W.7.C.

**AGENDA COVER MEMO**

**DATE:** **June 14, 2006 (Memo)**
**June 28, 2006 (First Reading)**
**July 12, 2006 (Second Reading/Public Hearing)**

**TO:** LANE COUNTY BOARD OF COMMISSIONERS

**FROM:** Stephanie Schulz/Planner, LMD

**TITLES:** **ORDINANCE NO. PA 1233** – IN THE MATTER OF ADOPTING THE SPRINGFIELD NATURAL RESOURCES STUDY FOR APPLICATION OUTSIDE THE SPRINGFIELD CITY LIMITS AND WITHIN THE SPRINGFIELD URBAN GROWTH BOUNDARY, AND ADOPTING SAVINGS AND SEVERABILITY CLAUSES.

## I MOTION

**1. For June 28, 2006:** I move approval of the first reading and setting the second reading and public hearing for Ordinance No. PA 1233 on July 12, 2006 at 1:30 pm.

**2. For July 12, 2006**: I move approval of Ordinance No. PA 1233.

## II. ISSUE

Shall the Board of County Commissioners adopt the *Springfield Natural Resources Study* for application in the urbanizable area of Springfield?

## III. DISCUSSION

### A. Background

The purpose of the *Springfield Natural Resources Study (Study)* is to comply with the mandate of Goal 5 for the Eugene-Springfield Metropolitan Area periodic review work program. The Study addresses the protection of locally significant wetland and riparian resources in Springfield and in doing so, completes the City's last remaining periodic review tasks. The Study details the economic, social, environmental and energy (ESEE) consequences of prohibiting, limiting or allowing conflicting uses (development) to impacted wetland and riparian areas. Statewide Planning rules require the ESEE analysis to include a site-by-site analysis of these impacts, which is completed. These rules also require an estimation of the impacts of the protection decisions and implementing standards on the buildable lands inventory. These estimates are also contained in the Study. Based on the analysis conducted through the course of this Study, the Study recommends a protection approach that "limits conflicting uses."

The City of Springfield and Lane County previously adopted the Natural Resources Inventory sites and criteria for determination of significance as applicable within the Springfield Urban Growth Boundary (UGB) through Ordinance No. PA 1215 in 2004. The Springfield Local Wetland Inventory (Wetland Inventory) was first adopted in 1998. Completing a protection plan for Springfield's wetland areas was identified in the DLCD approved Metro Plan Periodic Review Work Program as task #5. The Wetland Inventory contains several sites that overlap with the NR Inventory. Completing the natural resources inventory and protection measures for upland and other significant natural resource sites in the Eugene

Springfield area was identified as Metro Plan Periodic Review work task #7. The overlap between the Local Wetland Inventory and the natural resources sites inventory, plus the need to conduct a similar analysis for both the NR Inventory and the Wetland Inventory made the combining of Periodic Review Tasks #5 and #7 the most sensible and efficient for Springfield to complete the work mandated under Goal 5. In doing so, the NR Study documents the analysis required under OAR 660-23-090 and 100, and proposes a program for protecting both wetland and riparian resources.

The Study also recommends the addition of implementing protection measures to the Springfield Development Code for application through the City's development review process. See Ordinance No. 4-06. Co-adoption of this study and the development regulation updates will complete Springfield's Work Tasks 5 and 7 on the Metro Plan Periodic Review Work Program.

## B. Analysis

Lane Code 12.225 (2) provides the criteria for approval or denial of Metro Plan amendments.

> *(a) the amendment must be consistent with the relevant statewide planning goals adopted by the Land Conservation and Development Commission; and*
>
> *(b) adoption of the amendment must not make the Metro Plan internally inconsistent.*

The detailed discussion of consistency with Statewide Planning Goals, Lane Code, and Springfield Development Code is included in the Findings of Compliance, which is Attachment B to Ordinance No. PA 1233.

The NR Inventory uses criteria approved by Springfield City Council and Lane County to determine which sites were significant. In adopting the Inventory, the elected officials chose to apply the "safe harbor" provisions of OAR 660-23-110 to the protection of upland wildlife habitat. "Safe harbor" for upland habitat protects only those habitat sites where endangered species are known to dwell. The upland sites on the Inventory contained no endangered species that qualified for further action at this time. The impact of this decision was to remove large tracts of upland parcels that were on the NR Inventory.

The City Council chose to apply the "standard process" (OAR 660-23-090 and 100) to riparian corridors on the Inventory. The "standard process" allows cities to exercise more flexibility in protecting resource sites, but requires site by site analysis of the impacts that might exist on each site. The standard process leads to a decision about how to protect resource sites in a way that weighs the economic, social, environmental, and energy (ESEE) consequences of the protection measures. The *Springfield Natural Resources Study* (NR Study) provides the analysis required by the "standard process" and recommends a program for protecting sites on the NR Inventory.

> *Under the standard process, cities are required to make a decision to 1) prohibit conflicting uses (development); 2) limit conflicting uses; or 3) allow conflicting uses. A decision to prohibit conflicting uses will fully protect resource sites, in many cases not even allowing passive recreational trails or paths. Limiting conflicting uses allows some development, but seeks to protect the most important functions and values of each resource site. A decision to allow conflicting uses will provide no protection for resource site.*
>
> *Based on the ESEE analysis conducted for each site on the Wetland Inventory and the NR Inventory, this Study proposes a protection program based on a decision to "limit conflicting uses." This Study only addresses "locally significant" wetlands and riparian corridors that are listed on the NR and Wetland Inventories. There are several lower quality wetlands and watercourses that are not recommended for protection by this study. The sites not recommended for protection by this study*

*remain under the jurisdiction of the Oregon Division of State Lands and/or the Army Corps of Engineers. These agencies will continue to be the sole authority for issuing permits to impact wetlands and streams. To implement a "limited" protection program, this study recommends the following approach:*

1. Where the proposed 25-foot setback renders a property unbuildable for the purposes for which it was zoned, a hardship variance may be requested to assist the owner to achieve a viable development design, consistent with the requires of state administrative rules (OAR 660-023-0090 (8)(d) and 660-023-0100(4)(b)(B)).

2. Continue the existing protections that were implemented through Springfield's Stormwater Quality Management Program and adopted ordinance No.6021, amending Springfield's Development Code. The recommended Goal 5 limited protection program does not amend the City's existing Stormwater Management provisions set forth in Sections 31.240 and 32.110 of the Springfield Development Code. The Stormwater Quality provisions are the City's response to state and federal regulations concerning surface and subsurface discharging stormwater management systems. Sites protected by the Stormwater Management Program are not recommended for additional protection.

3. Establish 25-foot development setbacks from inventoried wetlands and riparian resource sites that are not already protected by stormwater provisions. The 50 and 75 foot setbacks established by the Stormwater Quality Management Program are retained.

4. Protection provisions apply to new development. Developed properties are not required to retroactively comply with the new provisions. The recently adopted provisions of Article 5—Non-Conforming Uses, provides "grandfather" protections to existing development. Expansion of existing development is allowed where such expansion is outside of the resource area.

5. Site plan review is required for all commercial, industrial and multi-family residential development within 150-feet of resource sites. Articles 31.240 (3) and 32.110 of the Springfield Development Code describe wetland and riparian protections that are applied in the site plan review process that reduce the impact of development. This requirement parallels the defined 150-foot impact area recommended by this study and the 150-foot site plan review area already required for those Springfield resource areas that are protected by the Stormwater Quality Management provisions. Construction of a single-family home within an existing subdivision will not require site plan review.

6. A Low Impact Development Design Handbook will be developed and implemented to reduce the impact of development on nearby wetlands and riparian areas. Articles 31 and 32 of the Springfield Development Code already provide some protection for resource areas. A Low Impact Development Design Handbook will supplement the existing protections. The Low Impact Design Handbook will be jointly developed by the planning and public works staff using resources that have been in use in other communities as a starting point.

   The Low Impact Design Handbook will include a compilation of design standards that are practical, cost efficient and flexible to enough to meet a variety of development situations. The National Homebuilders Association generally supports low impact design techniques, citing the reduced cost of infrastructure that has been achieved as well as the increased value of home sites which have natural amenities. Low impact design standards will be applied through the site plan review process mentioned above, where a proposed development or land division is within 150-feet of a resource site.

7. The protection program will primarily affect vacant land and future development. Existing uses and structures within the proposed 25-foot setbacks will be allowed to continue. Expansion of such uses

will be permitted outside the setback. Development within 50 and 75-foot setbacks established under Springfield's Stormwater Quality Management Program will be subject to the provisions of that program.

8. Where the proposed 25-foot setback renders a property unbuildable for the purposes for which it was zoned, a hardship variance may be requested to assist the owner to achieve a viable development design, consistent with the requires of state administrative rules (OAR 660-023-0090 (8)(d) and 660-023-0100(4)(b)(B)).

Further details of the protection program and maps are included in the NR Study. The implementation measures are set forth as standards in the Springfield Development Code amendments incorporated into the associated adopting Ordinance No. 3-06.

Measure 37 Implications

The *Springfield Natural Resources Study* is predicated on a set of policies that will minimize the risk to County and City, but is not expected to eliminate all Measure 37 claims. The Safe Harbor approach has been applied to the protection of Upland Wildlife Habitat, and the Standard Process is used for evaluating and protecting wetlands and riparian corridors, which are the resources included in the NR Study. See Attachment 3 for detailed evaluation of the potential for claims and the Planning and Regulatory framework used by the City for Measure 37 claims.

## C. Alternatives/ Options

1. Approve the Ordinance as presented.

2. Revise the Ordinance as directed by the Board and return for approval of the revised Ordinance by the Board on a time certain date set by the Board. If the Ordinance is revised, Metro Plan coordination agreement requires returning the revised Ordinance to the City of Springfield for concurrance with the Board adopted changes.

3. Do not approve the Ordinance.

## D. Recommendation

I recommend Option 1, based on the analysis found in the Study and the contents of this report. Staff concludes that the *Springfield Natural Resources Study* and the implementing protection measures in Ordinance 4-06 for addition to the Springfield Development Code meet the approval criteria (LC 12.225) for amending the *Metro Plan* and all relevant Statewide Planning Goals and applicable administrative rules.

In order for the *NR Study* to become effective, the Commissioners must adopt the Study for application in the area between the Springfield City Limits and the Springfield UGB as adopted by the Springfield City Council.

## E. Timing

The Ordinance does not contain an emergency clause.

## IV. IMPLEMENTATION/FOLLOW-UP

Notice of Adoption by the Board of Commissioners will be provided to DLCD and interested parties to this action. If the Board modifies the Ordinance or does not adopt the Ordinance, notice will also be provided. Should the Board choose Option 2, an Order with findings setting forth the Board's reasons for denying the Ordinance would be prepared and returned to the Board for a third reading/adoption of the Order.

If the Board modifies or rejects the Ordinance, the City of Springfield, under the Metro Plan coordination agreement, would be notified of the action for further City Council consideration.

## IV. ATTACHMENTS

1. Ordinance No. PA 1233
   Exhibit A: *Springfield Natural Resource Study Report* -- October 2005
   Exhibit B: Findings of Consistency with Statewide Goals and the Metro Plan

2. *Springfield Natural Resources Study Report* Executive Summary

3. The Springfield NR Study potential for Measure 37 claims resulting from the recommended program for protection

**BEFORE THE BOARD OF COUNTY COMMISSIONERS OF LANE COUNTY, OREGON**

**ORDINANCE NO. PA 1233** **IN THE MATTER OF ADOPTING THE SPRINGFIELD NATURAL RESOURCES STUDY FOR APPLICATION OUTSIDE THE SPRINGFIELD CITY LIMITS AND WITHIN THE SPRINGFIELD URBAN GROWTH BOUNDARY**

**WHEREAS,** in December 1994 the cities of Springfield and Eugene and Lane County adopted the Eugene-Springfield Metropolitan Area General Plan Periodic Review Work Program; and

**WHEREAS,** on May 25, 1995 the Department of Land Conservation and Development approved the Eugene-Springfield Metropolitan Area General Plan Periodic Review Work Program, which was revised on July 1, 2002 by DLCD under Periodic Review Order No. 1416, and which includes Task 5 and Task 7 bringing the Eugene Springfield Metro Area into compliance with Statewide Planning Goal 5 and its administrative rules; and

**WHEREAS,** the Springfield Inventory of Natural Resource Areas (NR Inventory) is an element of Periodic Review Task 7 and is incorporated into the Metropolitan Natural Resources Study which was developed in compliance with the procedures and requirements of OAR 660-023-030, including the inventory of locally significant riparian corridors within the Springfield Urban Growth Boundary; and

**WHEREAS,** the Springfield Local Wetland Inventory (Wetland Inventory) is an element of Periodic Review Task 5 and is incorporated into the Springfield Wetland Conservation Plan which was developed in compliance with OAR 660-023-030 and ORS 197.279(3)(b) and identifies "locally significant wetlands" within the Springfield Urban Growth Boundary; and

**WHEREAS,** the Springfield Natural Resources (NR) Study includes the above referenced Inventories and an analysis of impacts completed through the Economic, Social, Environmental, and Energy (ESEE) Decision Process described in OAR 660-023-040, including implementing regulations to achieve Goal 5 protection measures; and

**WHEREAS,** a public workshop was held on October 13, 2005 to present the Springfield Natural Resources Study, to explain the potential impact of proposed implementing regulations and to receive public comment; and

**WHEREAS,** the Springfield Planning Commission held a public hearing on the Springfield Natural Resources Study on October 18, 2005 and voted unanimously to recommend approval of the Study to the City Council and to the Board of Commissioners based upon findings in support of adoption incorporated herein by reference (Case Number 2005-00034), and based on the evidence, findings, and testimony in the record demonstrating that the Springfield Natural Resources Study complies with the requirements of Statewide Planning Goal 5 as it applies to natural resources and the evidence and testimony presented at the public hearing; and

**WHEREAS,** the Springfield City Council held a public hearing on the Springfield Natural Resources Study on November 7, 2005 and, based upon the planning commission recommendation, the findings, evidence and testimony in the record and presented at this public hearing, voted to adopt the Springfield Natural Resources Study and findings in conformance with the Eugene-Springfield Metropolitan Area General Plan and Statewide Planning Goal 5; and

**WHEREAS,** the Lane County Board of Commissioners conducted a public hearing on July 12, 2006 to take testimony into the public record on the Plan as it applies to properties outside the city limits of Springfield and within the Urban Growth Boundary; and

**WHEREAS,** substantial evidence exists within the record demonstrating that the Plan meets the requirements of the Metro Plan, Lane Code Chapter 12 and the applicable state and local law as described in the findings attached as Exhibit B, incorporated here by this reference and adopted in support of this Ordinance; and

**WHEREAS,** the Board of County Commissioners has conducted a public hearing on this matter, reviewed the public record, heard testimony, and is ready to take action.

**NOW THEREFORE,** the Board of County Commissioners of Lane County **ORDAINS** as follows:

**Section 1**: The Springfield Natural Resources Study attached as Exhibit 'A' is adopted for application on the urbanizable lands within the Springfield Urban Growth Area and is a completed product in fulfillment of Springfield's Periodic Review Work Tasks 5 and 7 of the Eugene-Springfield Metropolitan Area General Plan Periodic Review Work Program in conformance with Statewide Planning Goal 5.

While not part of this Ordinance, the findings attached as Exhibit 'B' and incorporated herein by this reference are adopted in support of this decision.

**ENACTED** this _____ day of _____, 2006.

_____
Chair, Lane County Board of Commissioners

_____
Recording Secretary for this Meeting of the Board

APPROVED AS TO FORM

Date 6-19-2006 Lane County

OFFICE OF LEGAL COUNSEL

Exhibit A

# Springfield Natural Resource Study Report

October 2005

## TABLE OF CONTENTS

## 1.0 INTRODUCTION

This report is a significant step in Springfield's efforts to update its land use planning and regulatory programs to comply with Statewide Planning Goals and federal wetland and riparian management requirements. It is designed to complete two remaining periodic review tasks which is also required for state planning compliance. A principal theme underlying Springfield's Goal 5 planning is that conflicts between natural resource protection and urban development can be reduced to the extent that 1) conflicts are identified and analyzed in advance, and 2) flexibility is exercised to resolve those conflicts within a framework of clear and objective development standards.

The "standard process" identified in the Oregon Administrative Rules (OAR) section 660-023 allows communities to identify conflicts between development and locally significant resource sites and to propose balanced solutions to those conflicts. The process requires an analysis of the Environmental, Social, Economic and Energy (ESEE) consequences of allowing development to impact natural resource sites and leads communities to make one of three decisions: 1) fully allow development; 2) prohibit any development; or 3) limit development, making decisions about the protection of resource sites based on the assessed consequences. Development in this instance means any land use that might conflict the healthy function of a resource site.

This report fleshes out the ESEE analysis and program for protecting Springfield's was prepared to meet state planning mandates with several specific objectives in mind:

(1) To analyze wetlands and riparian areas that have been identified as "significant" for Goal 5 planning purposes for the ESEE consequences of allowing conflicting land uses to impact these resource areas.

(2) To determine "impact areas" outside of wetland and riparian boundaries, where development impacts may be reduced through buffers or other means. Impact areas form an important part of the ESEE analysis as prescribed by OAR 660-023-040 (3)

(3) To identify future land uses and development activity that are likely to conflict with the health and function of Springfield's wetland and riparian resource sites. This is done primarily by reviewing uses allowed by zoning, and by identifying public facilities and transportation projects that are likely to go through wetland and riparian resource sites or their impact areas. (OAR 660-023-040 (2))

(4) To determine the probable impacts of development on significant wetland and riparian resource sites - and *vice versa*. Goal 5 requires a determination of the environmental, social, economic, and energy consequences of developing, not developing, or partially developing each wetland or riparian resource site. Goal 5 also requires that the impacts of protecting the wetland resource site - especially on affected property owners - also be considered. (OAR 660-023-40 (4))

(5) To provide the Planning Commission and City Council the information needed to evaluate the ESEE consequences of wetland and riparian resource protection so that they can make

informed policy decisions concerning the appropriate level of protection that should be afforded to resource sites in the Springfield UGB.

(6) To recommend a program for protecting wetland and riparian resources that achieves a balance with needed development using low impact development practices to minimize the harm to resource sites. (OAR 660-023-040 (5))

(7) To recommend a protection program that is consistent with and supports the existing protection placed on streams and some wetlands by Springfield's Stormwater Quality Management Program.

(8) To establish protections for wetland and riparian areas that are fair and reasonable, and which minimize the City's exposure to Measure 37 claims.

The final and primary objective of this report is to comply with Statewide Planning Goal 5 with respect to wetland resource sites. Although City of Springfield has some discretion in resource protection, the City must exercise this discretion consistent with Goal 5 and OAR 660-23-000. This report, therefore, is designed to meet LCDC Goal 5 legal standards and to minimize the City's exposure to legal challenges in the future.

As noted above, this report provides the factual and analytical basis necessary for effective citizen and property owner involvement, and for the Planning Commission and City Council decision-making process. The wetland resource functions and values of the wetlands have been determined using the Oregon Freshwater Wetland Assessment Methodology (OFWAM), and Wildlife Habitat Assessment (WHA) protocols consistent with applicable state administrative rules. The OFWAM assessment was conducted by an approved consultant and acknowledged by the Oregon Division of State Lands (DSL), under a grant from that agency. The WHA was administered by a consultant under a program funded by the Oregon Department of Land Conservation and Development.

This report provides an analysis of the economic, social and energy consequences of completely protecting the resource, allowing development to proceed without restriction, or allowing development to proceed on a limited basis. It is up to the Planning Commission to recommend, and the City Council to decide, what weight should be given to economic, social and energy factors relative to environmental factors. At one extreme, the City may decide that a wetland or riparian resource site is so important that it should be preserved at any cost. At the other end of the spectrum, the City may decide that the costs of protecting the resource are so high, that the resource site should be not be protected and the resource site remove from the resource from the City's inventory of locally significant wetlands or riparian sites.

This report tries to avoid these extremes in two ways. First, sites that were determined through the OFWAM analysis to have relatively low resource value (i.e., non-locally significant wetlands) are not recommended for further consideration in this ESEE analysis. There is no need for the Planning Commission and City Council to devote time in evaluating the consequences of preserving or not preserving the resource, if the resource is relatively insignificant in the first place. This is true also for the riparian sites which were evaluated using the Wildlife Habitat

Assessment (WHA) tool and found to be of low value. It is important to note however, that wetlands and riparian sites that are not deemed significant by local assessment require review by DSL and or the US Army Corps of Engineers, and the City is required by law to notify these agencies of the existence of such non-inventoried resource sites and any proposals that might impact them.

Second, resource sites usually can be partially preserved without severe economic, social or energy consequences. For example, through zoning techniques such as residential density transfer, most resource sites can be at least partially protected without severe economic hardship to the landowner or developer. In some cases, however, locally significant wetlands and riparian areas cannot be protected, even on a limited basis, without severe economic or social consequences. (See site-specific resource recommendations found in Section 9.0). For this reason, the "standard process" as described in OAR 660-23 is used here to try to balance property owner rights, the desire to build efficiently within the existing UGB with the need to preserve the functions and values provided by wetland and riparian areas.

# 2.0 PLANNING AND REGULATORY FRAMEWORK

## 2.1 Regulatory Context

There are a variety of federal, state and local policies that recognize the value and need for habitat protection and watershed planning and management. These policies are the foundation for current and future resource protection efforts in Springfield. This section describes applicable policies that relate to the protection of fish and wildlife habitat.

## Federal Policy

### Endangered Species Act (ESA)

The National Marine Fisheries Service (NMFS) listed the Upper Willamette Spring Chinook salmon among 12 salmonid evolutionarily significant units (ESUs) in the Columbia River Basin under the ESA (Federal Register/Vol. 64, No. 24, 1999). Spring Chinook migrate through the metropolitan area in the McKenzie and Willamette Rivers and their tributaries as adults and juveniles. Others spawn and/or rear in metropolitan area streams.

A number of other federally listed fish and wildlife endangered species and species of concern may also be found in the greater Springfield area. These include as listed species: the Oregon Chub, Bull trout, Bald eagle, Northern spotted owl and Fender's butterfly; species of concern: Townsend's big-eared bat, Pacific pallid bat, Northwestern pond turtle, Oregon vesper sparrow, Purple martin, and Northern red-legged frog.

The ESA listings elevate the importance of protecting and restoring riparian corridors and wetland areas because the many of the listed species are dependent on healthy riparian corridors during their lifecycles. Additionally, riparian corridor protection and restoration are important because once protective regulations are issued by the federal government, NMFS requires that all parties must avoid killing or harming a listed species, and avoid adversely modifying the habitat that supports listed species.

Federally Listed Species in the Springfield Area

| Animals/Insects | Status |
|---|---|
| Oregon Chub | Endangered |
| Fender's Butterfly | Endangered |
| Upper Willamette Spring Chinook | Threatened |
| Bull Trout | Threatened |
| Northern Spotted Owl | Threatened |
| Bald Eagle | Threatened, Proposed for Delisting |
| Townsend's big-eared bat | Sensitive-Peripheral |
| Northwestern pond turtle | Species of Concern |
| Oregon vesper sparrow | Species of Concern |
| Purple martin | Species of Concern |
| Northern red-legged frog | Species of Concern |
| Pacific pallid bat | Species of Concern |
| Plants | Status |

| | |
|---|---|
| Bradshaw's lomatium | Endangered |
| Willamette Valley daisy | Endangered |
| Kincaid's lupine | Threatened |
| Wayside aster | Species of Concern |
| Shaggy horkelia | Species of Concern |
| Thin-leaved peavine | Species of Concern |

*Source: Oregon Natural Heritage Program database, May 2004*

### Clean Water Act (CWA)

The Clean Water Act (CWA) is the 1977 amendment to the Federal Water Pollution Control Act of 1972. The goal of the CWA is to maintain and restore the physical, chemical and biological integrity of water in the United States. The CWA prohibits discharges of pollutants into waters of the United States, unless the discharge is in compliance with a National Discharge Elimination System (NPDES) permit. In Oregon, the CWA is implemented by DEQ with review and approval by the U.S. Environmental Protection Agency (EPA).

Section 303(d) of the Clean Water Act

Surface water quality is addressed in the CWA. Section 303(d)(1) and (2) of the CWA requires each state to identify those waters that do not meet water quality standards. The State is also required to submit to the EPA reports which "establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters." These reports describe the following: 1) water quality status of rivers and streams, including water quality limited streams, 2) a list of water quality limited streams still requiring total maximum daily loads (TMDL), and 3) a ranking of these streams according to severity of pollution.

### The Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Act) was originally passed in 1976. This Act provided the NMFS legislative authority for fisheries regulation in the United States in the area between three miles and 200 miles offshore, and established the eight regional fishery councils that manage the harvest of fish and shellfish in these waters. In 1996, the Act was reauthorized and changed extensively by amendments in the Sustainable Fisheries Act (SFA).

These amendments emphasize the importance of habitat protection and strengthen the ability of NMFS to protect "Essential Fish Habitat," which is broadly defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." Portions of "Essential Fish Habitat" may lie in urban areas, which are often important habitat for salmon, such as areas with low gradients, that contain wetlands, floodplains or are along major rivers, tributary junctions and estuaries.

## State Policy

### Statewide Planning Goal 5

Statewide Planning Goal 5 addresses natural resources, scenic and historic areas, and open spaces. The legal requirements to meet Goal 5 are embodied in Oregon Administrative Rule 660, Division 23 – the "Goal 5 rule." It prescribes a process for local governments to follow for inventorying and evaluating Goal 5 resources and for developing land use programs to conserve and protect significant Goal 5 resources. The rule requires communities to inventory and evaluate regional Goal 5 resources, including but not limited to, riparian corridors, wetlands or open space areas. See Section E of this chapter for a complete discussion of Goal 5.

**The Oregon Forest Practices Act**

The Oregon Forest Practices Act (OFPA) was enacted in 1972 and significant changes were made in 1994. The OFPA administrative rules regulate forestry activities and were developed to protect forest-related resource values, including waters of the State. The OFPA includes water protection rules for riparian management areas (629-635-000). The overall goal of the water protection rules is to provide resource protection during operations adjacent to and within streams, lakes, and wetlands and to provide riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife and water quality are met.

**Oregon Endangered Species Rules**

It is the State of Oregon's policy "to maintain all species of wildlife at optimum levels and prevent the serious depletion of any indigenous species" [ORS 496.012 (1)]. The Oregon Endangered Species Rules (OAR 635-100 to 635-100-130) help carry out this policy. In accordance with these rules, species can be classified as "threatened" or "endangered" and steps can be taken to recover them. To carry out the policy expressed in this rule, and for other reasons – biological, ethical and economic - a "sensitive" species classification was created under Oregon's Sensitive Species Rules (OAR 635-100-040) to help prevent species from qualifying for listing as "threatened" or "endangered" (ODFW 1992).

**Oregon Sensitive Species Rules**

Sensitive species constitute those naturally reproducing native animals that may become threatened or endangered in all or a significant portion of their range. Factors to consider in listing species as sensitive are the same as those in the Endangered Species Rules. The Oregon Department of Fish and Wildlife (ODFW) maintains a list of sensitive species that is updated biennially. The list of sensitive species serves as an early warning system for land managers and the public.

State Listed Species in the Springfield Area

| Animals/Insects | Status |
|---|---|
| Oregon Chub | Sensitive-critical |
| Bull Trout | Sensitive-critical |
| Northern Spotted Owl | Threatened |
| Bald Eagle | Threatened |
| Townsend's big-eared bat | Sensitive-critical |

| | |
|---|---|
| Northwestern pond turtle | Sensitive-critical |
| Painted turtle | Sensitive-critical |
| Oregon vesper sparrow | Sensitive-critical |
| Purple martin | Sensitive-critical |
| Northern red-legged frog | Sensitive-vulnerable |
| Pacific pallid bat | Sensitive-vulnerable |
| Clouded salamander | Sensitive-vulnerable |
| **Plants** | **Status** |
| Bradshaw's lomatium | Endangered |
| Willamette Valley daisy | Endangered |
| Wayside aster | Threatened |
| Kincaid's lupine | Threatened |
| Tall bugbane | Sensitive-critical |
| Shaggy horkelia | Sensitive-critical |

*Source: Oregon Natural Heritage Program database, May 2004*

**Oregon Plan for Salmon and Watersheds**

The mission of the Oregon Plan for Salmon and Watersheds is "to restore our native fish populations– and the aquatic systems that support them – to productive and sustainable levels that will provide substantial environmental, cultural and economic benefits." It was initiated in 1995 to address restoration of coastal coho salmon. In April 1997, the Oregon Legislature incorporated other related efforts into one overarching framework: "The Oregon Plan." It is designed to restore the healthy function of Oregon's natural aquatic systems. It represents commitments on behalf of government, interest groups and private citizens from all sectors of the State. There are four fundamental approaches used by the Plan to accomplish the goal of securing and protecting healthy fish habitat: 1) community-based action; 2) government coordination; 3) monitoring and accountability; and 4) improvements over time.

The *Willamette Restoration Initiative (WRI)*, founded in October 1998, is one of many responses to the Oregon Plan's call for action. The WRI is a broad-based effort to promote, integrate and coordinate efforts to protect and restore the health of the Willamette watershed. A major task of the Initiative is to help guide the development of the "Willamette Chapter" of the *Oregon Plan for Salmon and Watersheds*.

**Oregon Wetland Regulatory Program**

The Oregon Division of State Lands (DSL) administers Oregon's removal/fill law (ORS 196.800- 196.990). Using similar definitions as the federal government, DSL determines wetland boundaries and waterbodies that meet the definition of "waters of the state." A permit is required for fill equal to or exceeding 50 cubic yards or more of material in any waters of the State at one location. Likewise, a permit is required for removal of more than 50 cubic yards of material in any waters of the state in any calendar year. Waters of the state means natural waterways including all tidal and nontidal bays, intermittent and constantly flowing streams, lakes, wetlands, and other bodies of navigable and non-navigable water.

**Oregon Division of State Lands Essential Salmonid Stream Designation**

In an effort to identify and protect essential habitat for salmon and trout, the Oregon Legislature in 1993 required the DSL to identify essential salmon habitat in waterways across the state and to adopt administrative rules that require a permit for all alteration activities in these areas. A major focus of designating essential habitat areas was to identify those waterways with significant biological value and the greatest risk to declining stocks. Criteria used to identify essential habitat were areas that provide habitat for multiple species, areas of concentrated spawning, "source basins," and other spawning and rearing habitat at risk. The new DSL rules require applicants to demonstrate that their proposed alterations will have no unacceptable adverse effect on listed salmon species.

## Local and Regional Planning

### Eugene-Springfield Metropolitan Area General Plan

The Eugene-Springfield Metropolitan Area General Plan (Metro Plan) is the official long range general plan (public policy document) of metropolitan Lane County and the cities of Eugene and Springfield. The Plan sets forth general planning and land use allocations and serves as the basis for coordinated development of programs concerning the use and conservation of physical resources, furtherance of assets, and development or redevelopment of the metropolitan area.

The Environmental Resources Element of the Metro Plan addresses the natural assets and hazards in the metropolitan area. The policies of this element emphasize reducing urban impacts on wetlands throughout the area and planning for natural assets and constraints on undeveloped lands on the urban fringe. It provides broad direction for maintaining and improving our natural urban environment. Other elements dealing in more detail with particular aspects of the natural environment include Parks and Recreation Facilities and Environmental Design (scenic). The emphasis in this element is the protection of waterways as valuable and irreplaceable component of the overall natural resource system important to the metropolitan area. Waterways are also the subject of Section D, "Willamette River Greenway, River Corridors and Waterways." While some repetition is unavoidable, that section emphasizes the intrinsic value of waterways for enjoyment and active and passive use by area residents.

The Metro Plan is a framework within which refinement plans and functional plans offer additional detail. These supplemental plans are subject to the guiding policy provided by the Metro Plan document. The Eugene-Springfield Public Facilities and Services Plan (PFSP) was adopted in 2001 as refinement plan of the Metro Plan. It recommended changes to the Metro Plan that relate to the provision of water, stormwater and electrical services. The PFSP modified the Public Facilities and Services Element of the Metro Plan to include policies requiring a more environmentally sensitive approach to the design and construction of basic urban infrastructure.

The PFSP responded to policy directions driven the federal policies mentioned above including Title IV of the Clean Water Act, the Endangered Species Act, and the Safe Drinking Water Act. The PFSP also addresses issues embodied in Statewide Planning Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces, Goal 6: Air, Water and Land Resources and Quality and Goal 15: Willamette River Greenway.

Completion of the Goal 5 natural resources planning includes the development of an inventory if significant resource sites that is to be included in the Metro Plan. Goal 5 also requires local jurisdictions to develop program policies for protecting local resource sites that may include amendments to policies found in the Environmental Resources Element and possibly other elements of the Plan.

## 2.2 Natural Resource Planning History in Eugene-Springfield

### Early Planning and "Old Goal 5"

The history of addressing natural resource issues in the Eugene-Springfield metropolitan region predates the Statewide Planning Program. Eugene, Springfield, Lane County and other agencies have cooperated in addressing environmental issues—whether it was establishing local controls over air pollution, protecting life and property from flood hazards, creating a park system along the Willamette River Greenway, acquiring large regional and metropolitan-scale open spaces, developing trails and paths along waterways and ridgelines, or protecting scenic resources in the hills overlooking our cities.

Local governments have been planning for Goal 5 in the Eugene-Springfield metropolitan area since the late 1970s. It has happened in bits and pieces, sometimes as a metropolitan study, sometimes as a local effort by one or two of the three metropolitan jurisdictions. Sometimes, the study focused on a specific site, such as Goodpasture Island Heronry. Other times, the study focused on a given resource within a jurisdiction, such as the Springfield Local Wetlands Inventory. Still other times, the study focused on a given resource within a certain area of a jurisdiction, such as the West Eugene Wetland Plan. Environmental planning is an ongoing process that responds to new information, new laws, and local issues. Those pressures for additional environmental planning efforts can be expected to continue. The best example in recent times is the emphasis on wetlands and riparian areas as well as water resources and water quality.

The requirements for Goal 5 have changed several times since Oregon adopted its Statewide Planning Program in 1973. Local Goal 5 work falls within different Goal 5 requirements that were in effect at the time the various studies were conducted. The early Goal 5 work was a part of developing the first Metropolitan Plan (Metro Plan) that the Department of Land Conservation and Development acknowledged in 1982 as in compliance with all the Statewide Planning Goals, including Goal 5. Much of this early Goal 5 compliance work occurred before the Land Conservation and Development Commission adopted the first Goal 5 administrative rule in 1981. The 1978 series of "Natural Assets and Constraints" working papers addressed a broad array of LCDC environmental goals, including Goal 5.

Later Goal 5 work happened as part of a locally initiated Mid-Period Review and met the requirements of the 1981 Goal 5 Rule, including more detailed analysis on fours sites inside the urban growth boundary (UGB)—Willow Creek, Bertelsen Slough, Spencer Butte Ridgetop, and Gillespie Butte. Also under the 1981 Goal 5 Rule was a previous metropolitan study of wetlands, riparian areas, and upland wildlife habitat that began as part of a Metro Plan Update.

Local governments initiated a study, the Natural Resources Special Study (NRSS), as part of a Metro Plan update in 1987. Processing of the plan amendments that were proposed as a result of the NRSS reached an impasse because the three jurisdictions could not reach agreement on certain issues. The draft Natural Resources Functional Plan, prepared in 1991 as a refinement to the Metro Plan, was not adopted by all three jurisdictions and therefore has no official status.

## Planning Since "New Goal 5"

After putting the NRSS on hold in 1996 pending adoption of new Goal 5 rules by the state, the elected officials directed staff in the spring of 1997 to proceed with updating the previous inventory. Direction was given to staff by local elected officials to: (1) address the natural resource sites inside the UGB in greater detail than the "safe harbor" approach allowed by the new Goal 5 administrative rule, and (2) apply the "safe harbor" approach on lands outside the UGB but inside the Metro Plan boundary. The safe harbor approach provides communities with a pre-approved methodology for satisfying the statewide planning requirements for natural resources under Goal 5, and relies heavily on existing data.

Staff conducted initial briefings with the appointed and elected officials in June 2000 concerning a renewed effort to complete and adopt a Goal 5 natural resource inventory. The Natural Resources Study (NR Study), as the new effort was called, proposed to use much of the work that was completed for the NRSS. Staff proposed to use an updated version of the inventory and criteria used for the NRSS as a basis for establishing the inventory and significance criteria required under the new Goal 5 rules.

The Eugene, Springfield and Lane County Planning Commissions held joint work sessions and public comment sessions on the NR Study and its draft inventory and significance criteria between March and May of 2001. The planning commissions met separately to continue discussion and to forward a recommendation concerning the significance criteria and inventory to their respective elected officials. Eugene and Lane County Planning Commissions met in September and October of 2001 respectively, and forwarded unanimous recommendations to use the NR Study draft inventory and significance criteria for the remaining steps of the Goal 5 process. The Springfield Planning Commission met in October and recommended changes in the significance criteria that altered the inventory.

## Independent Completion of the Goal 5 Process

The Cities of Springfield and Eugene and the Board of County Commissioners met separately over the Fall and Winter of 2001-2002 to provide direction on using the significance criteria and the resulting inventory in the remaining steps of the NR Study. The Eugene City Council directed staff to move forward with the study without any modifications to the significance criteria. The Springfield City Council met on December 10, 2001, and suggested changes to four of the significance criteria. The Council reconsidered the December action in March 2002 and approved minor modifications recommended by staff to four criteria. The Lane County Board of Commissioners supported the revisions to the criteria that Springfield City Council recommended on December 10, 2001.

As an outcome of the actions taken by the various jurisdictions to approve somewhat different significance criteria, each decided to pursue completion of the Goal 5 process independently. Eugene, Springfield and Lane County will continue coordinating on policy amendments to the Metro Plan that may be necessary to comply with Goal 5 rules.

### Safe Harbor for Uplands, Standard Process for Riparian Corridors

The City of Springfield adopted the Springfield Inventory of Natural Resource Sites on May 3, 2004. In adopting the Inventory, the City Council chose to apply the safe harbor provisions of OAR 660-23-110 to the protection of upland wildlife habitat. The Council chose to apply the standard process to riparian corridors on the Inventory. The significance criteria and resulting inventory are described below. The impact of the Council decision was to remove large tracts of upland parcels that were on the Draft Metropolitan Natural Resources Inventory.

Lane County co-adopted the Springfield Inventory of Natural Resource Sites on September 15, 2004, with the same provisions concerning safe harbor for uplands and the standard process for riparian areas. The action by the County Commissioners is required by an intergovernmental agreement between Springfield and Lane County. By permission of the County, Springfield exercises planning jurisdiction in the area outside of the city limits, but within the Urban Growth Boundary.

## 3.0 Springfield Inventory of Natural Resource Sites

### 3.1 Compiling Information for the Springfield's Goal 5 Inventory of Natural Resource Sites

As mentioned above, the Springfield Inventory of Natural Resource Sites had its roots in the work completed for the Metropolitan Natural Resources Special Study and the later Draft Metropolitan Natural Resources Inventory. The data collected for this inventory work and analysis was from several sources that were completed separately over a period of several years. These data sources include:

- National Wetland Inventory
- Springfield Local Wetland Inventory
- Oregon Freshwater Assessment Methodology (OFWAM) for Springfield's Local Wetland Inventory
- Oregon Department of Forestry and Oregon Department of Fish and Wildlife (ODFW) maps of fish bearing streams.
- Oregon Natural Heritage Program's database of threatened or endangered species (location and habitat radius). The most recent printout for Springfield was obtained in May 2004.
- Species of concern or habitats of concern mapped by ODFW. The most updated version of this data was obtained in 2004.
- Preliminary Inventory of Eugene & Springfield Wetland, Riparian & Upland Areas for Wildlife Habitat Value, Esther Lev, December 1988, Revised February 1990.
- The Natural Resources Mapping Project, Salix Associates, 1993.
- Update of Eugene-Springfield Metropolitan Area Wetlands, Riparian Areas, and Uplands, Fishman Environmental Services, April 1998.
- Data sets (e.g., geographic information system databases) and maps from local, state, and federal sources that pertain to these resources;
- Interpretation of high-resolution aerial photos of the area taken as recently as 1999;
- On-the-ground site visits and evaluations of almost all the sites;
- Interviews of natural resource professionals from other local (e.g., The Nature Conservancy (TNC)), state (e.g., ODFW, DSL), and federal (e.g., National Marine Fisheries Service) agencies and organizations concerned with natural resources;

- Input from natural resources professionals that live in the community; and

- Comments received from the general public and affected property owners during public workshops and public comment sessions.

With this wide variety of data sources, staff believe they have adequate data (as referenced in OAR 660-23-030-3) to proceed with a determination of significance for all sites included on this draft inventory. How a site was determined to be *significant* or *not significant* is discussed in the next section.

## 3.2 Identifying Significant Resource Sites

### Screening Criteria

A set of screening criteria were produced by staff in 1988 to focus the early work of a consultant, Ester Lev, hired to assist with the natural resources inventory. The criteria were something of a filter used to sift through the many acres of resource land within the Eugene-Springfield Metro Plan Boundary. These screening criteria (A-H) are listed below:

A. Areas mapped as wetland on the National Wetland Inventory and the Springfield Local Wetland Inventory.

B. Areas which have been designated as jurisdictional wetland by the Oregon Division of State Lands or Army Corps of Engineers.

C. Streams mapped on the Oregon Department of Fish and Wildlife and Department of Forestry Fish Bearing Stream maps.

D. Undeveloped areas which contain natural vegetation (non-cultivated, including forests, natural prairies and meadows) and are larger than 1 acre.

E. Undeveloped natural areas that are contiguous with a water feature.

F. Areas which are undeveloped, and which in their natural state are un-vegetated (e.g., rock outcrops, gravel bars).

G. Locations of plants listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.

H. Documented habitat of animals listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.

The screening process involved overlaying several data layers to identify areas most likely to contain important wildlife habitat. Staff produced a series of overlay maps for this screening step. The maps were hand-drawn in 1988, and produced by the geographic information system for the update in 1998. The overlay maps included wetlands, water areas, riparian vegetation,

hydric soils, flood hazards, open space, drainage basins, and ecologically significant areas—data available that could be presented in mapped form and be used as an indicator, or initial screen, of where to find sites with wildlife habitat value. This approach was similar to that used by most jurisdictions staff contacted to learn about approaches to the inventory—using a set of criteria to screen sites for inclusion in the draft inventory. The consultant conducted preliminary field checks of all potential sites identified in this early screening and eliminated those sites which were developed, heavily disturbed, or of extremely low wildlife habitat value.

### Administration of the Wildlife Habitat Assessment

Resource sites that were identified through the screening process were subjected to on-site evaluation by Ester Lev, using a protocol called the Wildlife Habitat Assessment (WHA). The WHA evaluates sites based on the food, water, and cover it offers for wildlife. The assessment determines a relative rating for each site based on 13 factors, such as seasonality of the water on the site, variety of food, layers of vegetation, and disturbance of the site. Field visits were made and rating sheets were completed for each site.

The WHA is a scientifically accepted system developed jointly by staff from the Oregon Department of Fish and Wildlife, Portland Audubon Society, U. S. Environmental Protection Agency, and U.S. Fish and Wildlife Service. It is the most common methodology used by Willamette Valley jurisdictions. The Cities of Beaverton, Gresham, Lake Oswego, Milwaukee, and Portland have used locally adapted versions of the Wildlife Habitat Assessment to assess their habitat resources. A more detailed description of the WHA methodology and a sample of the form used by field staff to record and analyze observed habitat characteristics are found in Appendix C.

### Significance Criteria

A required step of Statewide Land Use Goal 5 is to determine if a site is *significant* or *not significant*. This determination occurs during the first major phase of the Goal 5 process, the inventory phase. Sites that are found to be *significant* are mapped on the inventory and subjected to the remaining steps in the Goal 5 process (e.g., Safe Harbor or ESEE analysis).

The administrative rules for Goal 5 (OAR 660-23) allow some flexibility in developing data sources, or criteria, to establish significance. Springfield chose to adopt a two-tiered approach for determining the significance of sites within its UGB[1]. First tier criteria are very closely associated with the original screening criteria (described above) that were used to direct the work of the consultant, Ester Lev. The draft Tier 1 criteria that were presented to the Springfield Planning Commission and City Council included relevant information for identifying wetlands, riparian areas, and other wildlife habitat. Second tier criteria serve to narrow the list of sites identified by the Tier 1 criteria to only those sites that provide relatively high quality riparian areas, wetlands, or wildlife habitat. Action by the City Council on May 3, 2004 to adopt the Springfield Inventory of Natural Resource Sites included a provision that applied the "standard process" to riparian sites and "safe harbor" to upland wildlife habitat areas. That action had the

[1] With a few exceptions, sites outside the UGB are proposed to be inventoried based upon the safe harbor requirements of OAR 660-23. Therefore, sites outside the UGB are not subjected to these significance criteria.

affect of modifying the Tier 1 significance criteria, dropping those criteria pertaining to upland sites. The Tier 1 criteria listed below reflect the City Council's action.

The Tier 2 criteria are based on the Wildlife Habitat Assessment (WHA) that was administered by Lev and reported in 1990. When adopting the Inventory of Natural Resource Sites, the City Council preserved the Tier 2 criteria contained in the draft recommended by staff. The Tier 1 and 2 criteria are described in more detail below.

## Tier 1 Significance Criteria

The Tier 1 significance criteria were used to generate a list of potential sites that were then subjected to Tier 2 significance criteria. A site needs to meet one or more Tier 1 criteria to be evaluated by the Tier 2 criteria. Below are the ten Tier 1 criteria that were used, along with the rationale for why each one was chosen:

**1. Areas mapped as wetland on the State/National Wetland Inventory (S/NWI).**

Rationale: Wetlands provide many significant values, including habitat for fish and wildlife, groundwater and surface water quality, stormwater and flood retention, erosion control, and sediment and pollution filtering. Wetlands also provide substantial scenic, educational, and recreational opportunities, as evidenced in the West Eugene Wetlands Program. The U.S. Fish and Wildlife Service (USF&WS) developed the S/NWI based on aerial photo interpretation. The S/NWI provides information about the locations of wetlands throughout the Metro area. This information is critical for areas where on-the-ground local wetland inventories have not yet taken place.

**2. Areas that have been designated as jurisdictional wetland by the Division of State Lands or U.S. Army Corps of Engineers.**

Rationale: Jurisdictional wetlands are wetlands that are regulated by the state, but may not be mapped on the S/NWI due to the scale of the S/NWI maps. Many jurisdictional wetlands occur in areas where no wetlands are mapped on the S/NWI. The Springfield Local Wetland Inventory (LWI) identifies many of these jurisdictional wetlands within the Springfield UGB.

**3. Streams and other water bodies mapped on the Oregon Department of Fish and Wildlife and Oregon Department of Forestry Fish-Bearing Stream maps.**

Rationale: Streams that are designated as fish-bearing by ODF and ODFW are generally larger, perennially-flowing (i.e., year-round) streams. These streams provide habitat for fish, food and water for wildlife, and the adjacent riparian areas are used extensively by wildlife. Streams also provide additional water quality and flood control benefits. As potential salmonid habitat, or tributaries of waterways with salmonid presence, these streams are important natural resources that are subject to protection under the ESA.

**4. Undeveloped natural areas containing primarily native vegetation that are contiguous with a water feature and that provide fish or wildlife habitat.**

Rationale: The convergence of water features and surrounding natural areas provide critical wildlife habitat, as well as stormwater and flood retention, and erosion control.

**5. Locations of plants listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.**

Rationale: Species that are listed under the state or federal ESA are usually listed because their habitat has been destroyed or altered. Conserving the remaining patches of a listed species habitat is consistent with the intent of Goal 5. In addition, actions that may result in a "take" (i.e., kill or harm) of listed plants are regulated by law under the ESA.

**6. Documented habitat of animals listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.**

Rationale: Species that are listed under the state or federal ESA are usually listed because their habitat has been destroyed or altered. Conserving the remaining patches of a listed species habitat is consistent with the intent of Goal 5. In addition, actions that may result in a "take" (i.e., kill or harm) of listed animals are regulated by law under the ESA.

**7. Other ecologically significant areas identified by public natural resource agencies.**

Rationale: Although the first nine criteria are thought to capture almost all important natural resource features in the planning area, staff believes that a small number of sites with features that are not currently appreciated or whose ecological importance is not fully understood, may not be captured by those criteria. These criteria allow natural resource professionals at other local agencies (e.g., ODFW) to suggest sites that may not meet the other criteria.

## Tier 2 Significance Criteria

Tier 2 criteria served to narrow the list of sites generated by the Tier 1 criteria. Sites that meet one or more Tier 1 criteria were assessed using the Wildlife Habitat Assessment (WHA) methodology. A professional biologist was hired as a consultant to apply the WHA assessment methodology to each of the Tier 1 sites. The Tier 2 criteria are:

**1. Sites that have been filled or substantially altered to the degree that they no longer exhibit important natural resource functions and values shall be removed from the Goal 5 inventory.**

Rationale: During the time it has taken to process the inventory through the political process, much residential and commercial development has occurred. This criterion allows sites that were initially placed on the inventory to be removed when recent development on the site removes the important natural resource features or functions.

**2. Sites with a WHA rating of 17 or greater shall be included on the Goal 5 inventory.**

Rationale: The WHA determines a relative numerical rating for each site based on 16 factors, such as seasonality of the water on the site, variety of food, layers of vegetation, proximity to other sites, the presence of rare species and habitat types, and disturbance of the site. The WHA is a scientifically accepted system developed jointly by staff from the ODFW, Portland Audubon Society, U. S. Environmental Protection Agency, and USF&WS. It is the most common methodology used by Willamette Valley jurisdictions. The cities of Corvallis, Beaverton, Gresham, Lake Oswego, Milwaukee, and Portland each used variations of the WHA.

WHA scores can range from 0 to 100. Habitats that receive high scores on the WHA generally have one or more water sources (e.g., stream, wetland), multiple vegetative layers (e.g., canopy trees, shrubs, and understory herbaceous plants), and low physical or human disturbance. Habitats that score low on the WHA typically lack water and have a single vegetative layer. Examples of low-scoring, native habitats in the Eugene-Springfield area include upland prairie and oak savanna. These habitat types were formerly common in the Eugene-Springfield area but are now quite uncommon (due to agricultural and urban development), and these habitats harbor plants and animals that are less common, or are not found, in other habitat types. The threshold score of 17 (out of a total of 100 points) allows any habitat type with a significant component of native vegetation to be included on the inventory, while excluding highly disturbed sites.

Sites that passed the Tier 1 and Tier 2 criteria comprise the final proposed inventory of *significant* sites for the Metro NR Study. These sites will then be evaluated in the remaining phases of the Goal 5 process

## 3.3 High and Moderate Quality Natural Resource Sites

### High Quality Natural Resource Sites

*Areas with WHA scores of 45 or more*

The WHA provides a numeric score that allows resource sites to be compared on the basis of their relative quality. As mentioned above, a number of Oregon communities have used the WHA for their Goal 5 inventories. Some of these communities have used a score of 45 or more to identify higher quality habitat sites. WHA scores of 70 or more represent exceptional sites with intact vegetative regimes that are connected to other habitat areas, have a nearby source of water and provide high quality food and cover for wildlife, including rare species. Only the natural areas along the McKenzie River (S17) and the Willamette River (WA/WB) have scores of 70 or more.

Sites with a score of 45-70 represent partially disturbed vegetative regimes that may be connected to other habitat and have a nearby source of water. Such sites score sufficiently high that they provide adequate food and cover for rare species of plants and wildlife.

*Areas with Rare Plant, Animal Species Or Habitats Supporting These Species*

Rare plant and animal species (including federal and state listed threatened and endangered species) are listed in *Rare, Threatened, and Endangered Plants and Animals of Oregon*,

published by the Oregon Natural Heritage Program (2001). In April 2004, the Oregon Natural Heritage Program provided the City of Springfield with a report listing the known occurrences of listed plants and animals within Springfield's planning jurisdiction. The report provided the location of these species by township/range and section.

Resource sites with known occurrences of federal or state listed species are considered high quality resource sites, apart form the WHA score.

**Moderate Quality Natural Resource Sites**

Sites with a WHA score less than 45 typically exhibit a high level of vegetative disturbance, have limited or no access to water and are isolated from other resource sites. These sites, however, may have high potential for restoration or enhancement.

## 3.4 Springfield Inventory of Natural Resource Sites

The table below lists the inventory of riparian sites that meet the Tier I and Tier II significance criteria discussed above. The table also ranks the sites as high or moderate quality according to the criteria listed above. The Inventory with site descriptions are included in Appendix A.

### Table 3-1. Springfield Inventory of Natural Resource Sites

| Site # | Acres | Tier 1 Significance Criteria Met | Tier 2 WHA Score | Quality Ranking | Site Name |
|---|---|---|---|---|---|
| S03[1] | 29.7 | 1,2,3,4 | 61-62 | High | Mill Race A (Rural) |
| S04 | 42.9 | 2,3,4,6 | 40-41 | Moderate | Mill Race B (Urban) |
| S07 | 23.9 | 1,2 | 34 | Moderate | Brand S/Natron |
| S09 | 71.9 | 1,2,4 | 50 | High | Weyerhaeuser B |
| S10[1] | 195.0 | 1,4,6 | 70 | High | Weyerhaeuser A |
| S12/13 | 39.1 | 2,4 | 45 (Trees)<br>36 (No Trees) | High<br>Moderate | Q Street Ditch |
| S14 | 2.4 | 2,4 | 35 | Moderate | Guy Lee |
| S17[1] | 347.2 | 1,2,4,6 | 67 | High | Maple Island Slough/ McKenzie River |
| S18 | 13.4 | 2,4 | 22-23 | Moderate | SCS Channel #6 |
| S20 | 19.6 | 1,2,4 | 67 | High | Irving Slough North |
| S21 | 13.7 | 1,2,4 | 47 | High | South Irvine Slough and Pond |
| S22[1] | 44.9 | 1,2,4 | 67 | High | Jasper Road Slough |
| S24 | 8.0 | 2,3,4 | 55 | High | Gray Creek |
| WA/WB | 628.2 | 1,2,3,4,6 | 72-74 (Natural)<br>64-66 (Urban) | High | Willamette River |
| E39 | 23.8 | 1,4,5 | 46-47 | High | Glenwood Slough |
| Total | 1503.7 | | | | |

[1]All or part of these sites are outside the Urban Growth Boundary, and as such, are outside the jurisdiction of the City. Lane County has indicated that safe harbor provisions shall be applied to resource areas outside of the Urban Growth Boundary, within their jurisdiction. Setbacks or other development standards may be applied to land within Springfield's jurisdiction that is adjacent to these sites, under both safe harbor and standard process provisions.

## 4.0 Springfield Local Wetlands Inventory

In 1998, the City of Springfield completed and adopted a local wetland inventory in accord with state administrative rules. The 1989 Oregon State Legislature authorized the DSL to develop a statewide wetlands inventory suitable for planning and regulatory purposes. Cities were mandated to complete an inventory of the wetlands within their planning jurisdictions. Pursuant to ORS 196.674, DSL established Local Wetlands Inventory (LWI) standards and guidelines. The purpose of an LWI is to locate, map, and classify wetlands by type (e.g. forested wetlands) over a relatively large geographic area. The approximate boundary of wetlands greater than 0.5 acre in size is identified through the inventory. The approved LWI was incorporated into the statewide wetland inventory.

## 4.1 Background

In June of 1992, May of 1993, and again in April 1996, a Local Wetland Inventory (Inventory) was conducted by David Evans and Associates, Inc. within the urban growth boundary (UGB) of the City of Springfield and along Cedar Creek and Jasper Slough, in Lane County, Oregon. The UGB incorporates approximately 20 square miles (12,800 acres). The City limits represent approximately 13.5 square miles (8,600 acres) within the UGB.

Information was gathered from other regional inventories including the National Wetland Inventory [NWI], the Natural Resource Conservation Service (formally the US Soil Conservation Service [SCS]) and by previous Eugene-Springfield Metropolitan area studies; (Special Industrial Sites [SISS], Draft Natural Resource Special Study [NRSS], and the Springfield Industrial Lands Special Study [ILSS]). City staff mapped these inventories onto mylar overlays of aerial black and white photography at a scale of 1" = 400' (WAC Corporation, 1990). Infrared photography (1990), originally taken at a scale of 1:24,000 and later photo enlarged to a field scale of 1" = 400', was also supplied by the City to corroborate black and white aerial photography.

The infrared photography was scanned and then registered to the City's planimetric base maps (David Smith and Associates, 1990). Using the scanned images as backdrops behind the planimetric data (two foot contours, streams, curb lines, building footprints, etc.) and working hand-in-hand with DSL staff, each wetland was compared to DSL documents, field verified and then updated using the City's GIS equipment. Since the City of Springfield creates and updates tax lot by City surveyors using COGO (Coordinate Geometry) techniques based on the same geodetic control (David Evans and Associates, 1990) used to generate the planimetric data, this produced highly accurate delineations registered to the tax lot base.

This Inventory was conducted using the Level 2 Routine Determination Methods described in the *Corps of Engineers (Corps) Wetland Delineation Manual* developed by the Corps

Environmental Laboratory (1987). Evidence of hydrophytic vegetation, hydric soils, and hydrology were examined by wetland ecologists in conducting the wetland determinations.

Only those sites where the property owner granted written or verbal approval for access were inspected onsite. Where possible, properties where access was denied were inspected from adjacent parcels where access was granted, public right-of-ways, and aerial photo interpretation. It is possible that some wetlands exist within the UGB that do not appear in the inventory because access was denied and field verification was not possible. Findings of the field investigations resulted in the identification of 57 jurisdictional wetlands totaling 404.13 acres within the City of Springfield UGB, and 187.50 acres of other developed or created waters ("other waters").

In the time since DEA completed the Local Wetlands Inventory was completed and acknowledged, the Inventory has been updated with the addition of newly discovered wetlands and by formal delineations of existing Inventory sites that more accurately define the boundaries of those wetlands. Typically property owners are referred by the City to the US Army Corps of Engineers and the Oregon Division of State Lands (DSL) if a proposed activity on their may affect a wetland. The DSL reviews wetland delineations submitted to their office and when acknowledged, the new delineations are sent to the City of Springfield for inclusion in the Local Wetland Inventory.

## 4.2 Identifying Springfield's Locally Significant Wetlands

In 1999, the Oregon Division of State Lands funded an analysis of Springfield's wetland sites to determine which met the state-defined criteria for significance. Using the Oregon Freshwater Wetlands Assessment Methodology (OFWAM), Pacific Habitat Services (PHS), Inc. conducted the analysis. PHS reviewed all available information for the approximately 586 acres of wetlands identified in the Local Wetlands Inventory. The OFWAM analysis identified 14 wetland sites that met the criteria adopted by the Oregon Division of State Lands for determining which of Springfield's wetland sites are "significant" pursuant to ORS 197.279(3)(b) and OAR 660-023- 0100 (3)(b). The LWI and the OFWAM were updated by PHS in June 2003.

Wetlands within the Springfield UGB are considered *significant* if, through the Oregon Freshwater Wetland Assessment Methodology (OFWAM) evaluation, they:

1. Provide diverse wildlife habitat, intact fish habitat, intact water quality function, or intact hydrologic control function;
2. Are located within 1/4-mile of a "water quality limited stream" and have "intact" or "impacted or degraded" water quality function;
3. Contain rare plant communities or federal or state-listed species; or
4. Have a surface water connection to a stream that is habitat for indigenous anadromous salmonids and have "intact" or "impacted or degraded" fish habitat function; or
5. Represent a locally unique native plant community; or
6. Are publicly owned and have educational value.

## 4.3 High and Moderate Quality Wetlands

### High Quality Wetlands

Additional criteria were applied to the inventory of "significant" wetlands to establish rankings of high quality and moderate quality. High quality wetlands were determined using a combination of key assessment variables (functions and values) from the OFWAM analysis that were used to determine wetland significance. High Quality Wetlands in Springfield are locally significant wetlands that provide highly rated ecological functions and have at least one of the following characteristics:

1. Have at least two of the following "high" OFWAM functional ratings:
   - diverse wildlife habitat,
   - intact fish habitat,
   - intact water quality function,
   - intact hydrologic control function;
2. Contain one or more rare plant communities; or
3. Provide habitat for federal or state listed species; or
4. Connect directly to a salmon-bearing stream

These locally significant, high quality wetlands are in **bold** typeface on the table below in Section 4.4 "Springfield's Locally Significant Wetlands."

## Moderate Quality Wetlands

Locally significant wetlands that do not meet the above criteria are categorized as "moderate quality wetlands." These locally significant, moderate quality wetlands are **not bolded** on the table below in Section 4.4 "Springfield's Locally Significant Wetlands."

### Low Quality Wetlands

Sites that were determined through the OFWAM analysis to have relatively low resource value (i.e., non-locally significant wetlands) are not listed below and are not recommended for further consideration in this ESEE analysis. Low quality wetlands appear on the Springfield Local Wetland Inventory and are protected by the Oregon Division of State Lands, through their wetland permit process.

The tables below summarize the size and classification of the significant wetland areas within Springfield's Urban Growth Boundary. A complete listing and site description of all wetlands on Springfield's Local Wetland Inventory can be found in Appendix B.

## 4.4 Springfield's Locally Significant Wetlands

## McKenzie River Basin Wetlands

| Site Number | OFWAM Significance Rationale | Acres | USFWS Classification(s) |
|---|---|---|---|
| **M4** | Special Interest for Protection: Wetland inhabited by a species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered. | 5.02 | PEM |
| **M5** | Provides diverse wildlife habitat and hydrologic control function is intact. | 9.00 | PFO/PSS/PEM |
| M14 | Provides diverse wildlife habitat. | 33.45 | PEM/PFO |
| M16a-c | **M16a**: Water quality and hydrologic functions are intact.<br>M16b: Hydrologic function is intact.<br>M16c: Hydrologic Function is intact | 13.96 | PFO/POW/RLP/PEM |
| **M20** | Provides diverse wildlife habitat and water quality is intact | 0.52 | RLP |
| **M26** | Provides diverse wildlife habitat; provides recreational and educational opportunities; | 1.85 | PFO/PEM/PSS |
| M28 | Special Interest for Protection- Mitigation Site | 1.51 | PEM |
| **M29** | Special Interest for Protection- Wetland inhabited by a species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered. | 1.08 | PFO/PEM |
| M30 | Water quality function is intact | 6.49 | PFO/PEM/POW |
| M33a | Hydrologic control function is intact | 3.39 | PEM |
| | McKenzie Basin Acres | 76.27 | |

## Willamette River Basin Wetlands

| Site Number | OFWAM Significance | Acres | USFWS Classification(s) |
|---|---|---|---|
| **W2** | Special Interest for Protection -Wetland inhabited by a species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered. | 0.90 | PEM |
| W3a | Water quality function is intact | 15.30 | RLP |
| W4a | Water quality function is intact | .67 | PFO |
| **W12** | Water quality and hydrologic functions are intact | 1.42 | PFO |
| **W16** | Water quality and hydrologic functions are intact | 1.46 | PFO/PEM |
| **W18a** | Water quality and hydrologic functions are intact | 128.80 | PEM/PFO |
| **W19** | Hydrologic control function is intact | 41.65 | POW/PFO |
| **W20** | Water quality and hydrologic functions are intact | 3.39 | PSS/PAB |
| | Willamette Basin Acres | 193.59 | |
| | Total acreage for all Locally Significant Wetlands | 269.86 | |

## 5.0 OVERVIEW OF THE GOAL 5 STANDARD APPROACH

The legal requirements to comply with Statewide Planning Goal 5 are contained in the goal itself and Oregon Administrative Rule 660, Division 23 (the "Goal 5 rule"). The Goal 5 rule replaces a former version of the rule OAR 660-016-0000. The revised Goal 5 rule is similar in many respects to the old rule, and interpretations of the old rule by the Land Use Board of Appeals and the Oregon Courts are relevant guidance to applying the OAR 660, Division 23. The Goal 5 rule retains the fundamental requirements of an inventory of resource sites, consideration of the consequences of allowing, limiting or prohibiting conflicting uses within those sites and implementing regulations to comply with Goal 5. However, a "safe harbor" option has been added to the rule, allowing local governments to streamline their Goal 5 program by applying protective measures, which are set forth in the Goal 5 rule, to identified resource sites.

### 5.1 Completing an Inventory of Significant Resource Sites

The first step in the standard Goal 5 process is an inventory of "existing and available" information on Goal 5 resource sites. A resource site describes an area identified by the local government, which is not limited to individual parcels or tax lots (*Columbia Steel Castings Co. v. City of Portland*, 314 Or 424, 840 P2d 71, 74 (1992)). The Goal 5 rule defines "resource site" to be "an area where [Goal 5] resources are located" [OAR 660-023-0010(10)]. This can include multiple contiguous lots and parcels. For example, the resource site for a riparian corridor can include the corridor within all or part of a watershed. The types of information that should be gathered include existing inventories, surveys and other available data. The rule states that "at a minimum" the local jurisdiction must notify state and federal resource agencies and request current information and consider other information submitted during the local process [OAR 660-023-0030(2)].

Once an inventory has been completed, the Goal 5 process requires that local governments determine whether the existing information for resource sites is "adequate." If information is determined to be inadequate for a resource site, then the local government cannot proceed with the Goal 5 process for that resource site [OAR 660-023-030(3)]. Information is adequate if it provides the location, quality and quantity of natural resources at a proposed site. Location can be determined from maps, inventories, surveys and the other sources listed above. The quality determination requires a comparison of the site to others in the region or nearby. Quantity is a determination of relative abundance of the type of resource being reviewed.

If the information gathered about a resource site is considered adequate, the Goal 5 process then calls for a determination of whether a resource site is "significant." Significance is determined based upon the location, quantity and quality of the resource. Some of the criteria for determining significance are found in the rules governing specific Goal 5 resources. Local governments also may rely on "any additional criteria adopted by the local government" [OAR 660-023-0030(4)(c)]. This represents a broad delegation of authority from the Land Conservation and Development Commission (LCDC) to local governments to add criteria to determine the significance of resource sites. The local governments may draw the criteria from existing policy documents such as comprehensive plans and ordinances, or create criteria based on the data gathered in the first step of the inventory.

## 5.2 ESEE Analysis

The next step in the standard Goal 5 process is the ESEE analysis. This is an analysis of the ESEE consequences of a decision to allow, limit or prohibit a conflicting use near a significant Goal 5 resource site [OAR 660-023-0040(1)]. The Goal 5 rule does not prescribe how local governments should conduct this analysis or that the four categories must be measured in a certain way. Local governments may generally describe the ESEE impacts of allowing or prohibiting conflicting uses near Goal 5 resources and apply that analysis to individual resource sites. *Callison v. LCDC*, 145 Or App 277, 929 P2d 1061 (1996). However, the rule does describe three components to the process:

1) Identify the Conflicting Uses,
2) Determine the Impact Area of the Conflicting Uses
3) Analyze ESEE Consequences.

### Identify the Conflicting Uses

Determining conflicting uses requires a look at existing zoning and land uses around the resource site. The zoning describes permitted and conditional uses allowed for those areas. The Goal 5 rule requires that the local government identify conflicting uses that exist or could occur near the resource site, but does not demand that local jurisdictions speculate on future uses or uses that are unlikely to occur in the impact area. Conflicting uses can be analyzed separately or grouped together with other similar uses. However, rules governing each of the listed Goal 5 resources may contain specific uses that the local government must consider as conflicting uses. For example, rules that apply to riparian corridors require the local government to consider whether the two following riparian conditions are conflicting uses wherever they occur:

(a) permanent alteration of the riparian corridor by placement of structures or impervious surfaces; and

(b) removal of vegetation in the riparian area [OAR 660-023-0090(7)(a & b)].

### Determine the Impact Area of the Conflicting Uses

Impact areas must be drawn around the area within which conflicting uses "could adversely affect" the Goal 5 resources. The impact area should define the geographic limits within which to conduct the ESEE analysis [OAR 660-023-0040(3)]. The Goal 5 rule allows local governments substantial discretion in determining what the impact area may be for the resource sites. According to the rule, the impact area can be the area that the local government determines "could adversely affect" the identified resource. LUBA has acknowledged that this process can be somewhat subjective. *Palmer v. Lane County*, 29 Or LUBA 436 (1995).

Local governments have very broad discretion in determining the impacts on the Goal 5 resource. Impacts on air, water, surface water quality, noise and fish and wildlife have all been considered as factors that may determine the impact area. Local jurisdictions are free to choose

which impacts they consider most important. The size of the impact area is also a decision for the local government, and can be quite large, so long as there are reasons to support the extent of the impact area. *Sanders v. Yamhill County*, 34 Or LUBA 782 (1998).

### Analyze ESEE Consequences

The ESEE analysis must consider the consequences "that could result from decisions to allow, limit or prohibit" conflicting uses. The analysis requires the local government to consider both the impact of the resource site on the conflicting use and the impact of the conflicting use on the resource site. *Columbia Steel Castings Co. v. City of Portland*, 840 P2d at 76. The Goal 5 rule permits local governments to create a matrix of commonly occurring conflicting uses and apply it to individual resource sites. This analysis allows local governments to identify categories of uses that do not conflict with Goal 5 resources. For example, open space zones may be determined not to conflict with Goal 5 riparian or wetland resource sites. The Goal 5 rule allows local governments to conduct a single conflicting use analysis for two or more resource sites that are in the same area or are similarly situated and subject to the same zoning [OAR 660-023-0040(4)].

The ESEE analysis provides the basis for determining whether to allow, limit or prohibit the conflicting uses near significant resource sites. Again, the local government has discretion in deciding whether to regulate a conflicting use. If the local government determines, based on the ESEE review, that conflicting uses are detrimental to the resource, then those uses may be completely prohibited. OAR 660-023-0040(5)(a). The local government may decide that the conflicting use does not impact the significant Goal 5 resource site or is more important than the resource site, and partially or fully allow the conflicting use in that area [OAR 660-023-0040(5)(b & c)].

### Program To Achieve Goal 5

The final step in the Goal 5 process is the program to achieve Goal 5. It consists of comprehensive plan provisions and land use regulations that set forth the degree of protection "for each significant resource site." OAR 660-023-0050(1). The critical aspect of any resulting regulations is that they be "clear and objective." The rule sets forth several examples of clear and objective standards. One is a fixed numerical buffer width. The Goal 5 rule does not set limits on such buffer widths. Once the local government makes a decision to protect a resource site, the rule requires only that protective regulations impose a buffer sufficient to achieve full protection of the site. Other permitted clear and objective criteria are performance standards that describe an outcome. Different performance standards may be applied to individual resource sites.

The rule also provides the option to have alternative discretionary standards so long as applicants for development permits have a choice of using the clear and objective criteria [OAR 660-023-0050(3)]. The City of Portland implemented this "two-tiered" program in its Goal 5 program in 1995. The first tier consists of clear and objective development standards for areas in and around identified Goal 5 resources. The second tier consists of a discretionary "environmental review" procedure that can be sought at the request of the development applicant where the applicant

wishes to vary from the first tier standards. The Goal 5 rule was subsequently amended to expressly allow this type of discretionary process for all local governments in the State.

This two-tiered approach can be implemented at a regional level. In addition to a set of clear and objective standards that apply to regional resources, Springfield can develop a set of discretionary performance standards, which account for site-specific conditions related to those resources. This approach is consistent with the Goal 5 rule and provides some flexibility in implementing a regional program for achieving Goal 5.

### 5.3 The Safe Harbor Alternative

The Goal 5 rule contains an alternative "safe harbor" option for local jurisdictions that desire to abbreviate the Goal 5 process. The safe harbor option allows local governments to replace portions of the standard Goal 5 process with processes set forth in the rules for each of the listed Goal 5 resources. For example, the safe harbor process for riparian corridors allows local governments to skip the "significance" determination in [OAR 660-023-0030(4)].

For Goal 5 resources like riparian corridors, the data gathering portion of the safe harbor inventory is almost identical to the standard Goal 5 process. Local governments must compile available data from six sources including Federal and State maps and fish and wildlife surveys [OAR 660-023-0090(4)]. The safe harbor method skips the "adequacy" and "significance" determination. Instead, the local jurisdiction imposes a 50-foot setback from all fish-bearing lakes and streams and a 75-foot setback from all streams with average annual stream flow greater than 1,000 cubic feet per second (csf). [OAR 660-023-0090(5)]. This process acts as a catchall so that no riparian corridor resource is missed. It also minimizes the more detailed determinations of whether information is adequate or whether sites can be considered significant.

The safe harbor provisions replace the ESEE analysis with a recipe for an ordinance that will protect Goal 5 resources. For riparian corridors, the ordinance must prevent permanent alteration of the riparian areas such as grading and placing structures or impervious surface in the buffer area [OAR 660-023-0090(8)]. The ordinance must also control the removal of riparian vegetation. However, like the other sections of the Goal 5 rule, the safe harbor provisions provide local governments with substantial discretion to allow placement of structures and impervious surface in the protected area if there is a demonstration that "equal or better protection" for the resource can be provided through enhancement or restoration of the buffer area.

## 6.0 Identifying Conflicting Uses

### 6.1 Introduction

"Conflicting use" describes a land use or other activity that could adversely affect a significant Goal 5 resource (OAR 660-023-0010(1)). The conflicting use analysis identifies threats to the natural function of a resource site from currently and potentially allowed land uses. The most common example of a conflicting use with a resource site is zoning which allows new development. Building a house or constructing a street on a resource site will very likely adversely affect the functions of that site—(ie., the two uses are in conflict). Development land use categories represent the bulk of conflicting uses, but Goal 5 more broadly defines conflicting uses as any activity reasonably and customarily subject to land use regulations. For instance, excavating and filling to change the slope on a site, while not actually a land use, can affect a wetland or riparian area and would be subject to the rule as a conflicting use. Clearing of a forested area for development may affect it's value as habitat for sensitive species that use the area. Other examples include any site alteration that may change the quantity or quality of water that affects wetlands and riparian sites. The creation of new impervious surfaces; changes to drainageways, discharges, and shading; and the removal of vegetation are all land management activities that may present conflicts.

Following the inventory of Goal 5 resources, local governments must identify conflicting land uses that are allowed within inventoried resource sites. To identify such conflicts, the rule directs local governments to examine the uses allowed within broad zoning categories (e.g., residential or commercial). The city's analysis considers permitted uses, uses subject to limitations or conditions (i.e., discretionary uses), and certain uses that may not be allowed in a base zone but may be permitted by recognition of legal nonconforming status or as a temporary activity.

Within Springfield's resource sites, housing is the most common existing land use, but a wide variety of uses can be found. These uses occur on properties that contain significant resources as identified in the Inventory. Significant natural resource sites can be found on properties within virtually all of the City's zoning categories. The following section describes the uses allowed within each of the zones. The subsequent section addresses the potential conflicts and resource impacts caused by each of these uses.

### 6.2 Uses Permitted by Zoning

The following section describes the land uses allowed in Springfield's base zones. The subsequent analysis of ESEE consequences of protecting significant resources addresses the existing and potential conflicting uses allowed within each resource site. Tables 6-1 through 6-3 summarize allowed and conditional uses within each of the City's base zones.

**Low Density Residential District (LDR).** The LDR District is intended to fully implement the Metro Plan low density residential designation, any applicable refinement plan, and establishes sites for Low Density Residential development where the minimum level of urban services are provided. The maximum dwelling units per developable acre permitted is 10.

**Medium Density Residential District (MDR).** The MDR District is intended to fully implement the Metro Plan Medium Density Residential designation, any applicable refinement plan, and establishes sites for medium density residential development where the minimum level of urban services are provided. Single-family or multiple-family dwellings are permitted with a minimum density of more than 10 units per developable acre and a maximum density of 20 units per developable acre.

**High Density Residential District (HDR).** The HDR District is intended to fully implement the Metro Plan High Density Residential designation, any applicable refinement plan and establishes sites for high-density residential development where the minimum level of urban services are provided. Single-family or multiple-family dwellings are permitted with a minimum density of more than 20 units per developable acre and a maximum density of 30 units per developable acre.

**Neighborhood Commercial District (NC).** The NC District is intended to fully implement Metro Plan Text addressing Neighborhood Commercial facilities and any applicable refinement plan. This district designates sites up to 3 acres in size to provide for the day-to-day commercial needs of populations up to 4,000 people.

**Community Commercial District (CC).** The CC District is intended to fully implement the Metro Plan Community Commercial Center designation and any applicable refinement plan. This district designates sites to provide for a wide range of retail sales, service and professional office use. This district also includes all existing strip commercial areas.

**Major Retail Commercial District (MRC).** The MRC District is intended to fully implement the Metro Plan Major Retail Center designation and any applicable refinement plan. This district may also be applied to large, vacant tracts of CC Community Commercial land that are suitable for the siting of new shopping centers, in which case the minimum development area shall be 20 acres.

**General Office District (GO).** The GO district is intended to encourage appropriate office development and to implement neighborhood refinement plans. This district is designed to be a transition zone, providing a buffer between residential and more intensive commercial development at the boundaries of a Community Commercial or Major Retail Commercial designation. A development area of at least one acre shall be required.

**Light-Medium Industrial District (LMI).** The LMI District is intended to fully implement the Metro Plan Light-Medium Industrial designation and any applicable refinement plans. Light and medium industries are generally involved in the secondary processing of materials into components, the assembly of components into finished products, transportation, communication and utilities, wholesaling and warehousing. The external impact from these uses is generally less than Heavy Industrial and transportation needs are often met by truck. Activities are generally located indoors, although there may be some outdoor storage. This designation also can accommodate supporting offices and light industrial uses.

**Heavy Industrial District (HI).** The HI District is intended to fully implement the Metro Plan Heavy Industrial designation and any applicable refinement plans. These industries are generally involved in the processing of large volumes of raw materials into refined materials and/or

materials that have significant external impacts. Heavy Industrial transportation needs often include rail and truck. Examples of such uses are: production of lumber and wood products; paper; chemicals and primary metal manufacturing; large-scale storage of hazardous materials; power plants; and railroad yards. Less intensive industrial uses that are permitted in the LMI District are permitted in this district.

**Special Heavy Industrial Districts (SHI).** The SHI District is intended to fully implement the Metro Plan Special Heavy Industrial designation and any applicable refinement plans. These areas are designated to accommodate industrial developments that need large parcels, particularly those with rail access.

**Quarry and Mine Operations District (QMO).** The QMO District is intended to implement the Metro Plan Sand and Gravel designation as well as the Environmental Resources Element of the Metro Plan as it applies to inventoried natural resources that include aggregate resources. The QMO district allows the extraction and storing of rock and rock products, the processing of rock into various products and the sale of those products generated from quarry operations.

**Mixed-Use Commercial District (MUC).** The MUC District implements areas designated for mixed-use on adopted refinement plans, specific area plans and specific development plan diagrams where a mix of commercial with residential uses is intended. Development within the MUC District shall have a commercial dominance, with residential and public uses also allowed. Lots in the MUC District shall generally have frontage on either an arterial or collector street.

**Mixed-Use Employment District (MUE).** The MUE District implements areas designated for mixed-use on adopted refinement plans, specific area plans and specific development plan diagrams where a mix of light-medium industrial or special light industrial uses with commercial or medium-high density residential uses is intended. Development within the MUE District shall have an employment (industrial) emphasis, but may include commercial, public and multi-family residential uses. Lots in the MUE District shall generally have frontage on either an arterial or collector street.

**Mixed-Use Residential District (MUR).** The MUR District implements areas designated for mixed-use on adopted refinement plans, specific area plans and specific development plan diagrams where a mix of medium and high density residential with commercial uses is intended. Development within the MUR District shall have a multi-family residential emphasis, but may include small-scale retail, office and service uses when they are developed as part of a mixed-use development in order to increase housing opportunities in close proximity to designated commercial zones; support the retail, office and service uses of the adjacent commercial zone; and to provide options for pedestrian-oriented lifestyles. Lots in the MUR District shall generally have frontage on either an arterial or collector street.

**Medical Services District (MS).** The MS District is designed to provide for hospital expansion and for suitable, geographically dispersed areas for the development of hospitals and associated medical residential facilities. These facilities shall be developed comprehensively and shall be designed to ensure compatibility with the surrounding neighborhood.

**Nodal Development Overlay District (/NDO).** The /NOD designation is established to work in conjunction with underlying zoning districts to implement transportation related land use policies found in the Eugene-Springfield Area Transportation Plan (TransPlan) and in the Eugene-Springfield Metro Area General Plan. The /NDO District also supports "pedestrian-friendly, mixed-use development" as outlined in the State Transportation Planning Rule.

**Public Land and Open Space District (PLO).** The PLO District is intended to implement the Metro Plan Public and Semi-Public designation, which includes Government, Education and Parks and Open Space designations. The district allows public and private educational facilities, parks, cemeteries and golf courses. The district also provides for public offices, libraries, other government or publicly-owned facilities and similar uses located in areas designated on the Metro Plan Diagram.

### Key to Tables 1-3:

'P' = PERMITTED USE, subject to the standards of the Springfield Development Code; may be processed under Type I, II or III procedures.

"S" = SPECIAL USE, subject to special locational and siting standards to be met prior to being deemed a permitted use; may be processed under Type I, II or III procedures

"D" = DISCRETIONARY USE, may or may not be permitted, based upon the application of general criteria; may be subject to special locational and siting standards to be met prior to being deemed a permitted use; processed under Type III procedures

- = NOT PERMITTED

### Table 6-1. Uses Permitted in Residential and Open Space Zones

| Use Categories | LDR | MDR | HDR | MUR | PLO |
|---|---|---|---|---|---|
| Accessory Structures | S | S | S | S | P |
| Agricultural Uses | P | P | P | P | P |
| Churches | D | D | D | D | - |
| Professional Offices | S | S | S | S | - |
| Single Family Units | P | P | P | - | - |
| Multi-Family Units | - | P | P | P | - |
| Day Care Facilities | P | P | P | S | P |
| Educational Facilities | D | D | D | D | S |
| Group Care Facilities | D | S | S | S | - |
| Half-way Houses | - | D | D | D | - |
| Parks | D | D | D | P | P |
| Public Utilities | S | S | S | S | D |
| Transient Accommodations | S | S | S | S | - |

*The PLO District is not listed among the residential zones, but shares many of their uses and impacts.

### Table 6-2. Uses Permitted in Commercial Zones

| Use Categories | NC | GO | CC | MRC | MUC | MS |
|---|---|---|---|---|---|---|
| Agricultural/ Animal Sales And Services | - | - | P | S | - | - |
| Automotive, Marine, Mobile/Manufactured Home Sales, Service Storage Repair | - | - | P | S | - | - |
| Business And Professional Offices And Personal Services | P | P | P | P | P | P |
| Day Care Facilities | S | S | S | S | S | S |
| Eating And Drinking Establishments | P | P | P | P | P | - |
| Public Utilities | S | - | S | S | S | - |
| Recreational Facilities | P | - | P | P | P | - |
| Religious, Social and Public Institutions | P | P | P | P | D | - |
| Single Family Residential Uses | P | - | P | - | - | - |
| Multi-Family Residential | S | | S | S | P | - |
| Retail Sales | P | S | P | P | P | - |
| Small Scale Repair and Maintenance Services | S | - | P | - | S | - |
| Transient Accommodations | - | - | P | - | - | - |
| Transportation Facilities | - | - | S | S | P | - |
| Warehouse Commercial Retail and Wholesale Services | - | - | P | - | - | - |

*The MS District is not listed among the commercial zones, but shares some of their uses and impacts.

### Table 6-3. Uses Permitted in Industrial Base Zones

| Use Categories | LMI | CI | MUE | HI | SHI | QMO* |
|---|---|---|---|---|---|---|
| Manufacture And/Or Assembly | P | P | P | P | S | *P |
| Transportation Related, Non-Manufacturing | P | - | P | P | S | - |
| Service And Repair | P | - | P | P | S | - |
| Warehouse Commercial, Wholesale Trade, Storage And Distribution | P | - | P | P | S | - |
| Business, Labor, Scientific And Professional Organizations And Headquarters And Recreational Uses | P | P | P | P | S | - |
| Recreational Facilities | P | - | P | P | S | - |
| Agricultural Cultivation of Undeveloped Land | P | P | P | P | P | - |
| Public Utilities Facilities | S | S | S | S | S | - |
| Public Schools | D | D | D | - | - | - |

*The QMO District is not listed among the industrial zones, but its primary activity, the extraction, processing and sale of rock products has similar impacts to heavy industrial uses.

## 6.3 General Impact of Conflicting Uses on Natural Resources

This section provides a review of the potential impacts of permitted conflicting uses on significant resources identified in the Natural Resources Inventory. One impact that is common to virtually all conflicting land uses is the creation of impervious surfaces. Impervious surfaces are mainly constructed surfaces - rooftops, sidewalks, roads, and parking lots - covered by impenetrable materials such as asphalt, concrete, brick, and stone. These materials seal surfaces, repel water and prevent precipitation from infiltrating soils. This section is introduced by a brief

description of the amount of impervious surface that might result from various types of land uses and the anticipated impacts of replacing natural areas with impervious surfaces.

The remainder of this section discusses in more detail the type of impacts that residential, commercial, industrial and other uses can have on resource sites. Where the same impacts are identified for different conflicting uses, the first impact analysis in the text is referenced and not repeated.

## Impervious Surfaces

In 1989, Seattle Public Utilities developed impervious surface ratings by land use categories. These ratings provide general information about the percentage of impervious surface associated with different kinds of development. The following table lists those percentages. In surveying the available scientific literature, it was noted that the degradation of water quality and habitat accelerate rapidly in watersheds when impervious surface areas are 12-13% of the total area. Current studies indicate an even lower threshold for stream degradation.

| Land Use Categories | Variability Factors | Imperviousness% |
|---|---|---|
| Residential-Single Family | Building footprint, driveway, yard | 45 |
| Commercial, Mix Use, Multi-Family Residential | Building, parking lot, landscaping, setbacks | 75 |
| Industrial (light) | Building, parking lot, landscaping, setbacks, unpaved lots | 70 |
| Parks, School Recreational Facilities | Vegetation, paths, parking | 10 |
| Public and Transportation Facilities | Paved roadway, sidewalks, shoulder | 60 |
| Vacant | Same as park | 10 |

Increased impervious surface area in a watershed reduces groundwater filtration and recharge of cooler, clean water. This alters stream hydrology, which means there may be too little or too much water in a stream. When groundwater infiltration is reduced, lower summer stream base flow and elevated water temperatures may result, potentially killing fish and macro-invertebrates upon which aquatic life depends.

Increased impervious surfaces result in greater volume and velocity of stormwater runoff discharged into receiving streams. This can result in higher peak stream flows, more severe flooding, scouring of streambed gravel needed for fish spawning and rearing, eroding of streambanks more rapidly, undercutting and downcutting of streams, all of which reduce in-stream and/or streamside habitat.

Impervious surfaces contribute to higher water temperature (thermal pollution) in streams from stormwater running off heated surfaces such as parking lots into streams. Elevated water temperature can affect the metabolism and alter the feeding activity of fish, affect the quantity and quality of aquatic food sources, inhibit reproductive cycles, increase the virulence of fish diseases and can kill salmon and trout directly.

### Vegetation and Grading

Perhaps the most pervasive adverse impact on wetland and riparian functional values results from removal of vegetation and excavation. Top soil disturbance or removal is almost always a component of development. Such disturbance, if not managed results in erosion of the development site and sedimentation of nearby watercourses. Effective management of stormwater runoff at construction sites helps minimize these impacts. Springfield requires construction plans to include planning for runoff controls as part of their overall construction design.

## 6.4 Categories of Conflicting Uses and Their Impacts

### Residential Uses

Residential uses identified in the zoning code include household living and group living. Household living is residential occupancy of a dwelling unit by a household. Group living is different from household living in that it involves occupancy of a structure by a group of people who do not meet the definition of a household. For the purpose of a conflicting use analysis, both types of residential uses can degrade or destroy natural resources during construction and use of residential structures. This section examines the consequences of housing, for both households and group living situations, on Goal 5 resources.

Preparing land for housing commonly includes removal of vegetation. Removal of vegetative cover eliminates habitat for native wildlife. Lost habitat includes feeding, nesting, perching and roosting places for birds and loss of feeding, nesting and refuge areas for mammals, reptiles, amphibians, fish and insects. Clearing also removes important structural features of the forest such as multi-layered canopies, snags, downed logs, and large trees. These habitat components are removed and replaced with ecologically barren buildings, fences, lawns, driveways, parking lots and other impervious surfaces. Single-family residential development and supporting infrastructure can be expected to cover about 45% of land areas with impervious surfaces. Apartment complexes and other higher density residential developments create about 75% coverage with impervious surfaces.

Forest fragmentation caused by the clearing of vegetation for residential uses increases the isolation of one habitat area from another. This can form barriers to wildlife migration and can limit the genetic exchange among populations. Roads (and roadway 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 human activities disturb the breeding and predator instincts of animals. Activity levels as defined by noise and movement increase from between 10 and 100 times that of normal (natural system) producing disruptions in competition, communication, mating and predation habits of animals, and make it difficult or impossible for many native species to exist (Brown 1987). Additionally, household litter and garbage in resource areas degrades habitat values, and household pets can kill or injure native wildlife and

compete for limited space. Other detrimental impacts of housing include reduction of open space, and degradation of scenic and recreational values.

The steep slopes within resource areas 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 and degrading habitat values. Soil loss and erosion can also result from common construction activities such as vegetation removal, grading and compaction on sites with gentle slopes. These activities can reduce the capacity of soils to support vegetation and absorb groundwater by reducing soil fertility, microorganisms, seeds, and rootstocks, and damaging soil structure.

The construction of homes, roads and other impervious surfaces has adverse consequences beyond those described above. Additional adverse effects of residential development include:

- Erosion, flooding, and landslides: Increased storm runoff and peak flows, resulting in soil loss and erosion, bank undercutting and failure, and potential landslides and floods. These activities can damage soil structure and fertility, degrade or eliminate wildlife habitat, and can result in public safety hazards.

- Hydrology: Reduced groundwater recharge, altered volumes of water in wetlands and surface drainages contributed by groundwater. 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 fish, amphibians and aquatic organisms as well as terrestrial animals.

- Pollution: Oil, gas, tar, antifreeze, and other contaminants from vehicles, heating and cooling systems, and roofs degrade habitat and water quality; heated runoff from roads and parking lots can cause thermal pollution and have detrimental effects on local fish runs; pesticides, herbicides, and fertilizers used on residential grounds 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 streams; septic drain fields and animal wastes can contaminate ground and surface waters.

Common residential landscaping practices may also have detrimental impacts. The removal of native vegetation and the establishment of lawns and non-native landscape features reduce resource values. Lawns and non-native vegetation require regular irrigation, which reduces drinking water supplies and can exacerbate summer water shortages. Landscape trees, shrubs and groundcover plants often include invasive, non-native species that escape into natural areas and compete aggressively with natives. English ivy, holly, and laurel are examples of commonly used invasive species used in residential landscaping.

The form and layout of residential development can have a significant impact on resource values. For example, a clustered development at an overall density of 9 units per acre, but with small lots, alternative housing types, and large areas of open space set aside on the site will have fewer

impacts than a development at 5 units per acre with developed lots spread evenly across the entire site.

### Commercial Uses

Commercial uses have all of the detrimental effects described for residential uses above. However, commercial uses typically use more of the site and require more extensive site clearing and grading, and the detrimental effects of vegetation removal, building construction, and human use are generally much greater than those described for residential uses. In addition, parking lots, which are not normally a major impact for housing, are common with commercial uses and substantially increase the detrimental impacts due to impervious surfaces (e.g., reduced infiltration and higher runoff, lower groundwater levels, interference with the transfer of air and gases from the soil). The percentage of impervious surface to be expected from commercial development designations is about 75%.

Commercial uses also can significantly diminish or destroy open space, scenic, and recreation values. Certain residential impacts such as pet wastes and fertilizers and pesticides from lawn and garden areas may be somewhat reduced, but oil, gasoline, and vehicle-related contamination can increase. There are ways to partially mitigate this detrimental effect through parking lot landscaping and stormwater design.

### Industrial Uses

Industrial uses have all of the detrimental effects described for commercial uses above. Industrial uses often require complete site clearing and grading, with the retention of few, if any, natural resources on a site.

Industrial uses therefore can have more severe environmental effects than commercial uses. They have impervious surface impacts similar to commercial uses and can also diminish or destroy open space, scenic, and recreational values. The percentage of impervious surface to be expected from industrial development designation is about 70%.

In addition, industrial uses often draw substantial amounts of water from wells and public water sources. Extensive use of groundwater can result in draw down of the water table, which in turn can reduce surface water flows in streams and eliminate a water source for wildlife. Industrial uses may involve hazardous material use and storage, waste storage and recycling, and other activities that require special permitting and the construction of pollution control devices to ameliorate specific impacts.

### Public Lands/Open Space

Parks and open area 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 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 buildings are activities

commonly associated with development of parks and open areas. The environmental consequences of these activities are similar to those described for residential uses except that normally a smaller percentage of land area is covered by impervious surfaces. The percentage of impervious surface to be expected by this development designation is only about 10%.

Intensive recreation such as cycling, motoring, and equestrian sports also cause erosion, particularly when they occur off maintained trails.

### Agriculture

Springfield has no zone designation for agricultural use, but agricultural activities are allowed in several zoning districts, particularly on undeveloped property. Traditional agriculture uses involve clearing vegetation, plowing fields, and exposing bare soils, all of which cause erosion that can degrade water quality and can adversely impact aquatic habitat. The removal of woodland cover for farming has the same habitat effects as those for housing but with fewer hydrologic impacts. The conversion of forest to farmland replaces diverse forest plant communities with few, cultivated species. Vegetation acts as a filter, cleansing runoff before it reaches streams or wetlands. Removal of vegetation for agricultural uses eliminates these benefits. Agriculture also commonly (but not always) involves the use of pesticides, herbicides, and fertilizers. These chemicals can contaminate surface and groundwater areas and harm wildlife. Animal fecal contamination can occur as a result of pasture use and can have similar environmental effects.

Agriculture may draw 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.

### Quarry Mining

Mining is normally conducted for mineral aggregate resources. Mining generally has the most severe environmental impacts of all uses within the site. Mining normally eliminates all resources from an area. Once a mining operation is closed, some restoration of soil, vegetation and other resources may be possible but resources will remain permanently degraded. For example, the removal of gravel as a mineral aggregate resource from a riparian area results in permanent alteration of the hydrologic regime in that area.

### Other Land Uses and Land Use Procedures that Impact Resource Areas

### Public Improvements

#### Infrastructure Facilities

Infrastructure facilities such as water and sewer pump stations, electrical substations, and water towers need to be located in or near the area where the service is provided. Although operation of existing facilities may have 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 forest and other habitats providing opportunities for the establishment of invasive, non-native plant species. Construction often fragments wildlife habitat areas, degrades wetlands and streams, increases stormwater runoff and erosion, and reduces forest cover. Basic utility construction generally has the same effects as those described for housing. Certain types of basic utilities, such as stormwater retention areas, sediment traps, and constructed wetland pollution treatment facilities can have beneficial environmental effects if located without disruption to existing resources. However, replacement of existing resource areas with these facilities can have significant detrimental effects.

Radio and Television Broadcast Facilities

Most low-powered transmitters such as cordless telephones and citizen band radios are allowed in all zones. More powerful and larger radio, television, and cell phone broadcast facilities are allowed subject to limitations or as conditional uses within all zones. Their effects are generally the same as those of basic utilities, but with less impervious surface and human activity impacts and greater adverse visual impacts.

Rail Lines and Utility Corridors

Rail lines and utility corridors are allowed as conditional uses in all residential and commercial zones, and are allowed by right in all employment and industrial 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, the additional grading results in a greater area of resource disturbance and greater degradation of soil, vegetation and both terrestrial and aquatic habitat resources. In addition, most rail corridors involve extensive chemical vegetation management with a potential for ground and surface water impacts.

## Land Use Procedures

Comprehensive Plans, Specific Development Plans, Refinement Plans

Specific development plans, refinement plans and similar planning documents may allow development patterns that conflict with natural resource sites. Specifics contained within these plans may give directives for development that can not be understood by examining zoning rules alone.

Subdivisions, Partitions, and Property Line Adjustments

These are procedures that establish lots or relocate property lines within any zone. While the act of adjusting or creating lot lines does not directly impact resources, the new or modified lots may allow more conflicting uses than the lots from which they were created because of the additional housing or other development that can occur on these lots.

## 7.0 DEFINING IMPACT AREAS FOR RESOURCE SITES

Under the standard approach, Goal 5 rules require communities to identify an impact area for each significant natural resource site. The impact area is defined as the "geographic area within which conflicting uses could adversely affect a significant Goal 5 resource" (OAR 660-23-010(3)). The impact area, together with the boundaries of the resource site itself, defines the geographic limits within which to conduct the ESEE analysis.

Local governments have substantial discretion in defining impact areas. Goal 5 rules don't provide direction about how communities are to identify these areas. LUBA has acknowledged this process can be somewhat subjective. Palmer v. Lane County, 29 Or LUBA 436 (1995). Impacts on air, water, surface water quality, noise and fish and wildlife have all been considered as factors that may help determine the impact area. The context of the resources may influence how impact areas are defined. For example, impact areas in developed urban areas may be limited to adjoining properties within a certain distance. Local jurisdictions are free to choose which impacts they consider most important.

In many Oregon cities and towns, impact areas have been defined as either a uniform distance buffer, or an area bordered by identifiable topographic features, or simply the adjacent properties. The impact area must be specific enough to be measured and mapped and should be justified by facts such as soil type, slope, and vegetation. Since the ESEE analysis is conducted for both the resource and the impact area, local governments may decide to implement a program to achieve Goal 5 that encompasses the resource area and the impact area in order to protect identified Goal 5 resources.

Springfield has chosen to define the impact areas for resource sites based upon the functions those sites serve. Staff researched available literature to establish the natural functions of wetlands and riparian areas. This research centered upon work recently for the City of Portland, Metro and on reports prepared by various communities in the state of Washington which are required to prepare statements of "best available science" on which to base their protection policies for riparian and wetland areas. While Springfield differs in many ways from the Portland metropolitan area, the general discussion of the functions and values of natural resource types is valid in Springfield.

### 7.1 Impact Areas Defined by Resource Functions

A broad range of recommended buffer widths, some of which are based on, or expressed in terms of linear distances, site-potential tree height (SPTH) and floodplains, can be found in the literature. This range reflects a diversity of management goals, social values, land ownership, site conditions, and study methodologies. To complicate matters further, many of the studies focused on riparian and wetland functions in a rural forest setting as opposed to an urban setting. This section summarizes frequently cited studies and the buffer widths recommended to maintain specific riparian and wetland functions (see Table 2).

## 7.2 Riparian Functions

Nearly all of the scientific literature and literature reviews are written from a perspective of riparian functions and widths necessary to provide fully functioning natural pathways in forested areas (May 2002, Pollack and Kennard 1998; Knutson and Naef 1997; Spence *et al.* 1996; FEMAT 1993; Thomas et al. 1993; Budd *et al.* 1987; Harmon *et al.* 1986). Much of the literature on riparian function in particular has investigated the results of tree harvesting in forests, or the effects of various agricultural practices. While these types of literature and summary reviews must be approached with caution when evaluating riparian functions and reasonable function potential under urban constraints, they are useful in describing riparian functional processes that allow extrapolation to the urban condition.

### Organic Inputs and Food Web

The dominant contribution of riparian vegetation to the food web is *allocthonous* inputs (predominately fine litterfall-leaves, needles, bark, cones, and fine wood) that fall directly into the stream. *Allocthonous* inputs (inputs not in their place of origin) can be significant even in incised reaches (Kauffman 2000). The literature reviewed generally agreed that the first 100-feet adjacent to a stream plays an important role in maintaining food web functions. Spence et al. (1996) recommended buffers extending a distance equal one site potential tree height from the stream to maintain food web functions, with one site potential tree being equal to 170-foot in western Oregon forests. Maintaining 100-foot to 170-foot buffers is considered the minimum width required to help maintain particulate organic debris contributions that in turn help support healthy and diverse *benthic* communities.

### Channel Dynamics

To maintain channel dynamics, buffer areas ranging 65 to 250 feet wide, or the 100-year floodplain are recommended in unconstrained reaches. Spence et al. (1996) recommends buffers equivalent to one site potential tree height (approximately 170 feet) to protect the riparian elements that stabilize stream banks, but also recommends that potential recruitment of wood from outside the riparian zone be considered. To maintain a supply of large and small wood (necessary to retain channel complexity), Pollock and Kennard (1998) also recommend basing riparian buffers on the site potential tree height, which they define as 105 to 250 feet in Western Oregon forests. To protect the channel migration zone they recommend a buffer equal to the 100-year floodplain.

### Water Quality

To protect the water quality functions of riparian areas, a range of buffer widths, extending 10 to 860 feet on either side of the stream have been suggested in the literature. Recommended riparian buffer widths varied depending on the material being sampled or regulated, the topography of the area, and the character of the vegetation. Riparian buffers are considered most effective in controlling sediments in sheet flow (Spence et al. 1996). The literature proposing the widest corridors recommends buffers 860-feet from the stream for the removal of excess nutrients and solids produced by feedlots (Castelle et al. 1994). A distance of ten feet is considered appropriate to filter sand particles (Johnson and Ryba 1992 citing Wilson 1967). The

quality, composition, and structure of vegetation also has an important influence on water quality (Todd 2000; Fischer et al. 2000).

Spence et al. (1996) states, "Because of the high degree of variability in the effectiveness of buffers, we cannot draw any conclusions regarding buffer widths required for sediment" and nutrient control (Spence et al. 1996, 219). However, he also concludes that buffers designed to protect other riparian functions should be able to control sediments. The sediment and nutrient filtering functions attributed to riparian areas assumes that the runoff source, riparian area, and aquatic system are all connected. In urban environments, riparian areas can be decoupled from the runoff source; an in-depth discussion of this issue is found later in this chapter under "Riparian management issues in an urban environment."

### Water Quantity

Although the literature acknowledges the importance of riparian vegetation to maintaining streamflows, little is stated about the buffer size needed to protect water quantity. However, the literature does include references relative to riparian condition and water quantity. Johnson and Ryba (1992) and Castelle et al. (1994) discuss the importance of vegetated buffers for increasing infiltration and the importance of forest vegetation and litter adjacent to the stream to reduce floodflows. The proximity and hydrologic connectivity of the floodplain and the channel is important for floodplain functions such as flood flow reduction and recharge of aquifers and wetlands (Stanford 1998; Huggenberger et al. 1998;). It should be acknowledged that conditions of the entire watershed and not just the riparian area are critical for maintaining hydrologic conditions such as streamflow and groundwater storage (Naiman et al. 1992; Bledsoe and Watson 2001; Stanford 1998; Tabacchi et al. 1998)

### Microclimate

To maintain *microclimate* functions sources in the literature recommend maintaining buffers 33 to 525 feet wide. The width recommended depends on which microclimate features are of concern. On the low end of the scale Barton et al. (1985) considered 33-feet adequate for providing shade to maintain water temperature in streams in Southern Ontario, Canada. FEMAT states that microclimate is probably influenced by the width of the stream channel, topography, and the riparian area, but recommended buffers extending one to three site potential tree heights from the stream to maintain air temperature, wind speed, and humidity (FEMAT 1993). Based on their review of literature, Knutson and Naef (1997) recommend 200-525 feet to maintain localized microclimate conditions in the riparian area. Microclimate condition can also extend to side and *off channel habitat* if the riparian area is unconstrained and flood conditions are allowed to occur.

### Wildlife Habitat

Riparian habitat is valuable to a broad range of wildlife species. To protect wildlife that use the riparian environment, buffers extending 10-984 feet are recommended depending on the species being protected. Most wildlife (87 percent) found in western Oregon and Washington use the riparian zone or *wetlands* during some part of their lifecycle (FEMAT 1993, citing Brown 1985:

Kauffman 2001)). Most wildlife species depend on the riparian areas as a source of water, cover, food, plant communities, optimum microclimate conditions, high edge–to-area ratios, and as migration routes (FEMAT 1993, citing Carlson 1991; Kauffman et al. 2001).

At a minimum, Castelle et al. (1994) considered ten-feet adequate for some wildlife species. In contrast, bald eagle nesting and roosting sites require 600-foot buffers (FEMAT 1993). Most wildlife species that rely on riparian habitats can be accommodated with a buffer width of one site potential tree (150 feet) or more. For example, amphibians require cool, moist conditions to maintain their respiratory functions. They also are dependent upon migratory pathways along streams. In order to meet these needs, FEMAT recommends a buffer area equal to two site potential tree (300 feet) for the protection of most riparian-dependent amphibians.

Many avian species also rely on riparian areas (Kauffman et al. 2001). Bird use, particularly nesting for songbirds, is an important function of larger riparian areas. Waterfowl spend the winter in lowland ponds, bays and rivers. Protecting overwintering habitat is critical to their well being. FEMAT citing Roderick and Miller (1991) recommends riparian buffers between 165 to 330 feet, depending on the waterfowl species. Knutson and Naef (1997) (citing Bowman and Siderius 1984, Kelsall 1989, and Vos et al. 1985) suggest 984-foot buffers to protect heron rookeries. Riparian buffers adjacent to intense land uses may need to be even larger (Castelle et al. 1994) to adequately protect the above mentioned wildlife. Friesen et al. (1995) discusses the decrease in neotropical bird diversity associated with urban sprawl. Study results indicate a clear association between the increase in homes or development with the decrease in neotropical bird diversity (Friesen et al. 1995).

By definition riparian corridors connect terrestrial and aquatic habitat, but they also connect summer and winter habitats providing seasonal migration routes for fish and wildlife. Castelle et al. (1994) states that buffers need to be larger, 10-350 feet, depending on resource needs of the species for birds, mammals, reptiles and amphibians, when adjacent to intense land uses (such as urban development). Because habitat fragmentation that results from human disturbances is a major contributor to the loss of biodiversity, restored riparian habitat which can lead to connectivity, will be an important tool not only to salmon and trout survival, but to the viability of other wildlife that are dependent on a healthy riparian environment.

## 7.3 General Recommendations for Riparian Corridors

Table 7-1 summarizes the buffer areas identified as being needed in various studies to maintain riparian function.

**Table 7-1. Riparian Function and Impact Area**

| Function | Impact Area | Reference |
|---|---|---|
| Provides nutrient attenuation | 98 ft.<br>100 ft. | C. W. May 2000<br>Castelle, et al 1994 |
| Provide food, water, cover for fish and wildlife | 100-600 ft.<br>328 ft. | FEMAT 1993<br>C. W. May 2000 |
| Provide travel routes for wildlife movement | 328 ft. | Environment Canada |
| Provide large woody debris for channel | 1 SPTH | FEMAT 1993 |

| Function | Impact Area | Reference |
|---|---|---|
| morphology, organic debris storage, and food supply. | 262 ft.<br>1 SPTH | C. W. May 2000<br>Spence, et al 1996 |
| Provides shade and helps regulate stream temperature | 100 ft.<br>98 ft.<br>50-100 ft.<br>98 ft.<br>39-141 ft. | FEMAT 1993<br>C. W. May 2000<br>Castelle, et al 1994<br>Spence, et al 1996<br>Johnson and Ryba 1992 |
| Stabilize banks and reduce sedimentation | 1 SPTH<br>98 ft.<br>170 ft. | FEMAT 1993<br>C. W. May 2000<br>Spence, et al 1996 |
| Filter and remove sediments | 98 ft.<br>10-400 ft. | C. W. May 2000<br>Johnson and Ryba 1992 |
| Reduce excess nutrients, metal contaminants, and fecal coliform. | 98 ft.<br>100 ft. | C. W. May 2000<br>Castelle, et al 1994 |

Springfield has chosen to define riparian impact areas by using a 150-foot set distance from riparian corridor boundaries. The 150-foot impact area takes into consideration the findings of scientific literature as to the area thought needed to maintain riparian function. The 150-foot distance is also useful in that it enables staff to utilize GIS mapping and analytical tools to conduct the conflicting use analysis and other work needed to complete the ESEE analysis. The distance is also consistent with Springfield stormwater quality policy which requires site plan review for proposed development within 150-feet of certain water quality limited watercourses riparian sites.

## 7.4 Wetland Functions

Wetlands are integral features to Springfield's landscape. They provide important functions and for both human and biological components. Some of these functions include flood storage, groundwater recharge and water quality protection. These hydrology functions provide the attenuation of surface waters over a period of time in which the water is not only stored and slowly discharged, via surface or groundwater, but it is cleaned through natural processes driven by vegetation and elemental exchanges.

Wetlands may also act as areas of groundwater discharge where water exits the ground to be stored, cleaned and/or directed over the landscape to larger open water systems. Due to the diverse nature of wetlands role within the hydrologic cycle, they may be large or small, depressional or part of a larger riverine system.

A wetland's role to support biological and ecological functions varies within a matrix of numerous levels. Vegetation may be extremely diverse with multiple species or exist as a monoculture stand. The vegetation may be forested, scrub-shrub, emergent or submerged. Hydrologic cycles may be tidally influenced or stagnant, and everything in between. With such an array of water and vegetation combinations, the biological and ecological support opportunities far exceed what can be presented here. Habitat is provided for very important species, both ecologically and legally (i.e. listed species). Wetland usage is present by not only

residents of wetland habitat but also for upland species who may visit the wetland to forage or hunt wetland dependant species. Its users include micro invertebrates to larger mammals.

### Provides a Hydrologic Control Function

Many floodplain and stream-associated wetlands absorb and store storm water flows, which reduces flood velocities and stream bank erosion. Preserving these wetlands reduces flood damage and the need for expensive flood control devices such as levees. When the storms are over, many wetlands augment summer stream flows when the water is needed, by slowly releasing the stored water back to the stream system.

### Provides Diverse Fish Habitat and Wildlife Habitat

Wetlands provide essential water, food, cover, and reproductive areas for many wildlife species. For example, nearly two thirds of the commercially important fish and shellfish species are dependent upon estuarine wetland habitats for food, spawning, and/or nursery areas. Similarly, millions of waterfowl, shorebirds, and other birds depend on wetlands.

More than 43% of all species that are federally designated as endangered or threatened in the U.S. are wetland dependent for food, shelter, or breeding at some point in their life cycle. In Springfield, state and federally listed endangered, threatened and sensitive species including the Oregon Chub, Western Pond Turtle, Northern Red-legged Frog, and Fenders Butterfly, inhabit wetland areas.

Because of their high productivity, wetlands provide essential food chain support. That green scum that coats cattail stems and ankles provides food for an abundance of tiny organisms that, in turn, feed fish, wildlife, and humans.

### Traps Sediment

Wetlands are natural filters for waters flowing in and through them. Meanders in a stream or tidal channels and/or the presence of wetland vegetation, slows the flow of water and suspended sediments settle to the bottom. If the sediments contain toxins, these toxins are deposited in the wetlands and buried by additional sediments. This action effectively removes potentially harmful particles from the system. Some plants and animals may take up pollutants and transform them into harmless forms, thus improving water and sediment quality. These pollutants include heavy metals, pesticides, and excess nutrients. Stormwater runoff from various land uses or municipal drainage may contain elevated amounts of pollutants. To a certain extent, wetlands will remove or transform these pollutants prior to water flowing into other aquatic systems.

### Provides Nutrient Attenuation

Wetlands act as filters of pollutants, earning a reputation as "nature's sponge." Wetlands catch runoff, which is rain water that drains from the land, soaking it up before it reaches open water such as rivers or lakes. In this way, many pollutants that are in runoff, such as pesticides,

herbicides, factory wastes, or heavy metals (copper. iron, etc.) are absorbed into the wetland and do not enter the water supply.

Wetlands also act as filters of nutrients, such as phosphorous and nitrogen. If these nutrients remained in water, they would cause large amounts of algae to bloom on the surface of the water. When the algae die, they would fall to the bottom and begin to decompose. large amounts of oxygen would be used up in the process of decomposition, and there would not be enough oxygen left for the fish and other animals in the water. A forested streamside wetland can keep this from happening by removing as much as 80% of the phosphorous and 90% of the nitrogen from the water. Farm ponds and other wetlands can help rivers and lakes by filtering excess fertilizer that runs off fields and lawns.

## 7.5 General Recommendations for Wetland Areas

Table 7-2 summarizes the buffer areas identified as being needed in various studies to maintain wetland function.

**Table 7-2. Wetland Function and Impact Area**

| Function | Impact Area | Reference |
|---|---|---|
| Provides a hydrologic control function | | |
| Provides diverse fish habitat | 50-200 ft.<br>200 ft. | Knutson and Naef 1997<br>Castelle et al. 1992 |
| Provides diverse wildlife habitat | 100-600 ft.<br>328 ft. | FEMAT 1993<br>C. W. May 2000 |
| Traps sediment | 98 ft.<br>10-400 ft. | C. W. May 2000<br>Johnson and Ryba 1992 |
| Provides nutrient attenuation | 98 ft.<br>100 ft. | C. W. May 2000<br>Castelle, et al 1994 |

Springfield has chosen to define wetland impact areas by using a 150-foot set distance from wetland site boundaries. The 150-foot impact area takes into consideration the findings of scientific literature as to the area thought needed to maintain wetland function. The 150-foot distance is also useful in that it enables staff to utilize GIS mapping and analytical tools to conduct the conflicting use analysis and other work needed to complete the ESEE analysis. The distance is also consistent with Springfield stormwater quality policy which requires site plan review for proposed development within 150-feet of certain water quality limited watercourses riparian sites

## 7.6 Conflicting Use Matrix

Tables 7-3 and 7-4 illustrates the conflicting uses that have been identified for each riparian and inventoried wetland resource site as well as the impact area associated with each site. Some resource sites appear on both the Springfield Inventory of Natural Resource Sites and the Local Wetland Inventory.

**Table 7-3. Site Specific Conflicting Use Analysis: Riparian Resource Sites**

| | Conflicting Uses (Permitted or Discretionary Uses by Acres) | | | | |
|---|---|---|---|---|---|
| **Site ID** | **Residential** | **Commercial** | **Industrial** | **Public** | **Total Acres** |
| E-39 | .12 | 0 | 15.29 | 9.1 | 24.51 |
| E-39 Impact Area | 3.96 | 0 | 32.76 | 20.09 | 56.81 |
| S-03 | 9.45 | 0 | 14.81 | .08 | 24.34 |
| S-03 Impact Area | 19.74 | 0 | 27.12 | 1.14 | 48.00 |
| S-04 | .63 | 0 | 41.88 | 0 | 42.51 |
| S-04 Impact Area | 2.00 | .44 | 31.20 | .64 | 34.28 |
| S-07 | 5.88 | 0 | 17.78 | 0 | 23.66 |
| S-07 Impact Area | 9.51 | 0 | 23.59 | 0 | 33.10 |
| S-09 | 0 | 0 | 62.11 | 0 | 62.11 |
| S-09 Impact Area | 0 | 0 | 21.25 | 0 | 21.25 |
| S-10 | 0 | 0 | .9 | .21 | 1.11 |
| S-10 Impact Area | .77 | 0 | 4.76 | 2.77 | 8.30 |
| S-12/13 | 3.69 | 5.60 | .87 | 3.48 | 13.64 |
| S-12/13 Impact Area | 36.03 | 22.87 | 16.11 | 12.45 | 87.16 |
| S-14 | .76 | 0 | 0 | 1.38 | 2.14 |
| S-14 Impact Area | 3.05 | 0 | 0 | 2.34 | 5.39 |
| S-17 | 7.07 | 0 | 13.84 | 11.01 | 31.92 |
| S-17 Impact Area | 16.11 | 0 | 25.70 | 5.14 | 46.95 |
| S-18 | 3.44 | 0 | 2.94 | 1.13 | 7.51 |
| S-18 Impact Area | 39.22 | 0 | 6.63 | 5.94 | 52.29 |
| S-20 | 12.28 | 0 | 2.43 | 0 | 14.71 |
| S-20 Impact Area | 34.34 | 0 | 3.88 | 0 | 37.22 |
| S-21 | 0 | 0 | 11.86 | 0 | 11.86 |

| | Conflicting Uses (Permitted or Discretionary Uses by Acres) | | | | |
|---|---|---|---|---|---|
| **Site ID** | **Residential** | **Commercial** | **Industrial** | **Public** | **Total Acres** |
| S-21 Impact Area | 0 | 0 | 17.08 | 0 | 17.08 |
| S-22 | 13.28 | 0 | 0 | 0 | 13.28 |
| S-22 Impact Area | 33.71 | 0 | 0 | 0 | 33.71 |
| S-24 | 3.52 | 0 | 0 | 3.11 | 6.63 |
| S-24 Impact Area | 19.61 | 0 | 0 | 15.06 | 34.67 |
| WA/WB | 7.53 | 2.94 | 3.27 | 8.39 | 22.13 |
| WA/WB Impact Area | 35.79 | 8.13 | 19.65 | 9.32 | 72.89 |
| **Total Acres** | **321.49** | **39.98** | **417.71** | **112.78** | **891.16** |

**Table 7-4. Site Specific Conflicting Use Analysis: Springfield Local Wetland Inventory**

| | Conflicting Uses (Permitted or Discretionary Uses by Acres) | | | | |
|---|---|---|---|---|---|
| **Site ID** | **Residential** | **Commercial** | **Industrial** | **Public** | **Total Acres** |
| M-04* | 0 | 5.03 | 0 | 0 | 5.03 |
| M-04 Impact Area | 1.55 | 9.68 | 1.10 | 0 | 12.33 |
| M-05 | 8.70 | .42 | 0 | 0 | 9.12 |
| M-05 Impact Area | 18.91 | .52 | 0 | 0 | 19.43 |
| M-14 | 24.56 | 0 | 0 | 6.17 | 30.73 |
| M-14 Impact Area | 18.67 | 0 | 0 | 16.15 | 34.82 |
| M-16A | 1.33 | 0 | 0 | 0 | 1.33 |
| M-16A Impact Area | 10.27 | 0 | 0 | 0 | 10.27 |
| M-16B | 5.51 | 0 | 0 | 0 | 5.51 |
| M-16B Impact Area | 12.26 | 0 | 0 | .02 | 12.28 |
| M-16C | 2.26 | 0 | 3.43 | 0 | 5.69 |
| M-16C Impact | 12.94 | 0 | 15.95 | .05 | 28.94 |

| | Conflicting Uses (Permitted or Discretionary Uses by Acres) | | | | |
|---|---|---|---|---|---|
| **Site ID** | **Residential** | **Commercial** | **Industrial** | **Public** | **Total Acres** |
| Area | | | | | |
| M-20 | 0 | 0 | .35 | 0 | .35 |
| M-20 Impact Area | 0 | 0 | 4.52 | 0 | 4.52 |
| M-26 | .97 | 0 | 0 | .85 | 1.82 |
| M-26 Impact Area | 3.05 | 0 | 0 | 2.11 | 5.16 |
| M-28* | 0 | 1.50 | 0 | 0 | 1.50 |
| M-28 Impact Area | 0 | 8.52 | 0 | 0 | 8.52 |
| M-29* | .64 | 0 | .44 | 0 | 1.08 |
| M-29 Impact Area | 4.16 | 0 | 1.72 | .41 | 6.29 |
| M-30 | 6.37 | 0 | 0 | .11 | 6.48 |
| M-30 Impact Area | 27.30 | 0 | 0 | .91 | 28.21 |
| M33a | 0 | 0 | 12.07 | 0 | 12.07 |
| M33a Impact Area | 3.40 | 0 | 68.67 | 0 | 72.07 |
| W-02* | .89 | 0 | 00 | 0 | .89 |
| W-02 Impact Area | 2.47 | 0 | .86 | 0 | 3.33 |
| W-03a | 1.58 | 0 | 0 | 0 | 1.58 |
| W-03a Impact Area | 10.29 | 0 | 0 | 0 | 10.29 |
| W-04a | 0 | 0 | 0 | .65 | .65 |
| W-04a Impact Area | 0 | 0 | 0 | 5.45 | 5.45 |
| W-12 | 0 | .05 | 0 | 1.10 | 1.15 |
| W-12 Impact Area | 2.73 | 1.75 | 0 | 7.50 | 11.98 |
| W-16 | 1.70 | 0 | .01 | 0 | 1.71 |
| W-16 Impact Area | 20.89 | 0 | 1.82 | .52 | 23.23 |
| W-18A | 20.18 | 5.67 | 82.15 | 0 | 108.00 |
| W-18A | 30.34 | 7.58 | 98.59 | 0 | 136.51 |

| | Conflicting Uses (Permitted or Discretionary Uses by Acres) | | | | |
|---|---|---|---|---|---|
| **Site ID** | **Residential** | **Commercial** | **Industrial** | **Public** | **Total Acres** |
| Impact Area | | | | | |
| W-19 | 0 | 0 | 41.65 | 0 | 41.65 |
| W-19 Impact Area | .06 | 0 | 53.61 | 0 | 53.67 |
| W-20 | .03 | 0 | 3.28 | 0 | 3.31 |
| W-20 Impact Area | .75 | 0 | 10.52 | 0 | 11.27 |
| **Total Acres** | **254.76** | **40.72** | **400.74** | **42.00** | **738.22** |

*Meets criteria for "Special Interest for Protection" under the Oregon Freshwater Wetland Assessment Methodology.

## 8.0 Economic, Social, Environmental Energy (ESEE) Analysis

### 8.1 Introduction

The Conflicting Use Analysis is used to identify various land uses and activities that would conflict with significant wetland and riparian resource sites. The next step is to conduct the ESEE Analysis. This analysis provides an understanding of the trade-offs between protecting and not protecting a resource site. Through the ESEE analysis, a city or county may find that some resource sites do not merit full protection. The ESEE consequences of protecting a resource site from these conflicting uses may be so great that they outweigh the environmental benefits. In such a case, the community may decide to allow some conflicting uses. Regardless of local planning decisions, existing state and federal wetland regulations may still afford some level of protection to wetlands and streams, but these programs rarely deny fill permits outright, and mitigation measures are not infallible.

The ESEE process explores the interaction between significant resource sites, their impact areas, and conflicting uses—how each affects the other. A key component of the ESEE analysis is that considers three possibilities—full, limited, and no local protection. Recommendations for the treatment of resource sites must be derived from a clear enumeration of the likely consequences. The full protection alternative allows no conflicting uses, limited protection allows one or more conflicting uses on a limited basis, and no protection allows any conflicting uses permitted under current zoning. Under OAR 660-023-0040(5)(c), local governments cannot decide to provide "no protection" without thoroughly exploring methods to provide some protection and still allow the conflicting use to some extent.

Using the ESEE framework, a resource site analysis should explain the economic, social, environmental, and energy consequences of allowing—or not allowing—each conflicting use. The evaluation should address all the ESEE consequences, both those perceived as positive and those perceived as negative.

Some consequences are more important than others are. In general, where wetlands and riparian corridors are concerned, the focus of the ESEE analysis has most often been on the interaction between economic, social and environmental consequences, though there may be exceptions.

#### Combined Analysis of Riparian and Wetland ESEE Consequences

Riparian and wetland areas are often closely associated, so much so that many communities have combined their discussion of the ESEE consequences. The Springfield Inventory of Natural Resource Sites lists 14 riparian corridors that meet the significance criteria adopted by the City. Of these 14 sites, 10 appear in whole or in part on the Springfield Local Wetland Inventory. For this reason, the general discussion of ESEE consequences shall address Springfield's wetland and riparian corridors together. Impacts which are specific to wetlands or riparian areas shall be broken out, but unless specified, the consequences shall be presumed to affect both natural features.

Urban areas, by their nature, are heavily impacted by human activities. In turn, humans are part of the ecosystem in which they live, and human welfare is ultimately depends in part on the vital services, such as shade, fresh air, and clean water, provided by natural resources. The urban growth boundary (UGB) designates a limit to physical expansion of the urban area; to contain the ecological impacts associated with urban development and to protect valuable forest and agricultural lands.

## 8.2 General Consequences Fully Allowing, Limiting, Or Prohibiting Land Uses (Development) That Conflict With The Beneficial Functions Of Riparian And Wetland Areas

Section 6.1 of this report provides a description of the key functions that wetlands and riparian areas provide. Fully prohibiting conflicting land uses on or near Springfield's remaining wetland and riparian resource sites will preserve their existing functions. Fully allowing conflicting uses in Springfield's resource areas will reduce or remove existing functions, with associated negative impacts on fish, wildlife and people. However, consequences for the broadest category—limiting conflicting uses within the resource areas—depend on the definition of "limit."

Limiting conflicting uses implies that some limited amount of development or other conflicting use will occur in conflict with the resource areas. The consequences depend on the extent and type of land use and the resource's ecological importance. The table below provides a general illustration of the potential environmental consequences of this decision process; actual consequences depend on the protection policies that are adopted for each resource site and the effectiveness of their implementation.

**Range Of Potential Consequences Of Fully Allowing, Limiting, Or Prohibiting Conflicting Uses Within Springfield's Locally Significant Riparian And Wetland Areas.**

| ← Fully Allow | Limit | Prohibit → |
|---|---|---|
| Existing resource function greatly impaired or eliminated. | Retain the majority of resource functions with tolerable losses. | Preserve resource functions at existing levels. |
| Greatly increased non-native and invasive species. | Some increase in non-native species invasions | Retention of existing native plants and animals |
| Substantial loss of biodiversity | Some loss of biodiversity | More biodiversity |
| Substantial loss of riparian and wetland resource areas | Some riparian and wetland areas will be lost. | Retain existing system of streams and wetlands |
| Poor restoration potential | Good restoration potential | Good restoration potential |
| Flooding occurs with greater frequency and intensity | Some increase in flooding above current levels | Possible to restrict the flooding to present levels |
| Damaging soil loss and sedimentation | Increased soil loss and sedimentation | Soil loss continues at current levels |
| Probable loss of salmonid habitat | Some decline in salmonid habitat | Possible to retain salmonid habitat |
| Decreased need to expand the UGB | May need to expand the UGB into include additional natural areas. | Probable need to expand the UGB into natural areas. |

## Summary of Potential Tradeoffs

Allowing development (conflicting uses) in general has significant consequences for the natural function of wetland and riparian areas. The severity of the impact depends on the prevalent type of development and to a large degree on the amount of imperviousness created by that development. This section includes a summary of the potential environmental tradeoffs of allowing, limiting, or prohibiting conflicting uses. Most of the environmental consequences are similar in all types of development, the differences are highlighted below. The analysis of environmental consequences is general in nature to account for variability within types of development, and also because consequences depend on the development standards that are applied where conflicting uses are allowed to impact natural areas. Below are some general consequences associated with decisions to fully allow, limit or to prohibit conflicting uses to impact riparian and wetland areas.

Allowing Conflicting Uses

- Extensive loss of the habitat functions of riparian and wetland areas.
- Degradation of fish habitat, particularly in those streams supporting salmonid populations.
- Extensive loss of wildlife habitat and functional values (size, interior habitat, connectivity, proximity to water).
- Continued loss of native species and at-risk species; reduction in migratory songbirds
- Loss of natural areas that provide education opportunities.
- Reduced need for UGB expansion; protects habitat from urban encroachment.

Limit Conflicting Uses

- Depends on the type of standards that are adopted to govern how development occurs in proximity to riparian and wetland areas. Results may range from minimal protection to near-full protection of the natural functions of the wetland and riparian areas.
- Strong potential for restoration, mitigation and education activities to offset the negative impacts of development.
- Implementation of best management practices and low impact development standards could reduce negative impacts of development.
- Less harm to native species and fewer non-native invasive species that a decision to fully allow conflicting uses.
- Intrusion in some habitat areas will reduce the quality of other resources, especially if connector habitat is fragmented and interior habitat is reduced.
- May require UGB expansion, depending on the development standards adopted to limit the impact of conflicting uses on natural areas.

Prohibit Conflicting Uses

- Retention of some of important habitat functions and preservation of some of Springfield's best remaining riparian and wetland habitat areas.
- Provides strongest protection for streams that provide salmonid habitat
- Prevents further habitat fragmentation; preserves restoration opportunities

- Minimizes hydrologic alterations, reduces flooding, preserves water quality
- Provides breeding habitat for migratory songbirds, aquatic species habitat interior species, and other native species
- May require substantial expansion of the UGB.

The following sections discuss the ESEE consequences of allowing specific land uses to impact resource sites. The sections below will summarize the impact of 1) residential uses; 2) commercial and industrial uses; 3) public and transportation facilities; and 4) native vegetation removal and grading activities on resource sites.

## 8.3 ESEE Consequences of Allowing, Limiting or Prohibiting Conflicting Residential Uses

The following sections discuss the general ESEE consequences of allowing, limiting or prohibiting conflicting residential land uses (development) to impact significant wetland and riparian corridors that are the subject of this report. The analysis below addresses the likely ESEE consequences of allowing conflicting uses to impact riparian and wetland resource sites. The discussion summarizes the range of possible consequences. Not all consequences are expected to occur at every site, or even at most sites. A site-specific analysis of the likely impacts of development on each of Springfield's significant wetlands and riparian areas follows in Section 9.0.

The structure of the ESEE analysis often requires repetitive discussion of the same information and the repetitive use of the same tables which serve as a data base for the analysis. For example the text and tables used to discuss the impact of allowing development near a wetland are often the same tables and text to describe the impacts of prohibiting development, but from a different perspective. Identical copies of various tables have been inserted in the report to relieve the reader from the burden of flipping back and forth through this large document to find the information discussed in the text.

### Consequences of Fully Allowing Conflicting Residential Development

#### Environmental Consequences

Springfield's locally significant wetlands and riparian corridors should be considered as part of a much larger ecological system of urban wetlands, stream corridors, and vegetated uplands associated with the McKenzie River and Willamette River drainage basins. The intrinsic value of any particular wetland or riparian corridor is affected by the degree of human intrusion and their connection with other natural resources.

Wetlands and riparian areas contribute directly to decreased flooding potential and to improved water quantity and quality, fish and wildlife habitat, and groundwater recharge. They decrease flooding potential by providing flood water storage, dissipating the force of moving water, and by allowing storm water to seep gradually into the ground rather than moving rapidly over the surface and increasing flood damage and erosion.

Wetland and riparian vegetation improve water quantity and quality in a number of ways. Vegetated soils allow water to filter downward to the groundwater reservoir, adding volume to surface waters during low flow. Riparian vegetation pre-filters sediments and slow the flush of water into wetlands and receiving streams. Wetlands further allow sediment to settle out or be trapped by vegetation before it reaches streams. Large woody debris in riparian channels slows the velocity of stream flow and provides refuge for fish. Natural vegetation also absorbs hazardous chemicals and heavy metals, reducing water pollution. Thus, loss of wetlands and riparian vegetation caused by low-density residential development contributes to flooding and reduces the quantity and quality of ground and surface water.

Varying levels of plant and animal diversity characterize wetlands and riparian areas. These areas provide improved fish and wildlife habitat by contributing to an integrated stream corridor ecosystem, which provides food, water, shelter, breeding and rearing areas, and water for aquatic and terrestrial animals and birds. Reductions in the quality, quantity and availability of food, water, cover and living space all have significant detrimental effects on wildlife. Where wetlands and riparian areas are intact and connected to other natural resources, they provide essential travel corridors for wildlife.

When residential development (including buildings, roads and driveways, and lawns and gardens) replaces native vegetation, the value of the land for habitat decreases dramatically (See Vegetation Removal and Grading Supplemental ESEE Analysis). Residential development in natural areas does not necessarily eliminate all fish and wildlife habitat, but it changes the habitat in a way that decreases biodiversity, because more aggressive and adaptable species tend to survive and displace less adaptable species under changed ecological circumstances.

Residential development in resource areas replaces native vegetation with impervious surface area, and contributes to flooding, reduced groundwater recharge, and increased sediment and nutrient loading (from lawns, gardens, household wastes). The result is decreased water quantity and quality, and diminished fish and wildlife habitat.

If full development was allowed, then the qualities, which make each inventoried resource site significant, would be lost. Depending on the characteristics of the specific site, the environmental impacts from unrestricted development could include loss of wildlife habitat, fish habitat, water quality function, or hydrologic control function; and/or loss of rare plant or animal species.

### Economic Consequences

The economic consequences of replacing significant resource sites with unrestricted residential development are less obvious, but are worthy of consideration. By allowing unrestricted development of a wetland or riparian resource site, development costs could be reduced. Each wetland in this study has been found to be a "locally significant wetland" (LSW) using the Oregon Freshwater Assessment Methodology. OAR 660-023-0100 requires local governments to adopt programs of protection for these wetlands and to notify the Oregon Division of State Lands when a development is proposed that affects a significant wetland. Riparian corridors are afforded similar state and federal protection. Local regulations enacted in addition to those levied by state and federal agencies could increase costs for both the developer and the City.

Economic consequences vary considerably based on individual site conditions, as noted in the discussion of the economic consequences of conserving resource sites below.

From the developer's point of view, local regulations protecting resource sites could increase design costs and the loss of developable land. Site design to avoid resource impacts often requires additional consultant time and complicates subdivision applications. The subdivision process begins to take on the character of a more complicated and time consuming master planning process.

Local government regulation of resource sites could also affect the number, location and type of dwelling units that can be built in resource areas. This could be detrimental to more traditional developers who build to meet the demands of the local housing market. If the market (or the developer's perception of the market) is limited to large single-family homes on large lots, then additional local regulation of resource sites could mean the difference between a development "penciling out" or not, at any given point in time.

On the other hand, there are a number of less obvious economic consequences that need to be considered. First, wetlands and riparian areas can add value to developments -- both for neighbors and for purchasers of lots or units in the development. Development that destroys a resource site could have the effect of decreasing neighboring property values and reducing the sales price of lots and houses in new development, particularly if the site has aesthetic values or is a passive recreational amenity.

Second, local governments and property owners face potential increases in storm water management, flood control and federally mandated water quality improvement costs as wetlands and riparian areas are developed. Wetlands and riparian corridors should be viewed as part of the storm water management system; often, when these resources are destroyed, their functions must be recreated through artificial detention and water quality ponds, at considerable public expense. Springfield is facing major costs in meeting federal NPDES permitting requirements; costs that could increase if wetland and riparian water quality functions are lost.

Third, there could be a negative economic value by not providing a clear and objective *local* process for resolving development/wetland conflicts. If the local, review process is not clearly spelled out in the Springfield Development Code, the uncertainty and delay costs could increase for everyone involved.

### Social Consequences

The social consequences of allowing unrestricted development of significant resource sites would be mixed. On the positive side, housing costs could be reduced, assuming that the developer passes on potential development savings to the consumer. By increasing the amount of buildable land inside the Springfield UGB, expansion of the UGB on to farm and grazing land could be slightly delayed. Out-of-direction travel to avoid the wetland, and associated pollution and traffic impacts could be slightly reduced, assuming that subdivisions in the future would otherwise be designed in a "grid" pattern.

The negative side of unrestricted residential development is more compelling. Wetlands and riparian corridors usually add amenity value to residentially developed land. Properly designed protections would only marginally reduce the amount of buildable land. Social consequences (lost open space and views) would be adverse as a result of developing the wetland area, which could otherwise be used as open space for the residential development. Resource sites provide educational opportunities for those living near them, which would be lost. They also provide opportunities for urban quiet and solitude, the lack of which has adverse social consequences.

### Energy Consequences

Energy consequences of unrestricted residential development of resource areas are mixed and difficult to assess. Assuming standard subdivision practices, the results of building over wetland and riparian corridors could be more efficient use of residential land, which could prevent premature expansion of the UGB, higher urban densities, more efficient use of infrastructure, shorter travel distances and less out-of-direction travel.

On the negative side, wetland and riparian vegetation has a moderating effect on climate. Trees provide shade that cools buildings in the summer and serve as a windbreak in the winter. At a macro level, plants absorb sunlight and transpire during the growing season, slightly reducing ambient air temperatures. Wetlands also provide local recreational opportunities, thus reducing the need to drive for outdoor experiences. Thus, loss of resource area vegetation would have some adverse energy consequences.

## Consequences of Prohibiting Conflicting Residential Development

This portion of the ESEE analysis looks at the impacts of prohibiting the conflicting (residential) use on the wetland site itself and appropriate impact area, thus conserving a significant wetland resource site.

### Environmental Consequences

The environmental functions of wetlands and riparian corridors described in Section 6.1 would be retained by conservation of Springfield's inventoried resource sites. These functions would be largely retained by prohibiting development on and near these sites. Thus, the environmental consequences of prohibiting conflicting residential uses include preservation of wildlife habitat, fish habitat, water quality function, and/or hydrologic control function; and/or preservation of rare plant communities, federal or state-listed species, or locally unique native plant communities.

### Economic Consequences

It is useful to look at the economic consequences of fully protecting the significant wetland and riparian resource sites from different points of view. Often, impacts are less significant at the study area level than for the individual property owner. The ESEE analyses for resource sites in this study addresses the special characteristics of wetlands and riparian resource sites in relation to property owner interests.

## Study Area Level

Table 8-1 shows that Springfield's inventoried wetlands and riparian resource sites cover about 133 acres of land (developed and undeveloped) that is zoned for residential use. When the 150-foot impact area is added, the total area is about 567 acres. Keep in mind that the 150-foot impact area is not a buffer. The impact area is based on best available science, and defines the distance from a resource site within which development is likely to have an ecological impact. Various studies cite as little as 25 feet to more than 400 feet in describing the distance within which development could affect riparian and wetland function. The 150-foot impact area represents a middle ground that is supportable in the context of an urban environment. State planning rules require cities to define impact areas and describe the Economic, Social, Environmental and Energy (ESEE) consequences of prohibiting, limiting and allowing conflicting uses to impact riparian and wetland resource sites.

**Table 8-1. Wetland and Riparian Areas Affecting Lands With Residential Zoning**

| Site Type | LDR | MDR | HDR | *Total Acres |
|---|---|---|---|---|
| Wetland Acres | 70.52 | 4.15 | 0 | 74.67 |
| Riparian Acres | 45.16 | 11.86 | 1.18 | 58.20 |
| *Total Acres | **115.68** | **16.01** | **1.18** | **132.87** |
| **150-Foot Impact Areas** | | | | |
| Wetland Impact Areas | 169.04 | 11.86 | 0 | 180.9 |
| Riparian Impact Areas | 200.91 | 45.92 | 5.98 | 252.81 |
| *Total Acres | **369.95** | **57.78** | **5.98** | **433.71** |
| Grand Total | **485.63** | **73.79** | **7.16** | **566.58** |
| *Some riparian sites also appear on the Local Wetland Inventory. These lands are counted twice in the totals shown on each of the tables in this section. | | | | |

An analysis of the economic consequences of prohibiting conflicting residential development requires consideration of the impacts on vacant land that can be feasibly developed in the future. Most of Springfield's wetlands and riparian corridors are already bounded by development. Of the 567 acres mentioned above, only about 250 acres are vacant. About 25 percent of the vacant wetland and riparian acreage consists of small fragments of land that are often not developable. For the purpose of this study, vacant lots that are ¼ acre or larger are considered as feasible for infill development. Table 8-2 shows that the total acreage (including impact areas) for all vacant lots that are ¼ acre or larger is about 194 acres.

**Table 8-2. *Vacant Wetland and Riparian Areas ¼ Acre or Larger**

| Site Type | LDR | MDR | Total Acres |
|---|---|---|---|
| Wetland Acres | 40.48 | 1.09 | 41.57 |
| Riparian Acres | 16.75 | 6.46 | 23.21 |
| **Total Acres** | **57.23** | **7.55** | **64.78** |
| | | | |
| Wetland Impact Area Acres | 62.26 | 2.2 | 64.46 |
| Riparian Impact Area Acres | 46.97 | 17.93 | 64.90 |

| | | | |
|---|---|---|---|
| **Total Acres** | **109.23** | **20.13** | **129.36** |
| **Grand Total** | **166.46** | **27.68** | **194.14** |
| *Vacant lands were identified through the use of property class codes which are used by the Lane County Assessor's Office for taxation purposes. | | | |

Table 8-3 shows that about 38 acres of underutilized land are located within the resource areas (including impact areas). Underutilized parcels include single family homes on parcels larger than ½ acre that could be subdivided and built at higher densities in the future. Underutilized acreage is often cited as a potential supply of developable land. There is disagreement about counting this land as buildable given the uncertainty about whether the land will become available for future development. This acreage is noted, but for the purposes of this study is not counted in to the potential loss of development potential.

**Table 8-3. Underutilized Residential Land Associated with Resource Areas**

| Site Type | LDR | MDR | Total |
|---|---|---|---|
| Underutilized Wetland Acres and Impact Areas | 19.04 | .52 | 19.56 |
| Underutilized Riparian Acres and Impact areas | 17.94 | .69 | 18.63 |
| **Total** | **36.98** | **1.21** | **38.19** |
| *Underutilized land was computed by identifying existing single family homes located on lots that are ½ acre or larger. Leaving ¼ acre for the existing home, it is assumed that in the future, land in excess of that could be subdivided and additional residential units built. The figures above show total acreage within the impact area and the acreage of the parcels associated with the resource sites. | | | |

**Table 8-4. Potential Dwelling Unit Capacity Affected by Prohibiting Conflicting Residential Uses**

| Site Type | LDR | Potential Dwelling Units @ 4 units per gross acre | MDR | Potential Dwelling Units @ 12 units per gross acre | Total Potential Dwelling Units |
|---|---|---|---|---|---|
| Wetland Acres | 40.48 | 162 | 1.09 | 14 | 176 |
| Riparian Acres | 16.75 | 67 | 6.46 | 76 | 143 |
| **Total Acres** | **57.23** | **229** | **7.55** | **90** | **319** |
| | | | | | |
| Wetland Impact Acres | 62.26 | 249 | 2.2 | 26 | 275 |
| Riparian Impact Acres | 46.97 | 188 | 17.93 | 215 | 403 |
| **Total** | **109.23** | **437** | **20.13** | **241** | **678** |
| **Grand Total** | **166.46** | **666** | **27.68** | **331** | **997** |

Fully protecting residential development in wetlands and riparian areas and their associated impact areas could mean the loss of about 666 single family units within the Springfield UGB. This is a worst case scenario, and assumes that no development could occur within the impact areas and that developers could not take advantage of the cluster development provisions of the

Springfield Development Code that allow developers to transfer density (i.e. lost dwelling units) from land that is set aside to protect resource lands to other areas on the site.

Prohibiting development within the just the resource areas but allowing development in the impact areas would reduce the loss to about 229 single family units. The 1999 Eugene-Springfield Metropolitan Area Residential Land and Housing Study provided an inventory of buildable residential lands. The Study did not count the wetland or riparian areas that are part of this study in their inventory. The sites in this study were counted as not buildable and not added into the buildable lands inventory.

At the study area level, the economic consequences of *avoiding* wetlands on Medium Density Residential properties would mean the loss of about 331multi-family units if both resource and impact area acreage were fully protected. This loss falls to 90 units if just the resource sites themselves are protected and impact areas were allowed to be developed.

**Property Owner Impact**

From the property owner's point of view, the local regulations that *prohibit* development within wetlands and their impact areas, without density transfer, usually mean a loss of property owner's ability to develop the entire site for residential use. Although DSL often restricts development on wetlands and in certain riparian corridors, current DSL rules do not limit development within impact areas.

**Positive Economic Consequences**

On the other hand, there are positive economic consequences associated with resource conservation. First, several referenced studies discussed demonstrate that wetlands and riparian areas can add value to developments—both for neighbors and for purchasers of lots or units in the development. Conserving resource sites through density transfer and thoughtful design would probably increase neighboring property values as well as the sales price of lots and houses in new development.

Second, potential costs for stormwater management, flood control and federally mandated water quality improvement programs may decrease if wetlands and riparian areas are not developed. Wetlands and riparian corridors should be viewed as part of the storm water management system; often, when these resource sites are destroyed, their functions must be re-created through artificial detention and water quality ponds, at considerable public and/or private expense. Springfield is facing major costs in meeting federal NPDES permitting requirements, costs that could increase if wetland water quality functions are lost.

Third, there may be a positive economic value by providing a clear and objective *local* process for resolving development/resource conflicts. If the local review process is clearly spelled out in the Springfield Development Code, the uncertainty and delay costs could decrease for everyone involved.

## Social Consequences

The social consequences of fully protecting wetland and riparian resource sites in this category would be mixed. On the negative side, housing costs are likely to increase, as the supply of buildable land within the UGB decreases, assuming that the developer passes on potential development savings from cluster housing to the consumer. Without density transfer, the UGB could need to expand prematurely, thus increasing travel times and lost leisure time.

On the other hand, resource sites usually add amenity value to residentially developed land. Social consequences (open space, views, more affordable cluster housing, better urban design) would be positive as a result of conserving the resource area, which could be used as open space for the residential development. Wetlands and riparian areas provide educational opportunities for those living near them, which would be maintained. These areas also provide opportunities for urban quiet and solitude, which has positive social consequences.

### Energy Consequences

Energy consequences of full wetland and riparian protection are also mixed. Without density transfer provisions, there could be significant loss of housing unit potential, and premature UGB expansion. This could result in increased vehicle miles traveled and other impacts associated with "urban sprawl." Public transportation options would also be less attractive. Full protection of wetlands also makes a grid street system more difficult to achieve, with further adverse impacts on energy consumption.

On the positive side, wetland and riparian vegetation has a moderating effect on climate. Where trees are present, they provide shade that cool buildings in the summer and serve as a windbreak in the winter. Less impervious surface means less summer heat. At a macro level, plants absorb sunlight and transpire during the growing season, slightly reducing ambient air temperatures. Wetlands also provide local recreational opportunities, thus reducing the need to drive for outdoor experiences. Thus, conservation of wetland vegetation would have some positive energy consequences.

## Consequences of Limiting Conflicting Residential Development

This portion of the ESEE analysis looks at the impacts of limiting conflicting residential uses on wetland and riparian sites. As mentioned above, the consequences of limiting conflicting uses depends on the measures used to "limit" impacts. The proposed program of protection for riparian and wetland corridors would establish 25-foot setbacks from resource sites (50-75 foot setbacks from large rivers and fish-bearing streams such as the Willamette River). Low impact development strategies will be employed when building within 150-feet of a resource site. Public facilities and street improvements would be allowed to impact resource sites and their impact areas after considering alternatives and impact reduction standards. Replacement and expansion of existing structures would also be allowed, subject to mitigation standards. Density transfer would be encouraged from resource sites and their impact areas, to buildable land on the