	
Equisetum hyemale	Common Scouring-rush	*FACW*	
Equisetum telemateia*	Giant Horsetail*	*FACW*	
Erigeron annuus	Annual Fleabane	*FACU+*	
Erigeron decumbens	Willamette Daisy		
Erigeron philadelphicus	Philadelphia Fleabane	*FACU*	
Eriogonum cf. nudum	***Barestem Buckwheat***		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Eriophyllum lanatum	Woolly Sunflower		
Erysimum asperum	Prairie Rocket		
Erythronium oregonum	Giant Fawn-lily		
Eschscholzia californica	Gold Poppy		
Festuca occidentalis	Western Fescue-grass		
Festuca rubra v. rubra	Red Fescue-grass	*FAC***	
Festuca subulata	Bearded Fescue-grass	*FAC*	
Festuca subuliflora	Coast Range Fescue-grass		
Fragaria vesca bracteata	Wood Strawberry		
Fragaria vesca crinita	Wood Strawberry		
Fragaria virginiana	Broadpetal Strawberry	*UPL*	
Fritillaria lanceolata	Mission Bells		
Galium aparine	Cleavers	*FACU*	
Galium trifidum	Small Bedstraw	*FACW+*	
Galium triflorum	Sweetscented Bedstraw	*FACU*	
Gaultheria shallon	Salal		
Gentiana amarella	Northern Gentian		
Gentiana sceptrum	Staff Gentian	*OBL*	
Geum macrophyllum	Oregon Avens	*FACW+*	
Gilia capitata	Bluefield Gilia		
Glyceria elata	***Fowl Mannagrass***	*FACW+*	
Glyceria occidentalis	NW Manna-grass	*OBL*	
Gnaphalium palustre	Marsh Cudweed	*FAC+*	
Goodyera oblongifolia	Giant Rattlesnake-plantain	*FACU-*	
Gratiola ebracteata	***Bractless Hedge-Hyssop***	*OBL*	
Habenaria dilatata	White Bog-orchid		
Habenaria elegans	Elegant Rein-orchid		
Habenaria saccata	Slender Bog-orchid		
Habenaria unalascensis	Alaska Rein-orchid		
Heracleum lanatum	Cow-parsnip	*FAC*	
Heterocodon rariflorum	***Heterocodon***	*FAC*	
Heuchera glabra	Smooth Alumroot		
Heuchera micrantha	Smallflowered Alumroot		
Hieracium albiflorum	White-flowered Hawkweed		
Howellia aquatilis	Howellia	*OBL*	
Hydrophyllum tenuipes	Pacific Waterleaf		
Hypericum anagalloides	***Bog St. John's Wort***	*OBL*	
Hypericum formosum var. scouleri	***Western St. John's Wort***	*FAC***	
Impatiens capensis	***Orange Balsam***	*FACW*	
Impatiens ecalcarata	***Spurless Balsam***	*FACW*	
Iris tenax	Oregon Iris		
Juncus balticus	Baltic Rush	*OBL*	
Juncus brachyphyllus	Short-leaved Rush		
Juncus bufonius	Toad Rush	*FACW+*	
Juncus effusus	Common Rush	*FACW+*	
Juncus ensifolius	Dagger-leaf Rush	*FACW*	
Juncus tenuis	Slender Rush	*FAC*	
Lemna minor*	Water Lentil*	*OBL*	

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Ligusticum apiifolium	Parsley-leaved Lovage		
Ligustucum grayii	Gray's Lovage		
Lilium columbianum	Columbia Lily		
Limosella aquatica	Mudwort	*OBL*	
Linanthus bicolor	Bicolored Linanthus		
Linaria canadensis	***Wild Toadflax***		
Lindernia anagallidea	***Slender False-pimpernel***	*OBL*	
Lindernia dubia	***Common False-pimpernel***	*OBL*	
Linnaea borealis	Twinflower	*FACU-*	
Listera caurina	Western Twayblade	*FACW*	
Listera cordata	Heart-leafed Listera	*FACW*	
Lomatium utriculatum	Common Lomatium		
Lonicera ciliosa	Trumpet Vine		
Lotus denticulatus	Meadow Lotus		
Lotus formosissimus	Seaside Lotus	*FACW+*	
Lotus micranthus	Small-flowered Deervetch		
Lotus purshiana	Spanish Clover		
Ludwigia palustris var. pacifica	***False Loosestrife***	*OBL***	
Lupinus bicolor	Two-color Lupine		
Lupinus latifolius	Broadleaf Lupine		
Lupinus laxiflorus	Spurred Lupine		
Lupinus lepidus	Prarie Lupine		
Lupinus micranthus	Field Lupine		
Lupinus microcarpus	Chick Lupine		
Lupinus polyphyllus	Large-leaved Lupine	*FAC+*	
Lupinus rivularis	Stream Lupine	*FAC*	
Lupinus sulphureus	Sulfur Lupine		
Luzula campestris	Field Woodrush		
Luzula parviflora	Small-flowered Woodrush	*FAC-*	
Lycopus americanus	***Cut-leaved Bugleweed***	*OBL*	
Lycopus uniflorus	***Northern Bugleweed***	*OBL*	
Lysichitum americanum	Skunk Cabbage		
Lysimachia ciliata	Fringed Loosestrife	*FACW+*	
Lysimachia thyrsiflora	Tufted Loosestrife	*OBL*	
Madia glomerata	Cluster Tarweed	*FACU-*	
Madia sativa	Chile Tarweed		
Maianthemum dilatatum	Deerberry	*FACU-*	
Marah oreganus	Manroot		
Matricaria matricarioides	Pineapple Weed	*FACU*	
Melica geyeri	Geyer's Oniongrass		
Melica subulata	***Alaska Oniongrass***		
Mentha arvensis	Field Mint	*FAC*	
Menyanthes trifoliata	Buckbean	*OBL*	
Mertensia platyphylla	Western Bluebells		
Microsteris gracilis	Microsteris	*FACU*	
Mimulus alsinoides	Chickweed Monkey-flower	*OBL*	
Mimulus guttatus	Yellow Monkey-flower	*OBL*	
Mimulus moschatus	Musk-flower	*FACW+*	
Mitella caulescens	Leafy Mitrewort		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Mitella pentandra	Five-stamened Mitrewort		
Monotropa uniflora	Indian-pipe	*FACU*	
Montia dichotoma	***Dwarf Montia***	***FAC***	
Montia diffusa	Branching Montia		
Montia fontana	Water Chickweed	*OBL*	
Montia linearis	Narrow-leaved Montia		
Montia parvifolia	Streambank Springbeauty	*FACW-*	
Montia perfoliata	Miner's Lettuce		
Montia sibirica	Siberian Montia		
Myosotis laxa	***Small-flowered Forget-me-not***	*OBL*	
Navarretia squarrosa	Skunkweed		
Nemophila parviflora	Small-flowered Nemophila		
Nemophila menziesii	Baby Blue-eyes		
Nothochelone nemorosa	***Turtle Head***		
Nuphar polysepalum	Yellow Water-lily		
Oenanthe sarmentosa	Pacific Water-parsley	*OBL*	
Oenothera biennis	***Evening Primrose***	*FACU*	
Orobanche uniflora	***Naked Broomrape***	*FACU*	
Orthocarpus hispidus	Hairy Owl-Clover	*FACU-*	
Osmorhiza chilensis	Mountain Sweet-root		
Oxalis oregana	Oregon Oxalis		
Oxalis suksdorfii	Western Yellow Oxalis		
Oxalis trilliifolia	Trillium-leaved Wood-sorrel	*FAC*	
Panicum capillare occidentale	Old-witch Grass	*FAC***	
Penstemon ovatus	Broad-leaved Penstemon		
Penstemon richardsonii	***Cut-leaved Penstemon***		
Penstemon serrulatus	***Cascade Penstemon***	*FACW*	
Petasites frigidus	Sweet Coltsfoot	*FACW*	
Phacelia nemoralis	Shade Phacelia		
Pityrogramma triangularis	***Gold-back Fern***		
Plagiobothrys figuratus	Fragrant Plagiobothrys	*FACW*	
Plectritis congesta	Rosy Plectritis	*FACU*	
Poa annua*	Annual Bluegrass*	*FAC-*	
Poa compressa	Canada Bluegrass	*FACU*	
Poa grayana	Gray's Bluegrass		
Poa howellii	Howell's Bluegrass		
Poa pratensis	Kentucky Bluegrass	*FACU+*	
Polygonum amphibium	Water Smartweed	*OBL*	
Polygonum aviculare	Doorweed	*FACW-*	
Polygonum coccineum*	Water Smartweed*		
Polygonum douglasii	Douglas' Knotweed	*FACU*	
Polygonum hydropiperoides	Common Waterpepper	*OBL*	
Polygonum kelloggii	Kellogg's Knotweed	*FAC*	
Polygonum nuttallii	Nutall's Knotweed		
Polygonum persicaria	***Lady's Thumb***	*FACW*	
Polygonum punctatum	Water Smartweed	*OBL*	
Polygonum spergulariaeforme	Fall Knotweed		
Polypodium glycyrrhiza	Licorice Fern		
Polypodium hesperium	Licorice Fern		

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Polystichum munitum	Sword Fern		
Potamogeton crispus	***Curled Pondweed***	***OBL***	
Potamogeton natans	***Broad-leaved Pondweed***	***OBL***	
Potentilla glandulosa	Sticky Cinquefoil	***FAC-***	
Potentilla palustris	Marsh Cinquefoil	***OBL***	
Psoralea physodes	***California Tea***		
Pteridium aquilinum	Bracken	***FACU***	
Ranunculus alismaefolius	Water-plaintain Buttercup	***FACW***	
Ranunculus aquatilis var. hispidulus	***White Water-buttercup***	***OBL****	
Ranunculus cymbalaria	Shore Buttercup	***OBL***	
Ranunculus flammula	Creeping Buttercup	***FACW***	
Ranunculus macounii oreganus	Macoun's Buttercup	***OBL****	
Ranunculus occidentalis	Western Buttercup	***FACW***	
Ranunculus orthorhyncus	Straightbeak Buttercup	***FACW-***	
Ranunculus pensylvanicus	Pennsylvania Buttercup	***FACW***	
Ranunculus scleratus var. multifidus	***Celery-leaved buttercup***	***OBL****	
Ranunculus uncinatus	Little Buttercup	***FAC***	
Rorippa columbiae	Columbia Cress	***OBL***	
Rumex obtusifolius	***Bitter Dock***	***FAC***	
Rumex occidentalis	Western Dock	***FACW+***	
Sagina occidentalis	Western Pearlwort		
Sagittaria latifolia	Wapato	***OBL***	
Sanguisorba occidentalis	Annual Burnet		
Sanicula crassicaulis	Pacific Sanicle		
Satureja douglasii	Yerba Buena		
Saxifraga ferruginea	Rusty Saxifrage	***FAC***	
Saxifraga integrifolia	Swamp Saxifrage	***FACW***	
Saxifraga mertensiana	***Merten's Saxifrage***	***FACW***	
Saxifraga nuttallii	***Nuttall's Saxifrage***	***OBL***	
Saxifraga occidentalis rufidula	Western Saxifrage	***FAC****	
Scirpus acutus	Hardstem Bulrush	***OBL***	
Scirpus heterochaetus	Pale Great Bulrush	***OBL***	
Scirpus microcarpus	Small-fruited Bulrush	***OBL***	
Scirpus olneyi	Olney's Bulrush		
Scirpus validus	Softstem Bulrush	***OBL***	
Scoliopus hallii	Oregon Fetid Adder's-tongue		
Scrophalaria californica	California Figwort	***FACW-****	
Scutellaria galericulata	Marsh Skullcap	***OBL***	
Sedum oreganum	Oregon Stonecrop		
Sedum spathulifolium	Spatula-leaf Stonecrop		
Selaginella densa	Compact Selaginella		
Selaginella douglasii	Selaginella		
Selaginella oregana	Selaginella		
Senecio bolanderi, v harfordii	Bolander's Groundsel		
Sidalcea campestris	Meadow Sidalcea	***NI***	
Sidalcea nelsoniana (threatened)	***Nelson's Checker-mallow***	***NI***	

Scientific Name	Common Name	*Indicator Status*	Habitat Type (No Change)
Sisyrinchium angustifolium	Blue-eyed grass	*FACW-*	
Smilacina racemosa	Western False Solomon's Seal	*FAC-*	
Smilacina stellata	Starry False Solomon's Seal	*FAC-*	
Solanum nigrum*	Garden Nightshade*	*FACU*	
Solidago canadensis	Canada Goldenrod	*FACU*	
Sparganium emersum	***Simplestem Bur-reed***	*OBL*	
Sparganium simplex	***Bur-reed***		
Spiranthes romanzoffiana	Ladies-tresses	*OBL*	
Spirodela polyrhiza	***Great Duckweed***	*OBL*	
Stachys cooleyae	Cooley's Hedge-nettle		
Stachys mexicana	Great Betony		
Stachys palustris v. pilosa	Swamp Hedge-nettle	*FACW+***	
Stellaria crispa	Crisped Starwort	*FAC+*	
Streptopus amplexifolius	Clasping-leaved Twisted-stalk	*FAC-*	
Sullivantia oregana	Sullivantia		
Synthyris reniformis	Snow Queen		
Tellima grandiflorum	Fringecup		
Teucrium canadense	Wood Sage	*FAC+*	
Thalictrum occidentale	Western Meadowrue	*FACU*	
Thelypteris nevadensis	Wood Fern	*FACU+*	
Tiarella trifoliata	Laceflower	*FAC-*	
Tolmiea menziesii	Pig-a-Back	*FAC*	
Tonella tenella	Small-flowered Tonella		
Trientalis latifolia	Western Starflower	*FAC-*	
Trillium chloropetalum	Giant Trillium		
Trillium ovatum	Western Trillium	*NI-FACW*	
Triodanis perfoliata	***Venus'-looking-glass***	*UPL*	
Trisetum cernuum	***Nodding Trisetum***	*FACU*	
Typha latifolia	Common Cattail	*OBL*	
Urtica dioica*	Stinging nettle*	*FAC+*	
Utricularia vulgaris*	Common Bladderwort*		
Vancouveria hexandra	White Inside-out Flower		
Veratrum californicum	False Hellebore	*FACW+*	
Verbena hastata	Wild Hyssop	*FAC+*	
Veronica americana	American Brooklime	*OBL*	
Vicia americana	American Vetch	*NI-FAC*	
Viola adunca	Early Blue Violet	*FAC*	
Viola glabella	Johnny jump up	*FACW+*	
Viola hallii	Hall's violet	*FAC*	
Viola howellii	Howell's violet		
Viola palustris	Marsh Violet	*OBL*	
Viola sempervirens	Evergreen Violet		
Whipplea modesta	Yerba de Selva		
Xanthium spinosum*	Spiny Cocklebur*	*FACU*	
Xanthium strumarium	Common Cocklebur	*FAC*	

* These plants have been placed on the Nuisance Plant List, as they have been determined to be either dominating or harmful. They may also be on the Oregon noxious weed list. As such, their introduction or continuation may be inappropriate.

** *Indicator status is not clearly tied to this subspecies or variety, or is tied to a subspecies or variety not listed.*

NUISANCE PLANTS

Plants on this list can be removed without environmental or greenway review. These plants may be native, naturalized, or exotic. They are divided into two groups—plants which are considered a nuisance because of their tendency to dominate plant communities, and plants which are considered harmful to humans. Being on this list is not an indication that the City of Portland necessarily prohibits or discourages the use of these plants, although they may be regulated in certain situations. It simply means that they can be controlled without having to go through one of the land use review procedures identified above. Being on this list does not exempt the applicant from having to obtain any necessary regional, state, or federal approvals before removing plants.

Nuisance Plant List

Scientific Name	Common Name	*Indicator Status*
Dominating plants		
Acer Platanoides	***Norway Maple***	
Chelidonium majus	Lesser Celandine	
Cirsium arvense	Canada Thistle	***FACU+***
Cirsium vulgare	Common Thistle	***FACU***
Clematis ligusticifolia	Western Clematis	***FACU***
Clematis vitalba	Traveler's Joy	
Convolvulus arvensis	Field Morning-glory	
Convolvulus nyctagineus	Night-blooming Morning-glory	
Convolvulus seppium	Lady's-nightcap	
Cortaderia selloana	Pampas grass	
Crataegus sp. except C. douglasii	hawthorn, except native species	
Cytisus scoparius	Scotch Broom	
Daucus carota	Queen Ann's Lace	
Elodea densa	South American Waterweed	
Equisetum arvense	Common Horsetail	***FAC***
Equisetum telemateia	Giant Horsetail	***FACW***
Erodium cicutarium	Crane's Bill	
Geranium robertianum	Robert Geranium	
~~Hedera helix~~	~~English Ivy~~	
~~Hypericum perforatum~~	St. John's Wort	
Ilex aquafolium	English Holly	
Lemna minor	Duckweed, Water Lentil	***OBL***
Leontodon autumnalis	Fall Dandelion	
Lythrum salicaria	Purple Loosestrife	***OBL***
Myriophyllum spicatum	Eurasian Watermilfoil	***OBL***
Phalaris arundinacea	Reed Canarygrass	***FACW***
Poa annua	Annual Bluegrass	***FAC-***
Polygonum coccineum	Swamp Smartweed	
Polygonum convolvulus	Climbing Bindweed	***FACU-***
Polygonum sachalinense	Giant Knotweed	***NI***
Prunus laurocerasus	English, Portugese Laurel	

Scientific Name	Common Name	*Indicator Status*
~~Rubus discolor~~	~~Himalayan Blackberry~~	
Rubus laciniatus	Evergreen Blackberry	*FACU+*
Rubus ursinus	Pacific Blackberry	
Senecio jacobaea	Tansy Ragwort	
Solanum dulcamara	Blue Bindweed	*FAC-*
Solanum sarrachoides	Hairy Nightshade	
Taraxacum officinale	Common Dandelion	*FACU*
Utricularia vulgaris	Common Bladderwort	
Vinca major	Periwinkle (large leaf)	
Vinca minor	Periwinkle (small leaf)	
Xanthium spinoseum	Spiny Cocklebur	*FACU*
various genera	Bamboo sp.	
Harmful Plants		
Conium maculatum	Poison-hemlock	*FACW-*
Laburnum watereri	Golden chain tree	
Rhus diversiloba	Poison Oak	
Solanum nigrum	Garden Nightshade	*FACU*
Utica dioica	Stinging Nettle	*FAC+*

PROHIBITED PLANTS

The Prohibited Plants section is a listing of plants which the City of Portland prohibits being used in ~~certain~~ *all reviewed* landscaping situations *within the city limits. This provision applies to the below named species only, and includes any sub-species, varieties or cultivars of these species. Existing in-ground plantings as of the effective date of this ordinance are exempt from this provision.* ~~At present there are no plants on this list, although there may be~~ *Additional plant species are prohibited by* adopted land use plans ~~which prohibit certain species~~ in specific areas or situations.

Prohibited Plant List

Scientific Name	*Common Name*	*Indicator Status*
Hedera helix	***English Ivy***	
Rubus discolor	***Himalayan Blackberry***	***FACU-***

Amendments to the Official Zoning Maps

The Conservation Plan applies the environmental overlay zones as shown on the Official Zoning Maps. The Open Space (OS) zone is applied to certain publicly-owned lands and certain base zones are also amended at Kelly Butte. The Significant Environmental Concern (SEC) overlay zone is removed from the zoning maps.

The Environmental Protection overlay zone is applied to resource areas with high functional values that are in need of protection according to the inventory and analysis findings. Generally, the Environmental Protection overlay zone is applied to high quality wetlands, and upland resources which include ecologically or scientifically significant natural areas, high quality habitat areas for sensitive or locally rare plants and wildlife. In certain areas, forest which serves critical soil and slope stabilization functions is also protected. The Environmental Protection zone will insure the protection of the functional values of these resources, the continuation of critical plant and wildlife habitat elements, and the preservation of the integrity and viability of the East Buttes and Terraces resources as a whole. The application of this zone will also protect neighborhoods from natural hazards such as landslides and flooding, and retain the natural character and identity of the East Buttes.

The Environmental Conservation zone is applied to areas that, while not as highly rated as the Environmental Protection zone areas, provide significant resource values and warrant protection. Conflicting uses are limited in these areas, which are generally able to support certain levels of development so long as impacts are controlled and mitigated.

The Open Space (OS) zone is applied to certain publicly owned lands on or near Rocky Butte and Beggars Tick Marsh which are of high scenic value or are unfit for any other use or development. Portions of these areas are already zoned Open Space and the extension of this zone is consistent with intended public uses and, in the case of land recently acquired by the city on Rocky Butte, implements planned rezoning. At Kelly Butte, R5 and IG2 zoning located on the butte's steep side slopes are changed to the R10 zone. This reduces conflicting use impacts with high quality resources and provides consistency with adjacent R10 zoning on the butte.

The Significant Environmental Concern (SEC) overlay zone is removed from Rocky Butte. This zone was originally applied to Rocky Butte by Multnomah County and has served as an interim resource protection measure since city annexation. The SEC zoning on Rocky Butte is the last such zoning within the city; its removal completes the transition to permanent city zoning.

APPENDIX A

ADOPTING ORDINANCE

ORDINANCE No. 166572

As Amended

Adopt Natural Resource Inventory, ESEE Analysis, and *East Buttes, Terraces and Wetlands Conservation Plan;* amend Comprehensive Plan and Title 33 of the City Code; amend Official Zoning Maps of the City of Portland (Ordinance; amend Title 33).

The City of Portland Ordains:

Section 1. The Council finds:

General Findings

1. In 1974, the State of Oregon adopted Statewide Planning Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources, that requires jurisdictions to conserve open space and protect natural and scenic resources.

2. The City of Portland adopted its Comprehensive Plan on October 16, 1980 (effective date, January 1, 1981) and was acknowledged as being in conformance with Statewide Goals for Land Use Planning by the Land Conservation and Development Commission on May 1, 1981. At the time of its adoption the plan complied with State Goal 5.

3. The Land Conservation and Development Commission's (LCDC) administrative rules for Goal 5 (OAR 660-16-000 through 660-16-025) outline the process to be followed in identifying and evaluating resources and achieving compliance with Goal 5. LCDC adopted these administrative rules in September 1981.

4. With the adoption of the administrative rule for State Goal 5 by LCDC, the City's Comprehensive Plan was no longer in compliance with Goal 5.

5. The City has undertaken a review of its Comprehensive Plan as part of Periodic Review to bring the Plan into compliance with the State Goals, particularly Goal 5. The *East Buttes, Terraces and Wetlands Conservation Plan* and its implementing regulations fulfill State Goal 5 requirements to protect significant wetlands, water bodies, open spaces, scenic areas and wildlife habitat areas.

6. An inventory of natural, scenic and open space resources was conducted by Planning Bureau staff and consulting ecologists, and reviewed by

citizens, neighborhood associations and other organizations during the planning process.

7. Twelve resource sites were included in the inventory and evaluated. They are described as the East Buttes (Rocky Butte, Kelly Butte, Mount Tabor), Terraces (a group of seven sites located on the East Portland uplands), and Wetlands (Beggars Tick Marsh, Smith and Bybee Lakes).

8. The natural, scenic and open space resources included in the inventory were further examined through the Economic, Social, Environmental and Energy (ESEE) analysis process outlined in the Goal 5 administrative rule to determine the appropriate level of protection. The outcome of the ESEE analysis is: resources warrant full protection within four sites (Rocky Butte, Kelly Butte, Beggars Tick Marsh, and Smith and Bybee Lakes); conflicting uses are limited within 11 sites (all but Rose City Cemetery); conflicting uses are allowed fully at Rose City Cemetery and within portions of other sites where resources are not significant or do not meet the ESEE test.

9. The Buttes, Terraces and Wetlands of East Portland contain significant and in certain cases regionally-unique resources and resource values which warrant protection.

10. These resource values benefit residents, businesses and visitors throughout the Portland metropolitan area. The values include the provision of habitat for plants and wildlife, including rare, threatened and endangered species; purification of water and provision of domestic water supplies; recharge and discharge of groundwater; retention of soils and stabilization of slopes; retention and removal of excess nutrients and chemical contaminants; trapping and filtration of sediments and dissipation of erosive forces of stormwater; storage, conveyance and desynchronization of flood waters; enhancement of neighborhood livability and scenic amenities; and provision of cultural, recreational and educational opportunities.

11. The *East Buttes, Terraces and Wetlands Conservation Plan* is the result of extensive planning effort and citizen involvement. The plan identifies and preserves significant natural resources that contribute to Portland's high quality of life.

12. The Bureau of Planning recommendation on the natural resources inventory, ESEE analysis, and implementing regulations was amended in response to public testimony and adopted unanimously by the Planning Commission on March 23, 1993.

13. Legislative procedure requirements have been met because 30-day notice of the February 23, 1993 Planning Commission hearing was provided to neighborhoods and interested persons and was published in the Oregonian and other local newspapers. Notice of the May 5, 1993 City Council hearing was provided to interested persons and persons who testified before the Planning Commission 14 days before the hearing.

14. The State post-acknowledgment requirements were followed in the development of the plan and its implementing actions. Notice of the proposed action was mailed to DLCD on December 14, 1992 along with copies of the proposed plan, the ESEE analysis and the inventory.

15. It is in the public interest for the *East Buttes, Terraces and Wetlands Conservation Plan*, including amendments to the Comprehensive Plan, amendments and additions to Title 33, and amendments to the Official Zoning Maps to be adopted and implemented.

State Goal Findings:

16. Goal 1, Citizen Involvement, requires opportunities for citizens to be involved in all phases of the planning process. Development of the *East Buttes, Terraces and Wetlands Conservation Plan* meets this goal because it included citizen review of all phases of the project, including soliciting information on the location, quantity, and quality of natural, scenic and open space resources, and impacts of conflicting uses. Letters describing the plan and the public review process were sent to neighborhoods and interested persons in March 1992. Neighborhood and public meetings began in October 1992. A Public Review Draft of the Conservation Plan was published and distributed on December 10, 1992. A general meeting to review proposals contained in the draft was held on January 13, 1993. Notice of the February 23, 1993 Planning Commission hearing was sent on January 22, 1993 to approximately 500 affected property owners, neighborhood and business associations, and people requesting notification. Notice was also published in the Oregonian and other local papers. The Planning Bureau Staff Report and Recommendations and the Proposed Draft Plan were available on February 12, 1993. Notice of the May 5, 1993 City Council hearing was mailed on April 9, 1993 to all persons requesting notice and all persons participating in the Planning Commission hearings process.

17. Goal 2, Land Use Planning, requires the development of a process and policy framework which acts as a basis for all land use decisions and assures that decisions and actions are based on an understanding of the facts relevant to the decision. The East Buttes project conforms to this goal. The *East Buttes, Terraces and Wetlands Conservation Plan* adopts

policies to amend the Comprehensive Plan and implement zoning regulations that assures conformance with the Plan's policies and objectives. Development of the inventory, ESEE analysis, and protection measures for the planning area followed established city procedures for legislative actions.

18. Goal 3, Agricultural Lands, provides for the preservation and maintenance of the State's agricultural land, generally located outside of urban areas. Since the *East Buttes, Terraces and Wetlands Conservation Plan* applies to an urbanized area generally unfit for agricultural use, this goal does not apply.

19. Goal 4, Forest Lands, provides for the preservation and maintenance of the State's forest lands, generally located outside of urban areas. Since the *East Buttes, Terraces and Wetlands Conservation Plan* applies to an urbanized area generally unfit for commercial forest use, this goal does not apply.

20. Goal 5, Open Space, Scenic and Historic Areas, and Natural Resources, provides for the conservation of open space and the protection of natural and scenic resources. The *East Buttes, Terraces and Wetlands Conservation Plan* implements this goal for areas within southwest Portland because the process identified in the Goal 5 Administrative Rule (ORS 660-16-000 to 660-16-025) for resource identification and conflicting use analysis was followed in developing this plan. Specifically, the City inventoried natural resources and identified conflicting uses in the plan area; analyzed the economic, social, environmental, and energy consequences of resource protection; and developed a program to protect Goal 5 resources in the plan area, as detailed in Exhibit A and incorporated herein.

    The *East Buttes, Terraces and Wetlands Conservation Plan* will be the controlling document in the protection of wetlands, water bodies, open spaces, and wildlife habitat areas in the plan area and will ensure and enhance the City's compliance with this goal by doing the following:

    a. The *East Buttes, Terraces and Wetlands Conservation Plan* policies and objectives are designed to protect and preserve significant natural resources in the plan area by identifying specific natural resource values and the means by which they are to be protected.
    b. Significant natural resources are protected through application of environmental zones on distinct resource features.
    c. Amendments to Title 33 provide additional protection of Goal 5 resources while also providing greater clarity during implementation and administration of the environmental zones.

21. Goal 6, Air, Water and Land Resource Quality, provides for the maintenance and improvement of these resources. The *East Buttes, Terraces and Wetlands Conservation Plan* protects water resources by limiting development in areas where these resources would be negatively affected, encouraging groundwater recharge, and retaining and enhancing riparian vegetation to provide shade and lower water temperatures, trap sediment, and absorb certain chemical pollutants. Protection of natural resource quality is consistent with maintaining and improving water quality. The Environmental zone includes provisions for the preservation of trees in the plan area. Trees help to preserve the land by reducing erosion and stabilizing soils and steep hillside slopes. The plan will contribute to air quality because the tree preservation provisions of the plan will help control smog and trap particulates.

22. Goal 7, Areas Subject to Natural Disasters and Hazards, provides for the protection of life and property from natural disasters and hazards. The *East Buttes, Terraces and Wetlands Conservation Plan* is consistent with this goal because it guides development away from the area's many steep, hazard-prone areas and to more suitable areas through the planned unit development process. It also protects wetlands, creeks and flood plains which provide flood storage and conveyance.

23. Goal 8, Recreational Needs, provides for satisfying the recreational needs of both citizens of and visitors to the State. The *East Buttes, Terraces and Wetlands Conservation Plan* is supportive of this goal because Portland's natural resources contribute to the recreational enjoyment of the City by both citizens and visitors. Provisions of the plan call for protection of the recreational opportunities which exist in the parks and forests in the planning area, and allow public visual and physical access to natural areas without environmental disturbance.

24. Goal 9, Economy of the State, provides for diversification and improvement of the economy of the State. The natural resources ESEE Analysis has balanced the impact on economic development with the protection of each identified natural resource. Protection of natural resources identified in the plan will have limited impacts on development in the City because *East Buttes, Terraces and Wetlands Conservation Plan* regulations and application of Environmental zones have been structured to allow reasonable economic development opportunities on privately-owned parcels containing significant natural resources. The plan is in conformance with this goal because where economic impacts outweigh the value of the natural resource, new regulations limiting economic development are not recommended.

25. Goal 10, Housing, provides for meeting the housing needs of the State. Lands subject to natural disasters and lands containing significant

natural resources are not part of the City's inventory of lands needed for housing. Nevertheless, the City does allow housing subject to certain criteria within environmental zones. The natural resources ESEE Analysis has balanced the impact on housing with the protection of each identified natural resource. Where potential housing impacts are significant, the planned unit development provisions of the City's land use regulations allow the transfer of housing densities elsewhere on site.

26. Goal 11, Public Facilities and Services, provides for planning and development of timely, orderly and efficient public service facilities that can serve as a framework for the urban development of the City. The *East Buttes, Terraces and Wetlands Conservation Plan* conforms with this goal by balancing protection of resources with the need of the City to develop efficiently. On lands with highly-valued natural resource areas, transfer of residential density is allowed to other areas on site through application of planned unit development provisions where urban services can be provided in a more orderly and efficient manner.

27. Goal 12, Transportation, provides for the development of a safe, convenient and economic transportation system. The *East Buttes, Terraces and Wetlands Conservation Plan* is supportive of this goal by allowing needed transportation facilities through certain natural resource area if adverse impacts on resources can be mitigated. Very steep and/or wet resource areas which are unsafe or uneconomical to develop for transportation purposes are protected by the plan in a manner consistent with this goal.

28. Goal 13, Energy Conservation, provides for the distribution of land uses in a pattern that maximizes the conservation of energy. The *East Buttes, Terraces and Wetlands Conservation Plan* conforms with this goal because the natural resources ESEE Analysis addresses the impact on energy conservation. The plan provides limited or no protection of natural resources where preservation would lead to an energy-inefficient use of land as identified by existing Comprehensive Plan Map designations. The plan is supportive of this goal because it preserves recreational opportunities close in to the major population center of the State, leading to less travel time. Because this resource is closer to users, less transportation energy is required and a greater range of transportation modes, including bicycling and walking, can be used.

29. Goal 14, Urbanization, provides for the orderly and efficient transition of rural lands to urban uses. The *East Buttes, Terraces and Wetlands Conservation Plan* conforms to this goal by allowing continued urban development within the City in an orderly and efficient manner.

30. Goal 15, Willamette River Greenway, provides for the protection, conservation, and maintenance of the natural, scenic, historic, agricultural and recreational qualities of land along the Willamette River. The *East Buttes, Terraces and Wetlands Conservation Plan* conforms to this goal because wetlands and drainageways containing significant resources which empty into the Willamette River are protected, and resource values such as water quality, fish and wildlife habitat, and aesthetics are preserved.

31. Goals 16, 17, 18 and 19 deal with Estuarine Resources, Coastal Shorelines, Beaches and Dunes, and Ocean Resources, respectively. These goals are not applicable to the *East Buttes, Terraces and Wetlands Conservation Plan* because none of these resources are present within Portland.

Comprehensive Plan Findings:

32. The *East Buttes, Terraces and Wetlands Conservation Plan*, including its implementing measures, is in conformance with the City's Comprehensive Plan and is especially supportive of certain goals and policies. The review of goals and policies in this section of the ordinance is limited to those which are directly relevant to the plan.

33. Goal 1, Metropolitan Coordination, provides for planning activities to be coordinated with federal, state and regional plans. The *East Buttes, Terraces and Wetlands Conservation Plan* complies with the State's required post-acknowledgment review process and is part of the State-required periodic review of the City's Comprehensive Plan.
    a. The plan is consistent with Policy 1.2, Urban Planning Area Boundary, because it has inventoried and evaluated natural resources within its planning area inside the existing City limits in the Southeast Portland area.

    The Metropolitan Service District (Metro) has developed RUGGOs, or *Regional Urban Growth Goals and Objectives* (September, 1991). These goals and objectives are largely consistent with the city's East Buttes, Terraces and Wetlands planning efforts. RUGGO Goal II.1, "Natural Environment," states: "Preservation, use and modification of the natural environment of the region should maintain and enhance environmental quality while striving for the wise use and preservation of a broad range of natural resources."

    Objective 7, Water Resources, and Objective 8, Air Quality, are supported by the proposed resource protection measures in this plan. Objective 9, Natural Areas, Parks and Wildlife Habitat, directs Metro to acquire, protect and manage (1) open spaces to provide passive and active recreational opportunities, and (2) an open space system providing

habitat for native wildlife and plant populations. The development and implementation of the *East Buttes, Terraces and Wetlands Conservation Plan* addresses this objective by applying environmental overlay zoning to and recommending management actions for significant open spaces within the planning area.

The *Metropolitan Greenspaces Master Plan* (July, 1992) identifies several of the resource areas contained in the *East Buttes, Terraces and Wetlands Conservation Plan*. All three of the east buttes, Kelly, Rocky and Mt. Tabor, are identified on the Greenspaces Inventory Map. The two wetland additions, Beggars Tick Marsh and Smith and Bybee Lakes, are also recognized as "regionally significant natural area sites." Chimney and Pier Parks in North Portland and the East Willamette Greenway Trail along the Overlook Bluff are also identified in the inventory. Protection of these areas supports the objectives of the Master Plan.

34. Goal 2, Urban Development, provides for maintaining Portland's role as the region's major employment, population, and cultural center through expanding opportunities for housing and jobs while retaining the character of established areas. The *East Buttes, Terraces and Wetlands Conservation Plan* conforms with this goal by minimizing impacts on employment areas and preserving natural resources which enhance the City as a place to live, work, and recreate.
    a. The plan is consistent with Policy 2.1, Population Growth, because the plan does not reduce needed housing opportunities and minimizes the impact of preserving natural resources on existing and future land uses within the City.
    b. The plan is consistent with Policy 2.5, Natural Resource Area, because it protects wetlands, water bodies, open spaces, wildlife habitat areas and other natural resources in the plan area.
    c. The plan is supportive of Policy 2.6, Open Space, because it will enhance enjoyment of designated open space areas by encouraging and enhancing the scenic and natural resource characteristics of these areas.
    d. The plan is supportive of Policy 2.8, Forest Lands, because it provides for the preservation of forest resources.
    e. The plan is consistent with Policy 2.18, Utilization of Vacant Land, because it protects significant natural resources while allowing continued infill development of vacant land.

35. Goal 3, Neighborhoods, provides for the preservation and reinforcement of the stability and diversity of the City's neighborhoods while allowing for increased densities. The *East Buttes, Terraces and Wetlands Conservation Plan* conforms with this goal because it has evaluated, through the ESEE Analysis, the impact of protection of identified resources on opportunities for development within neighborhoods.

Significant natural resources have been carefully mapped or given only limited protection where impacts on development opportunities outweigh impacts on resources. Natural resources are protected where neighborhood associations have identified those that are important to the livability and attractiveness of the neighborhood.

a. The plan is supportive of Policy 3.4, Historic Preservation, because the plan protects areas of historic and environmental significance, including the historic features of Rocky Butte.
b. The plan is supportive of Policy 3.5, Neighborhood Involvement, because all neighborhood associations were notified at the onset and at regular intervals throughout the development of this project and solicited for information on potential resources and for comments on plan recommendations. Several neighborhoods and district coalitions have participated throughout the planning and public review process. In addition, neighborhood meetings were held on the plan and neighborhoods were notified of all public hearings.
c. The plan is supportive of Policy 3.6, Neighborhood Plan, because all applicable neighborhood plans are addressed in the ESEE Analysis of individual resource sites.

36. Goal 4, Housing, provides for a diversity in the type, density, and location of housing in order to provide an adequate supply within the City. The *East Buttes, Terraces and Wetlands Conservation Plan* is consistent with this policy because it has evaluated the impact of protection of inventoried natural resources on the supply of existing and potential housing. Significant natural resources are protected in a way to minimize their impact on both existing housing and the potential for new housing development. In some instances, the environmental zones have been reduced in area or not applied to resources in order to preserve housing opportunities. Site development standards mitigate the impact of development rather than limit development opportunities. Where housing development is severely restricted, provisions of the planned unit development regulations allow the redistribution of residential development to mitigate these impacts.

37. Goal 5, Economic Development, provides for increasing the quantity and quality of job opportunities through the creation of an attractive business and industrial environment. The *East Buttes, Terraces and Wetlands Conservation Plan* is consistent with this goal because it has evaluated the economic impact of protecting inventoried natural resources in the ESEE Analysis. Where the negative economic impact of protecting the resource outweighed the value of the resource, limited or no protection measures were included.

a. This plan is supportive of Policy 5.2, Economic Environment, because it promotes through natural resource protection the image of Portland as a livable, attractive City which acts as a positive aspect

of business recruitment. The plan balances the need for resource protection with that for an adequate supply of developable land.

b. The plan is supportive of Policy 5.5, International Image, because it strengthens the attractiveness of the area thereby enhancing the City's reputation as a destination for international tourists. The plan protects natural resources at Mt. Tabor Park and Rocky Butte, major destinations for tourists to view the city and surroundings.

c. The plan is supportive of Policy 5.8, Public/Private Partnership, because it describes ways in which private activities can support natural resources and further enhance the City as an attractive place to work.

38. Goal 7, Energy, provides for increasing the energy efficiency of existing structures and the transportation systems of the City. The *East Buttes, Terraces and Wetlands Conservation Plan* is consistent with this goal because it has considered the energy impacts of protecting natural resources in the ESEE Analysis for each resource. Protection of natural resources will provide a more easily serviced development pattern of clustered housing and open areas and will reduce the need to travel to enjoy or study natural areas, thereby reducing overall energy costs.

39. Goal 8, Environment, provides for maintaining and improving the quality of Portland's air, water and land resources and protecting neighborhoods and business centers from noise pollution. The *East Buttes, Terraces and Wetlands Conservation Plan* is especially supportive of this goal and is designed to implement the policies of the goal as it relates to natural resources. In addition, the plan modifies existing policies to further clarify the City's intent in protecting and enhancing the natural resources of the East Buttes, Terraces and Wetlands plan area.

a. The plan is supportive of Policy 8.8, Groundwater Protection, because it encourages groundwater filtration and recharge by retaining vegetation and minimizing impervious surfaces.

b. The plan supports of Policy 8.9, Open Space, by providing additional protection for Portland Parks.

c. The plan is supportive of Policy 8.10, Drainageways, because it limits development within certain wetlands and drainageways to protect watershed resources and minimize flood hazards.

d. The plan is supportive of Policy 8.11, Special Areas, because it adopts policies setting forth guidelines for the protection and enhancement of unique resource qualities for the East Buttes area.

e. The plan is supportive of Policy 8.13, Natural Hazards, because it protects significant resources in areas of steep slopes, unstable soils, and flood plains, and encourages the shifting of development to other portions of lots which are more easily built upon.

f. The plan is supportive of and implements Policy 8.14, Natural Resources, by protecting significant natural and scenic resources. The plan balances the conservation of natural resources with the need for other urban uses in the accompanying ESEE Analysis.

g. The plan is supportive of Policy 8.15, Wetlands/Riparian/Water Bodies Protection, because it protects Southeast Portland wetlands, creeks and riparian areas for values related to flood protection, sediment and erosion control, water quality, groundwater recharge and discharge, education, vegetation, and fish and wildlife habitat.

h. The plan is supportive of Policy 8.16, Uplands Protection, because it identifies and protects upland forests and meadows which provide wildlife habitat, slope protection, and groundwater recharge values.

i. The plan is supportive of Policy 8.17, Wildlife, because it protects existing fish and wildlife habitat areas, and encourages enhancement of vegetation and open space throughout the East Buttes plan area for wildlife habitat.

40. Goal 9, Citizen Involvement, provides for improving the method for citizen involvement in the on-going land use decision-making process and providing opportunities for citizen participation in the implementation, review, and amendment of the Comprehensive Plan. The *East Buttes, Terraces and Wetlands Conservation Plan* and implementing measures are consistent with this goal for the reasons stated in the finding for Statewide Planning Goal 1.

a. The plan is consistent with Policy 9.1, Citizen Involvement Coordination, because opportunities were provided throughout the planning process to change aspects of the process to increase opportunities for review. Staff reports were available to the public within the required time frames and were provided free of charge. Notice of meetings and hearings were sent to neighborhood associations, property owners, and to all interested citizens.

b. The plan is consistent with Policy 9.2, Comprehensive Plan Review, because the *East Buttes, Terraces and Wetlands Conservation Plan* is part of the periodic review of the Plan called for in this policy.

c. The plan is consistent with Policy 9.3, Comprehensive Plan Amendment, because proposed changes to the Comprehensive Plan were discussed with the public and the proposed language was modified in response to citizen review.

41. Goal 11, Public Facilities, provides for a timely, orderly, and efficient arrangement of public facilities that support existing and planned land use patterns and densities. The plan conforms with this goal for the reasons stated in the finding for Statewide Planning Goal 11.

Supplemental Findings

42. Resource areas located within unincorporated Multnomah County and within the Portland Urban Service Boundary were included in the inventory and evaluated as part of the *East Buttes, Terraces and Wetlands Conservation Plan*. Specific areas within the Beggars Tick Marsh Addition were determined to warrant resource protection as provided for in Exhibit A and as mapped in Exhibit B. Upon annexation of these areas by the City of Portland, it is the Council's expressed intent that the conservation (c) and protection (p) overlay zones, and the Johnson Creek Plan District be applied as shown in Exhibit B.

43. The Portland City Council heard public testimony on a proposal to establish a transfer of development rights (TDRs) program for private lands on Kelly Butte. The proposal identified the receiving area to be the same as the area being studied in the Outer Southeast Community Plan. Since the City Council believes that a study of TDRs is warranted, and since the receiving area and the Outer Southeast Community Plan Area are virtually identical, such a study is most appropriately conducted as part of the Outer Southeast Community Plan project. The Council believes that it is essential to fully protect identified resources at Kelly Butte by applying the environmental protection overlay zone to entire properties that are deemed eligible TDR sending sites.

44. The Portland City Council and the Planning Commission heard public testimony on the lack of perceived deterrents to violations of the City's environmental regulations. Testimony also illustrated the damaging and in certain cases irreparable environmental effects of such violations. The City Council recognizes the need for strong and effective deterrents to violations of the City's environmental regulations. The City Council believes that a study of mandatory fines and other deterrents to such violations is needed and directs the Bureau of Planning to conduct this study and return to the City Council with recommended actions.

NOW, THEREFORE, the Council directs:

a. The Planning Commission Recommended *East Buttes, Terraces and Wetlands Conservation Plan* (Exhibit A) and Recommended Plan Appendices (Exhibit B) is hereby adopted.

b. Ordinance No. 150580 is hereby amended by adding to Policy 8.11 of the Comprehensive Plan the following new special area:

8.11, Special Areas

Recognize unique land qualities and adopt specific planning objectives for special areas.

~~A.~~ **Willamette River Greenway** (re-letter to G; no other change)

~~B.~~ **Balch Creek Watershed** (re-letter to A; no other change)

B. East Buttes, Terraces and Wetlands

Conserve wildlife, forest and water resource values and the unique geology of the East Portland through implementation of the East Buttes, Terraces and Wetlands Conservation Plan.

C. **Fanno Creek Watershed** (no change)

D. **Johnson Creek Basin** (no change)

E. **Northwest Hills** (no change)

F. **Southwest Hills** (no change)

c. Ordinance No. 163608 enacting Title 33, Planning and Zoning, of the Municipal Code of the City of Portland, is hereby amended as set forth in Exhibit A.

d. The Official Zoning Maps of the City of Portland are hereby amended as shown in Exhibit B.

e. Upon City annexation of Multnomah County resource lands located within the Beggars Tick Marsh Addition, that the conservation (c) and protection (p) overlay zones, and the Johnson Creek Plan District be applied to the City's Official Zoning Maps as shown in Exhibit B.

f. The Bureau of Planning, as part of its Outer Southeast Community Plan project, shall study and prepare recommendations to City Council on establishment of transfer of residential development rights (TDRs) from private lands located on Kelly Butte to an appropriate receiving area within the Community Plan Area. Upon adoption of a TDR program, the environmental protection overlay zone shall be applied to entire properties that are deemed eligible sending sites on Kelly Butte.

g. The Bureau of Planning shall study and prepare recommendations to the City Council on establishment of mandatory fines and other deterrents to violations of environmental regulations as a part of the Environmental Streamlining Project.

166572

ORDINANCE No.

Section 2.

This ordinance shall apply to permits, limited land use decisions and zone changes in the manner prescribed by Oregon Revised Statutes 227.178(3).

Section 3.

If any portion of the Comprehensive Plan, Zoning Code or Official Zoning Maps amended by this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, that portion is to be deemed severed, and in no way affects the remaining portions.

Passed by the Council, MAY 26 1993

Commissioner Hales
May 5, 1993
Tim Brooks/tb

BARBARA CLARK
Auditor of the City of Portland
By _____ Deputy

~~240~~ ~~658~~

Agenda No. 789

ORDINANCE NO. 166572

Title **As Amended**

Adopt Natural Resource Inventory, ESEE Analysis, and *East Buttes, Terraces and Wetlands Conservation Plan;* amend Comprehensive Plan and Title 33 of the City Code; amend Official Zoning Maps of the City of Portland (Ordinance) amend Title 33)

INTRODUCED BY Commissioner Charlie Hales	Filed: APR 30 1993
	Barbara Clark Auditor of the City of Portland
NOTED BY COMMISSIONER	
Affairs	By: Cary Kershner Deputy
Finance and Administration	
Safety Charlie Hales	
Utilities	For Meeting of:
Works	
BUREAU APPROVAL	
Bureau: Planning	
Prepared by: T. Brooks Date: April 26, 1993	Action Taken: ~~MAY 5 1993~~ PASSED TO SECOND READING MAY 19 1993, 2 P.M. MAY 19 1993 PASSED TO SECOND READING ~~MAY 26 1993~~ MAY 26 1993 2 P.M.
Budget Impact Review: ____ Completed _X_ Not Required	
Bureau Head: Robert E. Stacey, Jr. Planning Director	

AGENDA		FOUR-FIFTHS AGENDA	COMMISSIONERS VOTED AS FOLLOWS:		
				YEAS	NAYS
Consent	Regular ✓	Blumenauer	Blumenauer	✓	
NOTED BY		Hales	Hales	✓	
City Attorney for Linda Lee		Kafoury	Kafoury	✓	
City Auditor		Lindberg	Lindberg	✓	
City Engineer		Katz	Katz	✓	

APPENDIX B

WILDLIFE HABITAT ASSESSMENT FORM

Selection of the Wildlife Habitat Rating System

The Wildlife Habitat Assessment (WHA) rating system, originally developed for the City of Beaverton in 1983 as part of their Goal 5 update, is acknowledged by the Land Conservation and Development Commission (LCDC) as meeting the Goal 5 inventory requirements. This system is used by many jurisdictions throughout the Portland metropolitan area and by Lane County jurisdictions.

The success of the WHA rating system is due to the participation by biologists from a number of agencies, who developed the system and determined the criteria to be included under each component. The rating system was designed by a technical advisory team consisting of staff from the following agencies:

- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Oregon Department of Fish and Wildlife
- Audubon Society of Portland
- The Wetlands Conservancy
- Beaverton Planning Bureau

The WHA rating system reviews each identified habitat site in terms of its potential for wildlife. The rating system is based on the fact that all wildlife have three basic requirements for survival: food, water and cover. These form the three major components of the assessment. Each site is evaluated in terms of quantity, quality, diversity and seasonality of food, water and cover offered on the site. Also considered is the degree and permanence of physical and human disturbance on the site, whether there are other usable habitats nearby, and the unique features on the site, including wildlife, flora and rarity of habitat. Each of these is discussed in the section, "Discussion of the Rating Sheets."

The rating system is not intended to provide a comprehensive analysis of each site, but to allow relative values between habitat areas to be determined and compared. Should an in-depth study of specific sites be required, a more detailed biological analysis would be appropriate.

The City of Portland has modified the WHA form by dropping two elements originally considered as part of the habitat rating. These elements are "scenic" and "educational potential" values. The presence of these elements has no direct relationship to habitat quality. Scenic and educational values are reviewed in other parts of the Goal 5 inventory for resource sites.

Conducting the Field Inventory

Biologists from the City of Portland, Planning Bureau staff and occasionally members of the Goal 5 technical advisory committee, inventoried resource sites within the Portland Urban Services Boundary. The original field work was conducted largely in the spring, summer and fall of 1986. Subsequent inventories were conducted between 1989 and 1992. Habitat rating sheets for each site were completed and are on file at the Planning Bureau.

WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES
SITE LOCATION	FIELD DATES	FIELD OBSERVERS	

GENERAL COMMENTS

	HABITAT COMPONENT	DEGREE PRESENT			SCORE EXISTING	SCORE ENHANCED	SPECIFIC COMMENTS
WATER	QUANTITY & SEASONALITY	NONE 0	SEASONAL 4	PERENNIAL 8			
	DIVERSITY STREAMS, PONDS, ETC.	ONE 2	TWO 4	THREE 8			
	PROXIMITY TO COVER	NONE 0	NEAR 4	ADJACENT 8			
	QUALITY FLUSHING FREQUENCY	STAGNENT 0	SEASONAL 3	CONTINUOUS 6			
FOOD	QUANTITY & SEASONALITY	NONE 0	LIMITED 4	YEAR ROUND 8			
	VARIETY	LOW 0	MEDIUM 4	HIGH 8			
	PROXIMITY TO COVER	NONE 0	NEAR 4	ADJACENT 8			
COVER	STRUCTURAL DIVERSITY	LOW 0	MEDIUM 4	HIGH 8			
	VARIETY	LOW 0	MEDIUM 4	HIGH 8			
	SEASONALITY	NONE 0	LIMITED 2	YEAR ROUND 4			
	NESTING DENNING, ETC.	LOW 0	MEDIUM 2	HIGH 4			
	ESCAPE	LOW 0	MEDIUM 2	HIGH 4			
OTHER VALUES	PHYSICAL DISTURBANCE	PERMANENT 0	TEMPORARY 2	NONE 4			
	HUMAN DISTURBANCE	HIGH 0	MEDIUM 2	LOW 4			
	INTERSPERSION WITH OTHER HABITATS	LOW 0	MEDIUM 3	HIGH 6			
UNIQUE FEATURES	HABITAT TYPE	0	-	4			
	FLORA	0	-	4			
	FAUNA	0	-	4			

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Bureau of Planning

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Michael Jennings - Portland Bureau of Planning
COMPUTER AUTOMATION BY:
Al Burns & Tim Brooks - Portland Bureau of Planning

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Ralph Rogers - U.S. Environmental Protection Agency
Gene Hertz - Oregon Department of Fish and Wildlife
Jack Broome - Wetlands Conservancy
Diana Hwang - U.S. Fish and Wildlife Service

WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

WEATHER ON DAY OF FIELD OBSERVATION			
PRECIPITATION PRESENT		WIND SPEED	
KIND OF PRECIPITATION		WIND DIRECTION	
CLOUD COVER	%	TEMPERATURE	° F

PHYSICAL ENVIRONMENT	
GENERAL DESCRIPTION OF TOPOGRAPHY	
ORIENTATION OF SLOPE	
DEGREE OF SLOPE	°
TYPE OF WATER FEATURES PRESENT	
PORTION OF SITE INUNDATED BY WATER	%
MAJOR STRUCTURES OR ROADS PRESENT	

VEGETATION			
LIST OF HERB SPECIES			
LIST OF SHRUB SPECIES			
LIST OF TREE SPECIES			
TYPES OF PLANT COMMUNITIES			
SERIAL STAGES OF PLANT COMMUNITIES			
GENERAL HEALTH AND VITALITY OF PLANT COMMUNITIES			
CANOPY CLOSURE IN HERB ZONE: %	SHRUB ZONE: %	TREE ZONE: %	
ESTIMATED NUMBER OF SNAGS PER ACRE:	DIAMETER OF LARGEST SNAGS IN FEET:		
AQUATIC VEGITATION FLOATING: %	EMERGENT: %	INUNDATED: %	

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WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

FISH AND WILDLIFE	
INVERTEBRATE SPECIES OBSERVED	
FISH SPECIES OBSERVED	
AMPHIBIAN SPECIES OBSERVED	
REPTILE SPECIES OBSERVED	
BIRD SPECIES OBSERVED	
MAMMALIAN SPECIES OBSERVED	
SPECIES NOT OBSERVED BUT KNOWN TO BE PRESENT AND SOURCE OF INFORMATION	

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Jack Broome - Wetlands Conservancy
Diana Hwang - U.S. Fish and Wildlife Service

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

HABITAT FUNCTIONS	
FOOD SOURCES	
ROOSTING PLACES	
PERCHING PLACES	
NESTING PLACES	
OTHER FUNCTIONS	
RARE SPECIES	
SENSITIVE SPECIES	
PROTECTED SPECIES	
UNIQUE FEATURES	

HUMAN USES	
HUMAN USES	
DOMESTIC ANIMAL USES	
PROXIMITY TO RESIDENCES	
EXISTING COMPATABLE USES	
EXISTING CONFLICTING USES	
INTERSPERSION WITH OTHER NATURAL AREAS	
MANAGEMENT MEASURES THAT COULD BE CARRIED OUT TO IMPROVE HABITAT VALUES	

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Diane Hwang - U.S. Fish and Wildlife Service

Discussion of the Rating Sheets

This section is a summary discussion of the Wildlife Habitat Assessment rating sheets. An examples of WHA rating sheet is included in this appendix. It needs to be emphasized that this discussion is a summary and not a textbook approach which would allow the reader to duplicate the City's inventory information. For more detailed information on specific procedures, the reader is encouraged to contact the City of Portland. The WHA rating system provides a city-wide basis for comparison of resource sites. The WHA form is one element of the City's Goal 5 resource inventory; other sources of inventory information include published plans, reports and maps, aerial photographs and field sampling.

The WHA rating form is divided into three parts. The first presents general information about the site to facilitate identification. Included here are the unit number, location, size, score and comments.

Unit No. A space is provided for the observer to label each site with an individual identification number.

Location This space is to briefly describe the site location.

Sq. Ft. The approximate size of the site can be noted.

Score The cumulative score after the rating sheet has been filled out can be noted here. The scoring is done while in the field.

Comments This space is used for additional remarks on the reasoning behind specific numeric ratings or for potential of the site for rehabilitation, enhancement, etc.

The second section consists of the water, food and covers values (referred to as habitat components). Each of these components is further divided into a number of aspects.

Water

Four aspects of the water regime on a site were included on the rating form: quantity and seasonality, quality, proximity to cover, and diversity. All of these factors play an important role in the site's significance to wildlife.

The relative value of these aspects compared to the other components (food and cover) are higher. The total number of possible points from the water component is 30 points, while the highest totals for food and cover are 24 and 28 points, respectively. The reason for this weighting of the relative value of the water component is that it is of critical importance to the function of wetlands and riparian zones and the wildlife species that inhabit them.

Quantity and Seasonality: This aspect refers to the amount of water available on site, and its seasonal variability. Seasonal water sources are given a value of four points, and perennial water sources (available year-round) a value of eight.

Quality: Stagnant water sources were given a value of zero, seasonally flushed a value of three, and continually flushed a value of six. Although desirable to have some value included reflecting the quality of the water on site, actual water quality analysis is not always feasible. Therefore, an indirect measure of quality, "flushing," was selected. In actuality, even stagnant water has some wildlife habitat value, but it was decided to assign it a value of zero, as seasonally or continually-flushed water has a higher value for wildlife, and because the presence of stagnant water indicates the probability of other factors which result in lower wildlife values.

Proximity to Cover: Wildlife will use water more readily if it is close to vegetative cover. This allows escape from predators and protection from weather extremes. The closer and more dense the cover, the more important the water source to many species. Dense cover immediately adjacent to a water source yields a site value of eight, nearby cover a value of four, and no cover a value of zero.

Diversity: A site with a mixture of wetland, stream and open pond or lake resources has higher wildlife value than a site with only one of these features. The ranking ranges from a low of two (one water source only) to eight (three or more water sources present).

Food

Food is a basic requirement for any organism. Wildlife cannot survive in one area for any appreciable period of time without food. The greater the variety and quantity of food, the greater the potential for serving the needs of more wildlife species. The three aspects included under food are variety, quantity and seasonality, and proximity to cover.

Variety: The variety of food on a site is rated from a high of eight points to a low of zero.

Quantity and Seasonality: This aspect measures the amount of food and its availability on an annual basis. Sites having large quantities of food available year-round receive a value of eight, and sites with little or no food available receive a value of zero.

Proximity to Cover: As with water, the presence of adjacent cover from which to forage for food and escape predation by other native wildlife or domestic animals is important. Proximity to cover also ranked from zero to eight points.

Cover

The aspects of cover included here (structure, variety, nesting, escape and seasonality) attempt to describe the physical environment of the site from a number of perspectives that are important to wildlife.

Structural Diversity: What is looked for in this category is the vertical stratification of vegetation on a site, i.e., is there only one layer of vegetative cover (herbaceous, shrub or tree), or are there more? The most diverse structural system expected to be encountered would be multi-layered, with a ground layer of herbaceous vegetation (grasses, forbs, wildflowers, etc.), a second layer consisting of shrubs (snowberry, thimbleberry, Oregon grape, Himalayan blackberry, etc.), perhaps another layer of taller plants (red and blue elderberry, Indian plum, serviceberry), a short tree layer (flowering dogwood, hazelnut, saplings of taller species), and finally a tall canopy layer (Douglas fir, western hemlock, bigleaf maple, black cottonwood, Oregon ash, Oregon white oak, etc.). Snags and down woody debris also provide structural diversity. The more layers present, the greater the surface area for more feeding, traveling, and breeding available to a wider number of wildlife species. Values range from eight points for high structural diversity, to zero for low or no diversity.

Variety: Within any one layer or when considering all layers, if structural diversity is high, there may be a number of plant species which provide a variety of vegetation characteristics. This is important from the standpoints of cover, feeding and reproduction. The greater the variety of vegetation, the more important the habitat. For example, a forested wetland with a mixture of rushes, sedges, smartweed, spirea and willow provides more valuable wildlife habitat than an area with a monoculture of reed canarygrass. Values range from eight points for high variety, to zero for little or no variety.

Nesting: While there may be both good variety and diversity of vegetative cover, the overall nesting potential may vary from site to site. This aspect was added to address the overall nesting potential of the site for a variety of bird and mammal species. Nesting values range from four to zero points.

Escape: This aspect is primarily a function of density of cover and its ability to afford escape from predation. A value of four points is assigned to sites which offer a high possibility of escape, and zero for those with no or low potential.

Seasonality: As with food and water, a habitat site will be less important to wildlife if cover is not present year-round. Regarding cover, this relates primarily to whether all of the vegetation is deciduous or evergreen. If there is some evergreen vegetation, or the deciduous vegetation retains some of its canopy year-round, the site is more valuable. Vegetative cover available year-round receives a value of four, limited cover a value of two, and seasonal cover a value of zero.

The third part of the form addresses values in addition to food, water and cover. The factors examined include disturbance, interspersion and unique features.

Disturbance
Disturbance is examined from two perspectives: physical and human.

Physical: This category was used to assign a higher value to those sites with little disturbance, to reflect the fact that the removal or disturbance of physical components (food, water, cover) is detrimental to wildlife. However, it is also recognized that such a disturbance could be relatively short-lived (such as placement of a sewer line down a creek channel), while others are long-term or permanent. A relatively undisturbed site receives a maximum value of four points, sites with temporary physical disturbance a value of two, and those with permanent or long-term disturbance a value of zero.

Human: Human and human-related (e.g., domestic animals) disturbances can be very detrimental to wildlife. On the other hand, an area that is highly disturbed from a physical perspective may receive little human use. The values range from four points for low human disturbance, to zero for high impact.

Interspersion
Habitats are important to one another in the sense that a number of different habitats adjacent to one another can provide an overall diversity of vegetative cover, food and often water. Therefore, an isolated site surrounded by pavement, buildings, and human activity would receive a lower interspersion value than a similar site surrounded by other habitat sites, such as wetlands, upland forests, shrubby areas, or meadows. The interspersion score ranges from a high of six points, to a low of zero.

Unique Features
This component is intended to take into account other factors which might make the site unique to plants, animals or humans. Aspects included are unique or locally rare or sensitive flora or fauna, and the rarity of habitat within the City.

Flora and Fauna: If there is a particular species of plant or wildlife which is sensitive or unique in some way, then the site would receive a value ranging from one to four points.

Habitat Type: This refers to whether the site has any plant or animal species considered rare from a regional or national perspective, or in terms of scarcity within the City, or within a particular Management Unit. The highest value which can be received is four points.

APPENDIX C

STATEWIDE PLANNING GOAL 5

5. OPEN SPACES, SCENIC AND HISTORIC AREAS, AND NATURAL RESOURCES

GOAL: To conserve open space and protect natural and scenic resources.

Programs shall be provided that will: (1) insure 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. The location, quality and quantity of the following resources shall be inventoried:

a. Land needed or desirable for open space;
b. Mineral and aggregate resources;
c. Energy sources;
d. Fish and wildlife areas and habitats;
e. Ecologically and scientifically significant natural areas, including desert areas;
f. Outstanding scenic views and sites;
g. Water areas, wetlands, watersheds and groundwater resources;
h. Wilderness areas;
i. Historic areas, sites, structures and objects;
j. Cultural areas;
k. Potential and approved Oregon recreation trails;
l. Potential and approved federal wild and scenic waterways and state scenic waterways.

Where no conflicting uses for such resources have been identified, such resources shall be managed so as to preserve their original character. Where conflicting uses have been identified the economic, social, environmental and energy consequences of the conflicting uses shall be determined and programs developed to achieve the goal.

Cultural Area — refers to an area characterized by evidence of an ethnic, religious or social group with distinctive traits, belief and social forms.

Historic Areas — are lands with sites, structures and objects that have local, regional, statewide or national historical significance.

Natural Area — includes land and water that has substantially retained its natural character and land and water that, although altered in character, is important as habitats for plant, animal or marine life, for the study of its natural historical, scentific or paleontological features, or for the appreciation of its natural features.

Open Space — consists of lands used for agricultural or forest uses, and any land area that would, if preserved and continued in its present use:

(a) Conserve and enhance natural or scenic resources;
(b) Protect air or streams or water supply;
(c) Promote conservation of soils, wetlands, beaches or tidal marshes;
(d) Conserve landscaped areas, such as public or private golf courses, that reduce air pollution and enhance the value of abutting or neighboring property;
(e) Enhance the value to the public of abutting or neighboring parks, forests, wildlife preserves, nature reservations or sanctuaries or other open space;
(f) Promote orderly urban development.

Scenic Areas — are lands that are valued for their aesthetic appearance.

Wilderness Areas — are areas where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. It is an area of undeveloped land retaining its primeval character and influence, without permanent improvement or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) may also contain ecological, geological, or other features of scientific, educational, scenic or historic value.

GUIDELINES:

A. Planning:

1. The need for open space in the planning area should be determined, and standards developed for the amount, distribution, and type of open space.
2. Criteria should be developed and utilized to determine what uses are consistent with open space values and to evaluate the effect of converting open space lands to inconsistent uses. The maintenance and development of open space in urban areas should be encouraged.
3. Natural resources and required sites for the generation of energy (i.e. natural gas, oil, coal, hydro, geothermal, uranium, solar and others) should be conserved and protected; reservoir sites should be identified and protected against irreversible loss.
4. Plans providing for open space, scenic and historic areas, and natural resources should consider as a major determinant the carrying capacity of the air, land and water resources of the planning area. The land conservation and development actions provided for by such plans should not exceed the carrying capacity of such resources.
5. The National Register of Historic Places and the recommendations of the State Advisory Committee on Historic Preservation should be utilized in designating historic sites.
   utilized in designating historic sites.
6. In conjunction with the inventory of mineral and aggregate resources, sites for removal and processing of such resources should be identified and protected.
7. As a general rule, plans should prohibit outdoor advertising signs except in commercial or industrial zones. Plans should not provide for the reclassification of land for the purpose of accommodating an outdoor advertising sign. The term "outdoor advertising sign" has the meaning set forth in ORS 377.710(23).

B. Implementation:

1. Development should be planned and directed so as to conserve the needed amount of open space.
2. The conservation of both renewable and nonrenewable natural resources and physical limitations of the land should be used as the basis for determining the quantity, quality, location, rate and type of growth in the planning area.
3. The efficient consumption of energy should be considered when utilizing natural resources.
4. Fish and wildlife areas and habitats should be protected and managed in accordance with the Oregon Wildlife Commission's fish and wildlife management plans.
5. Stream flow and water levels should be protected and managed at a level adequate for fish, wildlife, pollution abatement, recreation, aesthetics and agriculture.
6. Significant natural areas that are historically, ecologically or scientifically unique, outstanding or important, including those identified by the State Natural Area Preserves Advisory Committee, should be inventoried and evaluated. Plans should provide for the preservation of natural areas consistent with an inventory of scientific, educational, ecological and recreational needs for significant natural areas.
7. Local, regional and state governments should be encouraged to investigate and utilize fee acquisition, easements, cluster developments, preferential assessment, development rights acquisition and similar techniques to implement this goal.
8. State and federal agencies should develop statewide natural resource, open space, scenic and historic area plans and provide technical assistance to local and regional agencies. State and federal plans should be reviewed and coordinated with local and regional plans.
9. Areas identified as having nonrenewable mineral and aggregate resources should be planned for interim, transitional and "second use" utilization as well as for the primary use.

APPENDIX D

GOAL 5 ADMINISTRATIVE RULE

DIVISION 16

REQUIREMENTS AND APPLICATION PROCEDURES FOR COMPLYING WITH STATEWIDE GOAL 5

Inventory Goal 5 Resources

660-16-000 (1) The inventory process for Statewide Planning Goal 5 begins with the collection of available data from as many sources as possible including experts in the field, local citizens and landowners. The local government then analyzes and refines the data and determines whether there is sufficient information on the location, quality and quantity of each resource site to properly complete the Goal 5 process. This analysis also includes whether a particular natural area is "ecologically and scientifically significant", or an open space area is "needed", or a scenic area is "outstanding", as outlined in the Goal. Based on the evidence and local government's analysis of those data, the local government then determines which resource sites are of significance and includes those sites on the final plan inventory.

(2) A "valid" inventory of a Goal 5 resource under subsection (5)(c) of this rule must include a determination of the location, quality, and quantity of each of the resource sites. Some Goal 5 resources (e.g., natural areas, historic sites, mineral and aggregate sites, scenic waterways) are more site-specific than others (e.g., groundwater, energy sources). For site-specific resources, determination of *location* must include a description or map of the boundaries of the resource site and of the impact area to be affected, if different. For non-site-specific resources, determination must be as specific as possible.

(3) The determination of *quality* requires some consideration of the resource site's relative value, as compared to other examples of the same resource in at least the jurisdiction itself. A determination of *quantity* requires consideration of the relative abundance of the resource (of any given quality). The level of detail that is provided will depend on how much information is available or "obtainable".

(4) The inventory completed at the local level, including options (5)(a), (b), and (c) of this rule, will be adequate for Goal compliance unless it can be shown to be based on inaccurate data, or does not adequately address location, quality or quantity. The issue of adequacy may be raised by the Department or objectors, but final determination is made by the Commission.

(5) Based on data collected, analyzed and refined by the local government, as outlined above, a jurisdiction has three basic options:

(a) Do Not Include on Inventory: Based on information that is available on location, quality and quantity, the local government might determine that a particular resource site is not important enough to warrant inclusion on the plan inventory, or is not required to be included in the inventory based on the specific Goal standards. No further action need be taken with regard to these sites. The local government is not required to justify in its comprehensive plan a decision not to include a particular site in the plan inventory unless challenged by the Department, objectors or the Commission based upon contradictory information.

(b) Delay Goal 5 Process: When some information is available, indicating the possible existence of a resource site, but that information is not adequate to identify with particularity the location, quality and quantity of the resource site, the local government should only include the site on the comprehensive plan inventory as a special category. The local government must express its intent relative to the resource site through a plan policy to address that resource site and proceed through the Goal 5 process in the future. The plan should include a time-frame for this review. Special implementing measures are not appropriate or required for Goal 5 compliance purposes until adequate information is available to enable further review and adoption of such measures. The statement in the plan commits the local government to address the resource site through the Goal 5 process in the post-acknowledgment period. Such future actions could require a plan amendment.

(c) Include on Plan Inventory: When information is available on location, quality and quantity, and the local government has determined a site to be significant or important as a result of the data collection and analysis process, the local government must include the site on its plan inventory and indicate the location, quality and quantity of the resource site (see above). Items included on this inventory must proceed through the remainder of the Goal 5 process.

Stat. Auth.: ORS Ch. 183 & 197
Hist: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef 6-29-81

[ED. NOTE: The text of Temporary Rules is not printed in the Oregon Administrative Rules Compilation. Copies may be obtained from the adopting agency or the Secretary of State.]

Identify Conflicting Uses

660-16-005 It is the responsibility of local government to identify conflicts with inventoried Goal 5 resource sites. This is done primarily by examining the uses allowed in broad zoning districts established by the jurisdiction (e.g., forest and agricultural zones). A conflicting use is one which, if allowed, could negatively impact a Goal 5 resource site. Where conflicting uses have been identified, Goal 5 resource sites may impact those uses. These impacts must be considered in analyzing the economic, social, environmental and energy (ESEE) consequences:

(1) Preserve the Resource Site: If there are no conflicting uses for an identified resource site, the jurisdiction must adopt policies and ordinance provisions, as appropriate, which insure preservation of the resource site.

(2) Determine the Economic, Social, Environmental, and Energy Consequences: If conflicting uses are identified, the economic, social, environmental and energy consequences of the conflicting uses must be determined. Both the impacts on the resource site and on the conflicting use must be considered in analyzing the ESEE consequences. The applicability and requirements of other Statewide Planning Goals must also be considered, where appropriate, at this stage of the process. A determination of the ESEE consequences of identified conflicting uses is adequate if it enables a jurisdiction to provide reasons to explain why decisions are made for specific sites.

Stat. Auth.: ORS Ch. 183 & 197
Hist: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

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Develop Program to Achieve the Goal

660-16-010 Based on the determination of the economic, social, environmental and energy consequences, a jurisdiction must "develop a program to achieve the Goal". Assuming there is adequate information on the location, quality, and quantity of the resource site as well as on the nature of the conflicting use and ESEE consequences, a jurisdiction is expected to "resolve" conflicts with specific sites in any of the following three ways listed below. Compliance with Goal 5 shall also be based on the plan's overall ability to protect and

conserve each Goal 5 resource. The issue of adequacy of the overall program adopted or of decisions made under sections (1), (2) and (3) of this rule may be raised by the Department or objectors, but final determination is made by the Commission, pursuant to usual procedures:

(1) Protect the Resource Site: Based on the analysis of the ESEE consequences, a jurisdiction may determine that the resource site is of such importance, relative to the conflicting uses, and the ESEE consequences of allowing conflicting uses are so great that the resource site should be protected and all conflicting uses prohibited on the site and possibly within the impact area identified in OAR 660-16-000(5)(c). Reasons which support this decision must be presented in the comprehensive plan, and plan and zone designations must be consistent with this decision.

(2) Allow Conflicting Uses Fully: Based on the analysis of ESEE consequences and other Statewide Goals, a jurisdiction may determine that the conflicting use should be allowed fully, not withstanding the possible impacts on the resource site. This approach may be used when the conflicting use for a particular site is of sufficient importance, relative to the resource site. Reasons which support this decision must be presented in the comprehensive plan, and plan and zone designations must be consistent with this decision.

(3) Limit Conflicting Uses: Based on the analysis of ESEE consequences, a jurisdiction may determine that both the resource site and the conflicting use are important relative to each other, and that the ESEE consequences should be balanced so as to allow the conflicting use but in a limited way so as to protect the resource site to some desired extent. To implement this decision, the jurisdiction must designate with certainty what uses and activities are allowed fully, what uses and activities are not allowed at all and which uses are allowed conditionally, and what specific standards or limitations are placed on the permitted and conditional uses and activities for each resource site. Whatever mechanisms are used, they must be specific enough so that affected property owners are able to determine what uses and activities are allowed, not allowed, or allowed conditionally and under what clear and objective conditions or standards. Reasons which support this decision must be presented in the comprehensive plan, and plan and zone designations must be consistent with this decision.

Stat. Auth.: ORS Ch. 183 & 197
Hist: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

[ED. NOTE: The text of Temporary Rules is not printed in the Oregon Administrative Rules Compilation. Copies may be obtained from the adopting agency or the Secretary of State.]

Post-Acknowledgment Period

660-16-015 All data, findings, and decisions made by a local government prior to acknowledgment may be reviewed by that local government in its periodic update process. This includes decisions made as a result of OAR 660-16-000(5)(a), 660-16-005(1), and 660-16-010. Any changes, additions, or deletions would be made as a plan amendment, again following all Goal 5 steps.

If the local government has included in its plan items under OAR 660-16-000(5)(b), the local government has committed itself to take certain actions within a certain time frame in the post-aknowledgment period. Within those stated time frames, the local government must address the issue as stated in its plan, and treat the action as a plan amendment.

Stat. Auth.: ORS Ch. 183 & 197
Hist: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

[ED. NOTE: The text of Temporary Rules is not printed in the Oregon Administrative Rules Compilation. Copies may be obtained from the adopting agency or the Secretary of State.]

Landowner Involvement

660-16-020 (1) The development of inventory data, identification of conflicting uses and adoption of implementing measures must, under Statewide Planning Goals 1 and 2, provide opportunities for citizen involvement and agency coordination. In addition, the adoption of regulations or plan provisions carries with it basic legal notice requirements. (County or city legal counsel can advise the planning department and governing body of these requirements.) Depending upon the type of action involved, the form and method of landowner notification will vary. State statutes and local charter provisions contain basic notice requirements. Because of the nature of the Goal 5 process as outlined in this paper it is important to provide for notification and involvement of landowners, including public agencies, at the earliest possible opportunity. This will likely avoid problems or disagreements later in the process and improve the local decision-making process in the development of the plan and implementing measures.

(2) As the Goal 5 process progresses and more specificity about the nature of resources, identified conflicting uses, ESEE consequences and implementing measures is known, notice and involvement of affected parties will become more meaningful. Such notice and landowner involvement, although not identified as a Goal 5 requirement is in the opinion of the Commission, imperative.

Stat. Auth.: ORS Ch. 183 & 197
Hist: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

[ED. NOTE: The text of Temporary Rules is not printed in the Oregon Administrative Rules Compilation. Copies may be obtained from the adopting agency or the Secretary of State.]

Policy Application

660-16-025 OAR 660-16-000 through 660-16-025 are applicable to jurisdictions as specified below:

(1) Category 1: Compliance with OAR 660-16-000 through 660-16-025 is required prior to granting acknowledgment of compliance under ORS 197.251 and OAR 660-03-000 through 660-03-040 for those jurisdictions which:

(a) Have not submitted their comprehensive plan for acknowledgment as of the date of adoption of this rule;

(b) Are under denial orders as of the date of adoption of this rule;

(c) Are not scheduled for review prior to or at the June 1981 Commission meeting.

(2) Category 2:

(a) Compliance with OAR 660-16-000 through 660-16-025 is required as outlined below for those jurisdictions which:

(A) Are under continuance orders adopted pursuant to OAR 660-03-040;

(B) Are scheduled for review at the April 30/May 1, May 29 or June 1981 Commission meetings.

(b) For these jurisdictions a notice will be given to all parties on the original notice list providing a 45-day period to object to the plan based on OAR 660-16-000 through 660-16-025.

(c) OAR 660-16-000 will be applied based on objections alleging violations of specific provisions of the rule on specific resource sites. Objections must be filed following requirements outlined in OAR 660-03-000 through 660-03-040 (Acknowledgment of Compliance Rule). Where no objections are filed or objections are not specific as to which elements of OAR 660-16-000 through 660-16-025 have been violated, and what resource sites, the plan will be reviewed against Goal

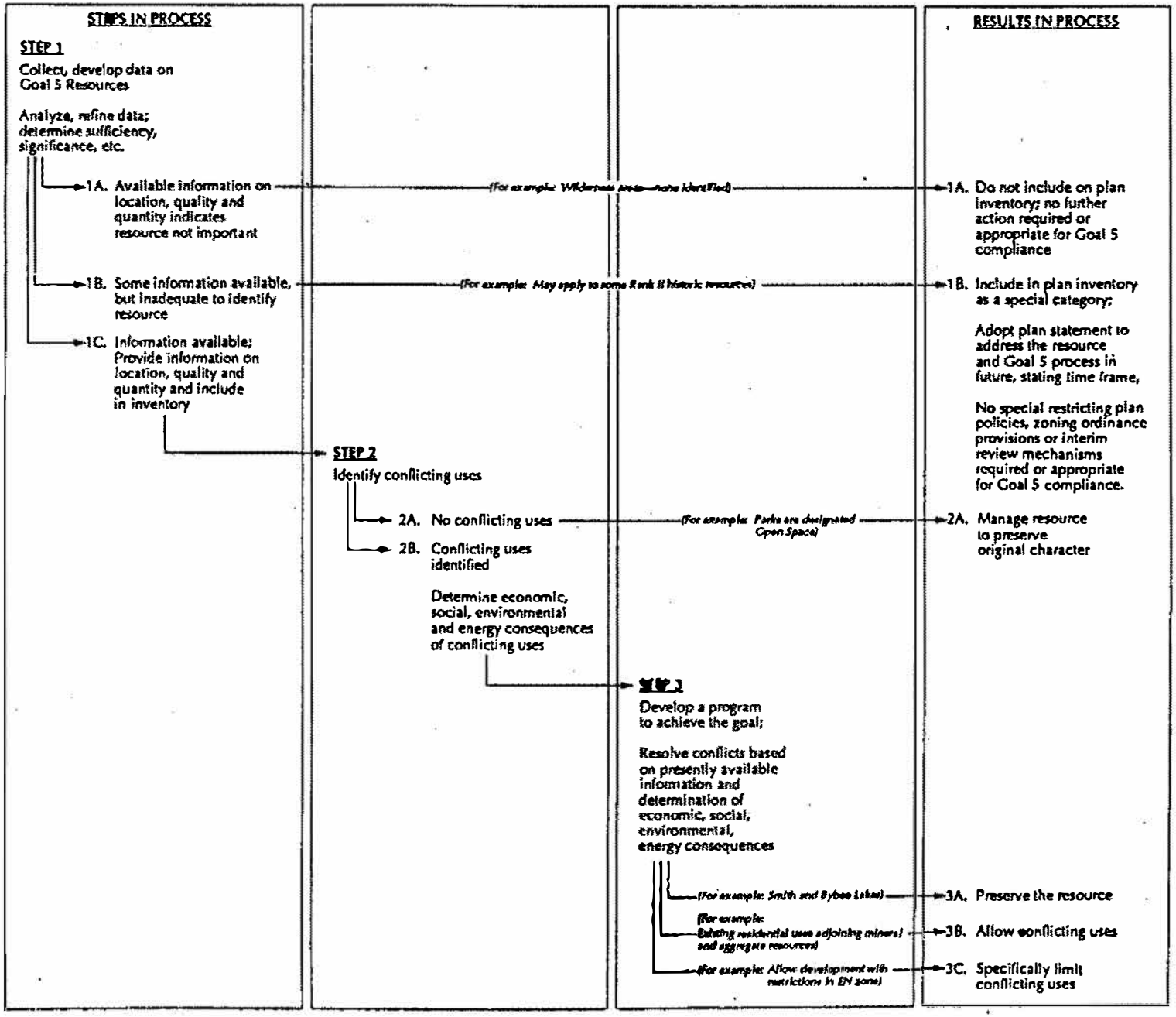
standards as they existed prior to adoption of OAR 660-16-000 through 660-16-025.

(3) Jurisdictions which receive acknowledgment of compliance (as outlined in ORS 197.251) at the April 30/May 1, 1981 Commission meeting will not be subject to review procedures outlined above, but will be treated as other previously acknowledged jurisdictions.

Stat. Auth.: ORS Ch. 183 & 197
Hist: LCD 5-1981(Temp), f. & ef. 5-6-81; LCD 7-1981, f. & ef. 6-29-81

[ED. NOTE: The text of Temporary Rules is not printed in the Oregon Administrative Rules Compilation. Copies may be obtained from the adopting agency or the Secretary of State.]

GOAL 5 OPEN SPACES, SCENIC AND HISTORIC AREAS, AND NATURAL RESOURCES INVENTORY EVALUATION PROCESS



APPENDIX E

GLOSSARY

Glossary

BANK	The rising ground surrounding a lake, river, or other water body.
CHANNEL	The bed where a stream of water runs.
COVER	Vegetation that serves to protect animals from excessive sunlight, drying, or predators.
DOMINANT	The species controlling the environment.
EDGE EFFECT	The opportunities afforded along the boundary (also ECOTONE) between two plant communities for animals that can feed in one and take shelter in the other. Also, disturbance to forest habitat through fragmentation, microclimatic changes, and altered predatory relationships caused by edge creation.
ENHANCE	To raise to a higher degree; improve quality or available capacity; intensify; magnify.
EMERGENT VEGETATION	Various aquatic plants usually rooted in shallow water and having most of their vegetative growth above water, such as cattails and bullrushes.
EUTROPHICATION	The process by which a lake becomes rich in dissolved nutrients and deficient in oxygen.
FRAGIPAN	A hard, slowly permeable silt loam soil layer that normally develops 2.5 to 4.5 feet below the ground surface in the Portland West Hills.
GALLERY FOREST	A strip of forest bordering a river or lake where tree growth is supported by water flowing through the soil for a short distance.
GOAL 5	A portion of the Oregon Land Conservation and Development Commission land use goals, dealing with the protection and conservation of open spaces, scenic and historic areas, and natural resources.
HABITAT	Place where a plant or animal species naturally lives and grows; its immediate surroundings.

HYDRIC SOILS	Soil that is wet long enough to periodically produce anaerobic conditions, thereby influencing the growth of plants.
HYDROPHYTE	A vascular plant that grows in water with its buds below the water surface.
INTERSPERSION	The proximity and interaction of one natural area to other adjacent areas.
INUNDATE	To flood; overspread with water; overflow.
LACUSTRINE	Related to or within lakes.
LITTORAL	Relating to, situated in or near a shoreline.
LIMNIC	Relating to or inhabiting a marshy lake.
MESIC	Of or pertaining to, or adapted to an environment having a balanced supply of moisture; being neither extremely wet nor dry.
MITIGATE	To make less severe. Mitigation means the reduction of adverse effects of a proposed project by considering, *in the following order:* a) Avoiding the impact altogether by not taking a certain action or parts of an action; b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation; c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment; d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action by monitoring and taking appropriate corrective measures; and e) Compensating for the impact by replacing or providing comparable substitute resources or environments.
MYCORRHIZAE	A mutual relationship between plant roots and certain kinds of fungi. The plants exude carbon compounds to the fungi, and the fungi provide the plants with soil nutrients, such as phosphorous.
PALUSTRINE	Wetlands dominated by trees, shrubs, persistent emergent herbs, emergent mosses or lichens.

PASSERINE	Birds of the Order Passeriformes, comprising more than half of all bird species, and typically having feet adapted for perching (sparrows, warblers, etc.).
RAPTORS	Birds of the families Accipitridae, Falconidae, Tytonidae, and Strigidae; birds of prey equipped with long hooked bills and strong talons (hawks, eagles, falcons, and owls).
REDD	A fish spawning nest in river or stream gravel.
RIPARIAN	Relating to, living, or located on the bank of a natural water course (stream, river, etc.).
RIVERINE	Related to, formed by, or resembling a river.
SATURATED	Soaked, impregnated, or imbued thoroughly (soils).
SERAL STAGE	A characteristic association of plants and animals during succession and before climax.
SHOREBIRD	Birds of the Families Charadridae and Scolopacidae that are generally mud feeders and shore inhabiting.
SLOUGH	Usually a channel containing water which may or may not be moving, and often alluvial in nature.
SMALL MAMMALS	Fur covered animals that bear their young alive and nurse, those of the Orders Rodentia and Insectivores (mice, voles, shrews, etc.).
STRUCTURAL	Different habitat types within a Natural Area (i.e., Diversity; grasslands, forest, open water, etc.).
SUBSIDENCE	A sinking of part of the earths crust. Movement in which there is not free side and surface material is displaced vertically downward with little or no horizontal component.
UPPER PERENNIAL	One of four subsystems of the Riverine System, where the gradient is high, water velocity is fast, and some water flows throughout the year.
WATERFOWL	Birds of the Family Anatidae. Aquatic, web-footed, gregarious birds ranging from small ducks to large swans, including geese.

WETLANDS	Lands transitional between terrestrial and aquatic where the water table is usually at or near the surface or the land is covered by shallow water. Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.
XERIC	Of, pertaining to, or adapted to a dry environment.

APPENDIX F

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