Community Development
Planning Division
501 SW Madison Avenue
Corvallis, OR 97333

CORVALLIS CITY COUNCIL
NOTICE OF DISPOSITION

ORDER #2004-161

CASE: **Portion of Natural Features Project Implementation**
Portion of Case #CPAO4-00003 - Natural Features Inventory and Local Wetlands Inventory (Comprehensive Plan and Land Development Code Map and Text Amendments associated with this case are addressed by Orders 2004-161 through 2004-174.)

REQUEST: Adoption of the Corvallis Natural Features Inventory (including the Wetlands Inventory and List of Locally Significant Wetlands, the Riparian Assessment Areas Inventory, the Wildlife Habitat Areas Inventory, the Tree Groves Inventory, a Glossary, the Natural Hazards Inventory Map with all of the associated data bases, data sheets, maps, and reports) included in the attached Ordinance #2004-29, consistent with the Corvallis Comprehensive Plan and the City's Periodic Review Work Order from the Oregon Land Conservation and Development Commission (Order #001-223) Work Tasks 9, 10, and 13.

APPLICANT: City of Corvallis
PO Box 1083
Corvallis, OR 97339

DECISION:

City Council conducted, after proper legal notice, a public hearing on November 4, 2004, November 8, 2004, and November 9, 2004, and deliberations on November 9, 2004, November 15, 2004, and November 22, 2004, concerning the proposed case, and interested persons and the general public were given an opportunity to be heard; on December 13, 2004, the Council adopted Ordinance 2004-29 to implement its decision.

The proposal, staff report, and hearing minutes may be reviewed at the Community Development Department, Planning Division, City Hall, 501 SW Madison Avenue.

If you wish to appeal this decision, an appeal must be filed with the State Land Use Board of Appeals within 21 days from the date of the decision.

December 16, 2004
Date Signed

Helen Berg
Mayor Helen Berg
City of Corvallis

Attached: Ordinance: #2004-29

ORDINANCE 2004 – 29

AN ORDINANCE RELATING TO A COMPREHENSIVE PLAN AMENDMENT, ADOPTING THE NATURAL FEATURES INVENTORY INCLUDING THE LIST OF LOCALLY SIGNIFICANT WETLANDS, THE LOCAL WETLANDS INVENTORY MAP, ESTABLISHING FINDINGS, AMENDING ORDINANCE 98-53, AS AMENDED, AND STATING AN EFFECTIVE DATE (PORTION OF CPA04-00003)

WHEREAS, in 1996, the City of Corvallis received notice from the Oregon Department of Land Conservation and Development to begin the "Periodic Review" of its Comprehensive Plan;

WHEREAS, the Oregon Department of Land Conservation and Development approved the City of Corvallis' Periodic Review Work Order that included updates of the Comprehensive Plan Text, the Comprehensive Plan Map, the Land Development Code, and the Land Development Code District Map to be completed in phases over a period of several years;

WHEREAS, completing the entire Periodic Review Order includes updates of the Comprehensive Plan Text, the Comprehensive Plan Map, the Land Development Code, and the Land Development Code District Map in a complex and integrated program that is iterative in nature and requires multiple stages to integrate initial amendments into later-stage amendments in order to fully implement all of the revised Comprehensive Plan Policies and the revised Comprehensive Plan Map;

WHEREAS, on June 26, 2000 the Oregon Department of Land Conservation and Development acknowledged the Corvallis Comprehensive Plan as being consistent with Work Tasks 1 through 8, while also requiring the City of Corvallis to complete Work Tasks 9 through 13;

WHEREAS, Work Task 2 (and an Addendum to Periodic Review Work Task 2) required evaluation and possibly updating of the Goal 5 inventories, text, and policies;

WHEREAS, Work Task 8 required incorporation of policy and map changes that result from updated facility master plans including the Stormwater Master Plan and steps to provide planning consistency and coordination with on-going projects such as the Natural Features Project and a project to implement provisions that move the City in the direction of complying with NOAA Fisheries Rules relating to the Endangered Species Act listing of salmonids in the Upper Willamette River Basin;

WHEREAS, Work Task 10 required revisions to the Comprehensive Plan Text and the Comprehensive Plan Map to incorporate updated inventories and policies;

WHEREAS, Work Task 13 required completion of the wetland and riparian corridor requirements associated with the implementation of Statewide Planning Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources;

WHEREAS, Work Task 13 required the City of Corvallis to adopt a Comprehensive Plan policy that included a schedule for completion of Work Task 13 within four years;

WHEREAS, Comprehensive Plan Policy 4.2.5, and interim regulations intended to satisfy Oregon Administrative Rule 660-023-100(4) were adopted with Phase II of the Land Development Code Update project;

WHEREAS, as indicated in Comprehensive Plan Policy 4.2.5, inventories of natural features and hazards, a process for identifying significant natural features, a process to balance the impacts of protecting such features against the requirements of other Statewide Planning Goals and Rules, and amendments to the Land Development Code to implement those items are to be completed by December, 2004;

WHEREAS, Comprehensive Plan Policy 4.2.1 directs the City of Corvallis to complete inventories of significant natural features within the Urban Growth Boundary;

WHEREAS. Comprehensive Plan Policy 4.2.3 directs the City of Corvallis to maintain a constraints map;

WHEREAS, Comprehensive Plan Policy 4.6.1 directs the City of Corvallis to update the hillside inventory;

WHEREAS, Comprehensive Plan Policy 4.10.2 directs the City of Corvallis to inventory significant riparian lands;

WHEREAS, Comprehensive Plan Policy 4.11.4 directs the City of Corvallis to inventory wetlands;

WHEREAS, Comprehensive Plan Policy 4.13.1 directs the City of Corvallis to inventory significant natural plant communities and significant habitats for fish and wildlife;

WHEREAS, the Natural Features Inventory was initiated and conducted to further address Comprehensive Plan Policies 4.2.1, 4.2.3, 4.2.5, 4.6.1, 4.10.2, 4.11.4, and 4.13.1;

WHEREAS, Oregon Statewide Goal 5 requires local governments to inventory and protect natural resources such as wetlands, riparian corridors, and wildlife habitat;

WHEREAS, Oregon Statewide Goal 6 requires local governments to protect air, water and land resources quality;

WHEREAS, Oregon Statewide Goal 7 requires local governments to plan for and reduce risks associated with disaster-prone areas;

WHEREAS, the Natural Features Inventory was initiated and conducted to address Oregon Statewide Goals 5, 6, and 7;

WHEREAS, the Natural Features Inventory was initiated in two phases: phase one, the Natural Resources Scoping Project, was completed in 2002, by the Natural Features Technical Advisory Committee; and phase two, execution of the inventories, was conducted over the following year-and-a-half and accepted in September, 2003, with refinements completed by November, 2004;

WHEREAS, the Local Wetlands Inventory, the List of Locally Significant Wetlands, and the Local Wetlands Inventory Map were completed in accordance with the U.S. Army Corps of Engineers Manual (1997), the Oregon Administrative Rules, (including the methodology presented in the Oregon Freshwater Assessment Manual) and the Scoping Project Report;

WHEREAS, the Riparian Assessment Areas Inventory was completed in accordance with the Oregon Urban Riparian Inventory and Assessment Guide (URIAG) as modified to provide additional information as directed by the Corvallis Endangered Species Act Project and the Scoping Project Report;

WHEREAS, the Wildlife Habitat Areas Inventory and the Tree Groves Inventory were completed in accordance with the methodology established in the Scoping Project Report and in accordance with the Oregon Administrative Rules;

WHEREAS, the 100-year Floodplain Inventory was conducted by the U.S. Army Corps of Engineers, Federal Emergency Management Agency, and consulting engineers;

WHEREAS, the Earthquake Associated Hazards and Landslide Debris Runout Area Inventories were conducted by the Oregon Department of Geology and Mineral Industries and a consulting geologist;

WHEREAS, the Slope Hazards Inventory was completed by the Corvallis Public Works Staff;

WHEREAS, the City of Corvallis Natural Features Project ESEE Analysis Report (Economic, Social, Environmental, and Energy) was completed in compliance with the requirements

associated with the implementation of Statewide Planning Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources procedures;

WHEREAS, with the approval of the proposed documents associated with the Natural Features Inventory, the List of Locally Significant Wetlands (located with the Local Wetlands Inventory Report), and the Local Wetlands Inventory Map, and specifically, the Legislative Amendments to the Comprehensive Plan Text (portion of CPA04-00003) and the Comprehensive Plan Map (portion of CPA04-00003) the City Council will have further completed Periodic Review Order Work Tasks 2, 8, 10, and 13;

WHEREAS, the Comprehensive Plan Text Amendment adopting the Natural Features Inventory (including the inventories of wetlands, riparian areas, wildlife habitat areas, tree groves, earthquake associated hazards, slopes/hillsides, floodplains, and landslide debris run-out areas), the Local Wetlands Inventory Map, and the List of Locally Significant Wetlands will not take effect until it is acknowledged by the State Land Conservation and Development Commission;

WHEREAS, the process of getting the Comprehensive Plan Amendment (portion CPA04-00003) acknowledged by the State Land Conservation and Development Commission will be at least a number of months beyond December 1, 2004;

WHEREAS, the Corvallis Urban Fringe Management Agreement requires joint public hearings between the City of Corvallis and Benton County officials regarding Comprehensive Plan Amendments for lands within the Urban Fringe;

WHEREAS, the Benton County Planning Commission participated in a joint public hearing with the Corvallis Planning Commission which was conducted, after proper legal notice, on September 9, 2004; the Benton County Planning Commission conducted deliberations on September 14, and 16, 2004; the Corvallis Planning Commission conducted deliberations on September 14, 16, 23, and 30, 2004; and the among the matters considered as part of the public hearing was the Legislative Amendment (portion of CPA04-00003) to the Corvallis Comprehensive Plan involving the adoption of the Natural Features Inventory and interested persons and the general public were given an opportunity to be heard. The Benton County Planning Commission has reviewed all matters presented and has provided its recommendations to the Benton County Board of Commissioners. The Corvallis Planning Commission has reviewed all matters presented and has provided its recommendations to the Corvallis City Council;

WHEREAS, the Benton County Board of Commissioners participated in a Joint Public Hearing with the Corvallis City Council on November 4, 2004, November 8, 2004, and November 9, 2004, and on November 9 and 30, 2004, voted to approve the Legislative Amendment of the

Comprehensive Plan concerning the adoption of the Natural Features Inventory (portion of CPA04-00003 and including the Wetlands Inventory and List of Locally Significant Wetlands, the Riparian Assessment Areas Inventory, the Wildlife Habitat Areas Inventory, the Tree Groves Inventory, a Glossary, the Natural Hazards Inventory Map with all of the associated data bases, data sheets, maps, and reports), with the revisions pertaining to the Urban Fringe that are included in the Corvallis City Council approval and listed in **Sections 2 and 3** below;

WHEREAS, the City Council conducted, after proper legal notice, a public hearing on November 4, 2004, November 8, 2004, and November 9, 2004, and deliberations on November 9, 2004, November 15, 2004, and November 22, 2004, concerning the proposed changes to the Comprehensive Plan concerning the adoption of the Natural Features Inventory (portion of CPA04-00003 and including the Wetlands Inventory and List of Locally Significant Wetlands, the Riparian Assessment Areas Inventory, the Wildlife Habitat Areas Inventory, the Tree Groves Inventory, a Glossary, the Natural Hazards Inventory Map with all of the associated data bases, data sheets, maps, and reports), with the revisions that are included in the Corvallis City Council approval and listed in **Sections 2 and 3** below;

WHEREAS, the complete staff report to the Corvallis City Council, dated October 21, 2004, including exhibits; and those portions of the minutes of the November 4, 2004, November 8, 2004, and November 9, 2004, public hearing and the November 9, 2004, November 15, 2004, and November 22, 2004, deliberations, containing the staff presentations and deliberations by the Council that demonstrate support for the proposed Legislative Amendment (portion of CPA04-00003) to the Comprehensive Plan are by reference incorporated herein and are hereby adopted by the Corvallis City Council;

NOW THEREFORE, THE CITY OF CORVALLIS ORDAINS AS FOLLOWS:

Section 1. The City of Corvallis hereby adopts the detailed set of findings attached as Exhibit A of this Ordinance.

Section 2. The City of Corvallis hereby adopts the Corvallis Natural Features Inventory (including the Wetlands Inventory and List of Locally Significant Wetlands, the Riparian Assessment Areas Inventory, the Wildlife Habitat Areas Inventory, the Tree Groves Inventory, a Glossary, the Natural Hazards Inventory Map with all of the associated data bases, data sheets, maps, and reports) included as Exhibit B of this Ordinance and as amended by the following:

i. Add a linear palustrine forested designation to the wetland identified as S-MAR-W-7. Maps, data sheets, and reports to be adjusted accordingly;

ii. Delete the wetland identified as WC-DIX-W-3 from the inventory data and the maps. Place a dot as an indication of a potential wetland in the area on the maps. No inventory data to be provided for potential wetlands;

iii. Update the tables in the reports to reflect the changes listed in items i and ii above;

iv. Replace the Wetlands Report dated October 23, 2004, with a new Wetlands Report titled "Local Wetland Inventory - DSL Final Approval (including a new "Appendix E – Watershed Setting" that include answers to the Oregon Freshwater Assessment Methodology questions 1 - 14 and including the associated up-dates in the data base) shown in Exhibit C of this Ordinance.

v. Revise the data sheets for S-MAR-W-3, S-MAR-W-8, and S-MAR-W-19 to address the Marys River as a 303d Listed water quality limited stream.

vi. Correct the labels on the summary maps and posters (correct spelling, include missing labels, and include the most recent dates and map titles); and

vii. Update all of the summary maps and posters to reflect the corrections and changes made to the sub-maps, data sheets, and reports.

Section 3. The City of Corvallis hereby adopts the Corvallis Local Wetland Inventory Map included as Exhibit D of this Ordinance as revised by the following:

i. Add a linear palustrine forested designation to the wetland identified as S-MAR-W-7; and

ii. Delete the wetland identified as WC-DIX-W-3 from the map. Place a dot and an indication of a potential wetland in the area on the map.

Section 4. Ordinance 98-53 as amended is hereby amended.

Section 5. The general welfare of the public will be promoted if the implementation of this Ordinance takes place following receipt by the City of acknowledgment of the Natural Features Inventory (including the list of Locally Significant Wetlands) and of the Local Wetlands Inventory Map by the State of Oregon Department of Land Conservation and Development, and the expiration of any lawful appeal period or appeals of the Department's decision. Therefore, implementation of the Natural Features Inventory (including the list of

Locally Significant Wetlands) and of the Local Wetlands Inventory Map and this Ordinance shall take effect following the receipt by the City Community Development Department of written acknowledgment of the Natural Features Inventory (including the list of Locally Significant Wetlands) and of the Local Wetlands Inventory Map by the State of Oregon Department of Land Conservation and Development and the expiration of any lawful appeal period, and the resolution of lawful appeals pursuant to ORS 197.

PASSED by the Corvallis City Council this 13th day of December, 2004.

APPROVED by the Mayor this 16th day of December, 2004.

EFFECTIVE upon the receipt by the Community Development Department of written acknowledgment of the Natural Features Inventory (including the list of Locally Significant Wetlands) and of the Local Wetlands Inventory Map by the State of Oregon Department of Land Conservation and Development and the expiration of any lawful appeal period, and the resolution of lawful appeals pursuant to ORS 197.

Helen M. Berg
Mayor

ATTEST:

City Recorder

ORDINANCE EXHIBIT A

BEFORE the CITY COUNCIL

OF the CITY OF CORVALLIS

In the Matters of City Council decisions to approve a Comprehensive Plan Amendment (CPA) to amend Ordinance 98-53, as amended, by adopting Ordinance 2004-29 pertaining to the adoption of the Natural Features Inventory, Ordinance 2004-30 pertaining to the ESEE Analysis being adopted as Article 39 of the Comprehensive Plan text, and Ordinance 2004-31 pertaining to the main portion of the Comprehensive Plan Text and Map Amendments.	CPA04-00003 FINDINGS AND CONCLUSIONS

INTRODUCTION

These matters before the City Council are:

I. A decision regarding an Amendment to the text of the Comprehensive Plan, to:

- Amend the definition that applies to the Low Density Residential Comprehensive Plan Map designation to allow for a new Land Development Code District designation of Extra-Low Density Residential (RS-1; 0.5-2 units/acre) in specific locations within the Corvallis Urban Growth Boundary;
- Define the two new Comprehensive Plan Map overlays for Natural Resources and Natural Hazards.
- Define other Comprehensive Plan Map designations that were inadvertently left out of Article 40 when the Comprehensive Plan Map was adopted in 1998;
- Modify Section *4.14 Supporting Documents* in Article 4 to include the new mapping and data generated through the Natural Features Project, including the adoption of the Local Wetlands Inventory (LWI) Map; this map from the Local Wetlands Inventory would replace the National Wetlands Inventory Map for use in identifying jurisdictional wetlands for federal, state, and local permit reviews; and
- Adopt as a new Article 39 the analysis of the economic, social, environment, and energy consequences (ESEE Analysis) required by Statewide Planning Goal 5.

II. Amend the Comprehensive Plan Map to:

Amend the Comprehensive Plan Map by applying a Natural Hazard Overlay and a Natural Resource Overlay and removing the Research Technology Overlay from the Comprehensive Plan Map. The proposed Comprehensive Plan Map amendments would apply the newly-developed overlays associated with environmental information. These include the Natural Hazard Overlay, and the Natural Resource Overlay. Adoption of the Natural Resource Overlay will replace the Significant Stream Corridor Overlay and Probable Wetland Overlay, which were adopted as an element of the North Corvallis Plan.

The applicant for these cases is the City of Corvallis, and the cases are related to the Land Development Code Update Project, Phase III, which is part of the City's Periodic Review.

On September 9, 2004, the Corvallis Planning Commission conducted a joint public hearing with the Benton County Planning Commission to consider the legislative amendments to the Corvallis Comprehensive Plan text and the Comprehensive Plan Map (Case # CPA04-00003). As part of this hearing, the Corvallis Planning Commission also considered the legislative amendments to the Corvallis Land Development Code text (Case # LDT04-00001) and the Corvallis Land Development Code District (Zoning) Map (Case # ZDC04-00007). the written record for the Comprehensive Plan Amendment portion of the Project was held open until September 13, 2004. On September 14, 2004, the Corvallis and Benton County Planning Commissions held deliberations on the portion of CPA04-00003 affecting the Urban Fringe. This included the Urban Fringe portion of the Natural Features Inventory and related Local Wetland Inventory and Map and Comprehensive Plan Map designations in the Urban Fringe. Both Planning Commissions voted to recommend approval to their respective decision-makers (the City Council and the Board of Commissioners).

The written record for the Corvallis Land Development Code Text and Legislative District Map Change was held open until September 16, 2004. On September 16, 23, and 30, 2004, the Corvallis Planning Commission held deliberations on the remainder of CPA04-00003 (the text changes, Natural Features Inventory, and related Local Wetland Inventory and Map for the area within the City limits, and the Comprehensive Plan map designations in the City limits) and held deliberations on LDT04-00001 and ZDC04-00007. On September 30, 2004, the Corvallis Planning Commission concluded deliberations on these matters and voted to recommend approval of all of them to the City Council, subject to the recommended changes attached to the Planning Commission Notice of Disposition.

The City Council held a duly-advertised *de novo* public hearing on the cases on November 4, 2004, at which a request was made by the public for the written record to remain open to submit additional written testimony. The City Council closed the public hearing on November 4, 2004, and asked the public to submit additional written comments by November 8, 2004. The City Council held deliberations on November 9, 2004, November

15, 2004, and November 22, 2004. The members of the City Council voted unanimously to APPROVE the Comprehensive Plan Text and Map Amandments as described in these findings.

Having considered all the testimony presented at the hearings, together with all relevant evidence in the record, the City Council makes the following findings and conclusions. These findings and conclusions are separated into three sections, the first pertains to the text amended by this Comprehensive Plan Amendment; the second pertains to the associated Comprehensive Plan Map amendments; and the third is an evaluation of the compliance of both the text and map amendment with the Oregon Statewide Planning Goals.

APPLICABLE CRITERIA

All applicable legal criteria governing review of this application are identified in the staff report to the City Council dated October 21, 2004, its attached Exhibits, and the staff presentations contained in the minutes of the City Council dated November 4, 2004, November 8, 2004, November 9, 2004, November 15, 2004, and November 22.

FINDINGS RELATING TO the LEGISLATIVE AMENDMENT TO the COMPREHENSIVE PLAN

1. Adequacy of the public record. The Council notes that the Comprehensive Plan Text Amendment was developed with the use of a comprehensive public involvement effort. This public involvement process began with the Natural Features Scoping process, which used a public task force to determine how natural features were to be inventoried. Following this effort was the Natural Features Inventory Project (NFI), which used trained consultants to inventory specific natural features within the Urban Growth Boundary. The inventories were presented to the public for comment in a series of open houses and were modified as appropriate in response to public input. The determination of significance for the natural features, which ultimately identified the areas in the community to be protected and the degree of protection required, went through a process that included public meetings before a technical advisory committee followed by joint meetings between the Benton County Board of Commissioners and Planning Commission and the Corvallis City Council and Planning Commission as well as meetings of these bodies individually. These meetings resulted in "Draft Land Use Scenario C," which identified the natural features deemed to be significant. Using an initial process of balancing the economic, social, environment, and energy (ESEE) consequences of protection or development on properties containing these significant natural features, a "Draft Preferred Land Use Scenario" (Scenario D) was developed that identified the specific locations where various levels of protection were to be considered (some protection or high protection). Finally, the Land Development Code Text Amendment and District Change were developed from this scenario and were presented to and modified by the Corvallis City Council and Planning Commission in five joint work sessions in May and June of 2004. Prior to the first work session, notification was sent to all citizens who had been identified as owning property having an inventoried natural feature on it. Notice was also sent to "interested persons" who had indicated a desire to receive notice during this extended process. This included approximately 3,800 individuals. The notification included meeting dates for the work sessions and identification of the topics to be covered. Copies of the proposals and of the staff reports associated with each iteration of the text amendments were available in advance of and at the work sessions. At each work session, the City Council and Planning Commission took public comment on the issues being covered and in a number of cases, made changes to the proposal based on this public comment.

The Council notes that the Stormwater Master Plan and the Salmon Response Plan were also developed in multi-year processes that included multiple public meetings and workshops. The documents were written using the input from these public involvement efforts as appropriate.

The Council notes that in addition to these public notice and public involvement efforts, the City is required by ORS 227.186 (formerly known as Measure 56) to send notification of these proposed changes to all those who may be affected by the proposed changes. Because this project is being completed as an element of Periodic Review, notices were sent out thirty days in advance of the first hearing on the adoption of this program. Since the changes may affect all parcels subject to the Corvallis Comprehensive Plan (parcels within the Urban Growth Boundary) and all parcels subject to the Land Development Code (parcels within the City limits), the required direct mailing was sent to all owners of property within the UGB. Because the provisions will also apply to properties that contain natural features or hazards proposed for regulation in some form in the City (or in the urban fringe when the property is annexed), a notice was also sent to owners of property on which a natural features overlay or natural hazards overlay is proposed to be placed.

The Council notes that the public hearing for consideration of CPA04-00003 was noticed as required by both state law and Land Development Code Chapter 2.0- Public Hearings. Although not required, a public notice of the joint City and Benton County Planning Commission public hearing was sent to owners of property on which a natural features overlay or natural hazards overlay is proposed to be placed and known interested persons.

The Council notes that by reference, it accepts, and adopts the findings adopted by the Planning Commission, as referenced in the Notice of Disposition (Order 2004-132). these include the April 12, 2004, staff report to the Planning Commission and the minutes of the Planning Commission meetings on September 9th, 16th, 23rd, and 30th of 2004. Also adopted as findings here are the October 21, 2004, staff memo to the City Council, and those portions of the minutes of the City Council meetings on November 4th, 8th, 9th, 15th, and 22nd 2004 which contain staff presentations and Council deliberations. The findings below supplement and elaborate on the aforementioned findings, all of which are incorporated herein by reference.

Conclusions on Adequacy of the Public Record: the Council finds that there was ample opportunity for the public to testify, and the record contains all information needed to evaluate the application for compliance with the relevant criteria.

2. The Council notes that the Land Development Code outlines procedures for Legislative Amendments to the Comprehensive Plan in Chapter 2.1. This Code chapter states that a Comprehensive Plan must be initiated by property owners or a majority vote of the City Council. To approve Legislative Amendments to the Comprehensive Plan, it must be found that the proposal complies with the applicable Comprehensive Plan Policies, applicable sections of the Land Development Code, and the Oregon Statewide Planning

Goals and Guidelines. The Planning Commission is required to hold a public hearing regarding such Legislative Amendments and develop recommendations to the City Council.

The Council notes that Comprehensive Plan Amendments must also address a public need, must be the best means of meeting this need, and must provide a net benefit to the community. Additionally, Comprehensive Plan Amendments affecting the Urban Fringe (the area between the City limits and the Urban Growth Boundary line) are required to be considered through joint public hearings with the County. First, the City and County Planning Commissions hold a joint public hearing and develop recommendations to their respective City Council and Board of Commissioners. The City Council and the Board of Commissioners then holds a joint public hearing to decide the matter.

The Council notes that on June 26, 2000, the Oregon Department of Land Conservation and Development approved the City's Comprehensive Plan, which had been adopted by City Council on December 21, 1998. This action was accompanied by Periodic Review Order #001-223, which identified specific tasks that still needed to be completed by the City. This project, which includes a Land Development Code Text Amendment and a District Change, proposes changes to address a limited portion of Work Tasks 9 and 10 (recognizing the work done in Phases I and II of the Land Development Code Update project), and the full scale effort associated with meeting Goal 5 that was identified in Work Task 13.

The Council notes that Work Task 13 required completion of the requirements associated with the implementation of Statewide Planning Goal 5- Open Spaces, Scenic and Historic Areas, and Natural Resources. The Goal 5 requirements are defined in Oregon Administrative Rule (OAR) 660-023. Work Task No. 13 required the City to adopt a Comprehensive Plan policy that includes a schedule for completion of this work task within four years. It also required the City to adopt interim ordinance provisions that protect wetlands consistent with the OAR 660-023-100(4) and that provide protection for riparian resources equal or superior to "safe harbor" protections defined in OAR 660-023. The policy (Comprehensive Plan policy 4.2.5) and the interim regulations were adopted with Phase II of the Land Development Code Update. This project follows through on the completion of the tasks set forth in Comprehensive Plan policy 4.2.5.

The Council notes that the full Goal 5 process that must be used for the adoption of standards that regulate Goal 5 resources in a manner different from the "safe harbor" standards requires the City to complete an analysis of the economic, social, environmental, and energy consequences (ESEE Analysis) of providing full protection of Goal 5 resources, providing no protection of Goal 5 resources, or providing a limited set of protections for Goal 5 resources.

The Council notes that the required ESEE Analysis was completed as an element of this process and consists of findings supporting the adoption of the proposed standards for regulation of Goal 5 resources in the Corvallis Urban Growth Boundary.

Applicable Comprehensive Plan Policies:

1.2.3 Amendments to the Comprehensive Plan can only be approved where the following findings are made:

A. There is a demonstrated public need for the change.

B. The advantages to the community resulting from the change shall outweigh the disadvantages.

C. The change proposed is a desirable means of meeting the public need.

Section 2.1.20 - PURPOSES

This chapter sets forth review criteria and procedural requirements:

a. Respond to changing conditions and community attitudes;

2.1.30.06 - Review Criteria

Comprehensive Plan amendments shall be reviewed to assure consistency with the purposes of this chapter, policies of the Comprehensive Plan, and any other applicable policies and standards adopted by the City Council.

a. Amendments shall be approved only when the following findings are made:

1. There is a public need for the change;
2. The change being proposed is the best means of meeting the identified public need; and
3. There is a net benefit to the community that will result from the change.

4.2.1 Significant natural features within the Urban Growth Boundary shall be identified and inventoried by the City or through the development process. These shall include:

A. Seasonal and perennial streams and other natural drainageways, wetlands, and flood plains;
B. Lands abutting the Willamette and Marys Rivers;
C. Land with significant native vegetation as defined in the Oregon Natural Heritage Plan (1998), which may include certain woodlands, grasslands, wetlands, riparian vegetation, and plant species;
D. Ecologically and scientifically significant natural areas;
E. Significant hillsides;
F. Outstanding scenic views and sites; and
G. Lands that provide community identity and act as gateways and buffers.

4.6.7 In areas where development is permitted, standards in the Land Development Code for hillside areas will achieve the following:

A. Plan development to fit the topography, soil, geology, and hydrology of hillsides and to ensure hillside stability both during and after development.

B. Preserve the most visually significant slopes and ridgelines in their natural state by utilizing techniques such as cluster development and reduced densities.

C. Preserve significant natural features such as tree groves, woodlands, the tree-meadow interface, and specimen trees.

D. Align the built surface infrastructure, such as roads and waterways, with the natural contours of terrain and minimize cutting and filling in developments.

E. Minimize soil disturbances and the removal of native vegetation and avoid these activities during winter months unless impacts can be mitigated.

F. Design developments and utilize construction techniques that minimize erosion and surface water runoff.

G. Demonstrate a concern for the view of the hills as well as the view from the hills.

H. Provide landscaping that enhances the identified open space resources.

I. Design developments that consider landscaping management that will minimize the threat of fire on improved property spreading to wildland habitat.

4.6.9 Where development of hillsides occurs, removal of vegetation will be minimized to control erosion. Vegetation disturbed during development shall be replaced or enhanced through landscaping.

4.8.2 Land designated as 100-year floodplain shall be treated as follows:

A. Development of new buildings on undeveloped lands (where such development does not fall within the definition of infill contained in Article 50) shall be prohibited in the 100-year floodplain of Corvallis streams, with the exception of the Willamette River, the Marys River, and the Millrace. If pre-existing parcels are entirely within the 100-year floodplain or if this policy renders an otherwise buildable parcel unbuildable, exceptions may be considered to allow limited development. (FP-2)

B. Streets, alleys, driveways, and parking lots on undeveloped lands, with the exception of the Willamette River, the Marys River, and the Millrace, should be located outside the 100-year floodplain and wetlands unless it can be demonstrated that they are constructed in a manner that does not restrict or otherwise alter proper floodplain functions, will cause no harm to the properly functioning condition of the stream, and that no other reasonable option is available. (FP-3)

C. Infill and redevelopment in the 100-year floodplain of Corvallis streams , with the exception of the Willamette River, the Marys River, and the Millrace, shall maintain or improve stormwater functions and floodplain functions existing prior to the proposed

infill or redevelopment, using techniques such as flow-through designs, more pervious surface area, and reduced building footprints. Development standards shall be created to allow additions to existing structures consistent with those structures' design, provided the additions fall below the threshold of "substantial improvement" contained in the Land Development Code and are constructed consistent with FEMA standards. (FP-4)

D. Area-specific development standards for the 100-year floodplain of the Marys River, the Willamette Rivers, and the Millrace shall be instituted to maintain stormwater functions, be proportional to the impact of the development on the receiving water bodies, and minimize impacts to other properties.

The Council notes that the text of the Comprehensive Plan and the Comprehensive Plan Map are proposed to be amended to address several issues. First is the need to define the areas within the Urban Growth Boundary that have been identified as containing natural resources needing protection. This is to be done by placement of a Natural Resource Overlay on the Map, which then must be defined in Article 40. Second is the need to define areas subject to natural hazards such as floodplains, slope hazards, and landslide hazards. This is to be done by placement of a Natural Hazard Overlay on the map, which then must be defined in Article 40. This amendment would recognize that the Comprehensive Plan Map overlays identified as "Significant Stream Corridors" and "Probable Wetlands" are superceded by the Natural Resource Overlay and would remove those two overlays.

The Council notes that when the Comprehensive Plan was adopted in 1998, the definitions of several Comprehensive Plan Map land use designations were inadvertently left out of Article 40. This shortfall is proposed to be rectified here. Consistent with these changes, the tables identifying Supporting Documents and Mandated Reports/Plans/Inventories are to be updated to include these inventories.

The Council notes that Statewide Planning Goal 5 requires that the City complete and adopt an ESEE Analysis to support decisions regarding the protection of natural features. The ESEE Analysis has been completed and used as required in the development of the natural features protection provisions. Adoption as a new Article 39 will provide clear direction for the implementation of these provisions in the Corvallis Land Development Code and on the District Map.

The Council notes that the reference to the Research Technology Comprehensive Plan Overlay designation is to be removed from the Map and text and allowance made for the Research Technology Zone on appropriate Industrial Comprehensive Plan Map designations, consistent with the Comprehensive Plan direction to create a distinct Research Technology Center District.

The Council notes that the criteria identified in Comprehensive Plan policy 1.2.3 and Land Development Code Section 2.1.30.06 set out the reasons the Comprehensive Plan can be

amended. Polices 4.2.1, 4.6.7, 4.6.9, and 4.8.2 direct the City to complete inventories and develop land use programs for protecting significant natural features, minimizing ground disturbance on hillsides, and reducing risks associated with natural hazards. These policies establish the public need to use the inventories and standards developed through an open and comprehensive public process. To do so requires that they be indicated on the Comprehensive Plan Map and referenced in the Comprehensive Plan as this proposal would do. It is also clearly in the public interest to have the Comprehensive Plan text identify the meaning of all of the land use designations shown on the Comprehensive Plan Map.

The Council notes that with regard to the best means of meeting the public need or the desirability of the change, the proposal has been developed to respond to Comprehensive Plan policies based on City Council direction over a period of six years (since the adoption of the Comprehensive Plan in 1998). City Council direction has resulted in a public process that has included over 70 public meetings (workshops, open houses, work sessions) at which public testimony was heard and responded to as appropriate. The process has developed a land use program that clearly and objectively balances protection of natural features and reduction of risks associated with natural hazards with the need to provide adequate available buildable lands for industrial, commercial, and residential development for the 20-year planning period. The proposed text and map amendments implement this program, providing the best ([the most] a desirable) means of meeting the required need.

The Council notes that these same factors also support the conclusion that the proposal provides a net benefit to the community (the advantages outweigh the disadvantages). This is clear from the point of view that the mandated inventories have been completed, the state-mandated efforts have been made, and the proposal results in a land use program that both protects natural features and provides adequate development opportunity.

Conclusion on Comprehensive Plan Text and Map Amendment:

The Council finds that mandated inventories have been completed. A land use program has been developed from these inventories that protects significant natural resources, minimizes disturbance of hillside areas, and reduces risks associated with natural hazards while providing adequate land for industrial, commercial, and residential development for the 20-year planning period. Adoption of the proposed text and map amendments is one of the steps necessary to put this land use program in place. These facts demonstrate that there is a public need for the change, that there is a net benefit to the community resulting from the change (the advantages outweigh the disadvantages) and adoption is the best means (a desirable means) of meeting the public need.

FINDINGS RELATED TO
CONSISTENCY WITH STATEWIDE PLANNING GOALS

The Council notes that Statewide Planning Goals 1-2 and 5-15 are applicable and addressed in this analysis. Goals 3 (Agricultural Lands) and 4 (Forest Lands) are not applicable because the proposal does not address rural land outside the Corvallis UGB. However, issues related to protection of farm and forest lands are addressed under Goal 14, Urbanization.

Goal 1: Citizen Involvement

The Council notes that Corvallis has a long history of active citizen involvement. The broad policy direction for the Natural Features Program is derived from policies in the adopted Comprehensive Plan and direction provided in the Corvallis Community Vision Statement. Both of these documents speak to the importance of achieving a *balance* between resource conservation and urban development objectives. Because the "full protection" and "no protection" options evaluated in the ESEE Analysis cannot achieve such a balance, the focus of City and County citizen involvement efforts has been on a "limited protection program," which is proposed here in the form of a Land Development Code Text Amendment and the associated Legislative District Map Change. This Comprehensive Plan Text and Map Amendment applies the "policy level" direction that natural resource and natural hazards protection will apply to properties within the Urban Growth Boundary, and thus ultimately the City's associated Land Development Code provisions are to apply to properties within the Urban Growth Boundary as they are annexed to the City.

The Council notes that Goal 1 requires that the City and County actively solicit citizen input during all phases of the planning process, including all phases of the Goal 5 process -- from the Goal 5 inventory to adoption of regulations and incentives. As documented below, Corvallis property owners, special interests and citizens have been actively involved in each stage of the Corvallis Natural Features project.

The Council notes that the Natural Features Scoping Project was completed in January 2002. It determined what natural features to inventory, provided a methodological framework for conducting natural feature inventories, and established preliminary criteria for ranking each of the natural features. Citizens, property owners, and a local environmental peer review group were actively involved in this process. The Scoping Process involved a number of public meetings and draft reports.

The Council notes that citizens and property owners also were notified of and asked to participate in the Natural Features Inventory process. A Public Review Draft of the inventory reports, maps, and data sheets was released in January 2003. Notices were mailed to property owners and other interested parties to inform them about the draft

inventory report and opportunities to provide comments and corrections. Copies of the January Public Review Draft were available at the Corvallis – Benton County Library, at City Hall, at the Benton County Development Department, and on the project website. A series of open houses was held to give property owners and others an opportunity to review the inventory maps and data sheets and discuss the findings with the field survey scientists. A committee of local peer reviewers with expertise in each inventory specialty provided review comments and corrections. The Natural Features Inventory was accepted by the Corvallis City Council in September 2003.

The Council notes that in June 2003, Mayor Berg appointed a citizen task force to (a) identify highly and moderately significant Goal 5 resource areas, and (b) recommend a draft program outline (i.e., a limited protection program) to resolve conflicts between resource protection and urban development needs. In addition to Planning Commissioners and elected officials from Benton County and the City of Corvallis, the "Phase III Update Project Task Force" included property owners and representatives from both business organizations and environmental groups. The Task Force met seven times during the summer and early fall of 2003. During this time, they reviewed the draft results of the Natural Features Inventory, heard comments from the public, examined existing Comprehensive Plan policies, met with inventory consultants, discussed the policies in the Stormwater Master Plan and findings from the Endangered Species Act project, and reviewed potential impacts of various protection scenarios on the buildable land supply. The Task Force developed a draft "Scenario A" that identified highly and moderately significant resource areas and made recommendations for broad elements of a "limited protection" Goal 5 program were Task Force recommendations were presented to Corvallis and Benton County decision-makers at a joint meeting held on October 14, 2003. Hazard and hillside slope information was also incorporated into these proceedings, and recommendations regarding these natural features were also developed and presented.

The Council notes that during the next several months, the Corvallis and Benton County decision-makers met to review and refine "Scenario A." Work sessions were open to the public and public testimony was accepted and considered regarding the relative significance of natural resource polygons within the Corvallis UGB. The result was a new "Scenario C" (January 22, 2004) that identified significant Goal 5 resource polygons based on specific resource-based criteria as well as areas with identified hazards and various hillside slopes.

The Council notes that following this joint effort, substantial modifications were made to Scenario C by each Planning Commission. Due in large part to public testimony, the City and County Planning Commissions forwarded somewhat different recommendations (City and County "Scenarios C") to their respective elected bodies. While both Planning Commissions recommended a balanced approach that focused on protection of riparian areas, the Corvallis Planning Commission tended to support more expansive wildlife habitat protection, and the Benton County Planning Commission leaned towards allowing a higher level of development in upland wildlife habitat areas. the Benton County Planning

Commission was particularly cognizant of the importance of the McDonald Forest in providing regional wildlife habitat benefits, and therefore found upland portions of Wildlife Habitat Areas within the UGB to be relatively less significant.

The Council notes that in February 2004, the Benton County Board of Commissioners and the Corvallis City Council met to discuss the two "Scenario C" Planning Commission recommendations. These joint sessions included staff recommendations and comments from the public. This process resulted in a "Draft Preferred Land Use Scenario" that was tentatively approved by City and County elected officials in March 2004. The Draft Preferred Land Use Scenario was intended to serve as the basis for development of the Land Development Code provisions from which the ESEE consequences of the Limited Protection Program could be analyzed. City and County elected officials emphasized that any effective Goal 5 program must include both regulatory and incentive elements.

The Council notes that during April and May 2004, the Corvallis Natural Features Focus Group was formed and consisted entirely of Corvallis area property owners and developers. The mission of this focus group was to review potential incentive measures prepared by Winterbrook Planning, identify additional measures, and make recommendations on which measures are most likely to be effective. This effort resulted in a "white paper" that identified effective regulatory and market incentives to encourage natural resource protection while mitigating adverse economic impacts to property owners and developers.

The Council notes that the Draft Preferred Land Use Scenario served as the basis for most public comments discussed below.

The Council notes that citizens and property owners were invited to provide information related to the economic, social, environmental, and energy consequences of the three decision options (full, limited, and no protection) outlined in the Goal 5 Rule. However, as noted above, public comments focused on the draft Preferred Land Use Scenario (Limited Protection Program).

The Council notes that the City and County have maintained an ongoing record of property owner citizen comments as they apply to the three decision options described in this ESEE Analysis. To encourage meaningful citizen involvement, citizen comments related to the Limited Protection Program (Draft Preferred Land Use Scenario and the Phase III update of the Land Development Code) were continually documented throughout the decision-making process.

Goal 1 Conclusion

Council finds that because Corvallis and Benton County citizens have been notified and provided the opportunity to be involved in all phases of the Natural Features Project, the amendments resulting from this project comply with Statewide Planning Goal 1, Citizen Involvement. Citizen comments related to the Limited Protection Program (the Comprehensive Plan Text and Map Amendment) were considered and responded to as a part of the adoption of the Limited Protection Program.

Goal 2: Land Use Planning

The Council notes that Goal 2, like Goal 5, is essentially a procedural goal. Goal 2 requires that:

- There be an adequate factual base for making land use decisions;
- Local, state, and federal agencies be notified and their concerns be considered and accommodated to the extent possible;
- Alternatives be considered before making ultimate policy choices;
- Policy choices be clearly articulated in the comprehensive plan; and that
- Implementation measures be consistent with and adequate to carry out such policy direction.

The Council notes that the factual basis for the Natural Features Project includes the Natural Features Inventory, background documentation related to the selection of Draft Preferred Land Use Scenario (including the significance determination), and the ESEE Analysis. These documents provide City and County decision-makers with the information necessary to make informed policy decisions related to balancing sometimes-conflicting development and natural resource conservation objectives.

The Council notes that the Natural Features Project provides a positive model for City-County coordination. City and County staff and a consultant team have worked collaboratively in each phase of this multi-year Natural Features Project. The Natural Features Scoping Committee included both City and County representatives, as did the Phase III Update Project Task Force and the Natural Features Incentives Focus Group. Contemporaneous public work-sessions were held before both the City and County Planning Commissions. Joint public work sessions also were held before the City Council and the County Board of Commissioners to ensure a coordinated response to natural resource management within the Corvallis UGB.

The Council notes that state and federal agencies have also been involved in this process, and their concerns have been considered and accommodated wherever possible. Key state agencies include the Department of Land Conservation and Development (DLCD), the Department of State Lands (DSL), the Department of Fish and Wildlife (ODFW), and the Department of Environmental Quality (DEQ). Federal agencies with comparable areas

of jurisdiction have also been invited to review and comment on the Natural Features program. In particular, the National Marine Fisheries Service has monitored the process for ensuring consistency with endangered salmonid habitat protection rules.

The Council notes that Goal 5 requires that the ESEE consequences of three "alternative" decision options be considered as part of the Goal 5 process, and the ESEE analysis considers the economic, social, environmental, and energy conservation consequences of:

- Fully protecting all significant natural resource analysis areas (NRAs);
- Providing no local protection for significant NRAs; and/or
- Providing limited protection for significant NRAs, as specified in the Corvallis Vision Statement, the Corvallis Comprehensive Plan, and the Draft Preferred Land Use Scenario.

The Council notes that the Natural Features Scoping Committee, the Phase III Update Project Task Force, the Corvallis and Benton County Planning Commissions, and Corvallis and Benton County elected officials considered a variety of methods for inventorying and determining the significance of natural features within the Corvallis UGB. These groups also considered a wide range of regulatory and incentive measures for potential inclusion within the Land Development Code Text Amendment and the Legislative District Change.

The Council notes that this implementation program has been designed to provide clear and objective regulatory measures to implement the policy direction provided by City and County elected officials. Each significant natural feature has corresponding Comprehensive Plan policies and land use regulations to resolve conflicts between urban development and resource conservation objectives.

Goal 2 Conclusion

Council finds that there is an adequate factual base for making these land use decisions; that local, state, and federal agencies be notified and their concerns were considered and accommodated to the extent possible; that alternatives were considered before making ultimate policy choices; that policy choices were clearly articulated in the comprehensive plan; and that implementation measures were consistent with and adequate to carry out such policy direction. Consequently, the Comprehensive Plan and Land Development Code amendments resulting from the Corvallis Natural Features project comply with Statewide Planning Goal 2, Land Use Planning.

Goal 5: Natural Resources

The Council notes that Goal 5 reads (in relevant part) as follows:

- To protect natural resources and conserve scenic and historic areas and open spaces.

- Local governments shall adopt programs that will protect natural resources and conserve scenic, historic and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability.

Following procedures, standards, and definitions contained in commission rules, local governments shall determine significant sites for inventoried resources and develop programs to achieve the goal.

The Council notes that Goal 5 is largely procedural in nature; it requires that certain steps be followed before making a decision regarding the level of protection – if any – that should be afforded to a significant Goal 5 resource site. It sets forth a *process* for resolving conflicts between natural resource preservation on the one hand, and urban development on the other. Goal 5 does not mandate "protection" of significant natural resource sites as that term is commonly used. Rather, as explained in the Goal 5 Rule (OAR Chapter 660, Division 23), "'protect' means to develop a program consistent with this division."

The Council notes that the City's Goal 5 Periodic Review Task #13 requires that riparian areas and wetlands be inventoried and "protected" consistent with the provisions of this rule. As part of the Natural Features Project, the City has conducted Goal 5 inventories for:

Riparian corridors (including fish and wildlife habitat);
Locally significant wetlands;
Significant vegetation (including wildlife habitat); one kind of significant vegetation is tree groves, which provide both wildlife habitat and a scenic value.

The Council notes that as required by the Goal 5 Rule, the Natural Features Project includes valid Goal 5 inventories showing the location, quantity, and quality of significant Goal 5 resource sites within the Corvallis UGB. The Goal 5 Inventory is shown on the map entitled *Significant Goal 5 Natural Resource Areas - Scenario C*, which is Map A of the ESEE Analysis completed as an element of this project. the Natural Features Inventory mapped and analyzed 7,921 acres of potentially significant Goal 5 resources. As a result of local "significance" review, Corvallis and Benton County decision-makers determined that approximately 1,863 acres of land and water resources that were mapped as part of the Natural Features Inventory did not meet significance criteria. Thus almost one-quarter

(24%) of the area mapped as potential Goal 5 resource land (7,921 acres) was removed from the preliminary Goal 5 inventory, and was not considered for protection through the ESEE Analysis process. Significant Goal 5 resource areas account for approximately one-third (34%) of the 17,965 acres encompassed by the Corvallis UGB.

The Council notes that the qualitative and quantitative characteristics of significant Goal 5 resource sites are found in the Natural Features Inventory Final Report (August 2004).

The Council notes that the Goal 5 Rule also requires that uses (i.e., land uses and related activities) that conflict with the full protection of significant Goal 5 resource sites be identified (i.e., permitted and conditional uses allowed by applicable zoning districts). The primary conflicting activities resulting from permitted and conditional uses are vegetation removal and excavation, which typically occur during the site preparation phase of an approved development, but potentially could occur at any time. Corvallis land use regulations limit these activities as prescribed in the Land Development Code Text Amendment and in the areas indicated through the Legislative District Map Change.

The Council notes that the Goal 5 Rule requires that local governments make a "decision" regarding the level of protection that should be afforded significant Goal 5 resource sites – but only after conducting an ESEE (Economic, Social, Environmental and Energy) Consequences Analysis, which was done as an element of this project. These findings address the Statewide Planning Goal implications of the three decision options for the UGB as a whole, explaining *why* Corvallis and Benton County decision-makers decided to:

- Allow certain conflicting uses within natural resource areas (NRAs) on a limited basis; and

- Remove certain resource subpolygons from the limited protection program altogether.

The Council notes that this section focuses on the *environmental and social consequences* of the three Goal 5 decision options;

The Council notes that *economic consequences* are considered under the discussion of other goals , especially Goals 9 (Economy), 10 (Housing), 11 (Public Facilities) and 12 (Transportation). Those discussions address the economic consequences of the full, partial, and no protection options on three general conflicting use categories: commercial/industrial, housing, and public facilities. The economic value of significant vegetation includes enhanced property values, reduced stormwater management costs, and reduced energy costs. Economic costs include tree replacement and maintenance costs.

The Council notes that the discussion of *energy consequences* is consolidated under Goal 13, Energy Conservation.

The Council notes that the Goal 6 discussion describes how natural resources (wetlands, riparian corridors and significant vegetation) offer substantial environmental and social benefits for maintaining air, water, and land resource quality. These positive environmental and social consequences are referenced here but are *not* repeated in this discussion of Goal 5.

The Council notes that each of these resources provides a variety of independent ecological functions. These ecological functions have particular importance in an urban area such as Corvallis. They are part of the City's green infrastructure that still supports local streams, salmon-bearing rivers, and remnant oak savanna habitats. These functions are summarized below. They include:

- Air quality improvement (addressed under Goal 6)
- Water quality improvement (addressed under Goal 6)
- Soil conservation/slope stabilization (addressed under Goal 6)
- Microclimate amelioration (addressed under Goal 13)
- Fish and Wildlife Habitat (addressed below)

The Council notes that the full protection option would prohibit all land uses and activities that conflict with (i.e., reduce the integrity of) Locally Significant Wetlands (LSW), riparian corridors, and vegetation.

The Council notes that with one exception, the full protection option would have entirely positive environmental consequences. The exception is significant oak savanna vegetation. Invasion by Douglas fir (another type of significant vegetative cover type) increasingly threatens the integrity of this increasingly rare Willamette Valley ecosystem. Therefore, in the context of a relatively intact oak savannah, Douglas fir growth is itself a conflicting use. Yet under the "full protection" option, Douglas fir removal would be prohibited, and such a prohibition would have adverse environmental consequences for the oak savannah ecosystem.

The Council notes that except for a few isolated wetlands and tree groves, significant Goal 5 resources are connected and mutually reinforcing. The environmental and wildlife habitat values of these significant resource types are described in detail in the *Corvallis Natural Features Inventory*, which is incorporated into this analysis by reference.

The Council notes that riparian corridors and associated wetlands provide essential fish and wildlife habitat as they weave through developed urban areas.

The Council notes that significant vegetation, LSWs, and riparian corridors provide habitat for wildlife- supplying food, water, and cover for a variety of urban fauna, such as deer, squirrels, and birds. This vegetation may vary significantly in its potential habitat value depending on the size, structure, and connectedness of the resource site. Healthy forests of large size, high connectivity and/or high structural complexity (mixed herb, shrub and

tree layers) generally provide greater habitat values than other resource sites. However, some of Corvallis' most important habitats are its remnant oak savannas, which typically have limited structural diversity. Resource sites located along riparian corridors or linked to larger upland habitats provide important opportunities for wildlife migration in Corvallis.

The Council notes that significant vegetation, LSWs, and riparian corridors also are connected to similar resource areas outside the Corvallis UGB, and provide travel corridors to upland forest resource area (e.g., MacDonald Forest) and riverine systems (i.e., the Willamette and Mary's Rivers) located in Benton County's rural forest and agricultural areas. Full protection of significant Goal 5 resources within the UGB would reinforce these connections.

The Council notes that conversely, the "no protection" option would have entirely negative environmental consequences, by allowing conflicting urban uses and activities without limitation. The environmental values outlined above, and discussed in much greater detail in the *Corvallis Natural Features Inventory,* would be lost.

The Council notes that the social consequences of the full protection option are generally positive, although there are some substantial adverse social consequences that would result from the full protection option.

The Council notes that the Corvallis Comprehensive Plan long has recognized the importance of its riparian corridors, wetlands, and hillside vegetation to the quality of life of area residents. Corvallis' trees and other significant vegetation have matured over the course of many years as the Corvallis community itself has grown. The City's riparian corridors, wetlands, and urban forests are critically important to the quality of its urban fabric. They define residential neighborhoods and form the backdrop for commercial and industrial developments.

The Council notes that social benefits resulting from full protection of significant vegetation, wetlands and riparian corridors include:

- Health benefits
- Public safety and welfare
- Aesthetic and scenic values
- Recreational and educational values
- Screening and buffering
- Noise attenuation

The Council notes that Corvallis' urban forest and riparian corridors are an important part of the community's identity and help to shape and define individual neighborhoods within the City, creating a sense of place. The City's riparian corridors and significant vegetation convey a distinctive character and aesthetic value to residential neighborhoods and to the quality of life of their residents. They enhance the appearance of the built environment and in some cases serve as local landmarks, uniquely distinguishing a neighborhood or place.

The Council notes that significant vegetation (especially trees) is known to have immediate and lasting physical and psychological health benefits.

The Council notes that Corvallis' extensive system of public parks and open spaces supports large areas of significant vegetation. The parks range from large forested areas such as Bald Hill and Willamette Park to smaller neighborhood parks such as Woodland Meadow Park. Trees greatly contribute to the recreational experience by bringing aesthetic, scenic, and natural qualities to the settings people select for outdoor leisure. They make these places more comfortable by providing shade and moderating local climate conditions.

The Council notes that significant riparian and upland vegetation offer an immediate connection to nature within an urban area, both in parks and in back yards. This can be especially important to children or people with limited mobility who otherwise have little contact with nature.

The Council notes that significant vegetation attracts birds and urban wildlife.

The Council notes that riparian and upland vegetation can act as an edge between different land uses, creating visual buffers, for example, between business and residential areas. This vegetation can also help to establish community character as noted previously and can help unify developments or neighborhoods, just as they can be used to separate and create buffers.

The Council notes that at a smaller scale, trees and other vegetation can screen unattractive areas and objects, and can serve to soften and buffer structures and parking lots. Trees also can be used to create privacy for individual homeowners, such as provided by riparian vegetation along a property line.

The Council notes that vegetation can form a barrier that partially deadens the sound from traffic, manufacturing processes, construction activities, and other loud noises. Trees and other significant vegetation reduce sound directly by reflecting and absorbing its energy.

The Council notes that full protection of natural resource areas *in an urban context* has counter-balancing social costs. Adverse social consequences associated with the full protection option include:

> Social Equity – the view that property owners should not bear the full burden of maintaining significant vegetation areas especially within Urban Fringe or where major developments were predicated on previous studies or agreements.
>
> Urban Wildfires – Full protection can endanger homes and businesses at the edge of areas with significant and combustible vegetation. There are severe and adverse

social impacts associated with unprotected homes at the edge of fully protected areas (See Goal 7 discussion below).

Public Parks – full protection of all significant resource areas would prohibit even passive recreational uses and activities, such as trail construction or picnic areas. Such uses and activities have enormous social value for area residents, as proclaimed in the *Corvallis 2020 Vision Statement* (See Goal 8 discussion below).

Employment Opportunities – In limited circumstances, such as the Airport Industrial Area – full protection of locally significant wetlands would substantially decrease the supply of development-ready industrial land necessary for basic employment opportunities. Loss of such jobs would have severe and adverse social consequences for the community (See Goal 9 discussion below).

Affordable Housing – the provision of affordable housing is critically important to maintaining social diversity called for in the *Corvallis 2020 Vision Statement.* Protection of all significant vegetation areas would substantially reduce the City's residential buildable land area and therefore would further increase housing costs for existing and future residents. (See Goal 10 discussion below).

Efficient Use of Scarce Public Resources – Corvallis and Benton County decision-makers have a fiduciary responsibility to their constituents to use public monies wisely. The full protection option would substantially increase the costs of providing public infrastructure and therefore would have adverse long-term social consequences for existing and future community residents. Maintaining continued confidence in the ability of City and County elected officials is also a governance issue: the community's long-term ability to work together to solve environmental, social, economic and energy problems depends in significant part on the confidence that the citizenry places in local elected officials (See Goal 11 and 12 discussion below).

Premature Loss of Rural Open Space – Inefficient use of land within the Corvallis Urban Growth Boundary (UGB) will result in premature conversion of farm and forest land to urban uses to meet urban growth needs. There are enormous social benefits for Corvallis area residents associated with maintaining such rural lands (See Goal 14 discussion below).

The Council notes that full protection of significant vegetation can have other minor social costs. Pollen from vegetation causes allergies for some people. Citizens may incur costs associated with allergy relief and medication. Another social issue relates to safety and defensible space. Forested areas with understory vegetation can be a safety concern for local communities. In Corvallis, however, forested areas with dense understory vegetation are uncommon, and are generally located at a distance from populated areas. In Corvallis'

forested parks, trail systems and park facilities are typically designed with careful attention to public safety issues.

The Council notes that in contrast, the "no protection" option would result in the loss of the social benefits from full protection listed above. The no protection option would be inconsistent with the social values expressed in the City and County Comprehensive Plans. The no protection option would result in substantial degradation to air, land, and water resources quality – with corresponding adverse social consequences. Allowing conflicting uses fully without protection safeguards for significant vegetation will result in the loss or degradation of one of the defining characteristics of Corvallis neighborhoods, eroding the City's visual quality and livability. Health benefits (with the exception of allergies), recreational and educational values, screening and buffering, and noise attenuation values also would be lost or degraded. Benton County and Corvallis residents place a high premium on environmental values. If such values are not conserved in a balanced manner, public trust in elected officials and in local government would be compromised.

The Council notes that the land use program associated with this Comprehensive Plan Amendment (ultimately, upon annexation, the standards contained in the Land Development Code Text Amendment and the Legislative District Map Change) represents a creative balance that avoids many of the adverse environmental and social problems associated with the two extremes discussed above. This limited protection program provides a high level of protection for significant riparian corridors, locally significant wetlands (except those with limited functional value in several locations) and significant vegetation that overlaps substantially with natural hazard areas or is in public parks. However, to address the substantial adverse social consequences associated with the full protection option, the limited protection program does not protect some areas containing significant vegetation because they are needed for housing and long-term efficient land use. The limited protection program allows for public infrastructure, fire breaks, and similar relatively low-impact uses that provide substantial public benefits without a corresponding loss of environmental value.

The Council notes that the limited protection program maintains the basic integrity of Corvallis' system of riparian corridors and locally significant wetlands, and protects most of the community's significant vegetation. Most types of urban development (residential, commercial / industrial) are prohibited within highly protected vegetation areas, riparian corridors, and wetlands.

The Council notes that Corvallis decision-makers carefully reviewed the economic, social, and energy costs of fully protecting the complex mosaic of streams, wetlands, and significant vegetation. They concluded that significant vegetation located outside of natural hazard areas, or that was not part of the public park system, or that did not contain specific types of significant vegetation could not be protected while at the same time addressing social equity, housing, and efficient urbanization issues. For this reason, protection of full Wildlife Habitat Areas as integrated units was abandoned in favor of protection of

significant vegetation. This decision was based in part on the recognition that large areas of forested wildlife habitat are located in the MacDonald Forest immediately outside and to the Northwest of the Corvallis UGB. The effect of this decision was to diminish both the quantity and quality of certain wildlife habitat areas, while maintaining riparian corridors and wetlands. This was a difficult balancing decision.

The Council notes that Corvallis and Benton County decision-makers also reviewed potential economic impacts on property owners and developers, and on the community's ability to meet long-term housing and employment needs without prematurely expanding the UGB. This resulted in the decision to adopt Land Development Code Chapter 4.11, Minimum Assured Density Area (MADA), which ensures that the density that would have been allowed on a subject parcel will be allowed, even if this affects the edge of a significant resource area. The MADA standards are clear and objective but are applied on a site-by-site basis if desired by the applicant. Over time, application of MADA standards will have the effect of reducing the quantity of significant natural areas. This will have adverse environmental consequences at the margins of protected resource areas.

The Council notes that Draft Land Development Code Chapters 4.12 (Significant Vegetation) and 4.13 (Riparian Corridors and Wetlands) allow several conflicting uses that will have some adverse environmental impacts. Examples include water dependent uses, replacement of existing structures, street and utility construction, erosion and flood control structures, lawn and garden maintenance, hazardous tree removal, emergency repairs to public facilities, removal or pruning of trees as fire breaks, and the like. The cumulative environmental impact of these uses is small to moderate; in several cases, consideration of alternatives and mitigation for environmental impacts is required. As noted in the discussion above, the social benefits from allowing these conflicting uses on a limited basis more than offset any adverse environmental impacts.

The Council notes that Draft Land Development Code Chapter 4.12, Table 4.12, includes special provisions for limited development in certain areas (PPSV-1 through PPSV-4) with significant vegetation that resulted from site-specific considerations by Corvallis and Benton County decision-makers. The cumulative adverse environmental impact of these decisions is small in comparison with the overall protected significant vegetation area. Special provisions recognize previous decisions or commitments that had been made in areas such as Timberhill, Owens Farm, and for COHO housing.

The Council notes that Corvallis and Benton County decision-makers chose not to protect locally significant wetlands in South Corvallis. This decision has minor adverse environmental consequences, because these LSWs met only one of the significance criteria set forth in Division of State Lands administrative rules.

The Council notes that the limited protection program associated with this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the

Legislative District Map Change) resolves social issues raised by the full protection option as follows:

Social Equity – the decision not to protect several significant vegetation areas within the Urban Fringe, coupled with special provisions for major developments consistent with previous studies or agreements (e.g., COHO Housing, Owens Farm and Timberhill), resulted in much greater social equity.

Urban Wildfires – Fire breaks are permitted, reducing the danger to homes and businesses at the edge of areas with significant and combustible vegetation.

Public Parks – Provisions to allow for trails and passive recreational facilities maintain the social value of parks in natural areas, consistent with the Comprehensive Plan.

Employment Opportunities – the decision not to protect significant wetlands in several locations facilitates the provision of "shovel ready" industrial sites that will improve basic employment opportunities.

Affordable Housing – the decision not to protect specific wetlands and some otherwise significant vegetation polygons in the Urban Fringe will increase the supply of buildable land for housing, thus making housing more affordable and helping to maintain social diversity called for in the Comprehensive Plan.

Efficient Use of Scarce Public Resources – the limited protection program reduces the costs of providing public infrastructure and therefore would have positive long-term social consequences for existing and future community residents. By achieving the balance between efficient provisions of public facilities and services on the one hand, and protection of the most significant vegetation areas on the other, City and County elected officials facilitate the community's long-term ability to work together to solve environmental, social, economic and energy problems.

Premature Loss of Rural Open Space – By using land more efficiently within the Corvallis UGB, premature conversion of farm and forest land to urban uses will be avoided, thus preserving social benefits for Corvallis area residents associated with maintaining such rural lands.

Goal 5 Conclusion

Council finds that the Corvallis Comprehensive Plan Text and Map Amendments (further refined by the Land Development Code Text Amendment and the Legislative District Map Change as a limited protection program) maintain most of the environmental values described in the *Corvallis Natural Features Inventory* without sacrificing important social

values associated with social equity, wildfire protection, park development, industrial employment opportunities, affordable housing, the efficient provision of public facilities and services, and compact urban growth form. Thus, the balance that Goal 5 strives for is achieved.

Goal 6: Air, Land and Water Resource Quality

The Council notes that Statewide Planning Goal 6 requires cities to adopt policies and implementation measures to ensure that air, land, and water quality are not "degraded" and that state and federal environmental quality standards are met.

The Council notes that Corvallis has adopted several programs to achieve the purposes of Goal 6, including:

- Stormwater Master Plan
- Erosion Control regulations
- Pollution Control regulations

The Council notes that, ultimately, these programs apply throughout the UGB, and unlike Goal 5, do not impose natural resource site-specific land use restrictions on individual properties.

The Council notes that protection of Goal 5 resource sites (riparian corridors, wetlands, and significant vegetation) helps to maintain air, land, and water resource quality within the Corvallis UGB by reducing the impacts of urban development. Conversely, if significant Goal 5 resource areas are not protected, there are adverse consequences for air, land and water resource quality.

The Council notes that the Goal 5 administrative rule (OAR 66-023-0240) states that Goal 5 procedural requirements do not apply to measures that implement Goal 6, provided that such measures do not "exceed" the requirements of these goals.

The Council notes that the requirements of Goal 5 do not apply to the adoption of measures required by Goals 6 and 7. However, to the extent that such measures exceed the requirements of Goals 6 or 7 and affect a Goal 5 resource site, the local government shall follow all applicable steps of the Goal 5 process.

The Council notes that Corvallis and Benton County are following all applicable steps of the Goal 5 process for all significant Goal 5 resource sites, as documented in this report. The ESEE Analysis considers the consequences of three decision options prior to reaching the decision to protect most, but not all, significant resource areas on a limited basis.

The Council notes that Corvallis and Benton County must comply with state and federal environmental quality regulations, and that both jurisdictions have local erosion control and

stormwater management requirements that ensure compliance with Goal 6. Therefore, the "no protection" option for Goal 5 resources would not mean that air, land, and water resources will be unprotected. Rather, the "no protection" option would mean the loss of additional benefits provided for air, land, and water resources quality by riparian corridors, wetlands, and significant vegetation.

The Council notes that *wetlands* provide important water quality functions. They reduce the impacts of excess nutrients in storm water runoff on downstream waters. Essentially equivalent to pollution removal, a wetland contributes to water quality by trapping sediment during periods of heavy rainfall, keeping it from entering adjacent downstream resources. Wetlands also trap nutrients such as nitrogen and phosphorus, helping to prevent or minimize algal blooms and subsequent oxygen deficiencies downstream. Wetlands reduce downstream flood peaks and store flood waters by acting as flood regulators, trapping water during periods of high precipitation or flooding, and slowly releasing the flow downstream. By reducing the velocity and volume of stormwater flows, wetlands also reduce erosion and thereby help to preserve water and land quality.

The Council notes that the Local Wetland Inventory (LWI) evaluated the effectiveness of wetlands within the Corvallis UGB to provide both of these functions. The LWI assessed each wetland's water quality and hydrologic control function as "intact," "impacted," or "not present." All of the 122 wetlands described in the LWI were found to have some water quality and hydrological control value. Most (54%) of the 59 Locally Significant Wetlands (LSWs) identified in the Natural Features Inventory had "intact" water quality function, and many (41%) had "intact" hydrologic control function.

The Council notes that full local protection of LSWs ensures that water quality and hydrologic control functions remain intact, with corresponding benefits for water and land quality within the Corvallis UGB.

The Council notes that if Corvallis and Benton County were to allow fill and removal of LSWs without local restriction, then these water quality and hydrologic control functions could be lost, to the detriment of land and water quality. Although the Oregon Department of State Lands (DSL) and US Army Corps of Engineers would still have regulatory authority, maintaining the benefits of full protection would be less certain. This is true for two reasons: first, these agencies may grant a permit to fill and remove all or part of an LSW; and second, their monitoring and enforcement capabilities are limited by budget and staffing considerations. Therefore, there would likely be adverse environmental consequences for water quality if there were no local protection program (i.e., if conflicting uses were allowed fully).

The Council notes that riparian corridors also provide benefits for air, land, and water resources quality. Like wetlands, riparian corridors can enhance water quality in many ways. Undisturbed densely-vegetated riparian corridors trap sediments, inhibit erosion, and filter runoff originating from impervious surfaces, lawns, golf courses, and the like.

Sedimentation and erosion, although natural processes, are accelerated in urban areas by increased impervious surfaces. Impervious surfaces also inhibit infiltration. Sediment within a riparian corridor can be from erosion of poorly vegetated uplands, runoff from impervious surfaces, or floods from an adjacent water resource. Sediments often carry nutrients (e.g. phosphates and nitrates) and pollutants (e.g. heavy metals, hydrocarbons) to water resources, altering water chemistry, burying spawning gravels and impacting fish and wildlife habitat. Excessive concentration of nutrients in the water can trigger algal blooms, depleting the water of oxygen required by fish and other aquatic organisms. The ability of a riparian corridor to resist erosion is related to slope, soil type, type of vegetation, vegetation cover, landscape position, and degree of human disturbance.

The Council notes that riparian corridors and associated wetlands and floodplains provide a valuable flood management function by reducing the force and volume of flood waters. Flood waters flowing into a vegetated, flood-prone riparian corridor can be slowed or temporarily stored, reducing peak flows and downstream flooding. Woody vegetation, in particular, resists flood waters and reduces its velocity. Topographic features such as swales and depressions can enhance a riparian corridor's ability to manage flood flows. Reducing the velocity of flood waters in the riparian corridor allows infiltration of water into the soil. Water entering the soil is slowly released into the main channel, delaying its movement downstream.

The Council notes that water temperature affects the ability of a stream to support viable populations of certain aquatic organisms. Riparian shade, especially forest canopy, moderates temperature within and adjacent to a water resource. Although stream temperatures are important throughout the year, summer temperature is generally more critical for fish species such as salmonids. High water temperatures and sunlight are factors that can promote algal blooms, reducing dissolved oxygen required by anadromous fish and other cold-water dependent organisms. the aspect or orientation of the water resource and the height of the adjacent riparian vegetation play important roles in how effective riparian vegetation is in providing shade.

The Council notes that if Corvallis and Benton County were to allow unrestricted development of riparian corridors, then these water quality and hydrologic control functions could be lost, to the detriment of land and water quality. There would be adverse environmental consequences for water and land quality if there were no local protection program for riparian corridors (i.e., if conflicting uses were allowed fully).

The Council notes that significant vegetation (Tree Groves and Wildlife Habitat) can protect soil and improve water and air quality. Trees and other plants hold soils in place during rain and wind. Land with steep slopes is especially susceptible to erosion. Significant vegetation also helps keep sediment and contaminants from entering water bodies. Trees slow stormwater runoff, thereby minimizing erosion and allowing the ground to filter out sediments and nutrients as the water soaks down into groundwater reserves or passes into streams. Since much of Corvallis significant vegetation is located on hillsides, retention

of significant vegetation in hillside areas has positive consequences for land and water quality. Significant vegetation also improves air quality by removing carbon dioxide from the air and replenishing it with oxygen. these effects are more noticeable in developed areas, where environmental quality is more degraded.

The Council notes that poor air quality is both a human and an environmental concern; air that is polluted and high in temperatures can degrade ecological functions and damage the health of local plant and animal communities. Trees and other significant vegetation in Corvallis remove pollutants such as nitrogen dioxide, carbon monoxide, sulfur dioxide, ozone, and airborne particulates. Trees also help reduce wind speed so that heavy particles settle out. Trees and other significant vegetation naturally absorb carbon dioxide, storing carbon as they grow, helping to reduce the effects of global warming which can cause widespread damage to ecological communities.

The Council notes that trees and other significant vegetation help conserve soils and stabilize slopes, thus maintaining land quality. Fibrous root systems hold soil in place, reducing erosion caused by wind, rain, and surface runoff. Tree branches and leaves reduce the impact of rain on the soil. Leaves fall to the ground, decompose, and provide nutrients to the soil. By binding soils, dissipating erosive forces, and providing nutrients, trees protect and enhance the diversity and abundance of soil organisms. In the same manner, trees and their root systems help to hold and protect steep slopes from erosion and failure. Tree roots reinforce the soil, increasing soil shear strength, and bind soil particles, reducing their susceptibility to erosion.

The Council notes that full local protection of significant tree groves and significant vegetation within wildlife habitat areas would have substantial benefits for air, land, and water quality within the Corvallis UGB. Conversely, if conflicting uses were allowed to develop without local zoning restrictions, there would be significant and adverse impacts on air, land, and water quality within the Corvallis UGB.

The Council notes that compliance with state and federal environmental standards can be costly for local governments. By fully protecting locally significant wetlands, significant riparian corridors and significant vegetation, the costs of meeting water and air quality standards can be substantially reduced. For example, the cities of Portland and Corvallis recently adopted stormwater master plans that recognize the benefits natural areas provide for on-site stormwater management. When stormwater is treated at the source by saving trees or reducing pavement, then stormwater infrastructure requirements are correspondingly reduced. Costs for compliance with National Marine Fisheries Service (NMFS) requirements related to water quality and temperature can also be reduced.

The Council notes that businesses share the city's commitment to environmentally sound practices, and collaborate with community members to maintain and improve the city's air and water quality. This is done not only with attention to the businesses' own impact on the environment, but by encouraging employee use of alternative modes of transportation to

and from work. Businesses are sensitive to their use of natural resources to produce quality goods, and are responsible stewards of those resources. Ongoing and open dialogue exists between business leaders and other community members concerning environmental issues and questions.

The Council notes that in Corvallis, protection of significant wetlands, stream corridors, and vegetation can expedite development review, reduce infrastructure construction costs, and improve long-term community relations – all of which make good economic sense. The message is clear: there are economic benefits associated with full protection of significant natural resources in Corvallis.

The Council notes that on the other hand, full protection of significant natural resources may not be the most cost-effective way to achieve environmental standards. For reasons stated in the Goal 8-12 discussion, full protection of *all* significant natural resource sites would likely result in decreased efficiency of land use, and resultant increases in land acquisition and development costs for parks, businesses, housing, public facilities and transportation projects.

The Council notes that in conclusion, there are substantial positive economic consequences – in terms of reduced costs for meeting local, state and federal environmental standards – associated with the full resource protection option. However, these costs need to be weighed against urban land acquisition and development costs that are addressed in other sections of these findings.

The Council notes that if Corvallis were to allow conflicting uses fully, the costs for meeting state and federal environmental standards would likely increase substantially, along with increased infrastructure construction and maintenance costs. Reliance on "after the fact" hard engineering methods of pollution control can have substantial dollar costs that need to be considered when determining the economic consequences of allowing unrestricted development (i.e., allowing conflicting uses fully).

The Council notes that the Corvallis Comprehensive Plan recognizes the importance of clean air and water to the citizens of the area, closely linking air, land, and water resource quality to quality of life – thus underscoring their social value.

The Council notes that full protection of significant wetlands, riparian corridors, and vegetation helps to maintain the livability that is so highly valued by Corvallis residents. On the other hand, unrestricted development of significant natural resources in Corvallis degrade air, land, and water resource quality, and therefore would have serious and adverse social consequences for the community.

The Council notes that the land use program associated with this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) provides a high level of protection of significant wetlands and riparian

corridors. A high level of protection is also afforded significant vegetation areas on steep slopes that are subject to erosion and landslides.

The Council notes that when compared with the full protection scenario, the limited protection program has marginal adverse environmental consequences for air, land, and water resource quality. Air quality will be marginally reduced as urbanization occurs in some significant vegetation areas. Land quality will not be substantially affected, because of the strong natural hazard provision found in Land Development Code Chapter 4.5 (Natural Hazards). As noted above, Corvallis and Benton County decision-makers have afforded a high level of protection to riparian corridors and wetlands, ensuring that water quality will not be degraded as a result of urban development.

The Council notes that the land use program associated with this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and Legislative District Map Change) should be viewed in the context of other local and state programs to maintain environmental quality. Local programs include *The Corvallis Stormwater Management Plan* (2003), erosion control standards, and draft Land Development Code Chapter 4.5 (Natural Hazards) standards. The Comprehensive Plans of Benton County and Corvallis commit these jurisdictions to continued coordination with the Department of Environmental Quality (DEQ) to ensure that Oregon Environmental Quality Commission standards related to air, land, and water quality are met.

The Council notes that the economic consequences of the land use program associated with this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) are positive, because they will have the effect of reducing public and private stormwater collection and treatment costs.

The Council notes that the social consequences of the land use program associated with this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) are positive, because they will have the effect of reducing public and private stormwater collection and treatment costs.

Goal 6 Conclusion

The Council notes that the proposed limited protection program complements and does nothing to reduce existing City, County, and State air, land, and water resource quality programs. Consequently, the program is consistent with the requirements of Goal 6.

Goal 7: Natural Hazards

Goal 7 reads (in relevant part) as follows:

"To protect people and property from natural hazards.

A. Natural Hazard Planning

1. Local governments shall adopt comprehensive plans (inventories, policies and implementing measures) to reduce risk to people and property from natural hazards.
2. Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires. Local governments may identify and plan for other natural hazards."

The Council notes that this Goal 7 hazard protection program resolves most conflicts between development and resource preservation in areas with mapped natural hazards based on clear and objective development standards. *Chapter 4.5, Natural Hazard and Hillside Development Provisions* prohibits or strictly limits most types of urban development in the following natural hazard areas:

- The 0.2-foot floodway for all rivers and local streams within the UGB;
- "High Protection Floodway Fringe Areas" (i.e., the 100-year floodplain for most local streams within the UGB and for all rivers within the Urban Fringe);
- Slopes $\geq$ 35%;
- Wildfire hazard areas without City water (4th Water Level); and
- Mapped landslide hazard areas.

The Council notes that because these severe hazard areas are unbuildable for most urban areas, the consequences of allowing, prohibiting, or limiting conflicting uses are different for severe hazard areas from the consequences for otherwise buildable areas.

The Council notes that many of Corvallis' natural resources are located in areas with severe natural hazards; this is true of riparian areas, wetlands (flooding), and wildlife habitat areas (steep slopes, landslide hazards, wildfire hazards). Corvallis and Benton County decision-makers carefully considered the overlap between Goal 7 natural hazard and Goal 5 natural resource areas when determining whether, and to what degree, significant vegetation resource areas (wildlife habitat and tree groves) and riparian areas (stream and urban fringe river floodplain) should be protected.

The Council notes that in considering this relationship, Corvallis and Benton County officials observed that allowing development in natural hazard areas generally could have severe and adverse economic, social, and environmental consequences. Therefore, they determined that areas without water service (above the third-level water elevation), areas subject to landslide or severe slope hazards, and undeveloped areas subject to flooding were considered unbuildable for most types of urban development. It follows that restricting development in natural resource areas that also contain natural hazards has fewer adverse economic and social consequences for property owners insofar as *urban* development is concerned.

The Council notes that the consequences for full protection of land with natural hazards are considerably different from those for land with no or easily remediable hazard potential. The adverse consequences of allowing urban development in hazardous areas with significant natural resources are compounded by the possibility of damage to life and property.

The Council notes that the environmental consequences of fully protecting significant wetlands, riparian corridors, and vegetation are highly positive and are discussed in the Goal 5 and 6 sections of this chapter. These positive environmental consequences are reinforced in natural hazard areas, because prohibiting conflicting uses decreases the likelihood of flooding and slope failure. Moreover, flooding and slope failure would adversely affect water quality in streams and would harm significant vegetation, as well as fish and wildlife habitat.

The Council notes that conversely, the environmental consequences of the no protection option are severe and adverse. Unrestricted urban development, grading, and vegetation removal would increase substantially the likelihood of flooding and slope failure, which would degrade land and water quality, fish and wildlife habitat, and scenic values.

The Council notes that these environmental considerations led Corvallis and Benton County decision-makers to conclude that areas with severe natural hazards generally should receive a higher level of protection than those without natural hazards.
The Council notes that the economic and social consequences of full resource protection, in areas with over-lapping natural resources and natural hazards, are mixed. Under the full protection option, the likelihood of damage to persons and property would be reduced when compared with the no protection option. In cases where development cannot safely occur, adverse economic and social consequences are less pronounced, because housing and businesses construction could not occur in any case.

The Council notes that the full protection option would *prohibit all conflicting uses and activities in all mapped hazard areas*, with adverse economic and social consequences to property owners, the general public, and urban service providers. Such a complete prohibition would severely restrict the use of property for non-construction purposes (e.g., yards and gardens), increase the costs of providing public infrastructure, restrict public recreational opportunities, and increase transportation costs resulting from of out-of-direction travel. The full protection option would also limit the ability to develop passive recreational facilities in public parks, and the public would be unable to access natural areas with attendant adverse social consequences.

The Council notes that wildfire hazards can increase under the full protection option, especially at higher elevations. Over 20 years ago, the City determined that it could not economically provide water service above the 3rd Water Level. The lack of water service precludes urban land development and would result in extreme wildfire hazard if residential development were to occur at urban densities. Because land above the 3rd Water Level

cannot be provided with urban water service, it is considered unbuildable at urban densities. Therefore, Corvallis decision-makers determined that areas with significant vegetation above the 3rd Water Level should have greater resource protection than otherwise buildable areas in the 3rd or lower Water Level.

The Council notes that for these reasons, it rejected both the full protection and no protection options, even in situations where natural hazards cover the same ground as significant natural resource areas.

The Council notes that draft Land Development Code Chapter 4.5, Natural Hazard and Hillside Development Provisions, imposes limitations on development within floodplains that reinforce the effectiveness of draft Chapter 4.13, Riparian Corridor and Locally Protected Wetland Provisions, and draft Chapter 4.12, Significant Vegetation Provisions.

The Council notes that the environmental consequences of this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) are positive, because draft hazard regulations reinforce proposed riparian corridor, wetland, and significant vegetation protection standards.

The Council notes that unlike the full resource protection option, the limited protection program allows for certain private and public land uses and activities that reduce adverse social and economic consequences for landowners and the public.

The Council notes that strict building limitations are balanced by provisions that allow reasonable use of property in flood and slope hazard areas. For example, replacement of existing structures, construction of water dependent and related uses in high protection floodplains, removal of hazardous trees, construction of transportation and utility facilities, and construction of flood management facilities are permitted subject to locational and construction standards. In this manner, public facilities necessary for development outside of highly protected floodplain and slope hazard areas can occur. Within the more developed City Limits, construction allowed by underlying zoning is permitted subject to flood management standards.

The Council notes that proposed Chapter 4.11, Minimum Assured Development Area (MADA), provisions provide additional flexibility to ensure that land efficiency and property owner fairness objectives are met. these provisions are discussed in more detail under Goals 9 (Economy), 10 (Housing), and 11 (Public Facilities and Services).

The Council notes that because the draft natural hazards limited protection program allows for certain private and public uses and activities within hazard areas, subject to engineering and locational standards, adverse social and economic consequences are reduced without compromising public safety.

Goal 7 Conclusion

The Council finds that with regard to hazards, this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) is implemented by *Chapter 4.5, Natural Hazard and Hillside Development Provisions.* These provisions have positive environmental consequences because they reinforce other proposed provisions to protect riparian corridors, wetlands, and significant vegetation. At the same time, Chapter 4.5 provides the flexibility necessary to reduce adverse economic and social consequences of the full protection option.

The proposed Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) complies with Goal 7, Natural Hazards, because it provides clear and objective standards that protect life and property from potential flood, slope, and earthquake hazards.

Goal 8: Recreational Needs

The Council notes that Goal 8 requires local governments to plan for the park and recreational needs of the community. This Goal is related to the Goal 14 requirement to provide land to meet the "livability" needs of a community.

The Council notes that planning for, developing, and maintaining Corvallis' system of parks, open space, and trails are closely related to the level of protection afforded to significant wetlands, stream corridors, and vegetation. On the one hand, protecting natural resources provides open space and recreational opportunities for the community, which translates into positive social and economic consequences. On the other hand, park development and human access to natural resource areas can have adverse environmental consequences to those areas.

The Council notes that it and several parks advisory boards recognize the importance of the parks system in meeting the City's environmental goals, including:

- Maintain Green Space to Help Filter and Reduce Run Off From Developed Areas;
- Help to Protect Natural/Historical Features of the Natural Landscape;
- Provide Habitat For Wildlife and Flora Species;
- Help to Reduce Travel Time and Offset the Effects of Pollution.

The Council notes that overlap exists between parks and significant natural resource areas, including active and passive recreational uses and activities, which can cause conflicts with full resource protection.

The Council notes that with respect to park and recreational uses, the full protection option means that natural resource areas would be largely off limits to the public. Relatively minor conflicting uses such as pedestrian and bicycle trails, picnicking, and passive recreational

uses, which can conflict with the preservation of wetlands, riparian areas and significant vegetation, would not be permitted under the full protection option. In contrast, the no protection option would allow unlimited development of significant natural areas for park and recreational uses, such as recreational buildings, swimming pools, ball fields, and skateboard parks.

The Council notes that the environmental consequences of the full protection option are positive because conflicting active and passive recreational uses would be prohibited. Conversely, the environmental consequences of allowing conflicting park development without restriction would be extremely negative, because environmental values described in the Goal 5 and 6 sections of this chapter would be lost. However, if this property were not owned and maintained by public agencies, conflicting uses potentially would be much greater.

The Council notes that the economic consequences of the full protection option would be adverse. Much of Corvallis' appeal to local residents and visitors comes from its extensive park system, which is accessible to and usable by the public. If the full protection option were selected, Corvallis public parks would become exclusive nature preserves, which would limit their economic and social value to the public.

The Council notes that in contrast, the no protection option would allow active park and recreational uses in sensitive natural resource and natural hazards areas, which compromise the social and economic value that Corvallis and Benton County citizens place on parks that provide public access to natural open space.

The Council notes that the limited protection program outlined below provides for the protection of natural resources in Corvallis' public park system, while allowing for public access and passive recreational opportunities.

The Council notes that by maintaining parks with protected natural resource and hazard areas in a "near-natural state," the competing objectives of natural resource protection and public access are resolved.

The Council notes that the environmental consequences of this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) are only slightly negative. Passive recreational use by Corvallis and area citizens will have some adverse environmental impacts on natural resource values. However, these potential adverse impacts are minimized by the provisions of draft Land Development Code Chapters 4.5, 4.12 and 4.13 related to natural hazards, riparian corridors and wetlands, and significant vegetation, respectively.

The Council notes that to further limit potential conflicting uses, draft Land Development Code Chapter 3.38 C-OS District limits "civic uses" to trails and picnic tables, minor utilities, transportation facilities shown on adopted plans, and construction of street improvements

adjacent to the property. Existing non-conforming uses and uses in approved conceptual or detailed development plans also are permitted.

Council notes that "active-use" parks are permitted in most Development Districts in Corvallis.

The Council notes that potential adverse environmental consequences are further mitigated by reduction of pollution resulting from automobile travel that would occur if Corvallis lacked an urban yet natural park system.

The Council notes that these relatively minor adverse environmental consequences are more than offset by the economic and social benefits that local residents and visitors derive from having access to Corvallis' urban natural park system.

Goal 8 Conclusion

The Council finds that this Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change), as implemented by draft Chapter 3.38, Conservation – Open Space (C-OS) District, and provisions to protect natural resource and hazard areas, effectively resolve conflicts between natural resource protection on the one hand, and passive recreational use on the other. The limited protection program avoids the extremes of full protection (i.e., nature parks that no one can use) on the one hand, and no protection (i.e., unrestricted active park use) on the other.

The Council finds that the proposed amendments also support local park and recreation objectives of providing accessible nature parks for existing and future residents. Therefore, the proposed Comprehensive Plan Amendment complies with Goal 8, Recreational Needs.

Goal 9: Economy of the State

The Council notes that Goal 9 requires Corvallis to provide sufficient and suitable land within its UGB to meet long-term needs for industrial, commercial, office, and mixed use development.

The Council notes that the Goal 9 analysis applies to land that is designated for employment (industrial, commercial, and office) uses on the Corvallis Comprehensive Plan Map. The primary concern is that Corvallis must maintain an adequate supply of land to meet economic development objectives. If land is removed from the industrial, commercial, or office buildable lands inventory to protect resources, and the supply falls below the needs projected in the Corvallis Comprehensive Plan, then Goal 9 compliance is jeopardized.

The Council notes that conflicts between Goal 9 and resource protection often are difficult to resolve because commercial and industrial buildings typically consist of a single story and require large parking lots and maneuvering areas. Unlike residential areas, density transfer often is not a viable option. Corvallis' industrial land base is concentrated in South Corvallis, near the airport. These areas are covered with hydric soils and both locally-significant and non-significant wetlands. Full and partial protection of wetlands directly conflicts with full utilization of the South Corvallis and West Corvallis Industrial Area for employment purposes.

The Council notes that since industrial and commercial land is usually located in relatively flat areas, most Goal 9 conflicts are with locally-significant wetlands and riparian corridors.

The Council notes that the full protection option would have positive environmental consequences for LSWs and riparian corridors. In contrast, the no protection option would have substantial adverse environmental consequences. The environmental consequences of the full protection and no protection options are addressed generally in the Goal 5 and 6 sections of this chapter. Energy consequences of these options generally are addressed in the Goal 13 section of this chapter.

As noted in the Goal 13 section, the full protection option would have serious adverse energy consequences because industrial jobs would be forced into other communities, thus increasing commuting distances and energy consumption.

The Council notes that in commercial and industrial areas of Corvallis, wetlands, riparian corridors, and significant vegetation can have some economic benefits, including reduced stormwater management and energy costs. Other economic benefits include improved consumer perceptions of businesses and greater worker productivity and job satisfaction. However, where large wetlands are concerned, especially in industrial areas, these benefits are less pronounced and are offset by the loss of buildable commercial and industrial land and corresponding loss of job opportunities.

The Council notes that consumers respond positively to commercial shopping environments with attractive trees and landscaping. Well-maintained landscapes with trees send positive messages about the appeal of a business district, the quality of products they offer, and the quality of customer service.

The Council notes that these responses support the full protection option for riparian corridors and significant vegetation located at the edge of commercial retail and office areas. However, with regard to LSWs in industrial areas, the full protection option would offer relatively few of these economic and social benefits because the wetlands are too large to be integrated into an industrial development. Moreover, industrial land is not intended to attract consumers.

The Council notes that the no protection option would reduce local development constraints on industrial land, thus increasing land use efficiency and reducing the need to expand the UGB into agricultural areas to meet industrial and commercial needs.

The Council notes that the full protection option would mean that no development could occur within protected significant vegetation sites or their respective impact areas. This option would severely restrict expansion of businesses and would severely limit areas where new commercial and industrial development could occur. Corvallis could become noncompliant with Statewide Planning Goal 9 (Economic Development). Job growth in Corvallis would be greatly impaired. For these reasons, full resource protection in Corvallis is not a realistic public policy option.

The Council notes that on the other hand, in commercial retail, office, and industrial park areas, unrestricted development could remove all vegetation and offer no protection for highly significant riparian corridors and wetlands. The no protection option, when applied on a UGB-wide basis, would have substantial, adverse economic consequences for businesses, as noted in the Goal 5 section of these findings. Well-maintained trees and landscaped areas send positive messages about the appeal of business districts, the quality of products they offer, and the quality of customer service, as noted above.

The Council notes that significant trees and vegetation resources provide important amenity values for employees as well as business customers. Their presence increases worker productivity and job satisfaction significantly. These benefits are lost when conflicting uses are fully allowed and vegetation is cleared. Thus, the economic consequences of no protection are negative.

The Council notes that to address the negative consequences of both the full and no protection options, it has developed a limited protection program. This program consists of two parts: first, riparian corridors and significant vegetation generally are protected in commercial and industrial areas, whereas large LSWs that would remove large buildable areas from the buildable lands inventory receive no protection. Also, the community's ability to meet long-term economic development objectives is retained through MADA standards.

The Council notes that four Locally Significant Wetlands (LSWs) will not receive local protection (in addition to state and federal standards) as a result of the ESEE analysis process; they are located in South and West Corvallis. Two large LSWs are S-MAR W-3 and S-MAR W-16. The other two are WC-SQU W-13 S-GOO W-2. Corvallis and Benton County decision-makers have determined that the economic and social benefits of the limited resource protection program are substantial relative to these four LSWs. As a result, these wetlands are not identified on the Comprehensive Plan Map.

The Council notes that the South Corvallis Industrial Area represents the community's largest source of industrial land. This land is necessary to provide basic employment consistent with the City's economic development objectives. Loss of this land from the industrial land inventory would eliminate at least 254 acres from the industrial land supply, with consequent loss of potential employment. Loss of employment opportunities would have substantial adverse social impacts on existing and future Corvallis residents, since the ability to earn a "family wage" is related to quality of life. Corvallis is seeking to have this land placed on the state's list of "shovel ready" sites. Full protection of these marginally-significant wetlands would make this impossible.

The Council notes that the 53rd Street and Reservoir Road Intensive Industrial Area is a large industrial site located in the Corvallis City Limits. Information presented to decision-makers has indicated that this wetland may be entirely man-made. This land is also needed to provide basic employment consistent with City and County economic development objectives. Loss of this land from the industrial land inventory would eliminate another 69 acres from the industrial land supply, with consequent loss of potential employment. Loss of employment opportunities would have substantial adverse social impacts on existing and future Corvallis residents, since the ability to earn a "family wage" is related to quality of life. For these reasons, Benton County and Corvallis decision-makers have determined that LSW WC-SQU W-13 should receive no protection.

The Council notes that LSW S-GOO W-2 and S-WIL W-16 cover commercial and residential areas east of Highway 99W near Kiger Island Drive within the Corvallis Urban Fringe. This land is also needed for neighborhood commercial and medium and low-density residential development. This area is needed to provide neighborhood shopping and other services, as well as affordable housing near employment. Loss of this land from the residential and commercial inventory would make it more difficult for industrial employees to live near their places of employment and to shop in the immediate neighborhood – with accompanying adverse social and economic consequences. For these reasons, Benton County and Corvallis decision-makers have determined that no protection should be provided for LSW S-GOO W-2 and S-WIL W-16.

The Council notes that draft Chapter 4.11, Minimum Assured Development Area, provides a graduated program to ensure that each non-residential building site in Corvallis has a buildable area – even if a protected natural resource area exists on a site (i.e., even if draft Chapter 4.12, Significant Vegetation, and 4.13, Riparian Corridors and Locally Significant Wetlands, apply).

The Council notes that the MADA for lands with either residential or non-residential zoning is calculated by multiplying the acreage of the site by the MADA percentage for each District. If a site contains multiple Development Districts, the base MADA for each district is determined, then the total base MADA equals the sum of the base MADAs of all the districts.

The Council notes that MADA provisions can be applied to both residential and non-residential areas. The base MADA for the Seavey Meadows site provides at least seven acres of developable area.

The Council notes the base MADA of a non-residential (commercial retail, office, industrial, and public) district allows for the integration of natural resource areas into the design of industrial, commercial and public developments. For example, by protecting a portion of a significant vegetation area, an office site is still buildable, and trees will remain on the site for the benefit of office workers and customers. This allows the positive economic and social benefits outlined under the "full protection" option to be realized without the negative economic and social consequences associated with this option.

The Council notes that taken together, MADA provisions are extremely effective in ensuring an adequate supply of buildable land for employment purposes and ensuring that protected natural areas receive some protection while allowing for integration of natural resource areas into the overall project design. The result of the MADA is to increase substantially positive economic, social, and energy consequences, while limiting adverse environmental consequences.

The Council notes that the determination of land need was included as part of the Buildable Land Inventory (BLI) in 1998, using 1996 land use data. Since that time, 31percent of the assumed 20-year growth has occurred and 31percent of the need has been accommodated. Consequently, the remaining needed acreages are 69percent of the original BLI figures.

The Council notes that these figures show a surplus of 29 acres in the Commercial CB/MUC category, a deficit of 132 acres in the Office category, a surplus of 963 acres in the Heavy Industrial GI/GIO/II/MUT category, and a surplus of 106 acres in the Light Industrial LI/LIO/RTC/MUE category.

The Council notes that the buildable land supply of employment land is not affected by natural feature constraints except for the "Office" category. the supply of buildable land zoned for Office already shows a deficit of 131 acres according to the 2004 Buildable Lands Inventory. Natural feature constraints that occur due to the limited protection program account for an additional 1-acre deficit in this category.

The Council notes that since the Corvallis UGB contains nearly 1,100 acres of surplus land in other employment categories, the total 132-acre deficit of Office land can be made up through re-allocation of other employment lands to the Office category, or by allowing/accounting for Office development on other employment lands. the additional 1-acre deficit in Office that is a result of natural feature constraints can be accounted for when dealing with the overall Office deficit.

The Council notes that there is still sufficient and suitable employment land available in the Corvallis UGB under the Limited Protection Program to remain compliant with Goal 9.

The Council notes that the environmental consequences of not providing Goal 5 protection for S-MAR W-3 and W-16 are not substantial, despite the large size of the wetlands. Together, they comprise 254 acres of industrial land north of the airport. As noted, these LSWs are ranked as "locally-significant" *only* because they are located within ¼ mile of the Mary's River. The wetlands have been farmed for many years.

The Council notes that the environmental consequences are moderate for the decision not to protect portions of S-GOO W-2 and S-WIL W-5. these large LSWs have 89 acres and are located on residential and commercial land west of the Willamette River and east of Highway 99W. These LSWs have degraded water quality and hydrological functions, but one has high enhancement potential.

The Council notes that the environmental consequences are substantial for removal of WC-SQU W-13. This large LSW has 69 acres, is associated with Dunawi Creek, and is characterized by diverse wildlife habitat and intact water quality function. However, from information presented by the property owner, it appears to have been entirely man-made.
Goal 9 Conclusion

The Council finds that the Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) preserves the industrial land supply within the Corvallis UGB through a decision not to protect some 400 acres of relatively low quality LSWs located in industrial and commercial areas. The adverse environmental consequences of this limited protection decision are offset by the positive economic, social, and energy consequences of preserving industrial job opportunities within the Corvallis UGB.

The Council finds that the limited protection program includes MADA provisions that allow each industrial, commercial, and office site to develop for uses allowed in the applicable base zone(s) while integrating remaining natural resource areas into the project design.

The Council finds that the limited protection program avoids the extremely adverse consequences associated with the full and no protection options, provides sufficient and suitable industrially- and commercially-zoned lands, and is therefore consistent with the requirements of Goal 9.

Goal 10: Housing

The Council notes that Goal 10 requires Corvallis to provide sufficient buildable land within its UGB to meet long-term housing needs, as defined in the Corvallis Comprehensive Plan and ORS 197.303.

The Council notes that providing affordable housing opportunities in well-designed and livable neighborhoods is a primary consideration in the Comprehensive Plan Residential neighborhoods are integrated with, rather than distinct from, significant urban natural resources.

The Council notes that the Comprehensive Plan envisions balanced and diverse neighborhoods, incorporating mixed-use, that is accessible to residents without driving. Neighborhoods can be defined by the characteristics of neighborhood identity, pedestrian scale, diversity, and the public realm. these characteristics are protected and enhanced in existing neighborhoods and are included in the design of new neighborhoods.

The Council notes that the Comprehensive Plan envisions most neighborhoods as having a clear center or focus and a well-defined edge. the focus may contain shopping, services, and small businesses or a civic facility such as a park, school or satellite post office. Community and civic buildings add identity to the neighborhood. the boundary or edge of the neighborhood is defined by topography, open space, or major streets.

The Council notes that livability is of primary concern for maintaining healthy neighborhoods. Corvallis residents determine livability by the quality of the schools, the safety and security of citizens and their property, an accessible and reasonably priced health care system, diverse and attractive neighborhoods, environmental cleanliness, sustainability, opportunities for continuing education, a healthy economy that provides choices of goods and services, quality employment opportunities, and visual and physical access to open space. Livability is specifically measured by benchmarks that are regularly updated by the citizens.

The Council notes that Corvallis the Comprehensive Plan encourages a diverse population and approves growth to the extent that the essential features of compact livability are maintained. Neighborhoods offer a wide variety of available housing choices and costs. Corvallis strives to maintain housing opportunities and prices similar to other Oregon cities of comparable livability. Corvallis is considered a highly desirable place to live. Because of diverse housing opportunities all within safe, attractive neighborhood settings; convenient shops and services; excellent transportation choices; a clean, quiet environment; easy access to open space and recreation; and a strong sense of community,

The Council notes that the Goal 10 analysis applies to land that is designated for Low, Medium, and High Density residential uses, and for mixed use, in the Corvallis Comprehensive Plan. The primary concern is that Corvallis must maintain an adequate supply of land to meet projected housing needs for each needed housing type. If land is removed from the residential buildable lands inventory to protect resources, and the supply falls below the needs for any "needed housing type" as projected in the Corvallis Comprehensive Plan or as required by state statute, then Goal 10 compliance is jeopardized.

The Council notes that Corvallis' stated vision of achieving livable and affordable residential neighborhoods – neighborhoods that are framed by open space and integrated with the natural environment – is of equal importance. The balancing that has occurred throughout the Natural Features Project and in the ESEE analysis is specifically designed to resolve potential conflicts among affordable housing, good urban design, and conservation of significant natural resources in an urban context.

The Council notes that the environmental consequences of the full protection option would be highly positive for reasons stated in the Goal 5 section of this chapter. Most of the land in the Corvallis Natural Features Inventory – consisting of a mosaic of wetlands, riparian corridors, and significant vegetation – is located on land planned and zoned for residential use. By prohibiting all types of residential development, including site preparation (vegetation removal and grading) and construction of supporting public facilities and services, this inter-connected mosaic of resources would remain largely intact. Thus, the system of natural resource polygons within the Corvallis UGB would function much like the McDonald Forest: it would continue to provide an abundance of forest resources that would not be threatened by urban encroachment.

The Council notes that the environmental consequences of allowing all residential uses without restriction would be extremely negative for the same reason; the vast majority of Corvallis significant natural resource polygons is located on land planned and zoned for residential use. Unrestricted residential development would result in loss of the wetland, riparian, and significant vegetation functions and values described in the Natural Features Inventory and in the Goal 5 section of this report. This option would also violate the strong environmental conservation policies found in the Corvallis Comprehensive Plan.

The Council notes that neither the "full protection" nor the "no protection" options achieves the neighborhood balance envisioned in the Comprehensive Plan. Full protection of all significant natural resources would increase housing costs substantially and would retain large tracts of resource land that would be distinct from, rather than integrated with, urban neighborhoods.

The Council notes that because most significant natural resource polygons considered in the Corvallis Natural Features Inventory are located on land planned for residential use, the economic consequences of full resource protection for property owners, developers, and existing and future residents would be highly adverse. Since raw residential values in Corvallis are in the $200,000 per acre range, the full protection option would have extremely adverse effects on property owners and on developers' ability to provide affordable housing opportunities. Although the City has a large supply of buildable land available to meet housing needs over the next 20 years, the full protection option would limit the City's ability to provide for most types of needed housing as required by Goal 10. Large areas of otherwise buildable land would be off-limits to development, which would decrease the supply of land available for housing and would drive up housing costs for existing and potential residents of the area. Moreover, the full protection option would

make it impossible to extend public facilities and services necessary to support needed housing, in violation of both Goals 10 and 11.

The Council notes that the full protection option also would have negative economic consequences for many property owners. While the benefits of significant vegetation would be preserved, prohibiting housing in all resource areas would deprive some property owners of reasonable economic use of their land. On developed properties, replacement of – or additions to – existing homes within resource sites would not be permitted under the full protection option. For vacant residential lands, full protection of significant vegetation resources in Corvallis could severely impact the dwelling unit potential of these lands, or eliminate development potential entirely.

The Council notes that the full protection option would have a number of positive economic impacts. Economists, ecologists, and urban forestry researchers have documented a wide range of economic benefits that natural open space provides to local communities. These benefits are better achieved when urban natural resources are integrated into the design of neighborhoods. Trees in particular add considerable value to existing and developing residential neighborhoods, both for neighbors and for individual property owners.

The Council notes that significant vegetation, riparian corridors, and LSWs contribute to the economic vitality and stability of a community by increasing property values. The values of houses in wooded neighborhoods have been shown to be higher than those of comparable houses in neighborhoods without trees.

The Council notes that natural resources can reduce housing costs by reducing the costs of stormwater infrastructure. For example, significant vegetation intercepts rainfall on leaves, branches, and trunks, and from there, the water evaporates (through evapotranspiration) or slowly soaks into the ground. Tree groves can provide significant rainfall interception. For this reason, trees (whether considered here as significant vegetation or riparian corridor vegetation) help to reduce stormwater runoff and lower the costs of stormwater management.

The Council notes that under the no protection option, the economic benefits described above would be lost. If significant natural resource areas were to receive no protection and are fully developed, there would be direct and profound adverse impacts on the community livability, a reduction in property values for those living near natural resource areas, and a substantial increase in stormwater management and energy costs that would be transferred to homebuyers and owners. Although some property owners would likely benefit financially if there were no limitations on housing development, there would also be serious adverse economic consequences associated with the no protection option.

The Council notes that to address the negative consequences of both the full and no protection options, Corvallis decision-makers have developed a this Comprehensive Plan Amendment as an implementation mechanism for a Limited Protection Program. This program consists of two parts.

- First, riparian corridors, LSWs, significant vegetation and mapped hazard areas generally are protected in residential areas. However, some areas of significant vegetation (especially Douglas fir groves in the Urban Fringe outside of mapped hazard areas) and some LSWs receive no protection in order to provide suitable and available land necessary for "needed housing" for existing and future UGB residents.

- Second, the community's ability to meet long-term housing needs is enhanced through MADA standards. These standards guarantee that each development site within Corvallis retains substantial buildable area.

The Council notes that the Limited Protection Program achieves the social and economic balance described in the Comprehensive Plan. By protecting highly significant riparian corridors, LSWs, and vegetation in residentially zoned areas, the urban design benefits of natural resources are achieved.

The Council notes that it has assessed the impact of this Comprehensive Plan Amendment (the Limited Protection Program) on residential land need and supply. This analysis looks at the "worst case" scenario. For the purposes of these calculations, highly-protected and partially-protected lands have both been treated as highly-protected to allow a conservative estimate of buildable lands to be determined. Proposed regulations allow for development on many of these lands through the use of provisions associated with partial protection and the MADAs. Finally, current regulations also constrain development to a large degree as a result of open space, setback, and natural features protection provisions.

The Council notes that the five-acre proposed development site in the Seavey Meadows Planned Development (N-SEQ-M70-1) would actually impact less than two acres of wetland, has been approved for development by the DSL, and much of this area has been previously disturbed during development activities that preceded current levels of wetland protection.

The Council notes that the BLI Land Need was developed in 1998 using 1996 land use data; however, since that time, 31percent of the assumed 20-year growth has occurred. Thus 31percent of the need has been accommodated. Consequently, the actual acreages needed are 69percent of the original BLI figures.

The Council notes that the Corvallis UGB contains substantial surpluses of residential land in every category except "High Density Residential" (HDR). there is a net surplus of 1,560 acres of Low Density Residential (LDR), 382 acres of Medium Density Residential (MDR), and 303 acres of Medium-High Density Residential and Mixed Use Residential (M-HDR+MUR). there is a one-acre overall deficit of HDR land. the buildable land supply for residential land is not affected by natural feature constraints in any category. Thus the one-acre deficit of HDR land is not related to the Limited Protection Program. In any case, this one-acre deficit can be accommodated by re-allocating an acre from another residential category.

The Council notes that therefore, there is still a sufficient supply of buildable land within the Corvallis UGB to meet long-term housing needs under the Limited Protection Program and remain compliant with Goal 10.

The Council notes that draft Land Development Code Chapter 4.11, Minimum Assured Development Area, is designed to treat property owners fairly, protect the most significant natural features, and increase housing affordability by maximizing efficiency of land use.

The Council notes that the MADA provisions are applied to both residential and non-residential areas. The base MADA of a residential district allows for the integration of natural resource areas into the design of residential developments. For example, by protecting a portion of a significant vegetation area, an apartment site is mostly buildable and trees will remain on the site for the benefit of future residents. This allows the positive economic and social benefits outlined under the "full protection" option to be realized – without the negative economic and social consequences associated with this option.

The Council notes that draft Chapter 4.11 provides a graduated program to ensure that each residential building site in Corvallis has a buildable area capable of providing at least that district's minimum density– even if a protected natural resource area exists on a site (i.e., even if draft Chapters 4.12, Significant Vegetation, and 4.13, Riparian Corridors and LSWs, apply). The MADA for lands with residential zoning is calculated by multiplying the acreage of the site by the Minimum Assured Development Area *per acre*. If a site contains multiple development districts, the base MADA for each district is determined. The total base MADA equals the sum of the base MADAs of all the districts.

The Council notes that many jurisdictions provide for density transfer to resolve conflicts between housing and natural resource conservation objectives. Corvallis is unusual in that its draft MADA provisions provide buildable land area and ensure that density transfer is effective.

The Council notes that to avoid or minimize development on portions of sites containing Significant Natural Resources, the land uses and development standards of the next most dense residential Development District may be used.

The Council notes that taken together, MADA provisions are extremely effective in ensuring an adequate supply of buildable land for residential purposes and ensuring that protected natural areas receive some protection while allowing for integration of natural resource areas into the overall project design. The result of the MADA is to increase substantially positive economic, social, and energy consequences, while limiting adverse environmental consequences.

The Council notes that the environmental consequences of this Comprehensive Plan Amendment (the Limited Protection Program, including the Land Development Code Text Amendment and the Legislative District Map Change) are mixed. On the one hand, limited protection protects riparian corridors and most significant LSWs. This program also protects highly significant vegetation such as oak savannahs, as well as moderately significant vegetation that overlaps with areas subject to severe natural hazards. Thus, limited protection does an excellent job of protecting most natural resources in an urban context, with largely positive environmental consequences.

Goal 10 Conclusion

The Council finds that the Comprehensive Plan Amendment (including the Land Development Code Text Amendment and the Legislative District Map Change) will maintain an adequate supply of buildable land for "needed housing" and will help to achieve the economic, social, and environmental values of the Comprehensive Plan as applied to urban residential neighborhoods. Consequently, the program is consistent with Goal 10.

Goal 11: Public Facilities and Services

The Council notes that Goal 11 reads in relevant part as follows:

> To plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. Urban and rural development shall be guided and supported by types and levels of urban and rural public facilities and services appropriate for, but limited to, the needs and requirements of the urban, urbanizable, and rural areas to be served. A provision for key facilities shall be included in each plan. Cities or counties shall develop and adopt a public facility plan for areas within an urban growth boundary ...
>
> A Timely, Orderly, and Efficient Arrangement – refers to a system or plan that coordinates the type, locations and delivery of public facilities and services in a manner that best supports the existing and proposed land uses.

The Council notes that public facilities and services include sanitary sewer, domestic water, stormwater management, municipal government, schools, police, fire, electrical, and

communication facilities. Park and recreational facilities and transportation facilities are addressed respectively in the Goal 8 and Goal 12 sections of this chapter.

The Council notes that public facilities and services provide the supportive framework necessary for urban development, and the provision of such facilities through the annexation process is the primary growth management tool.

The Council notes that public facilities and services often conflict with the full protection of significant resource areas. Construction of public facilities and services usually requires vegetation removal and grading and often results in construction of impervious surface area. As urban development occurs, an urban level of public facilities and services is required. Such services often must pass through significant resource areas to serve buildable land outside of such areas. Although facilities like sanitary sewer, water, electrical, and communication lines often are found in public street rights-of-way, sanitary sewer and stormwater management facilities function most efficiently under gravity-flow conditions and benefit from location in or adjacent to natural drainageways. Buildings, parking areas, and recreational / training structures associated with schools and fire stations conflict with Goal 5 resources in a manner similar to residential or commercial uses.

The Council notes that Corvallis has an acknowledged Public Facilities Plan (PFP) consisting of detailed master plans for sanitary sewer, domestic water, and stormwater management. These facilities are most likely to conflict directly with full natural resource protection because often there is no reasonable alternative to routing these facilities through natural areas to serve nearby buildable land. The specific locations of these conflicts are found throughout the urban growth area.

The Council notes that six schools in the Corvallis public school system have *potential* conflicts with significant Goal 5 resources.

The Council notes that the full protection option would have mostly positive environmental consequences because vegetation removal, grading, and construction of hard surfaces associated with public facilities would not be permitted. The positive environmental consequences of fully protecting all significant 5 resource areas is discussed in the Goal 5 section of these findings. The possible exceptions are stormwater management and sanitary sewer facilities. Depending on topographical and soil conditions, complete avoidance of natural resource areas in the construction of stormwater and sanitary sewer lines could impair the functionality of these urban facilities, with corresponding environmental problems. Pump stations and extensive excavation outside of natural areas might also be required, which could impair water quality and increase energy consumption and attendant pollution.

The Council notes that the no protection option would mean that public facilities and services would be allowed without restriction or mitigation on, through or under natural

resource sites throughout the urban growth area. Such unregulated construction could adversely affect site hydrology, significant vegetation, wildlife habitat, scenic values, and water quality. This option would mean that no protections would be provided for significant tree resource sites or their respective impact areas. Years of community work toward building sustainable urban natural areas and developing a balanced approach to conserving such resources would be severely compromised.

The Council notes that Corvallis' growth management program depends primarily on ensuring that the full range of public facilities and services is available to support urban development. This program has substantial social and economic benefits to Corvallis citizens and businesses. The growth management program helps to ensure an adequate supply of serviced industrial, commercial, residential, and public lands (with associated job opportunities). The growth management program also ensures that local shopping and services are available to residential areas, as are quality housing in well-designed neighborhoods, good and accessible schools, potable water, and adequate sanitation. By managing the direction and timing of growth, the public costs of providing public facilities and services are reduced.

The Council notes that the full protection option would make Corvallis' growth management program difficult to achieve. This option would mean that no public facilities construction or maintenance could occur within protected significant natural resource areas. Since significant natural resource areas comprise a substantial portion of the land within the UGB, avoiding such areas would preclude the efficient provision of public facilities and services that are necessary to support planned urban development. The economic and social costs to the public resulting from a different form of "leap-frog" development would be extremely high.

The Council notes that for example, schools would be unable to expand into natural areas under any circumstances. Sanitary sewer and water services would be required to be routed around natural resource areas, regardless of public or private expense. This option would severely restrict future development patterns, both public and private, as roads and utilities could not be extended through resource areas. Corvallis' quality-of-life and its appeal as a place to locate business would suffer substantially.

The Council notes that Corvallis' public facilities – particularly its parks, schools, and tree-lined streets – are an important part of the community's identity. Fully protecting all significant natural resource areas would severely restrict urban growth and urban design options. Housing costs would increase dramatically, and job opportunities would be lost, with attendant social and economic impacts. Conversely, allowing unrestricted development of the sites would mean the loss or degradation of many of the economic benefits described previously that result from natural resource protection.

The Council notes that the full protection option would have at least one significant economic benefit. Significant vegetation, riparian corridors, and LSWs provide substantial

stormwater management benefits because they intercept or detain rainfall and reduce stormwater runoff. Unrestricted removal of trees to develop public facilities and schools will reduce the City's "green" stormwater infrastructure, necessitating the construction of extensive new facilities to address the increased storm flows. However, as noted above, these benefits can derive from the limited protection program as well.

The Council notes that unlike the full protection option, the limited protection program allows the construction of public facilities and services that are necessary to support planned urban development, consistent with Statewide Planning Goal 11. The implementation tools for this Comprehensive Plan Amendment, draft Land Development Code Chapters 4.5 (Natural Hazards), 4.12 (Significant Vegetation), and 4.13 (Riparian Corridors and LSWs), have provisions to allow public facilities and services necessary to support permitted developments on buildable lands.

The Council notes that each of these draft chapters allows for maintenance of existing public facilities and for emergency repairs.

The Council notes that public facilities and services are also permitted where consistent with adopted master plans. Finally, public facilities and services necessary to support permitted development may be approved, subject to an alternatives analysis that shows why the facility cannot be built outside of protected areas, and that provides mitigation for lost vegetation. In Hillside and Floodplain areas, supporting public facilities are permitted where consistent with adopted plans, or subject to an alternatives analysis, engineering safety standards, and grading or vegetation mitigation.

The Council notes that draft Land Development Code Chapter 4.11, Minimum Assured Development Area (MADA), has provisions recognizing that the cost of providing public facilities that will benefit the public should not be borne exclusively by private property owners.

The Council notes that the Corvallis Comprehensive Plan includes numerous policies to protect riparian corridors, wetlands, and forested hillside areas. Over the years, as public facilities master plans have been developed, Corvallis decision-makers have applied these policies to the location of needed public infrastructure. In this manner, many conflicts have been avoided or minimized in past planning decisions.

The Council notes that for reasons stated in the Goal 11 section of these findings, there are many instances where public facilities and services must be routed through protected natural resource areas to serve buildable lands. Draft Land Development Code Chapters 4.5, 4.11, 4.12 and 4.13 allow public facilities and services to be constructed in protected natural resource areas. Such construction will have limited adverse environmental consequences.

The Council notes that potential adverse environmental consequences are reduced by mitigation requirements related to grading and vegetation removal that are also found in draft Chapters 4.5, 4.12 and 4.13. Therefore, the cumulative impact from public facilities construction and maintenance within protected natural resource areas will not be substantial.

The Council notes that any negative environmental consequences from the limited protection program are more than offset by the positive economic and social consequences associated with the efficient provision of public facilities and services required by Corvallis Comprehensive Plan policies and Statewide Planning Goal 11.

The Council notes that the public facilities provisions found in draft Chapters 4.5, 4.11, 4.12, and 4.13 reinforce the role of public facilities in Corvallis' growth management program, and achieve the balance between the urban development and resource conservation objectives found in the Corvallis Comprehensive Plan. By allowing public facilities and services to be constructed and maintained within significant natural resource areas, subject to mitigation standards, the negative social and economic consequences described earlier in this section can be avoided.

Goal 11 Conclusion

The Council finds that the Comprehensive Plan Amendment (including its implementation through the Land Development Code Text Amendment and the Legislative District Map Change) ensures that Corvallis can continue to provide key public facilities and services necessary to support planned urban growth in a timely and efficient manner consistent with the requirements of Goal 11. This Goal 11 requirement is underscored by the policies of the Corvallis Comprehensive Plan, and serves as the cornerstone for managing urban growth within the Corvallis UGB. the consequences of allowing public facilities to be constructed without restriction, or of prohibiting public facilities construction and maintenance in all protected natural resource areas, would be extremely negative.

Goal 12: Transportation

The Council notes that Goal 12 reads in relevant part as follows:

> To provide and encourage a safe, convenient and economic transportation system.
>
> A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental

impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

The Council notes that the Comprehensive Plan supports Statewide Planning Goal 12 by recognizing Corvallis' role in the regional transportation system and the importance of an interconnecting system of local streets.

The Council notes that Goal 12 requires that local governments plan for a multi-modal, interconnected transportation system. Goal 12 reinforces the Goal 5 requirement to consider the ESEE consequences of providing transportation facilities to meet this goal. Corvallis has an acknowledged Transportation System Plan (TSP) that identifies pedestrian, bicycle, and vehicle projects, as well as their estimated timing, location, and cost.

The Council notes that all transportation facilities conflict to some degree with full protection of significant natural resource areas. Like other public facilities and services, transportation facilities and their impacts vary widely – from multi-lane state highways to pervious-surfaced pedestrian trails. Local streets necessary to serve development are not necessarily shown on TSP maps, but may also have adverse impacts on significant natural resources.

The Council notes that most of the Goal 11 analysis applies equally to planned transportation facilities. The full protection option would preclude a multi-modal, interconnected transportation system, would decrease pedestrian and bicycle use, and would result in substantial out-of-direction travel. With diminished bicycle and pedestrian accessibility, transportation costs would increase and neighborhoods would become more auto-dependent. Full protection of resources in right-of-way areas could stop planned widening of Corvallis streets and planned development of new roads. This would make the City and County noncompliant with Goal 12, as their joint Transportation Systems Plan could no longer be implemented.

The Council notes that there are a number of benefits related to a multi-modal transportation system, which include:

- Reduced traffic congestion and air pollution improve community livability.
- Less traffic reduces the need for additional, expensive roadway construction projects.
- Fewer vehicles on the road means less land is needed for parking facilities, allowing it to be used for open space or commercial and residential development.
- Walking, bicycling and skating can improve health and well-being.

The Council notes that 95 percent of Corvallis' major streets have bicycle lanes.

The Council notes that the full protection option would preclude the City from constructing new bicycle lanes through significant natural resource areas as growth occurs. This would have substantial adverse social consequences for existing and future area residents and businesses.

The Council notes that the no protection option would allow for transportation facilities to be constructed through natural resource areas without considering alternatives and without mitigation. This could have substantial adverse impacts on the functions and values of Goal 5 natural resource areas, as described in the Goal 5, 6 and 7 sections of this chapter. The no protection option would also adversely affect the quality of residential neighborhoods, with adverse social consequences.

The Council notes that as with other public facilities, Corvallis carefully considered the consequences of proposed transportation projects when it developed its Transportation Systems Plan. The TSP was developed consistent with Corvallis Comprehensive Plan policies to protect riparian corridors, wetlands, and forested hillsides while providing for a multi-modal system of inter-connected streets. In this manner, many of the adverse environmental, social, and economic consequences of the full and no protection scenarios (described throughout this chapter) were avoided or minimized.

The Council notes that the limited protection program avoids the two extremes represented by the full and no protection options by allowing for planned transportation improvements consistent with the TSP. The implementing measures for this Comprehensive Plan Amendment, draft Land Development Code Chapters 4.5 (Natural Hazards), 4.11 (MADA), 4.12 (Significant Vegetation) and 4.13 (Riparian Corridors and LSWs), allow for trails, maintenance of public transportation facilities, and construction of local transportation facilities where necessary to support and connect permitted development on buildable land. Draft Chapters 4.5, 4.12 and 4.13 include engineering and mitigation requirements to ensure that adverse environmental impacts are minimized.

The Council notes that by allowing needed transportation facilities on a limited basis with mitigation, the Land Development Code Text Amendment and the Legislative District Map Change allows for the full implementation of the Transportation Systems Plan with minimal adverse environmental impacts.

Goal 12 Conclusion

The Council finds that Goals 5 and 7 of the Natural Features Project continued the balancing effort that occurred when Corvallis developed and adopted its Transportation Systems Plan (TSP). By allowing for the maintenance and expansion of existing

transportation facilities, and the improvement of planned facilities with mitigation, adverse consequences are minimized, and the requirements of Goal 12 can be achieved.

The Council finds that the Comprehensive Plan Amendment is consistent with the City's acknowledged Transportation System Plan and the requirements of Goal 12.

Goal 13: Energy Conservation

The Council notes that Goal 13 reads as follows:

> To conserve energy. Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles.

The Council notes that one of the four key consequences that must be considered in the Goal 5 ESEE analysis process is "energy consequences." Energy conservation is a theme that runs through several of the Statewide Planning Goals. Energy consequences must be explicitly considered under Goal 5 (Natural Resources), Goal 9 (Economy), Goal 12 (Transportation), Goal 13 (Energy Conservation) and Goal 14 (Urbanization). Evaluation of energy consequences is also implied in the notion of "efficient" public facilities planning. These findings consolidate the consideration of energy consequences related to all applicable statewide planning goals into this section.

The Council notes that the full resource protection option *in an urban context* conflicts with key planning principles in the Corvallis Comprehensive Plan and in several Statewide Planning Goals. This conflict is especially evident with respect to Goal 13, Energy Conservation. The following list summarizes adverse energy consequences (i.e., increased energy consumption) that would result from implementation of the full resource protection option within the Corvallis UGB:

> Goal 5 (Natural Resources). The full protection option means that all significant natural resource areas are preserved, including (a) several hundred acres of vegetated subpolygons located outside of riparian corridors, and (2) several hundred acres of marginally significant wetlands. Full protection of these lands has the effect of creating a type of "leap-frog" development, because urban services must pass over or around undeveloped natural resource areas to reach buildable areas in the Urban Fringe. As noted below, this effect – coupled with the inability to construct urban facilities through natural resource areas – would have the unintended consequence of substantially increasing energy consumption.
>
> Goal 8 (Parks and Recreation). The full protection option would make it impossible to develop or access park and recreational facilities inside the Corvallis UGB. Even in natural areas, trails, access roads, and parking areas would be prohibited. Without such local facilities, area residents would be forced to drive long distances

to reach park and recreational facilities, with attendant increases in energy consumption.

Goal 9 (Economy). The full protection option would substantially reduce the supply of industrial and commercial land available for development, with attendant reductions in (a) local shopping and service opportunities, and (b) jobs. These reductions would force people to drive further to reach local shopping and service destinations and employment, and people would be less likely to bike or walk to work, with attendant increases in energy consumption.

Goal 10 (Housing). The full protection option would increase *total* housing costs. Total housing costs include transportation and energy costs, and the costs of services like sewer, water, and storm drainage. Under the full protection option, the buildable land supply within the UGB would be reduced, the costs of providing public facilities to serve new housing areas would increase, and travel distances to housing would increase as well – resulting in overall increased housing costs. This can create a vicious cycle that has been observed in most urban areas throughout the country. To reduce direct housing costs, people are willing to drive further, with attendant increases in energy consumption. Thus, an important consideration in maintaining an affordable housing supply is to maintain a buildable land supply near the urban center, which has the effect of reducing the need to drive an SOV with attendant energy savings.

Goal 11 (Public Facilities). The full protection option would require public facilities to be routed around natural resource areas, which would increase energy needed to construct and maintain more dispersed public facilities. This option would likely require the use of pump stations because gravity flow sewer would be impossible if all sewer lines needed to be located outside of natural drainage areas. This option could also preclude construction of higher elevation water storage reservoirs in natural resource areas, leading to increased consumption from booster pumps. Emergency services would be more expensive to provide, and fire, police, and ambulances would be required to serve a more dispersed area, thus consuming more energy. The effect of this form of "leap-frog" development" would be to substantially increase energy costs associated with the provision of key public facilities and services.

Goal 12 (Transportation). As noted in the Goal 12 discussion, the full protection option would make implementation of the TSP impossible. The TSP calls for a multi-modal, interconnected systems of streets, pedestrian and bicycle facilities, and transit facilities. If the TSP could not be implemented, people would be more reliant on SOVs, there would a substantial increase in out-of-direction travel, and energy consumption would increase dramatically.

Goal 14 (Urbanization). Finally, the full protection option would result in a less compact urban form, which would disperse housing, jobs, and parks, and force even more reliance on SOVs. Passing over otherwise buildable areas to achieve full resource protection would mean premature expansion of the UGB, a consequent loss of agricultural land to provide produce to urban consumers. the lack of a compact urban form would have direct and adverse impacts on energy consumption.

The Council notes that there are, however, positive energy consequences associated with the full protection option. Urban areas typically are warmer than rural areas because of the urban "heat island" effect. Buildings, paved areas, sparse tree canopy, and lack of water in an urban area contribute to the higher temperature. Trees can help mitigate the heat island effect, and thereby reduce energy costs, by shading buildings and cooling the air through the evaporative process of transpiration.

The Council notes that research by the USDA Forest Service and others has shown that trees strategically located to shade homes can reduce air conditioning bills significantly. Trees reflect and absorb solar radiation before it heats the dense building and pavement materials of a home or office. Trees planted to the west of a building can significantly reduce air conditioning costs by blocking the hot afternoon sun during summer. Trees located to the south or east of a building can also provide such benefits, though to a lesser extent.

The Council notes that in the winter, trees can also help reduce energy costs associated with the heating of buildings. Researchers have found that trees act as windbreaks, reducing wind speed and resulting air infiltration. This can reduce air infiltration and conductive heat loss from buildings, lowering heating costs. The density of the trees, species and location of tree, type of building, and the local climate determine the amount of wind reduction that occurs. Although both conifers and deciduous trees reduce wind speed, conifers tend to have a greater impact during winter months.

The Council notes that reduced energy needs for air conditioning or heating will mean that local power plants are not required to produce as much electricity or gas energy, and this conserves fossil fuels and reduces pollution, including carbon emissions. By providing shade over roads, sidewalks, park and school buildings and parking lots, trees in natural areas reduce the urban heat island effect. Removal of these resources can have significant adverse effects on energy consumption (and costs) and air quality.

The Council notes that in contrast, the no protection option would allow for the efficient provision of urban facilities and services, more affordable (but less desirable) housing, a more compact growth form, and attendant reductions in energy consumption. However, as noted in the Goal 5-10 sections of these findings, the no protection option would have extremely negative environmental, social and economic consequences.

The Council notes that the key features of the Limited Protection Program that ameliorate the excesses of the full protection program include the following:

Goal 5 (Natural Resources). Rather than protecting all significant natural resource areas, the Limited Protection Program would not apply Goal 5 protection to (a) several hundred acres of vegetated subpolygons located within Wildlife Habitat Areas but outside riparian corridors and hazard areas, and (b) several hundred acres of marginally significant wetlands. This reduction in protected resource area greatly reduces the "leap-frog" development effect, because urban services no longer need pass over undeveloped natural resource areas to reach buildable areas in the Urban Fringe. This reduction – coupled with the ability to construct urban facilities through natural resource areas – allows a compact urban form that will result in energy conservation.

Goal 8 (Parks and Recreation). The Limited Protection Program would make it possible to develop and access park and recreational facilities inside the Corvallis UGB. In natural areas, trails, access roads and parking areas would be allowed with mitigation, thus allowing area residents the opportunity to walk, bicycle, or drive to local park and recreational facilities, with attendant energy savings.

Goal 9 (Economy). The Limited Protection Program would maintain the supply of industrial and commercial land available for development, thus maintaining (a) local shopping and service opportunities, and (b) jobs. These CHANGES allow people convenient access to local shopping and service destinations and employment, thus increasingly the likelihood that people will bike or walk to work, with attendant energy savings.

Goal 10 (Housing). The Limited Protection Program would decrease *total* housing costs by maintaining the buildable land supply within the UGB, thereby reducing the costs of providing public facilities to serve new housing areas, and reducing travel distances to housing. This can undo the vicious cycle that has been observed in most urban areas throughout the country. Thus, an important consideration in maintaining an affordable housing supply is to maintain a buildable land supply near the urban center, which has the effect of reducing the need to drive single-occupancy vehicles with attendant energy savings.

Goal 11 (Public Facilities). The Limited Protection Program would allow public facilities to be routed through natural resource areas, which would decrease energy otherwise needed to construct and maintain more dispersed public facilities. This program would reduce the need for sewer pump stations because gravity flow sewer would be more feasible in many cases. This program could also allow construction of higher elevation water storage reservoirs in natural resource areas, thus decreasing the need for booster pump stations. Emergency services would be less expensive to provide, because fire, police, and ambulances could serve a more

concentrated area, thus consuming less energy. The effect of this form of concentrated development would be to substantially decrease energy costs associated with the provision of key public facilities and services.

Goal 12 (Transportation). As noted in the Goal 12 discussion, the limited protection program would make implementation of the TSP possible. The TSP calls for a multi-modal, interconnected systems of streets, pedestrian and bicycle facilities, and transit facilities. If the TSP could not be implemented, people would be more reliant on SOVs, there would a substantial increase in out-of-direction travel, and energy consumption would increase dramatically.

Goal 14 (Urbanization). Finally, the limited protection program would result in a more compact urban form, which would concentrate housing, jobs, and parks, and force less reliance on SOVs. By building at urban densities in otherwise buildable areas, the limited protection program achieves a reasonably high level of resource protection while avoiding premature expansion of the UGB and consequent loss of agricultural land. A compact urban form would have direct and positive impacts on energy conservation.

The Council notes that the limited protection program also maintains or improves upon the positive energy conservation effects of the full protection option. By protecting significant riparian corridors and vegetation near urban development, there will be a consequent reduction in summer air conditioning and winter heating costs and a reduction in the urban "heat island" effect.

Goal 13 Conclusion

The Council finds that by protecting riparian corridors, most LSWs and most significant vegetation, the limited protection program achieves most of the positive energy consequences of the full protection option while enhancing energy conservation by encouraging a compact urban form and efficient provision of public facilities and services. The limited protection program achieves an appropriate balance between energy and natural resource conservation, and thus, this Comprehensive Plan Amendment is consistent with the requirements of Goal 13.

Goal 14: Urbanization

The Council notes that Goal 14 reads in relevant part as follows:

> To provide for an orderly and efficient transition from rural to urban land use. Urban growth boundaries shall be established to identify and separate urbanizable land from rural land. Establishment and change of the boundaries shall be based upon considerations of the following factors:

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

The results of the above considerations shall be included in the comprehensive plan.

Conversion of urbanizable land to urban uses shall be based on consideration of:
(1) Orderly, economic provision for public facilities and services;
(2) Availability of sufficient land for the various uses to insure choices in the market place;
(3) LCDC goals or the acknowledged comprehensive plan; and,
(4) Encouragement of development within urban areas before conversion of urbanizable areas.

The Council notes that Goal 14 is intended to ensure a long-term supply of buildable land to meet housing, population and livability (open space) needs. Growth management policies are designed to ensure orderly and efficient provision of public facilities and services (as does Goal 11), maximum efficiency of land use within the UGB, provision of sufficient serviced land to maintain a competitive land market, and a geographically-phased land development program.

The Council notes that Corvallis and Benton County have adopted a growth management program that meets these objectives. There is sufficient buildable land within the UGB to meet long-term growth needs. Geographic phasing of urban development is assured in Corvallis by requiring that key urban services be available before annexation of land and subsequent urban development may occur. Maximum efficiency of land use is assured by (a) maintaining large lot sizes or clustered development in Urban Fringe areas, while (b) encouraging higher density urban development once land has been annexed to the City.

The Council notes that the one area where Corvallis' growth management program may have been less effective is ensuring choice in the urban land market.

The Council notes that the consequences of the full and no protection option on the effectiveness of Corvallis' growth management program were analyzed in the Goal 9, 10, 11, 12 and 13 sections of this chapter. Basically, the full protection option has the effect of reducing land use and public facilities efficiency, increasing housing costs, decreasing

job potential, and decreasing transportation connectivity. These factors combine to increase energy consumption. The no protection option has substantial adverse consequences as well.

The Council notes that this Comprehensive Plan Amendment (implemented through the Limited Protection Program) complements and improves the Corvallis growth management program in the following ways:

- The Natural Features Project precisely maps significant and protected natural resources and hazards, thus increasing certainty in the land development and urbanization processes.
- The implementing measures in draft Land Development Code Chapters 4.5 (Natural Hazards), 4.12 (Significant Vegetation) and 4.13 (Riparian Corridors) provide clear and objective standards for mapping and protecting natural features. these chapters also clarify the circumstances under which public facilities and services necessary to support urban development will be permitted, thus creating even greater certainty in the land development and urbanization processes.
- Draft Land Development Code Chapter 4.11 (MADA) includes incentives to maximize land use efficiency by allowing "minimum assured development areas" on each parcel within the UGB. The draft MADA Chapter provides additional incentives to use land efficiently by granting automatic density increases and dimensional adjustments to meet the twin objectives of (a) preserving natural resource areas, and (b) increasing intensity of land use on remaining buildable areas of a site.

Goal 14 Conclusion

The Council finds that the positive consequences of Corvallis' growth management program and the limited protection program associated with this Comprehensive Plan Amendment are addressed in detail in previous sections of these findings. The limited protection program builds upon and strengthens the positive consequences of the growth management program and is therefore consistent with the requirements of Goal 13.

Goal 15: Willamette River Greenway

The Council notes that Goal 15 reads in relevant part as follows:

> To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway... Developments shall be directed away from the river to the greatest possible degree; provided, however, lands committed to urban uses within the Greenway shall be permitted to continue as urban uses, including port, industrial, commercial and residential uses, uses pertaining to navigational

requirements, water and land access needs and related facilities; a setback line will be established to keep structures separated from the river in order to protect, maintain preserve and enhance the natural, scenic, historic and recreational qualities of the Willamette River Greenway, as identified in the Greenway Inventories. the setback line shall not apply to water-related or water-dependent uses.

The Council notes that in Corvallis and Benton County, Statewide Planning Goal 15 is implemented by acknowledged Comprehensive Plan policies and land use regulations.

The Council notes that the limited protection program associated with this Comprehensive Plan Amendment augments the City's acknowledged Willamette River Greenway provisions. *Chapter 3.30 WRG (Willamette River Greenway) Overlay District* has resolved conflicting urban development and natural resource values within the Willamette River Greenway setback area. Therefore, the consequences of the limited protection program are relatively minor.

The Council notes that within the existing Corvallis City Limits, the limited protection program is essentially the same as existing regulations for river floodplains.

The Council notes that implementation measures associated with this Comprehensive Plan Amendment, including Land Development Code Chapter 4.13 Riparian Corridor and Wetland Provisions, apply to most of the area also covered by the WRG Overlay District. The provisions of Chapter 4.13 are divided between the Highly-Protected Riparian Corridors (HPRC) and the Partially-Protected Riparian Corridors (PPRC), each of which provides a different level of protection. HPRCs and PPRCs are indicated on the *Riparian Corridors and Wetlands Map.* Generally, PPRCs are located where existing development exists along the river's edge and HPRCs are located where the river's edge is undeveloped. This can provide consistency between the WRG and Riparian Corridor provisions.

The Council notes that the requirements of the WRG Overlay will continue to be applied to properties identified on the District Map as falling within the Willamette River Greenway. Protections afforded by the provisions of Chapter 4.13 can reenforce the protections contained in Chapter 3.30- WRG (Willamette River Greenway) District Overlay. Cross references between the two chapters ensure that the State-mandated WRG protection program is not diminished by the Land Development Code Text Amendment and the Legislative District Map Change that ultimately implement this Comprehensive Plan Amendment.

The Council notes that with regard to Goal 15, there are no substantial energy consequences resulting from the limited protection program.

Goal 15 Conclusion

The Council finds that the added level of protection provided by the Comprehensive Plan Amendment, the limited protection program, within the undeveloped riparian corridor of the Willamette and Mary's River will have positive consequences, and the proposal is consistent with the requirements of Goal 15.

SUMMARY OF CONCLUSIONS

The City Council finds that there was ample opportunity for public review of the proposed Comprehensive Plan Text and Map Amendments (CPA04-00003), that the proposed CHANGES are consistent with the applicable Land Development Code and Comprehensive Plan criteria, and that the proposals are consistent with the applicable Statewide Planning Goals. Accordingly, the Comprehensive Plan Amendment (CPA04-00003) is APPROVED, subject to acknowledgment by the State Land Conservation and Development Commission and the review and approval of a final implementation order by the City Council.

_____ _____

City Recorder Mayor

Date:_____

Exhibit B

Natural Features Inventory

(was previously distributed to the City Council as
Exhibit A of the October 21, 2004, City Council staff report.)

Exhibit C

City of Corvallis

Local Wetland Inventory

DSL Final Approval

November 16, 2004

Prepared by

WINTER BROOK
COMMUNITY RESOURCE PLANNING

With

Pacific Habitat Services
Salix Associates
Ecotrust
Loverna Wilson
Paul Adamus

City of Corvallis
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Introduction

This Local Wetlands Inventory (LWI) is a part of the 2003 Corvallis Natural Resources Inventory. The LWI includes all wetlands within the Urban Growth Boundary (UGB) at least 0.5 acres in size and uses the standards and procedures of Oregon Administrative Rules (OAR) 141-86-110 through 141-86-240. The LWI also includes an assessment of the quality and function of the inventoried wetlands and a determination of their significance. The "significance" of a wetland is determined by state administrative rules for Locally Significant Wetlands (OAR 141-86-300 through 141-86-350). The *Oregon Freshwater Wetland Assessment Methodology* (OFWAM)[1] was developed by the Division of State Lands (DSL). The OFWAM results plus other factors in the administrative rules are used to determine whether or not a wetland meets the criteria for a Locally Significant Wetland (LSW).

The maps and documents produced for the LWI are intended for planning purposes only. The goal is to map wetland boundaries with an accuracy to within 25 feet. There may be unmapped wetlands that are subject to state and federal regulation. In all cases, actual field conditions determine wetland boundaries. Generally, a wetland delineation is needed prior to land alteration near a mapped wetland.

Wetlands and water resources in Oregon are regulated by the DSL under the Removal-Fill Law (ORS 196.800-196.990) and by the US Army Corps of Engineers (COE) through Section 404 of the Clean Water Act. When approved by DSL, the Corvallis LWI will become a part of the Statewide Wetlands Inventory (SWI), replacing the National Wetlands Inventory and earlier LWIs within the UGB.

A LWI provides greater detail and accuracy than the existing NWI and also includes a classification of all wetlands identified within a defined study area. An approved LWI is used by cities and counties in lieu of the NWI when notifying the DSL of land use applications that may affect mapped wetlands. An LWI also fulfills the wetland inventory requirements for Goal 5 of the Statewide Planning Goals and Guidelines related to protecting and conserving natural resources. Local governments administer local land use laws and ordinances to protect locally significant wetlands. Regardless of any local wetland protection program, the DSL and COE are still responsible for regulating activity in wetlands, whether they have been determined to be locally significant or not.

This report begins with a summary of wetland types and overall wetland acreages in the Corvallis LWI; it follows with a discussion of wetland functions and the methodology used to conduct the inventory fieldwork, and concludes with the results of the LWI. Data sheets accompanying this report include those for the OFWAM, the wetland determination data sheets, and the significant wetlands criteria.

[1] OFWAM methodology document may be reviewed at many public libraries or ordered through DSL.

Summary

Field work was conducted in the spring, summer, and fall of 2002, as well as the spring of 2003. Each wetland unit was assigned a unique code based on the watershed. A wetland characterization and wetland assessment was completed for each wetland unit. The wetland assessment was based on the OFWAM.

Two general types of wetlands were identified in the LWI for the Corvallis UGB. These have been identified on the maps as:

- Locally Significant Wetlands (LSW) – wetlands identified using the COE Wetland Delineation Manual Technical Report Y-87-1 and meeting the criteria for Locally Significant Wetlands in state rules (OAR 141-86-300 through 141-86-350) – see page IV-6 for criteria).
- Non-Locally Significant Wetlands (Non-LSW) – wetlands identified using the COE Wetland Delineation Manual Technical Report Y-87-1 but that did not meet the criteria for Locally Significant Wetlands in state rules.

One hundred and twenty-one (121) wetland units were identified in the project area. These wetlands cover approximately 2,593 acres, or 14 percent of the 17,965-acre Corvallis LWI study area (see Table 1). The average wetland size is approximately 21.4 acres.

Table 1. Local Wetland Inventory Summary (acres)

Wetland Type	Corvallis UGB	North	South	West Central
Locally Significant Wetlands (LSW)	1,270	312	415	500
Non-Locally Significant Wetlands	1,323	181	882	303
Total Wetland Acres	**2,593**	**493**	**1,297**	**803**
Average Size of Wetlands	21.4	20.5	30.9	14.6

All 121 wetland units were assessed using OFWAM. Sixty-three (63) wetlands were determined to be locally significant. These locally significant wetlands (LSWs) total 1,270 acres, or 49 percent of the total wetland area. The average size of a LSW is 20.2 acres. Of the LSWs, eleven are of Special Interest for Protection, due to the presence of known habitat for rare, threatened, or endangered plant species. Non-locally significant wetlands total 1,323 acres, or 51 percent of the total wetland area. The average size of a non-locally significant wetland is 22.8 acres.

The conclusion that just over half of Corvallis' wetlands do not meet LSW criteria can be largely attributed to the fact that large areas of wetlands are actively farmed. The non-locally significant wetlands may provide important functions, but do not meet the LSW criteria.

The most abundant wetland type by acreage is palustrine emergent farmed (65 percent), followed by palustrine emergent (16 percent), palustrine forested (10 percent), palustrine scrub shrub (8 percent), and palustrine open water (<1 percent).

Functional Values

Wetlands are "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (ORS 196.800(16)). Therefore, wetlands may include wet fields, swales or depressions, as well as bogs and marshes. They may be forested, grassy, or shrubby and may or may not have standing water in them. They can be located on slopes as well as adjacent to streams or in floodplains, and may be isolated or connected to other wetlands or surface waters.

Wetlands act as sources, sinks, or channels for energy and materials. A wetland may serve as a source area for a fishery, part of a corridor for animal migration, or as a sink area for water borne pollutants. Not all wetlands have the same ability to function as a source, sink, or channel. That depends on the wetland's physical and biological structure and location. Human disturbance can impair a wetland's function, and wetland enhancement can increase a wetland's ability to function (OFWAM, 1996).

Wetlands perform a variety of functions. For example, stormwater runoff during and following rain events can be naturally collected and stored, reducing the frequency and severity of downstream flooding and allowing for the filtration of floodwater. Stored water also contributes to the recharge of local groundwater, instead of allowing the water to flow away in drainage ditches and storm sewers. Wetlands contribute to fish and wildlife habitat by providing places of refuge and connectivity within otherwise developed areas. Wetlands also provide recreational and educational opportunities due to the fact they attract wildlife and provide a place for natural processes to be observed and enjoyed.

Wetlands in the Corvallis area are mostly sustained by precipitation that perches on the heavy clay soils common in the study area and from a high local water table in low-lying areas. These types of wetlands often recharge the groundwater system that feeds local streams. There are also wetlands that are derived more from groundwater or surface water. In the hills on the western edge of the study area, there are numerous seeps and springs that may be seasonal or perennial. Within the floodplains of Squaw, Oak, Jackson, and Frazier Creeks, wetlands may be subject to seasonal flooding, with shallow inundation in depressional wetlands or backwater channels of the creeks.

Methods

The Local Wetlands Inventory (LWI) was conducted according to the standards established under OAR 141-86-180 through 141-86-240 (adopted February 15, 2001). The wetland boundaries were identified using the COE Wetland Delineation Manual Technical Report Y-87-1 (Environmental Laboratory, 1987), which defines wetlands as requiring indicators of hydric soils, a dominance of hydrophytic vegetation, and wetland hydrology. When access to land was allowed, the wetland boundaries were verified in the field. If access was not granted, the boundaries were based on aerial photo interpretation, review of available information, such as the soil survey or previous inventories, and observations from adjacent roads or properties.

Two previous wetland inventories for the Jackson-Frazier Basin (1997) and the Squaw Creek Basin (1994) were field verified, with additional data collection and mapping if the land use had changed significantly from when the inventories were completed and if access was allowed. DSL-approved wetland delineations were incorporated into the wetland inventory and the boundaries were checked in the field where access was allowed. A list of previous delineations performed on Corvallis area wetlands is included in the appendices of this report.

Prior to beginning field work, the inventory team reviewed the Oregon Department of Environmental Quality (DEQ) 303(d) list of water quality limited streams, and Oregon Department of Fish and Wildlife (ODFW) essential salmonid habitat information. In addition, Pacific Habitat Services (PHS), a member of the inventory team, contacted Gary Galovich at ODFW to discuss other fish species that may be present in the Corvallis streams. This information was used in answering specific questions during the assessment. DEQ has listed the Willamette River and Marys River as water quality limited. Oak Creek, the Marys River, the Willamette River, the Mill Race, and lower Booneville channel are considered Essential Salmonid Habitat by ODFW. Most other creeks in the study area may have resident cutthroat trout, even in intermittent streams that have persistent pools. The lower reaches of all low gradient streams may also have juvenile chinook (Gary Galovich, pers. comm.).

Mapping

Off-site mapping of potential wetland areas was conducted prior to fieldwork to determine the approximate location of wetland boundaries. This mapping process included the review of the USGS topographic quadrangles, the Soil Survey of Benton County, the National Wetlands Inventory maps, wetland delineations approved by DSL, wetland inventories for Squaw and Jackson-Frazier watersheds, and 1998 digital orthophoto maps at a scale of 1-inch equals 200 feet. These potential wetlands were digitized into a GIS database and mapped for verification. In the field, stereo pairs of February 2002 black and white aerial photographs at a scale of 1 inch equals 600 feet were used as base maps, as well as the 1998 orthophotos. Final inventory maps were mapped on 2002 color aerial photos.

All wetlands were coded and data points numbered with a unique field code on field maps. The field maps were then digitized into the GIS system and re-coded.

Each wetland is assigned a code beginning with the Study Area (*e.g.* West Central, North or South), the three-letter stormwater basin designation from the City, a wetland designation letter, and a wetland number (*e.g.* WC-DIX-W-1 for a wetland in the West-Central area in Dixon Creek basin). Data points are numbered consecutively. For example a wetland data point within Dixon Creek basin may have a code such as DIX-W-20. The stormwater basins were determined by the City and in some cases, do not reflect the natural watersheds of the study area. Wetlands that consist of a mosaic or mix of wetlands interspersed with upland areas are noted by the letter "M" followed by a number that represents the portion of the resource area that is wetland. For

example, N-SEQ-M70-1 is a mosaic wetland that is 70% wetland and 30% upland. The mosaic wetlands are interspersed with upland areas so intricately that it is difficult to determine wetland boundaries without preparing a wetland delineation.

Field Methodology

Where property access permission was granted, on-site observation and inspection of soils, vegetation, and hydrology were made using the "Routine On-site method" of the 1987 delineation manual. Soil pits were excavated up to a depth of 18 inches in selected locations. The soil profiles were examined for hydric soils and wetland hydrology field indicators. The percent cover of the dominant species of the plant community for a maximum 30-foot radius was estimated at each sampling location. Sampling locations are chosen to document a change in the wetland boundary or individual plant community. No wetland boundaries were staked or flagged in the field.

During the process of identifying and mapping wetlands for the LWI, a field data sheet was used to answer the OFWAM questions. The data is entered into a spreadsheet form, which automatically determined if the wetland meets the criteria for Locally Significant Wetlands. In addition, observational and anecdotal data were collected for the purpose of completing the Wetland Characterization section of OFWAM.

Field surveys were conducted on-site where access permission was obtained. Where access was not obtained, assessments were "field verified" with observations from adjacent roads, public lands, or properties that had granted access. For difficult to observe sites, an off-site assessment was conducted using aerial photographs and existing data sources. If the wetland determination was off-site, the OFWAM section and wetland characterizations are based on review of the aerial photographs and knowledge of other similar or adjacent wetlands. Table 2 provides a breakdown between the on-site, field verified and off-site surveys for each resource.

Table 2. Analysis of On-site vs. Off-site Methods

Method	No. of Sites	%	Acres	%
On-site	56	46%	1,001	39%
Field Verified	43	36%	1,232	47%
Off-site	22	18%	360	14%

Wetland Quality Assessment

The quality and functions of wetlands in the study area were assessed using OFWAM. OFWAM determines the relative quality of six functions and three conditions for each of the wetlands. A description of each of the functions and conditions is included below.

Wetland Functions

Wildlife habitat: Evaluates the habitat diversity for species usually associated with wetlands, without emphasizing one particular species. Good plant community diversity increases animal community diversity. Structural diversity is also important. If several layers of vegetation are present, more diverse habitat types are available. OFWAM assessed whether wetlands provide diverse habitat for wildlife, provide habitat for some wildlife species, or provide no habitat function.

Fish habitat: Evaluates how a wetland contributes to fish habitat in streams, ponds or lakes associated with a wetland. The questions are suitable for both warm water and coldwater fish and no particular species are emphasized. Wetlands that contribute to habitat for fish include dense, overhanging vegetation. This vegetation provides shade, cover, and food sources to adjacent resources. Wetlands assessed by OFWAM can have fish habitat function intact, impacted or degraded, or lost or not present.

Water quality: Evaluates the potential of a wetland to reduce the impacts of excess nutrients in storm water runoff on downstream waters. Essentially equivalent to pollution removal, a wetland contributes to water quality by trapping sediment during periods of heavy rainfall, keeping it from entering adjacent downstream resources. They also trap nutrients such as nitrogen and phosphorus, helping to prevent or minimize algal blooms and subsequent oxygen deficiencies downstream. A wetland's water quality function can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Hydrologic control: Evaluates the effectiveness of a wetland to reduce downstream flood peaks and store floodwaters. Wetlands act as flood regulators, trapping water during periods of high precipitation or flooding, and then slowly releasing the flow downstream. A wetland's hydrologic control functions can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Education: Evaluates the suitability of a wetland to provide educational opportunity and act as an "outdoor classroom." Easily accessible, publicly owned wetlands with a diversity of plants and animals are useful in outdoor education. A wetland assessed by OFWAM can have educational uses, have the potential to provide, or not be appropriate for educational uses.

Recreation: Evaluates the suitability of a wetland and associated watercourses for non-powered boating, fishing, and similar recreational activities. Wetlands assessed by OFWAM can provide, have the potential to provide, or not provide recreational opportunities.

Wetland Conditions

Sensitivity to Future Impacts: Evaluates the wetland's ability to sustain itself and its ability to recover from future impacts. It is an indication of risk to the wetland because of future changes in the watershed and surrounding land. A wetland can be assessed by OFWAM as sensitive to future impacts, potentially sensitive to future impacts, or not sensitive to future impacts. An undisturbed-forested wetland is more sensitive to future impact than a wetland that has already been disturbed, such as agricultural wetland.

Enhancement Potential: Evaluates the suitability of a degraded wetland for enhancement. A wetland providing this condition does not provide one or more of the functions assessed by OFWAM. A wetland fulfilling this condition, therefore, would be of lower overall quality than a wetland providing wildlife habitat, fish habitat, etc. Wetlands that provide diverse wildlife habitat were not assessed in this section, as per OFWAM. Wetlands are assessed as either high enhancement potential, moderate enhancement potential, or little enhancement potential.

Aesthetic quality: Evaluates the visual and aesthetic quality of the wetland. Wetlands can be considered pleasing, moderately pleasing, or not pleasing.

OFWAM determines the relative quality of six functions and three conditions for each of the wetlands. The quality is determined by compiling the answers to 52 questions (58 if the wetland has fish habitat) regarding the wetland and its surroundings. Some of the questions can be answered prior to performing field visits, as they pertain to the region, project area, or watershed that the wetland is located in. The remainder are answered on-site and pertain to conditions specific to that wetland. All questions are grouped so as to relate specifically to one or more functions or conditions.

The results of each OFWAM assessment are presented on a set of data sheets for each wetland (see appendix). The first is the Wetland Assessment Summary Sheet. It includes the answers for all 58 OFWAM questions. The second sheet is the Functions and Conditions Summary Sheet. It summarizes the results of the questions, as they relate to each wetland function and condition. The third sheet identifies the questions pertaining to the mandatory and optional criteria used to establish locally significant wetlands, and the answers to those questions (Table 3). The fourth sheet is the Wetland Characterization Sheet. This sheet includes specific details about the wetland including size, location, wetland classification, and associated mapped soils, as well as a brief description of the wetland and surrounding areas.

In addition to the OFWAM forms, a Wetland Determination Data Form was used for all on-site wetland assessments (see appendix). Field verified and off-site wetland assessments do not have associated Wetland Determination Data Forms. The form includes field data collected at the time of assessment as well as additional data regarding the wetland location. The upper portion of the form displays information such as the project name, general sample site location, and initials of the investigator. The remainder of the form includes any evidence of hydrology noted at the sample site, mapped soils series, observed soils characteristics, and a record of observed vegetation. In most cases, in order for a sample site to satisfy wetland criteria, there must be

documented evidence of wetland hydrology, hydric soils, and a hydrophytic (i.e., wetland) plant community.

Wetlands of Special Interest for Protection

The first filter in OFWAM is to determine whether the wetland contains either federal or state listed species, is in a management plan, is protected by regulatory rules or statutes, is a protected mitigation site, or is an uncommon wetland type in Oregon. Ten questions are answered for each wetland, and a "yes" answer to any of the questions puts the wetland into the "special interest for protection" category. If the wetland falls into this category, it is noted on the wetland characterization sheet.

Locally Significant Wetlands

Local jurisdictions determining significant wetlands must use the criteria adopted by DSL (OAR 141-86-300 through 141-86-350). The significance evaluation is divided into three sections (exclusions, mandatory criteria, and optional criteria), as described in Table 3 below. Through the Natural Features Scoping Project, the City of Corvallis chose to include the optional criteria to identify LSWs.

Table 3. Criteria for Determining Goal 5 Locally Significant Wetlands (from OARs)

Exclusions: **A wetland cannot be designated as significant if the answer to any of the criteria below is "Yes":**
1 Is this wetland artificially created entirely from upland and: **a.** Created for the purpose of controlling, storing, or maintaining storm water **b.** is used for active surface mining or as a log pond **c.** is a ditch without a free and open connection to natural waters of the state **d.** is less than 1 acre and created unintentionally from irrigation or construction **e.** created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard 2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of OAR 141-86-350 1(b)
Mandatory Locally Significant Wetland Criteria: **A wetland is locally significant if "Yes" is the answer to any of the criteria below:**
1 Does the wetland provide *diverse wildlife habitat*? 2 Is the wetland's *fish habitat function intact*? 3 Is the wetland's *water quality function intact*? 4 Is the wetland's *hydrologic control function intact*? 5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list) and is the wetland's *water quality function intact, or impacted or degraded*? 6 Does the wetland contain a rare plant community? 7 Is the wetland inhabited by any species listed federally as threatened or Endangered, or state listed as sensitive, threatened or endangered? 8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded*?
Optional Locally Significant Wetland Criteria: **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below:**[2]
1 Does the wetland represent a locally unique native plant community and Provide *diverse wildlife habitat or habitat for some species,* or Have an *intact, or impacted or degraded fish habitat function,* or Have an *intact, or impacted or degraded water quality function,* or Have an *intact, or impacted or degraded hydrologic control function*? 2 Is the wetland publicly owned and used by a school or organization and Does the wetland provide *educational uses*?

[2] Note: Through the Natural Features Scoping Project, the City of Corvallis chose to include the optional criteria to identify LSWs.

Inventory Results

Wetland Acreage and Distribution

One hundred and twenty-one (121) wetland units were identified in the project area. These wetlands cover approximately 2,593 acres, or 14 percent of the 17,965-acre Corvallis Urban Growth Boundary (UGB). The average wetland size is approximately 21.2 acres. They range in size from one-half acre to 400 acres. The number of wetlands by study area is as follows: North Corvallis- 24; South Corvallis- 42; and West Central Corvallis- 55.

All 121 wetland units were assessed using OFWAM. Sixty-three (63) wetlands were determined to be locally significant. These locally significant wetlands (LSWs) total 1,270 acres, or 49 percent of the total wetland area. The average size of a LSW is 20.2 acres. Of the LSWs, eleven are of Special Interest for Protection, due to the presence of known habitat for rare, threatened, or endangered plant species. Non-locally significant wetlands total 1,323 acres, or 51 percent of the total wetland area. The average size of a non-locally significant wetland is 22.8 acres.

A large percentage of the non-locally significant wetlands, by acreage, are wetlands on active farmland. Wetlands identified within active agricultural areas total 1,728 acres within the Corvallis UGB. The largest (S-MAR-W-2) is a 400-acre wetland complex located north of the municipal airport.

In addition to the 121 wetlands in the inventory, 55 possible wetlands (PW) and 17 ponds were also identified, but not evaluated. All PW's are noted on the maps but do not meet the minimum acreage threshold to be included in the LWI. Possible wetlands are still subject to applicable state and federal regulations.

North Corvallis Study Area Wetland Characteristics

The North Corvallis Study Area includes Sequoia, Garfield, Village Green, Northeast Corvallis, Jackson, Frazier, and Lewisburg stormwater basins. The first three basins are largely developed. Sequoia Creek is piped for long reaches west of Highway 99. Stewart Slough is located in the Garfield basin and the Village Green Creek flows south from the Jackson Frazier wetland located outside the UGB. Northeast Corvallis is a very small basin with a large agricultural wetland that drains to the Jackson Frazier wetland.

Jackson and Frazier Creeks both originate in McDonald State Forest. The Jackson Creek portion of the watershed contains over 1,500 acres, and the Frazier Creek watershed contains over 2,200 acres. Both watersheds are largely rural in nature, with forest in their upper reaches, giving way to agricultural fields in the flatter portions of the watershed. Development has been limited mainly to rural residential housing. The largest wetland in the North Corvallis Study Area is N-JAC-W-4, a 234-acre wetland complex that extends from south of Jackson Creek into the agricultural areas north of Frazier Creek.

Within the study area, the Jackson, Frazier, and Lewisburg basins are mostly agricultural and contain extensive areas of wetlands. The majority of the wetlands are farmed, however there are also large areas along the creeks that have been left in forested or scrub shrub cover, providing important habitat corridors for wildlife. The Jackson and Frazier creeks converge in a broad floodplain area west of Highway 99. East of Highway 99 and outside the UGB, their combined flow enters the Jackson-Frazier Wetlands.

Four wetlands (37.43 acres) were mapped using on-site methods. Twelve (12) wetlands (374.57 acres) were field verified, accounting for approximately 76 percent of the wetland area, of the North Corvallis Study Area, but seven of those wetlands (approximately 333 acres or 67 percent) had been assessed with a previous DSL-approved wetland delineation. Eight (8) wetlands (80.77 acres) were mapped using off-site methods.

West Central Study Area Wetland Characteristics

The West Central Study Area includes the Squaw, Oak, and Dixon Creek drainage basins. Squaw Creek has large wetlands near Reservoir Road, with the north branch encompassing agricultural fields and the old log ponds near the County Fairgrounds and the south branch originating near the City reservoir and encompassing extensive undeveloped and agricultural lands between West Hills Road and Highway 34. High quality forested wetlands are located along the south branch of Squaw Creek in the vicinity of Starker Park. As the area becomes more urbanized to the east, wetlands are diminished and the creek becomes more confined by development.

Oak Creek also has extensive agricultural wetlands in the area north of Oak Creek Road and west of 53rd Street. Much of this land is owned by Oregon State University (OSU) and the City owns a portion of both the north branch of Oak Creek in Walnut Park and the southern branch in Bald Hills Park. As the topography flattens, Oak Creek meanders in its floodplain, and several seasonal backwater channels/wetlands are located in the area south of Harrison Boulevard and between 35th and 53rd Streets. Oak Creek then flows through the developed portion of the OSU campus and converges with Marys River south of Highway 34 and opposite Avery Park.

The Dixon Creek basin is mostly developed. Areas currently undeveloped north of Walnut Boulevard are in the process of being developed for residential housing. Therefore, due to the urbanization of this area, wetlands are relatively small and scattered. The Timberhill development site has the largest portion of wetlands in the basin.

Thirty-four (34) wetlands, accounting for approximately 432 acres or 53 percent of the wetland area, of the West-Central Corvallis Study Area, were assessed on-site. Sixteen (16) wetlands (approximately 355 acres or 44 percent) were mapped using field verified methods, but seven (7) of these wetlands (approximately 234 acres) had been assessed with a previous DSL-approved wetland delineation, assessment or permit. Five (5) wetlands (16.11 acres) were mapped using off-site methods, with one (1) of those wetlands (6.85 acres) having a previous DSL-approved wetland delineation, assessment or permit.

South Corvallis Study Area Wetland Characteristics

The South Corvallis Study Area includes the Marys River, Mill Race, Ryan Creek, Willamette River, Goodnight Creek, and Dry Creek drainage basins. The Marys River Watershed extends well beyond the borders of the study area. It includes wetlands in agricultural and rural residential areas that flow north and east to the Marys River or Squaw Creek. The Mill Race basin includes a golf course and Avery Park. The Ryan Creek basin includes Crystal Lake. The Willamette River basin includes most of Willamette Park and isolated wetlands in farmed and residential areas. The Dry Creek basin includes areas near the airport. The Goodnight Creek basin includes agricultural lands east of Highway 99 and south of existing residential areas.

The Marys River and Dry Creek basins have extensive areas of farmed wetlands. Most of these wetlands are low quality due to farming and lack of natural vegetative cover. Many of these areas are zoned for industrial land uses.

Eighteen (18) wetlands (531.19 acres or 41 percent) were assessed on-site. Fifteen (15) wetlands (502.62 acres or 38 percent) were mapped using field verified methods, but 10 of these wetlands (approximately 455 acres) had been assessed with a previous DSL-approved wetland delineations. Nine (9) wetlands (263.22 acres or 20 percent) were mapped using off-site methods, with two (2) of those wetlands (227 acres) having a previous DSL-approved wetland delineation.

Table 4. Wetland Areas Within Each Watershed Basin

Stormwater Basin	Acres
North Corvallis	
Sequoia	20.21
Northeast Corvallis	30.16
Garfield	47.77
Village Green	18.28
Frazier Creek	73.57
Lewisburg	59.87
Jackson Creek	242.91
West-Central Corvallis	
Oak Creek	368.08
Squaw Creek	392.87
Dixon Creek	33.66
South Corvallis	
Marys River	945.32
Mill Race	2.00
Ryan	2.42
Dry Creek	221.95
Goodnight	66.98
Willamette River	66.69
Total Wetland Acreage	**2,592.74**

Wetland Classification

Cowardin Classes

The U.S. Fish and Wildlife Service, as part of the National Wetlands Inventory (NWI) program, has mapped numerous wetlands in the study area. The NWI maps are generated primarily on the basis of interpretation of relatively large-scale color infrared aerial photographs (*e.g.*, scale of 1:58,000) with limited "ground truthing" conducted to confirm the interpretations. Wetlands on the NWI maps are classified according to the Cowardin system (Cowardin et al, 1979). As described in the sections above, the NWI maps are used as the basis for the initial off-site mapping. This LWI provides greater detail and accuracy and also includes classifications according to the Cowardin system. This LWI is expected to replace the NWI maps and be incorporated into the statewide wetlands inventory once it is approved by the City of Corvallis and DSL.

Cowardin classes identified within the study area are discussed briefly as follows:

- Emergent Wetland (PEM) -These wetlands have rooted herbaceous vegetation, which stand erect above the water or ground surface.
- Emergent Wetland, farmed (PEMf) -These wetlands have rooted herbaceous vegetation; the soil surface has been mechanically or physically altered for the production of crops, but hydrophytes will become reestablished if farming is discontinued.
- Scrub-shrub Wetland (PSS) - Wetlands dominated by shrubs and tree saplings that are less than 20 feet high.
- Forested Wetland (PFO) - Wetlands dominated by trees that are greater than 20 feet high.
- Open Water (POW) - A wetland class consisting of areas of open water greater than 6.6 feet deep.

Cowardin classes were assigned to the 121 separate wetland units mapped during the inventory. The most common Cowardin class is palustrine emergent, farmed (PEMf), which accounts for 65 percent of all of the wetlands. These areas are farmed fields, which are typically seeded with a grass crop, but which contain hydric soils and wetland hydrology.

Palustrine emergent (PEM) wetlands account for 16 percent, palustrine forested (PFO) account for 10 percent and palustrine scrub shrub (PSS) account for 8 percent of the Cowardin classes identified within the study area. Small areas (<0.01 percent) of wetlands were palustrine open water (POW). These were typically excavated ponds. Most of the forested wetlands are dominated by Oregon ash, and the scrub shrub wetlands by various willow species. Forested and scrub shrub wetlands are usually associated with the many creeks and waterways that flow through the study area, including Oak Creek, Squaw Creek, Jackson and Frazier Creeks, Dixon Creek, Sequoia Creek, and the Marys River.

Table 5 is a summary of wetland classifications for the Corvallis LWI study area. Table 6 is a list of all of the wetlands and their individual Cowardin classifications.

Table 5. Wetland Classifications

Wetland Classification		Total Area	Percent
PEMf	Palustrine emergent farmed	1,692.33	66%
PEM	Palustrine emergent	422.93	16%
PFO	Palustrine forested	260.81	10%
PSS	Palustrine scrub shrub	208.70	8%
POW	Palustrine open water	7.85	>0.01%

Table 6. List of Wetlands and Individual Cowardin Classifications

Wetland Code	USFWS Wetland Classification					Total Acreage
	PFO	PSS	PEM	PEMf	POW	
N-FRA-W-1			7.33			7.33
N-FRA-W-2			0.60			0.60
N-FRA-W-3	3.17	6.33	22.17	31.66		63.33
N-FRA-W-4	0.46		0.23	1.62		2.31
N-GAR-W-1	26.67	3.14	1.57			31.38
N-GAR-W-2	0.70	2.11	0.70			3.51
N-GAR-W-3	0.48	0.48			3.86	4.81
N-GAR-W-4			1.32			1.32
N-GAR-W-5				6.75		6.75
N-JAC-W-1		5.17				5.17
N-JAC-W-2			0.52	0.79		1.31
N-JAC-W-3				2.15		2.15
N-JAC-W-4	46.85	23.43	23.44	140.56		234.28
N-LEW-W-1	7.03	5.27	3.51	19.33		35.14
N-LEW-W-2			4.95	19.79		24.73
N-NOR-W-1	6.03			24.13		30.16
N-SEQ-M70-1		2.20	8.80			11.00
N-SEQ-W-2	0.10		0.86			0.96
N-SEQ-W-3			0.70			0.70
N-SEQ-W-4			0.52			0.52
N-SEQ-W-5	0.70	2.81	3.52			7.03
N-VIL-M70-1	0.31	0.10	1.63			2.04
N-VIL-W-2		0.34	3.07			3.41
N-VIL-W-3			12.83			12.83
S-DRY-W-1				10.88		10.88
S-DRY-W-2				72.05		72.05

Wetland Code	USFWS Wetland Classification					Total Acreage
	PFO	PSS	PEM	PEMf	POW	
S-DRY-W-3				2.40		2.40
S-DRY-W-4				125.02		125.02
S-DRY-W-5		0.39	1.54			1.93
S-DRY-W-6	3.57					3.57
S-DRY-W-7				2.98		2.98
S-DRY-W-8				3.12		3.12
S-GOO-W-1			5.89			5.89
S-GOO-W-2		1.04	2.61	49.03		52.68
S-GOO-W-3			1.27			1.27
S-GOO-W-4		0.35	2.00			2.35
S-GOO-W-5		0.27	2.40			2.67
S-GOO-W-6	1.38	0.21	0.53			2.12
S-MAR-W-1				211.51		211.51
S-MAR-W-2				400.41		400.41
S-MAR-W-3				73.40		73.40
S-MAR-W-4		0.04	0.75			0.79
S-MAR-W-5			8.70			8.70
S-MAR-W-6			4.25			4.25
S-MAR-W-7	0.43			26.48		26.91
S-MAR-W-8		1.71	15.36			17.07
S-MAR-W-9			1.58			1.58
S-MAR-M50-10	1.30	1.32				2.62
S-MAR-W-11	5.31	0.76	1.52			7.59
S-MAR-W-12	0.22	0.66	0.58			1.46
S-MAR-W-13		1.89				1.89
S-MAR-W-14	7.90	4.31	0.72		1.44	14.37
S-MAR-W-15			10.50			10.50
S-MAR-W-16				154.37		154.37
WC-MAR-W-16			2.03			2.03
WC-MAR-W-17		0.09	0.77			0.86
WC-MAR-W-18			3.17			3.17
WC-MAR-W-19			1.84			1.84
S-MIL-W-1		0.30	1.70			2.00
S-RYA-W-1					1.85	1.85
S-RYA-W-2			0.57			0.57
S-WIL-W-1			1.44			1.44
S-WIL-W-2	0.86					0.86
S-WIL-W-3		0.09	0.78			0.87
S-WIL-W-4		0.50		9.41		9.91
S-WIL-W-5				36.65		36.65

Wetland Code	USFWS Wetland Classification					Total Acreage
	PFO	PSS	PEM	PEMf	POW	
S-WIL-W-6		0.10	0.91			1.01
S-WIL-W-7	6.97	0.96	1.93			9.85
S-WIL-W-8			1.42			1.42
S-WIL-W-9	3.05	0.57	1.06			4.68
WC-DIX-W-1		12.37	8.42			20.79
WC-DIX-W-2			6.85			6.85
WC-DIX-W-4		2.07	1.38			3.45
WC-DIX-W-5	1.24					1.24
WC-DIX-W-6			1.33			1.33
WC-OAK-W-1			4.60			4.60
WC-OAK-W-2			1.59			1.59
WC-OAK-W-3				16.38		16.38
WC-OAK-W-4			0.76			0.76
WC-OAK-W-5	0.97		0.96			1.93
WC-OAK-W-6	0.36	0.55	0.90			1.81
WC-OAK-W-7				3.60		3.60
WC-OAK-W-8			2.98	11.94		14.92
WC-OAK-W-9			7.85			7.85
WC-OAK-W-10	6.41	19.24	6.41			32.06
WC-OAK-W-11	3.58		4.02	1.34		8.94
WC-OAK-W-12				4.35		4.35
WC-OAK-W-13		16.28	8.78			25.06
WC-OAK-M80-14	15.04	4.30	7.09	16.54		42.97
WC-OAK-M80-15	0.11		2.18			2.29
WC-OAK-W-16	1.13	0.50	0.88			2.51
WC-OAK-M90-17			12.50	112.50		125.00
WC-OAK-W-18			4.19			4.19
WC-OAK-W-19		0.21	0.88			1.09
WC-OAK-W-20		0.39	3.54			3.93
WC-OAK-W-21	0.18	0.18	0.86			1.22
WC-OAK-W-22			0.72			0.72
WC-OAK-W-23	1.17	0.26	0.25			1.67
WC-OAK-W-24	11.09	3.70	9.86			24.65
WC-OAK-W-25	1.71	1.22	1.95			4.88
WC-OAK-M75-26			1.68			1.68
WC-OAK-W-27		0.10	0.89			0.99
WC-OAK-W-28			4.23	9.15	0.70	14.08
WC-OAK-W-29	0.76	0.76	6.03			7.55
WC-OAK-W-30		0.72	4.09			4.81

Wetland Code	USFWS Wetland Classification					Total Acreage
	PFO	PSS	PEM	PEMf	POW	
WC-SQU-W-1			4.78			4.78
WC-SQU-M60-2	17.21	2.30	3.43			22.94
WC-SQU-W-3	6.71		2.24			8.95
WC-SQU-W-4	2.93	2.93	3.92			9.78
WC-SQU-W-5		4.49	4.49			8.98
WC-SQU-W-6	2.59	0.87	0.87			4.33
WC-SQU-W-7			1.48	8.42		9.90
WC-SQU-W-8	36.74	45.92	55.40	31.26		169.32
WC-SQU-W-9				2.22		2.22
WC-SQU-W-10				1.47		1.47
WC-SQU-W-11	13.63	8.18	4.09	1.35		27.26
WC-SQU-W-12			4.39			4.39
WC-SQU-W-13	13.76	13.76	41.26			68.78
WC-SQU-W-14		0.49	0.74			1.23
WC-SQU-W-15		0.12	1.10			1.22
WC-SQU-W-16				47.32		47.32
Total	**260.81**	**208.85**	**422.93**	**1692.33**	**7.85**	**2592.74**

Hydrogeomorphic (HGM) method

In addition to the Cowardin classification, the LWI includes wetland classification based upon a wetland's hydrogeomorphic characteristics; namely dominant water source and setting in the landscape. The HGM classes for each wetland are noted on page four of the data sheets for each individual wetland (see appendices). Select HGM classes and subclasses identified in the Corvallis area are as follows (Adamus, 2001):

Depressional class. Fed mainly by overland runoff, which enters from 3 or 4 compass directions, and/or by stormwater pipes, or drainage ditches. Usually in a deep (>2 foot) basin, which may have been deepened by excavation. Usually inundated permanently. Often in natural depressions in rolling or hilly terrain.

> **Depressional Closed, Permanently flooded (DCP)** subclass. Meets criteria for Depressional class and: includes more than 0.25 acre of standing water which remains in the basin during the driest season of every year; has no outlet channel or other water connection to a permanent river or lake more than once every 3 years; a pH of less than 8 most growing seasons; and cover that is never more than 10% *Sphagnum* moss.
>
> **Depressional Closed, Nonpermanently flooded (DCNP)** subclass. Meets criteria for Depressional class and: is completely without surface water (or having less than 0.25 acre of surface) for at least one day of most years; has no outlet channel or other water connection to a permanent river or lake more than once every 3 years; a pH of less than 8

most growing seasons; and cover that is never more than 10% *Sphagnum* moss.

Depressional Outflow (DO) subclass. Meets criteria for Depressional class and: has one or more outlet channels or other surface water connection to a permanent river, lake, or estuary more than once every 3 years; a pH of less than 8 most growing seasons; and cover that is never more than 10% *Sphagnum* moss.

Flats class. Hydrology is dominated by direct precipitation, secondarily by lateral subsurface flow or surface runoff. Many Flats sites can be characterized as "isolated" from navigable waters. Flats class can include vernal pools, farmed wetlands, wet meadows, shallow ephemeral ponds, and wet prairies.

Riverine class. Occur in topographic valleys, always in association with channels of streams and rivers. Includes all vegetation that borders channels, whether the channel be intermittent or permanent, natural or manmade; and whether the vegetation be hydrophytic or not.

Riverine Flow-through (RFT) subclass. Meets criteria for Riverine class and most of the surface water is visibly flowing during the wet season and is not substantially ponded (delayed) by natural or artificial constrictions.

Riverine Impounding (RI) subclass. Meets criteria for Riverine class and most of the surface water during 2-year flood events is visibly and substantially ponded (delayed). Water flow is usually unidirectional, but during floods may become backed up and show no clear travel path. Constrictions can be natural or artificial.

Slopes class. Hydrology is dominated by groundwater inputs. Slopes sites lose water via evapotranspiration, surface outflows, and subsurface interflow. Many Slopes sites can be characterized as "isolated" from navigable waters.

Slope/Flat (S/F) subclass. A subclass of both Slopes class and Flats class that is specific to the Willamette Valley. Applied when dominant source of hydrology is difficult or impossible to discern.

Oregon Freshwater Wetland Assessment Results

Wetland Quality Assessment

An assessment of quality for each of the wetlands identified through the inventory was conducted using OFWAM (Roth et al, April 1996).

Although OFWAM provides qualitative information on the relative value of wetlands and does not have a numerical ranking, numbers were assigned to the assessment criteria to easily compare the results. Table 7 is a key to the numbers assigned to the assessment criteria for each of the functions and conditions. A number 3 was assigned to wetlands receiving the highest function or condition result (e.g., intact, diverse), a number 1 was assigned to the wetlands receiving the lowest result (lost or not present, not appropriate), and a number 2 was assigned to the results which do not fit the other criteria (potential, impacted or degraded). Table 8 shows the results of the quality assessment conducted on all of the wetlands identified through the inventory. Some functions or conditions were not applicable to certain wetlands. For instance the methodology states that if a wetland receives an assessment of "diverse wildlife habitat" then the enhancement potential assessment is not applicable. In addition, if there was no likelihood of fish habitat in the wetlands, the fish habitat assessment was not applicable.

Table 9 provides a summary by function and condition. Most of the wetlands (110 of 121, or 91 percent) provided habitat for some wildlife species, with only 11 percent providing diverse wildlife habitat. This is likely due to urban encroachment and agricultural impacts that have disturbed much of the native vegetation and reduced the complexity and, therefore, the diversity of habitat within the wetlands.

Most of the wetlands (61 percent) were not associated with streams and, therefore, were not assessed for their ability to provide fish habitat. The majority of those that were assessed had their fish habitat impacted or degraded (74 percent). Only 12 wetlands had intact fish habitat. The majority of the wetlands (82 percent) also had their water quality function impacted or degraded. Ninety-three (84 percent) of the wetlands also had hydrologic control impacted or degraded. This is likely due to the fact that a majority of the wetlands are located in areas highly influenced by agricultural activities. Typical farming practices alter hydrology through draining, tiling, and filling of low areas, which changes the natural hydrology of wetlands.

The fact that many of the wetlands are within urban areas or are already disturbed accounted for the fact that 95 percent of the wetlands are potentially sensitive to impacts. The large number of wetlands in privately owned agricultural areas likely accounts for the fact that only 15 wetlands provide educational uses and that 83 percent are not appropriate for educational uses. Only 20 wetlands provide recreational opportunities, with another 25 offering the potential for recreation. Nearly half of the wetlands (45 percent) are considered aesthetically pleasing.

Table 7. Key to the *OFWAM* Ranking

Wildlife Habitat	3. *Wetland provides diverse wildlife habitat* 2. *Wetland provides habitat for some wildlife species* 1. *Wetland does not provide wildlife habitat*
Fish Habitat	3. *Wetland's fish habitat function is intact* 2. *Wetland's fish habitat function is impacted or degraded* 1. *Wetland's fish habitat function is lost or not present*
Water Quality	3. *Wetland's water-quality function is intact* 2. *Wetland's water-quality function is impacted or degraded* 1. *Wetland's water-quality function is lost or not present*
Hydrologic Control	3. *Wetland's hydrologic control function is intact* 2. *Wetland's hydrologic control function is impacted or degraded* 1. *Wetland's hydrologic control function is lost or not present*
Sensitivity to Impact	3. *Wetland is sensitive to future impacts* 2. *Wetland is potentially sensitive to future impacts* 1. *Wetland is not sensitive to future impacts*
Enhancement Potential	3. *Wetland has high enhancement potential* 2. *Wetland has moderate potential for enhancement* 1. *Wetland has little enhancement potential*
Education	3. *Wetland has educational uses* 2. *Wetland has potential for educational use* 1. *Wetland is not appropriate for educational use*
Recreation	3. *Wetland provides recreational opportunities* 2. *Wetland has the potential to provide recreational activities* 1. *Wetland is not appropriate for or does not provide recreational opportunities*
Aesthetic Quality	3. *Wetland is considered to be pleasing* 2. *Wetland is considered to be moderately pleasing* 1. *Wetland is not pleasing*

Table 8. *OFWAM* Ranking Results

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
N-FRA-W-1	2	n/a	2	2	2	2	1	1	3	7.33
N-FRA-W-2	2	n/a	2	2	2	2	1	1	3	0.60
N-FRA-W-3	2	n/a	2	2	2	2	1	1	3	63.33
N-FRA-W-4	2	2	2	2	2	2	1	1	2	2.31
N-GAR-W-1	2	2	3	3	2	3	2	2	3	31.38
N-GAR-W-2	2	n/a	3	3	2	3	2	2	2	3.51
N-GAR-W-3	2	3	3	3	2	3	1	1	3	4.81
N-GAR-W-4	2	n/a	2	2	2	2	1	1	1	1.32
N-GAR-W-5	2	n/a	2	3	2	3	1	1	3	6.75
N-JAC-W-1	3	2	2	2	2	n/a	1	1	3	5.17
N-JAC-W-2	2	n/a	2	2	2	2	1	1	3	1.31
N-JAC-W-3	2	n/a	2	2	2	2	1	1	3	2.15
N-JAC-W-4	2	3	2	2	2	2	1	1	3	234.28
N-LEW-W-1	2	2	2	2	2	2	1	1	3	35.14
N-LEW-W-2	2	n/a	2	2	2	2	1	1	2	24.73
N-NOR-W-1	2	2	2	2	2	2	1	1	3	30.16
N-SEQ-M70-1	2	n/a	2	2	2	2	1	1	3	11.00
N-SEQ-W-2	2	2	3	2	2	3	1	1	3	0.96
N-SEQ-W-3	2	n/a	2	2	2	2	1	1	1	0.70
N-SEQ-W-4	2	n/a	2	2	2	2	1	1	1	0.52
N-SEQ-W-5	2	2	2	3	2	3	1	1	3	7.03
N-VIL-M70-1	2	n/a	2	2	2	2	3	3	3	2.04
N-VIL-W-2	2	n/a	3	2	2	2	3	2	2	3.41
N-VIL-W-3	2	n/a	2	2	2	2	1	1	3	12.83
S-DRY-W-1	2	n/a	2	2	2	2	1	1	1	10.88

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
S-DRY-W-2	2	n/a	2	2	2	2	2	1	2	72.05
S-DRY-W-3	2	n/a	2	2	2	2	1	1	1	2.40
S-DRY-W-4	2	n/a	2	2	2	2	1	1	1	125.02
S-DRY-W-5	2	n/a	2	2	2	2	1	1	2	1.93
S-DRY-W-6	2	2	3	3	2	3	1	1	2	3.57
S-DRY-W-7	2	n/a	2	2	2	3	1	1	3	2.98
S-DRY-W-8	2	n/a	2	2	2	3	1	1	3	3.12
S-GOO-W-1	2	n/a	3	3	2	2	1	3	2	5.89
S-GOO-W-2	2	n/a	2	2	2	3	1	1	1	52.68
S-GOO-W-3	2	n/a	2	2	2	3	1	2	1	1.27
S-GOO-W-4	2	n/a	2	2	2	3	1	1	2	2.35
S-GOO-W-5	2	n/a	2	2	2	2	1	1	2	2.67
S-GOO-W-6	2	n/a	3	3	3	3	3	3	3	2.12
S-MAR-W-1	2	n/a	2	2	2	2	1	1	1	211.51
S-MAR-W-2	2	n/a	2	2	2	2	1	1	2	400.41
S-MAR-W-3	2	n/a	2	2	2	2	1	1	2	73.40
S-MAR-W-4	2	n/a	2	2	2	3	1	1	2	0.79
S-MAR-W-5	2	n/a	2	2	2	2	1	1	2	8.70
S-MAR-W-6	2	n/a	2	2	2	3	1	2	1	4.25
S-MAR-W-7	2	n/a	2	2	2	3	1	1	2	26.48
S-MAR-W-8	2	n/a	2	2	2	2	1	1	3	17.07
S-MAR-W-9	2	n/a	2	2	2	1	1	1	3	1.58
S-MAR-M50-10	2	n/a	2	2	2	3	1	3	2	2.62
S-MAR-W-11	2	2	2	3	2	3	1	2	3	7.59
S-MAR-W-12	2	2	3	2	2	3	1	1	3	1.46
S-MAR-W-13	3	2	3	3	2	n/a	1	2	3	1.89

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
S-MAR-W-14	2	2	3	3	3	3	3	2	3	14.37
S-MAR-W-15	2	2	2	2	2	3	3	2	3	10.50
S-MAR-W-16	2	n/a	2	2	2	2	1	1	2	154.37
WC-MAR-W-16	2	n/a	2	2	3	2	1	1	2	2.03
WC-MAR-W-17	2	n/a	2	2	2	2	1	2	2	0.86
WC-MAR-W-18	2	n/a	2	2	2	2	1	1	2	3.17
WC-MAR-W-19	2	n/a	2	3	2	2	2	2	2	1.84
S-MIL-W-1	2	n/a	2	2	2	2	1	1	2	2.00
S-RYA-W-1	2	2	2	3	2	3	1	1	1	1.85
S-RYA-W-2	2	n/a	2	1	2	2	1	2	1	0.57
S-WIL-W-1	2	n/a	2	2	2	2	1	1	2	1.44
S-WIL-W-2	3	3	3	3	2	n/a	1	2	3	0.86
S-WIL-W-3	2	n/a	2	2	2	2	1	1	2	0.87
S-WIL-W-4	2	n/a	2	2	2	3	1	1	2	9.91
S-WIL-W-5	2	n/a	2	2	3	2	1	1	2	36.65
S-WIL-W-6	2	2	3	3	2	2	1	2	2	1.01
S-WIL-W-7	2	2	3	3	2	3	2	2	3	9.85
S-WIL-W-8	2	n/a	1	2	2	1	3	2	1	1.42
S-WIL-W-9	3	2	3	3	2	n/a	3	3	3	4.68
WC-DIX-W-1	2	3	2	2	2	3	3	3	2	20.79
WC-DIX-W-2	2	n/a	2	2	2	3	1	1	1	6.85
WC-DIX-W-4	2	2	2	3	2	3	3	3	2	3.45
WC-DIX-W-5	2	n/a	2	2	2	3	1	1	3	1.24
WC-DIX-W-6	2	n/a	2	2	2	3	1	1	3	1.33
WC-OAK-W-1	2	n/a	2	2	2	2	2	2	3	4.60
WC-OAK-W-2	2	n/a	2	2	2	2	2	1	3	1.59

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
WC-OAK-W-3	2	2	2	2	2	2	1	1	3	16.38
WC-OAK-W-4	2	2	2	2	2	3	2	1	3	0.76
WC-OAK-W-5	3	n/a	2	2	2	n/a	2	1	2	1.93
WC-OAK-W-6	2	3	3	2	2	3	2	2	3	1.81
WC-OAK-W-7	2	n/a	2	2	2	3	2	2	3	3.60
WC-OAK-W-8	2	n/a	3	2	2	2	2	3	3	14.92
WC-OAK-W-9	2	n/a	2	2	2	3	1	1	3	7.85
WC-OAK-W-10	3	n/a	2	2	2	n/a	2	3	3	32.06
WC-OAK-W-11	2	2	3	2	1	3	2	1	3	8.94
WC-OAK-W-12	2	2	3	2	1	3	2	1	3	4.35
WC-OAK-W-13	3	2	2	2	2	n/a	1	3	3	25.06
WC-OAK-M80-14	2	2	3	3	2	3	2	2	3	42.97
WC-OAK-M80-15	2	n/a	2	2	2	3	2	2	3	2.29
WC-OAK-W-16	3	2	2	2	2	n/a	2	2	3	2.51
WC-OAK-M90-17	2	2	2	2	2	2	1	1	3	125.00
WC-OAK-W-18	2	n/a	2	1	1	2	2	1	3	4.19
WC-OAK-W-19	2	n/a	2	1	1	3	1	1	3	1.09
WC-OAK-W-20	2	n/a	2	2	2	3	2	2	3	3.93
WC-OAK-W-21	2	n/a	3	2	2	3	1	3	3	1.22
WC-OAK-W-22	2	n/a	3	2	2	2	3	3	3	0.72
WC-OAK-W-23	2	n/a	2	2	2	3	1	1	1	1.67
WC-OAK-W-24	3	2	2	2	2	n/a	3	3	3	24.65
WC-OAK-W-25	3	n/a	2	2	2	n/a	1	1	3	4.88
WC-OAK-M75-26	2	n/a	2	2	2	3	1	1	3	1.68
WC-OAK-W-27	2	n/a	3	2	2	2	1	1	3	0.99
WC-OAK-W-28	2	2	2	2	2	2	1	1	3	14.08

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
WC-OAK-W-29	2	3	2	2	1	3	2	3	3	7.55
WC-OAK-W-30	2	2	3	2	2	2	1	1	3	4.81
WC-SQU-W-1	2	2	3	2	2	2	2	1	3	4.78
WC-SQU-M60-2	2	3	2	3	2	3	3	3	3	22.94
WC-SQU-W-3	2	3	2	3	2	3	3	3	2	8.95
WC-SQU-W-4	2	3	3	3	2	3	3	2	1	9.78
WC-SQU-W-5	2	2	3	2	2	2	2	1	1	8.98
WC-SQU-W-6	2	3	3	3	2	3	2	3	1	4.33
WC-SQU-W-7	2	n/a	2	2	2	2	1	1	3	9.90
WC-SQU-W-8	3	3	3	3	2	n/a	1	3	3	169.32
WC-SQU-W-9	2	n/a	2	2	2	2	1	1	3	2.22
WC-SQU-W-10	2	n/a	2	2	2	2	1	1	3	1.47
WC-SQU-W-11	3	3	3	3	2	n/a	1	1	3	27.26
WC-SQU-W-12	2	2	2	2	2	3	1	1	2	4.39
WC-SQU-W-13	3	2	3	2	2	n/a	1	1	2	68.78
WC-SQU-W-14	2	n/a	2	2	2	2	1	1	2	1.23
WC-SQU-W-15	2	2	2	2	2	3	1	3	3	1.22
WC-SQU-W-16	2	n/a	2	2	1	2	1	1	3	47.32

Table 9. Summary of OFWAM Results

Summary of Results										
Number of wetlands within each category										
	Wildlife Habitat	**Fish Habitat**	**Water Quality**	**Hydrologic Control**	**Sensitivity to Impact**	**Enhancement Potential**	**Education**	**Recreation**	**Aesthetic Quality**	
1 (Low)	0	0	1	3	6	2	81	76	18	
2 (Med)	108	33	89	93	111	58	25	25	34	
n/a	0	75	0	0	0	11	0	0	0	
3 (High)	13	12	31	25	4	50	15	20	69	
Percentage of wetlands within each category										
1 (Low)	0%	0%	<1%	2%	5%	2%	67%	62%	167%	
2 (Med)	89%	74%	73%	76%	92%	52%	20%	21%	28%	
n/a	-	-	-	-	-	-	-	-	-	
3 (High)	11%	26%	27%	21%	3%	46%	12%	16%	57%	
Number assessed in each category	121	45	121	121	121	110	121	121	121	

Significant Wetlands Determination

Applying Significant Wetland Criteria to the LWI Study Area

Of the 121 wetlands identified in the inventory, 63 (or 52 percent) were found to satisfy the locally significant wetlands (LSW) criteria. These significant wetlands cover approximately 1,269 acres and have an average size of approximately 20.1 acres. The 58 wetlands that did not satisfy the LSW criteria cover approximately 1,323 acres and have an average size of approximately 22.8 acres.

The LSW criteria do not rely on the size of the wetland to determine whether a wetland is significant. Consequently, many of the larger wetlands surrounding the airport in South Corvallis, in the industrially zoned land to the north of the airport, and those in the agricultural areas near Oak Creek and Squaw Creek are not considered significant. Although these wetlands provide valuable functions, such as seasonal habitat for birds, many functions are impacted by on-going agricultural activity and past clearing of trees and shrubs. Consequently, many of the functions assessed by OFWAM are impacted or degraded.

The highest quality wetlands were generally associated with forested or scrub shrub wetlands that provide water quality or hydrologic control. Due to the complexity and vegetative structure, many of these wetlands provide diverse wildlife habitat. Other wetlands met the mandatory criteria for significance due to their proximity (1/4 mile) to a 303(d) listed stream (i.e. Marys River, Willamette River), or a direct surface water connection to an ODFW mapped Essential Salmonid Habitat stream (Oak Creek, Marys River, Mill Race, lower Booneville Channel and Willamette River). Frazier Creek is Essential Salmonid Habitat in its lower reaches outside the UGB.

Table 10 is a list of all of the wetlands determined to be significant within the Corvallis LWI study area.

The break down of locally significant wetlands compared to total number of wetlands identified by project area are as follows:

North – 12 of 24 (50%)
West Central – 29 of 55 wetlands (53%)
South – 22 of 42 (52%)

The criteria for significance and the number of wetlands that qualified for each of the criteria are identified in Table 11.

Table 10. Locally Significant Wetlands in the Corvallis LWI Study Area

North	West-Central	South
N-SEQ-M70-1	WC-DIX-W-1	S-DRY-W-6
N-SEQ-W-2	WC-DIX-W-4	S-MAR-W-3
N-SEQ-W-5	WC-MAR-W-19	S-MAR-W-5
N-JAC-W-1	WC-OAK-W-4	S-MAR-W-8
N-JAC-W-4	WC-OAK-W-5	S-MAR-W-9
N-VIL-M70-1	WC-OAK-W-6	S-MAR-M50-10
N-VIL-W-2	WC-OAK-W-8	S-MAR-W-11
N-VIL-W-3	WC-OAK-W-10	S-MAR-W-12
N-GAR-W-1	WC-OAK-W-11	S-MAR-W-13
N-GAR-W-2	WC-OAK-W-12	S-MAR-W-14
N-GAR-W-3	WC-OAK-W-13	S-MAR-W-15
N-GAR-W-5	WC-OAK-M80-14	S-MAR-W-16
	WC-OAK-W-16	S-GOO-W-1
	WC-OAK-W-21	S-GOO-W-2
	WC-OAK-W-22	S-GOO-W-6
	WC-OAK-W-24	S-MIL-W-1
	WC-OAK-W-25	S-RYA-W-1
	WC-OAK-W-27	S-WIL-W-2
	WC-OAK-W-29	S-WIL-W-5
	WC-OAK-W-30	S-WIL-W-6
	WC-SQU-W-1	S-WIL-W-7
	WC-SQU-M60-2	S-WIL-W-9
	WC-SQU-W-3	
	WC-SQU-W-4	
	WC-SQU-W-5	
	WC-SQU-W-6	
	WC-SQU-W-8	
	WC-SQU-W-11	
	WC-SQU-W-13	

Table 11. Criteria for Locally Significant Wetlands

	West	South	North	Total
Mandatory Criteria				
Provides diverse wildlife habitat	9	3	1	13
Fish habitat function intact	9	1	2	12
Water quality function intact	16	10	5	31
Hydrologic control function intact	9	11	5	25
Less than 1/4 mile from a water quality limited water body & WQ function present	2	18	2	22
Contains a rare plant community	5	1	2	8
Inhabited by sensitive, threatened, or endangered species	7	1	2	10
Connected to ODFW designated essential salmonid habitat	5	6	2	13
Optional Criteria				
Locally unique native plant community	2	0	2	4
Public land used by school & provides educational uses	0	0	0	0

A majority (65%) of the locally significant wetlands satisfied more than one of the above criteria. Nearly 20 percent satisfied four or more criteria. S-MAR-W-13 and N-GAR-W-1 satisfied five criteria; WC-SQU-W-8 satisfied six; and S-WIL-W-2 satisfied all of the mandatory criteria, except the presence of a rare plant community, for a total of seven.

Table 9 indicates the condition of wetlands within Corvallis. As summarized in Table 11, of the 121 wetlands, only 13 provide diverse wildlife habitat and only 12 have intact fish habitat. Just 32 (27%) provide a non-impacted water quality function, while 26 (21%) provide a hydrologic control function. Of the 22 wetlands within one-quarter mile of a water quality limited water body, either the Marys River or the Willamette River, 18 are located in South Corvallis. Eight of these 18 wetlands in South Corvallis were identified as locally significant solely due to the proximity to these two water bodies.

Of the wetlands identified as locally significant under the optional criteria, only wetland N-VIL-W-3 was not identified as locally significant under one of the mandatory criteria. N-VIL-W-3 is a City property west of Conser Street that is identified as having educational uses, and is currently used by students from Cheldelin Middle School.

Wetlands of Special Interest for Protection

Twelve of the wetlands were determined to be of Special Interest for Protection, but four of those are not locally significant. Each contained either mitigation sites or provided known habitat for a rare, threatened, or endangered species. Based on a review of the Oregon Natural Heritage Information Center database, several wetlands may contain habitat for either Bradshaw's lomatium (*Lomatium bradshawii*) or Nelson's checkermallow (*Sidalcea nelsoniana*). Bradshaw's lomatium is a federal and state listed endangered species. Nelson's checkermallow is a federal and state listed threatened species.

Table 12. Wetlands of Special Interest for Protection

WC-SQU-W-3	WC-OAK-W-24	N-GAR-W-1
WC-SQU-W-4	WC-OAK-W-29	N-VIL-W-2
WC-SQU-W-13	WC-OAK-W-30	S-MAR-W-5
WC-OAK-M80-14	WC-OAK-W-10	S-WIL-W-2

Wetland Restoration Potential

Many of the wetlands in the Corvallis area have degraded functions. This is often due to the land use practices such as farming and grazing. Historically this area contained extensive areas of native wet prairie; however, very little of this remains in the UGB. In addition there are very few (8 percent) scrub shrub wetlands within the study area with the majority occurring in the Jackson and Frazier basins.

A wetland enhancement project on OSU land near the Irish Bend Bridge consisted of shallow excavation within a grassy area and the establishment of more native wet prairie species. This also occurred on a mitigation site near the Jackson Frazier wetland. These areas could serve as models for future wetland restoration and enhancement projects.

References

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Appendix A. Table of Previously Approved Delineations

The previously approved wetland delineations within the Corvallis UGB were reviewed as background information in the development of this Local Wetland Inventory.

Wetland Code	DSL Determination Number
N-FRA-W-3	WD# 97-0528
N-GAR-W-1	WD#'s 97-0381, 95-0264
N-GAR-W-2	WD# 98-0315
N-GAR-W-4	WD# 93-0024
N-JAC-W-1	WD#'s 97-0026, 96-0098, 97-0018
N-JAC-W-4	WD#'s 98-0234, 90-0113
N-SEQ-M70-1	WD#'s 98-0520, 97-0382
N-SEQ-W-2	WD# 96-0001
N-SEQ-W-3	WD# 99-0339
N-SEQ-W-5	WD#'s 96-0003, 95-0290
N-VIL-M70-1	WD#'s 94-0187, 91-0115
N-VIL-W-2	WD# 97-0382
N-VIL-W-3	WD#'s 98-0520, 91-0028
S-DRY-W-1	WD# 02-0591
S-DRY-W-2	WD# 02-0591
S-DRY-W-3	WD# 02-0591
S-DRY-W-4	WD# 02-0591
S-DRY-W-5	WD# 02-0591
S-GOO-W-4	WD# 93-0305
S-GOO-W-5	WD# 96-0396
S-GOO-W-6	WD# 97-0167
S-MAR-W-1	WD# 02-0591
S-MAR-W-14	WD#'s 98-0282, 95-0059
S-MAR-W-15	WD# 95-0059
S-MAR-W-16	WD# 91-0080
S-MAR-W-2	WD# 03-0047
S-MAR-W-3	WD# 91-0080
S-MAR-W-5	WD# 96-0280
S-MAR-W-6	WD# 90-0114
S-MAR-W-7	WD# 97-0503
S-MIL-W-1	WD#'s 96-0475, 96-0033
S-RYA-W-1	WD# 95-0159
S-WIL-W-9	WD# 97-0167
WC-DIX-W-1	WD#'s 00-0131, 92-0092, 00-0391, 99-0233
WC-DIX-W-2	WD#'s 02-0533, 99-0233
WC-DIX-W-4	WD#'s 01-0171, 99-0283
WC-DIX-W-5	WD#'s 01-0171, 00-0619
WC-DIX-W-6	WD# 93-0188

Wetland Code	DSL Determination Number
WC-MAR-W-18	WD# 01-0633
WC-OAK-M80-14	WD# 96-0633
WC-OAK-M80-15	WD# 96-0633
WC-OAK-W-13	WD# 99-0556
WC-OAK-W-21	WD# 98-0326
WC-OAK-W-24	WD#'s 95-0101, 91-0095, 95-0060
WC-OAK-W-3	WD# 00-0601
WC-OAK-W-4	WD# 99-0528
WC-SQU-M60-2	WD#'s 95-0346, 91-0141, 94-0111, 94-0325, 95-0105
WC-SQU-W-10	WD# 02-0596
WC-SQU-W-14	WD# 97-0377
WC-SQU-W-3	WD#'s 94-0384, 94-0325
WC-SQU-W-4	WD# 95-0257
WC-SQU-W-8	WD# 98-0154
PW (map N_2)	WD# 91-0136
PW (map S_4)	WD# 98-0179
PW (map W_4)	WD#'s 02-0366, 98-0235
PW (map W_4)	WD# 99-0562
PW (map W_11)	WD# 99-0151
PW (map W_16)	WD# 02-0136

Appendix B. Wetland Site Tax Lot Identification Numbers

WETLAND ID	TAX LOT
N-FRA-W-1	11513BA01100, 11513BA01300
N-FRA-W-2	11511C000800
N-FRA-W-3	11511C000100, 11511C000200, 11511C000300, 11511C000500, 11511C001101, 11511C001190, 11511C001300, 11511C001900, 11511C002100, 11511C002200, 11514B000100, 11515A000100
N-FRA-W-4	11510D001600, 11511C001400, 11511C001600, 11511C002200
N-GAR-W-1	115250001202, 115260000500, 115260000600
N-GAR-W-2	Not Available
N-GAR-W-3	115250001202
N-GAR-W-4	Not Available
N-GAR-W-5	Not Available
N-JAC-W-1	11515D001200
N-JAC-W-2	11514B000400
N-JAC-W-3	115140000100
N-JAC-W-4	11513B000100, 11513B000200, 11513BA01800, 115140000100, 11514A000100, 11514A000101, 11514A000104, 11514A000200, 11514A000300, 11514A000500, 11514A000501, 11514A000600, 11514A000713, 11514AC01600, 11514AC01900, 11514AC02000, 11514AC02700, 11514D000300, 11514D000500, 11514D001000
N-LEW-W-1	11511A000400, 11512BA00300, 11512BA00600, 11512BB00300, 11512BB00301, 11512BC00100, 11512BC00200, 11512BC00400, 11512BC00401, 11512BC00500, 11512BD00100, 11512BD00200
N-LEW-W-2	Not Available
N-NOR-W-1	11523A000200X1, 11523AA00200
N-SEQ-M70-1	11524DC00200, 11524DC00201, 11524DC00300, 11524DC00400, 11524DC00500, 11524DC00600, 11524DC00700, 11524DC00800, 11524DC01000, 11524DC01100, 11524DC01200, 11524DC01300, 11524DC01600, 11524DC01700, 11524DC01800, 11524DC01900, 11524DC02000, 11524DC02200, 11524DC02300, 11524DC02400, 11524DC02500, 11524DC02600, 11524DC02700, 11524DC02800, 11524DC02900, 11524DC03000, 11524DC03100, 11524DC03200, 11524DC03300, 11524DC03400, 11524DC03500, 11524DC03600, 11524DC03700, 11524DC07800

WETLAND ID	TAX LOT
N-SEQ-W-2	115230001900, 115230002100
N-SEQ-W-3	11523A000200X1
N-SEQ-W-4	11526AC00500, 11526AC00600, 11526AC00700
N-SEQ-W-5	11525B000201, 11525B000300, 11525B000400, 11525B000500, 11525B000600, 11525B000601, 11525B002400
N-VIL-M70-1	11524B000500, 11524B000900, 11524B001000
N-VIL-W-2	11524B000300, 11524B000400
N-VIL-W-3	11524DA00600, 11524DA00800, 11524DC00100, 11524DC00101, 11524DC03800, 11524DC03900
S-DRY-W-1	125220000300
S-DRY-W-2	125220000300
S-DRY-W-3	125220000300, 125220001100
S-DRY-W-4	125220000300, 125220000306
S-DRY-W-5	125220000300
S-DRY-W-6	125270000101, 125270000103, 125270000104
S-DRY-W-7	125220000400, 125220000500, 125220000501, 125270000101
S-DRY-W-8	12523CC00400, 12523CC00500, 12523CC00600
S-GOO-W-1	12514AB00100, 12514AB00200
S-GOO-W-2	125140000500. 12514A000100, 12514A000900, 12514BD00100, 12514BD00101, 12514BD01000
S-GOO-W-3	12514A000600
S-GOO-W-4	125110000300, 12511DA00400, 12511DA00401, 12511DA00500, 12511DA00501, 12511DA00600
S-GOO-W-5	12511CA00300, 12511CA00501, 12511CA01403
S-GOO-W-6	125110000300
S-MAR-W-1	125220000300, 125280000200, 125280000500
S-MAR-W-2	125140000800, 12514BC02100, 12514CC00100, 12514CC00200, 12514CC00300, 12514CC00400, 12514CC00500, 12514CC00600, 125220000300, 125220000400, 12523BC01000, 12523BC01400, 12523CB02100, 12523CB02200
S-MAR-W-3	125100000700, 125150000100, 125150000200, 125150000400, 125150000500, 125150000501, 125150000600
S-MAR-W-4	12523BC01600, 12523BC02300

WETLAND ID	TAX LOT
S-MAR-W-5	12514BC00800, 12514BC00900, 12514BC01000, 12514BC01100, 12514BC01200, 12514BC01300, 12514BC01400, 12514BC01500
S-MAR-W-6	12514BA03400, 12514BA03500, 12514BA03600, 12514BA13700, 12514BA13900, 12514BA14000, 12514BA14100, 12514BA14200, 12514BA14300
S-MAR-W-7	12511CC00600, 125140000600
S-MAR-W-8	12510A000700, 12510D000500, 12510D000600
S-MAR-W-9	12510D000500
S-MAR-M50-10	12502CA00200, 12502CA00201, 12502CA00203
S-MAR-W-11	12503D000100. 12503D000190, 12503D001100, 12503D001700, 12503D001800, 12503D001900, 12503D002000
S-MAR-W-12	12503D001500, 12503D001600, 12510A000100
S-MAR-W-13	12510A000400. 12510A000500, 12510A000700, 12510A000900
S-MAR-W-14	12503C002000, 12503D001000, 12510BA00100, 12510BA00300, 12510BA00400, 12510BA00500, 12510BA00600, 12510BA00700, 12510BA00800, 12510BA00900, 12510BA01000, 12510BA01100, 12510BA01200, 12510BA01300, 12510BA01400, 12510BA01500, 12510BA01700, 12510BA01800, 12510BA01900, 12510BA02100, 12510BA05300, 12510BD00100, 12510BD00101, 12510BD00102, 12510BD00200, 12510BD00201, 12510BD00290, 12510C000500, 12510C000800, 12510C000801, 12510CC03300, 12510CC04500
S-MAR-W-15	12510C000800, 12510CC01300, 12510CC01400, 12510CC01500, 12510CC01600, 12510CC01700, 12510CC01800, 12510CC01900
S-MIL-W-1	12511BA05800, 12511BA05900, 12511BA06000, 12511BA06100, 12511BA06200, 12511BA06507, 12511BA06700, 12511BA07900, 12511BA08000, 12511BA08200
S-RYA-W-1	12502D000400
S-RYA-W-2	12511AC02600, 12511AC02601, 12511DB00500
S-WIL-W-1	12523CA00201
S-WIL-W-2	125230000200
S-WIL-W-3	12523BC02000, 12523BC02100, 12523BC02200
S-WIL-W-4	125230000300, 12523BB00200, 12523BB00300
S-WIL-W-5	125140001500
S-WIL-W-6	125110000300
S-WIL-W-7	125110000101, 125110000200, 12511A000200, 12511A000400

WETLAND ID	TAX LOT
S-WIL-W-8	125110000101
S-WIL-W-9	12502D000302, 125120000400
WC-DIX-W-1	115220000400, 115220000405, 115220000600, 115220000603, 115220000609, 11522BD00800, 11522BD00900, 11522BD04000, 11522BD04100, 11522BD04200, 11522CA00100, 11522CA00200, 11522CA00300, 11522CA01100, 11522CA01200, 11522CA01300, 11522CA01400, 11522CA01500, 11522CA01600, 11522CA01700, 11522CA01800, 11522CA01900, 11522CA02000, 11522CA02100, 11522CA06600, 11522CA06800, 11522CA06900, 11522CA07000, 11522CA07100, 11522CA07200, 11522CA07300, 11522CA07500, 11522CA07600, 11522CA07700, 11522CD00700
WC-DIX-W-2	115220000100, 115220000400, 11527AB00100
WC-DIX-W-4	115210000100, 115220000600, 11522BC02100
WC-DIX-W-5	115220000600
WC-DIX-W-6	115210000506, 11521B001200, 11521B001300, 11521B001400
WC-MAR-W-16	12509D000900, 12509D001000, 12509D001100, 12509D001200, 12509D001300
WC-MAR-W-17	12509D000300, 12509D000301
WC-MAR-W-18	12509CA00300, 12509CA01000, 12509CA01100, 12509CA01700, 12509CA01800, 12509CA01900, 12509CA02400, 12509CD00201
WC-OAK-W-1	12503B000100, 12503BD01700
WC-OAK-W-2	12503B000100
WC-OAK-W-3	12503B000300, 12503B000800, 12503B000801, 125040000100
WC-OAK-W-4	115330000300
WC-OAK-W-5	115330000300, 115330000600
WC-OAK-W-6	115330000300, 115330000500, 115330000600
WC-OAK-W-7	115330000300, 115330000600
WC-OAK-W-8	115330000300
WC-OAK-W-9	115330000300
WC-OAK-W-10	115320000200, 115320000300, 115320000400
WC-OAK-W-11	115330000300
WC-OAK-W-12	115330000300
WC-OAK-W-13	115280002300, 115330000200, 115330000900, 115330001000, 115330001100, 115330001101

WETLAND ID	TAX LOT
WC-OAK-M80-14	115330000300, 115330001000
WC-OAK-M80-15	115330000300
WC-OAK-W-16	115280001100, 115330000300
WC-OAK-M90-17	115280001100, 115290000290, 115290000300, 115290000400, 115290000500, 11529C000305, 11529C000600, 11529C000700, 11532A000100, 11532A000200, 11532A000201, 11532A000300, 11532A000700, 11532A000800, 115330000300
WC-OAK-W-18	115280001100, 115330000300
WC-OAK-W-19	115280001100
WC-OAK-W-20	115280002000, 11528D000100
WC-OAK-W-21	115280002000, 115280002000
WC-OAK-W-22	115280000801
WC-OAK-W-23	11521CB00200, 11521CB00300, 11521CB00400
WC-OAK-W-24	115200001000, 11520DC05500, 115280000800, 115280000801, 115280000900, 115290000205
WC-OAK-W-25	115200000100, 115200000105, 115200000107, 115200000109, 115200000700
WC-OAK-M75-26	115200000100, 115200000110, 115200000800
WC-OAK-W-27	115200000100
WC-OAK-W-28	11532D000100, 11532D000102, 11532D000400
WC-OAK-W-29	115320000100, 115320000400, 11532A000500
WC-OAK-W-30	115290000290, 115290000400, 115290000500, 11532A000100
WC-SQU-W-1	12503C000100
WC-SQU-M60-2	12503CB03301, 12504DA01400, 12504DB03800, 12504DB04000, 12504DB05200, 12504DD00202, 12504DD00400, 12504DD00401, 12504DD01000, 12504DD01700, 12504DD07600, 12504DD13700, 12504DD13800, 12504DD13900, 12504DD14000, 12504DD14100, 12504DD15000, 12504DD15100, 12504DD15200, 12504DD15400, 12504DD15500, 12504DD15800
WC-SQU-W-3	125040001000, 12504DC00100, 12504DC00200,12504DD07800, 12509AA01600, 12509AA01800, 12509AA01900, 12509AA02200
WC-SQU-W-4	12504CD00600, 12504CD00703, 12504CD00800, 12509BA00200
WC-SQU-W-5	12509BA00200, 12509BA04700, 12509BA04900
WC-SQU-W-6	12504CC02901, 12504CC02902, 12504CC02903, 12504CC02905, 12504CC02907, 12504CC03000, 12504CC03800, 12504CC03801

WETLAND ID	TAX LOT
WC-SQU-W-7	125080000100, 12508AA00700
WC-SQU-W-8	115320000500, 125050000200A1, 125050000202, 125050000301, 125050000302, 125050000400, 125050000402, 125050000403, 125050000600, 125050000700, 125050001201, 12505B000101, 12505B000102, 12505B000103, 12505B000200, 12505B000300, 12505B000400, 12505DA00100, 12505DA00701, 12505DA00800, 12505DB00100, 12505DB00400, 12505DB00500, 12505DC00100, 12505DC00101, 12505DC00200, 12505DC00300, 12505DC00400, 12505DD00100, 12505DD00200, 12505DD00300, 12505DD00400, 12505DD00500, 12505DD00600, 12505DD00700, 12505DD00800, 12505DD00900, 12505DD01000, , 12505DD01100, 12505DD01200, 12505DD01300, 12505DD01400, 12505DD01500, 12505DD01600, 12508BA00100, 12508BA00200, 12508BA00301, 12508BA00303, 12508BA00400, 12508BA00401, 12508BA00500, 12508BA00600, 12508BA00700
WC-SQU-W-9	12505DA00100
WC-SQU-W-10	12505AD04400
WC-SQU-W-11	125040000300, 125040000400, 12504AC00200, 12504AC00300, 12505AA02702, 12505AA02703
WC-SQU-W-12	115330000300
WC-SQU-W-13	115320000100, 115320000400, 115320000500, 115320000600, 115320000700, 11532D000500, 11532D000501L1
WC-SQU-W-14	125050001201
WC-SQU-W-15	115320000600, 115320000800, 115320000801
WC-SQU-W-16	115320000100, 115320000400, 11532D000300, 11532D000400

Appendix C. Wetland Data Sheet Forms

1. OFWAM Wetland Assessment Summary Sheet
2. OFWAM Functions and Conditions Summary Sheet
3. Locally Significant Wetlands Criteria
4. Wetland Characterization Sheet
5. Wetland Determination Data Sheet

Appendix D. Index of Wetland Determination Sheets by Wetland

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N-GAR-W-2	N-12	
N-GAR-W-3	N-11	
N-GAR-W-4	N-10	
N-GAR-W-5	N-11	
N-JAC-W-1	N-4	
N-JAC-W-2	N-5	
N-JAC-W-3	N-5	
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N-NOR-W-1	N-8	
N-SEQ-M70-1	N-11	
N-SEQ-W-2	N-8	
N-SEQ-W-3	N-8	
N-SEQ-W-4	N-10	
N-SEQ-W-5	N-11	
N-VIL-M70-1	N-9	10
N-VIL-W-2	N-9	11
N-VIL-W-3	N-11	
S-DRY-W-1	S-12	
S-DRY-W-2	S-10,S-11,S-12	239,242
S-DRY-W-3	S-9	234
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Wetland	Map Sheet	Data Point
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S-GOO-W-6	S-4	
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S-MAR-W-3	S-5,S-7	
S-MAR-W-4	S-7	
S-MAR-W-5	S-5	
S-MAR-W-6	S-6	
S-MAR-W-7	S-5	
S-MAR-W-8	S-3	
S-MAR-W-9	S-3	
S-MAR-M50-10	S-2	
S-MAR-W-11	S-1	179
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S-MAR-W-14	S-3	212
S-MAR-W-15	S-3	215,216,218
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WC-MAR-W-16	W-17	
WC-MAR-W-17	W-16	
WC-MAR-W-18	W-16	
WC-MAR-W-19	N-12	
S-MIL-W-1	S-4	205
S-RYA-W-1	S-2,S-4	
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S-WIL-W-2	S-8	249,250
S-WIL-W-3	S-8	
S-WIL-W-4	S-7,S-8	
S-WIL-W-5	S-5,S-6	
S-WIL-W-6	S-6	
S-WIL-W-7	S-4	188,209
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WC-DIX-W-4	W-2	
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Wetland	Map Sheet	Data Point
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WC-OAK-W-13	W-6,W-7	
WC-OAK-M80-14	W-6	104,109,122,128,129,102,120,116
WC-OAK-M80-15	W-6	124
WC-OAK-W-16	W-6	85
WC-OAK-M90-17	W-5,W-6	66,87,92,98,101,112,113,114,130, 72,81,83,95
WC-OAK-W-18	W-3,W-6	52,58,78
WC-OAK-W-19	W-3,W-6	48
WC-OAK-W-20	W-3	41
WC-OAK-W-21	W-3	40
WC-OAK-W-22	W-3	35
WC-OAK-W-23	W-1	
WC-OAK-W-24	W-3	36,38,39
WC-OAK-W-25	W-1	21
WC-OAK-M75-26	W-1	26
WC-OAK-W-27	W-1	247
WC-OAK-W-28	W-6	
WC-OAK-W-29	W-5	105,107,115,119
WC-OAK-W-30	W-6	64
WC-SQU-W-1	W-15	175,177
WC-SQU-M60-2	W-15	182
WC-SQU-W-3	W-14,W-15	199
WC-SQU-W-4	W-14	196
WC-SQU-W-5	W-14	195,197,200
WC-SQU-W-6	W-14	183
WC-SQU-W-7	W-14	
WC-SQU-W-8	W-9,W-13,W-14	
WC-SQU-W-9	W-14	
WC-SQU-W-10	W-10	

Wetland	Map Sheet	Data Point
WC-SQU-W-11	W-11	
WC-SQU-W-12	W-10	
WC-SQU-W-13	W-9,W-10	
WC-SQU-W-14	W-9	
WC-SQU-W-15	W-9	
WC-SQU-W-16	W-9,W-10	135,140

Appendix E. Watershed Setting

Middle Willamette Drainage Basin

Watershed Name	Stream Flow Modified by Dams, channelization or levees	Active Diking or Irrigation Districts Upstream	Dominant Land Use (Upstream)	Streams/Water Quality Limited	Fisheries	S/T/E Fish Species	Wildlife Species	S/T/E Plant or Wildlife Species	Natural Corridor, Fish & Wildlife	Landscape Features/Both Ends Corridor
Adams Jefferson	This is a storm-watershed with no internal creeks or drainages.									Developed
Dixon Creek	No	No	D. Forested	None	A,B,C,D[1]	Cutthroat trout, juvenile spring chinook in lower reaches	Blacktail deer		B Fish and Wildlife	B
Dry Creek	No	No	B. Urbanizing	None	Unknown	Unknown			B Fish and Wildlife	B
Fillmore	This is a storm-watershed with no internal creeks or drainages.									Developed
Frazier Creek	No	No	D. Forested	None	A,B,C,D[1]	Cutthroat trout, juvenile chinook	Blacktail deer, bobcat		A Fish and Wildlife	A
Garfield	No	No	B. Urbanizing	None	Unknown	Unknown	Blacktail deer	Northwestern pond turtle, *Sidalcea nelsonii*	B	C
Goodnight	This is a storm-watershed with no internal creeks or drainages.							*Sidalcea campestris*	B - Wildlife	B
Jackson Creek	No	No	D. Forested	None	A,B,C,D[1]	Cutthroat trout, juvenile chinook	Blacktail deer, bobcat		A Fish and Wildlife	A
Lewisburg	No	No	D. Forested	None	Unknown	Unknown		*Sidalcea nelsonii*	A Fish and Wildlife	B
Madison	This is a storm-watershed with no internal creeks or drainages.									Developed
Mary's River	No	No	C. Agriculture	Portions water quality limited	A,B,C,D,E[2]	Cutthroat trout, juvenile spring chinook	Blacktail deer	*Montia howelii*	B Fish and Wildlife	B
Mill Race	Channelized	No	B. Urbanizing	None	A,B,C,D[1]	Cutthroat trout, juvenile spring chinook	Blacktail deer		A – Fish C - Wildlife	B
North East Corvallis	No	No	B. Urbanizing	None	Unknown	Unknown			B Fish and Wildlife	B

Watershed Name	Stream Flow Modified by Dams, channelization, or levees	Active Diking or Irrigation Districts Upstream	Dominant Land Use (Upstream)	Streams/Water Quality Limited	Fisheries	S-T-E Fish Species	Wildlife Species	S-T-E Plant or Wildlife Species	Natural Corridor Fish & Wildlife	Landscape Features/Both Ends Corridor
Oak Creek	Yes; OSU dams- seasonal barrier, boards placed in late spring	No	D. Forested or natural areas	None	A,B,C,D[1]	Cutthroat trout, juvenile spring Chinook	Blacktail deer	*Lupinus sulphureus ssp kincaidii, Sidalcea nelsonii*	A – Fish B - Wildlife	B
Ryan Creek	No	No	A. Urban	None	Unknown	Unknown		Northwestern pond turtle, *Montia howelii*	C Wildlife - Mostly developed	B
Sequoia Creek	No	No	D. Forested or natural areas	None	A,B,C,D[1]	Cutthroat trout, possible juvenile spring chinook in lower reaches	Blacktail deer	Northwestern pond turtle, *Sidcea nelsonii, Sidalcea campestris, Delphinium pavonaceum*	C Fish and Wildlife	B
Squaw Creek	No	No	D. Forested or natural areas	None	A,B,C,D[1]	Cutthroat trout, juvenile spring chinook	Blacktail deer	*Montia howelii, Sidalcea nelsonii*	A – Fish B - Wildlife	B
Village Green	Channelized	No	D. Natural area	None	Unknown	Unknown	Blacktail deer	*Sidalcea nelsonii*	C Fish and Wildlife	A
Western	This is a storm-watershed with no internal creeks or drainages.									Developed
Willamette River	No	No	C. Agriculture	Portions water quality limited	A,B,C,D,E[2]	Juvenile and adult spring Chinook, Cutthroat, rainbow trout	Blacktail deer	Northwestern pond turtle, *Sidalcea nelsonii*	A – Fish B – Wildlife	A

1. Typical species included: large mouth bass, bluegill, pumpkinseed, peamouth, chiselmouth, brook lamprey, sculpin, whitefish, cutthroat, spring chinook salmon
2. In addition to #1, additional typical species include: sandrollers, small mouth bass, Pacific lamprey, large scale sucker, northern pike minnow, rainbow trout
3. See *City of Corvallis Natural Features Inventory – Wildlife Habitat Assessment* for detailed information on wildlife.

Appendix F. Staff Qualifications

John van Staveren: President/Natural Resources Division; Senior Scientist; Professional Wetland Scientist

Project Role: Project Manager
Project Responsibility: Contract negotiations, monthly billing
Wetland and riparian inventory field work and assessment
Public presentations
Quality control
Regulatory agency coordination

John van Staveren has managed over 600 wetlands-related projects, including 21 local wetland inventories; conducted over 750 wetland delineations; testified at numerous public hearings; and provided expert witness testimony. He served as technical advisor to two Citizen Advisory Committees responsible for establishing criteria for the determination of significant wetlands for purposes of Goal 5 and the determination of significant natural resources for purposes of Goal 17.

John van Staveren served on two Oregon Division of State Land's Technical Advisory Committees (TACs) responsible for developing statewide policy on wetlands. These TACs are to establish statewide criteria for determining locally significant wetlands for Goal 5 and to establish a payment option for wetland mitigation. He was a Wetlands Expert team member providing analysis of the OFWAM, and was a reviewer for the latest revision to the methodology. He has conducted a riparian inventory of Dunes City, Florence, and Reedsport. He has managed dozens of Section 404 and Removal-Fill permit projects for wetland fills; designed dozens of freshwater and estuarine wetland mitigation projects; and drafted two local land use ordinances regulating development activities within natural resource areas.

Patricia Farrell: Wetland Scientist

Project Role: Assistant Project Manager
Project Responsibility: Wetland and riparian inventory field work and assessment
Quality control and editing

Patricia Farrell has a bachelor's degree in biology and a master's in landscape architecture. Patricia has played a major role in eleven Local Wetlands Inventories, conducted Goal 5 and Goal 17 natural resource surveys, conducted riparian inventories, and applied the *Oregon Freshwater Assessment Methodology* to hundreds of wetlands. She has also assisted in the development of local ordinances related to protection of significant Goal 5 natural resources and in the development of the *Urban Riparian Inventory and Assessment Guide.*

Shawn Eisner: Wetland Scientist

Project Role:	Wetland Scientist
Project Responsibility:	Wetland and riparian inventory field work and assessment Quality control and editing Report writing Data input

Shawn has Bachelor's degrees in Earth and Environmental Sciences. Shawn provides specialized support pertaining to wetland delineations, determinations, and monitoring; stream and natural resource assessments and environmental permit processing. He conducts field work and data collection for Local Wetland Inventories and is involved in report preparation and wetland/riparian assessments.

Michele Eccleston: Wetland Scientist

Project Role:	Wetland Scientist
Project Responsibility:	Wetland and riparian inventory field work and assessment Report writing

Michele Eccleston has delineated numerous wetlands and prepared wetland mitigation plans. She has conducted an LWI and riparian inventory in Bandon and helped conducted OFWAM, data collection and wetland characterization.

Fred Small: Wetland Scientist, Botanist

Project Role:	Botanist, Wetland Scientist
Project Responsibility:	Wetland and riparian inventory field work and assessment Plant identification and cataloging Report writing

Fred Small has a bachelor's degree in biology with strong emphasis in botany. Fred has delineated over 100 wetlands; played a role in several large scale local wetland inventories; conducted rare, threatened, endangered plant surveys for sites in the Oregon Cascades, Willamette Valley, and Oregon Coast.

Caroline Rim:	Wetland Scientist, Field Biologist
Project Role:	Wetland Scientist
Project Responsibility:	Wetland and Riparian inventory field work and assessment Aerial photo interpretation Report writing

Caroline Rim has a bachelors degree in biology and is a wetland scientist with experience in LWI and riparian inventory field investigations, wetland delineations, interpretation of aerial photographs, and technical report writing. She has played a major role in several LWIs.

Jane Le Blanc: Technical Editor

Project Role:	Technical Editor
Project Responsibility:	Graphics
	Report editing, formatting and layout
	Data input

Jane Le Blanc is a technical editor and provides permitting support for PHS. Her duties include formatting and editing wetland reports, proposals, and letters as well as data input.

Tom Rodgers: AutoCAD and Arc-Info Specialist

Project Role:	Cartographer
Project Responsibility:	Mapping
	Graphics

Tom Rodgers is a computer graphics specialist, with experience in the production of Local Wetlands Inventories. He is proficient with AutoCAD Map, Arc-View and Arc-Info programs. He has prepared the maps for several LWIs and coordinated with Planning Departments and Council of Governments to ensure that map products and digital information is compatible with local operating systems.

Exhibit D

LWI Map

(was previously distributed to the City Council as
Exhibit B of the October 21, 2004, City Council staff report.)

ORDINANCE 2

AN ORDINANCE RELATING TO LAND USE, AMENDING THE CITY OF CORVALLIS COMPREHENSIVE PLAN TEXT TO ADOPT ARTICLE 39 PERTAINING TO AN ESEE ANALYSIS, ESTABLISHING FINDINGS, AMENDING ORDINANCE 98-53, AND STATING AN EFFECTIVE DATE (PORTION OF CPA04-00003)

ORDINANCE 2004 – *(2)*

AN ORDINANCE RELATING TO LAND USE, AMENDING THE CITY OF CORVALLIS COMPREHENSIVE PLAN TEXT TO ADOPT ARTICLE 39 PERTAINING TO AN ESEE ANALYSIS, ESTABLISHING FINDINGS, AMENDING ORDINANCE 98-53, AND STATING AN EFFECTIVE DATE (PORTION OF CPA04-00003)

WHEREAS, in 1996, the City of Corvallis received notice from the Oregon Department of land Conservation and Development to begin the "Periodic Review" of its Comprehensive Plan;

WHEREAS, the Oregon Department of Land Conservation and Development approved the City of Corvallis' Periodic Review Work Order that included an update of the Land Development Code to implement the Comprehensive Plan;

WHEREAS, completing the entire Periodic Review Order includes updates of the Comprehensive Plan Text, the Comprehensive Plan Map, the Land Development Code, and the Land Development Code Map in a complex and integrated program that is iterative in nature and requires multiple stages to integrate initial amendments into later-stage amendments in order to fully implement all of the Comprehensive Plan Policies and the revised Comprehensive Plan Map;

WHEREAS, on June 26, 2000 the Oregon Department of Land Conservation and Development acknowledged the Corvallis Comprehensive Plan as being consistent with Work Tasks 1 through 8, while also requiring the City of Corvallis to complete Work Tasks 9 through 13;

WHEREAS, Work Task 2 (and an Addendum to Periodic Review Work Task 2) required evaluation and possibly updating of the Goal 5 inventories, text, and policies;

WHEREAS, Work Task 8 required incorporation of policy and map changes that result from updated facility master plans including the Stormwater Master Plan and steps to provide planning consistency and coordination with on-going projects such as the Natural Features Project and a project to implement provisions that move the City in the direction of complying with NOAA Fisheries Rules relating to the Endangered Species Act listing of salmonids in the Upper Willamette River Basin;

WHEREAS, Work Task 10 required revisions to the Comprehensive Plan Text and the Comprehensive Plan Map to incorporate updated inventories and policies;

WHEREAS, Work Task 13 required completion of the requirements associated with the implementation of Statewide Planning Coal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources;

WHEREAS, Work Task 13 required the City of Corvallis to adopt a Comprehensive Plan policy that includes a schedule for completion of Work Task 13 within four years;

WHEREAS, Comprehensive Plan Policy 3.2.1 states the desired land use pattern within the Corvallis Urban Growth Boundary will emphasize: A. Preservation of significant open space and natural features; B. Efficient use of land; C. Efficient use of energy and other resources; D. Compact Urban Form; E. Efficient provision of transportation and other public services; and F. Neighborhoods with a mix of uses, diversity of housing types, pedestrian scale, a defined center, and shared public areas;

WHEREAS, Comprehensive Plan Policy 4.2.1 directs the City of Corvallis to complete inventories of significant natural features within the Urban Growth Boundary;

WHEREAS, Comprehensive Plan Policy 8.2.1 directs the City of Corvallis to support a diversity in type, scale, and location of professional, industrial, and commercial activities to maintain a low unemployment rate and to promote diversification of the local economy;

WHEREAS, Comprehensive Plan Policy 8.9.1 directs the City of Corvallis to designate appropriate and sufficient land in a variety of parcel sizes and locations to fullfill the community's industrial needs;

WHEREAS, Comprehensive Plan Policy 9.3.1 directs the City of Corvallis to work together with Benton County to assure that adequate urbanizable land is available to meet housing needs during the planning period and to prevent development patterns that preclude future urbanization;

WHEREAS, Comprehensive Plan Policy 4.2.5, and interim regulations intended to satisfy Oregon Administrative Rule 660-023-100(4) were adopted with Phase II of the Land Development Code Update project; and

WHEREAS, as indicated in Comprehensive Plan Policy 4.2.5, inventories of natural features and hazards, a process for identifying significant natural features, a process to balance the impacts of protecting such features against the requirements of other Statewide Planning Goals and Rules, and amendments to the Land Development Code to implement those items are to be completed by December, 2004;

WHEREAS, Oregon Statewide Goal 5 requires local governments to inventory and protect natural resources such as wetlands, riparian corridors, and wildlife habitat;

WHEREAS, the City of Corvallis has completed the Natural Features Inventory, the List of Locally Significant Wetlands (included in the Natural Features Inventory), and the Local Wetlands Inventory Map as directed by Comprehensive Plan Policies 4.2.1, 4.2.5, 4.2.3, 4.2.5, 4.6.1, 4.10.2, 4.11,4, and 4.13.1, and the supporting documents for the Natural Features Inventory, the Local Wetland Inventory Map, and the List of Locally Significant Wetlands have been integrated with the Comprehensive Plan;

WHEREAS, the City of Corvallis Natural Features Project ESEE Analysis (Economic, Social, Environmental, and Energy Analysis) and the updated Buildable Lands Inventory information demonstrate the Legislative Amendment (portion of CPA04-00003) to the Comprehensive

Plan Text and the Comprehensive Plan Map provide an appropriate balance of environmental protections with providing sufficient buildable lands and efficient use of lands within the Urban Growth Boundary and further implement Comprehensive Plan policies 8.2.1, 8.9.1, 8.9.7, and 9.3.1;

WHEREAS, the Oregon Administrative Rules require either the use of "Safe Harbor" provisions or the completion of a Economic, Social, Environmental, and Energy analysis and balancing of conflicting land use needs in order to protect, partially protect, or not protect Statewide Goal 5 resources;

WHEREAS, the Periodic Review Work Order and the Comprehensive Plan Policies establish a demonstrated public need to change the Comprehensive Plan in compliance with the Oregon Administrative Rules for Goal 5;

WHEREAS, the City Council finds that using the standard Goal 5 process (requiring an ESEE Analysis) to develop a natural resource protection program specifically designed for lands within the Corvallis Urban Growth Boundary, along with a Statewide Goal analysis, is the most appropriate process to addressing the requirements of the Periodic Review Work Order and the Corvallis Comprehensive Plan Policies;

WHEREAS, the City of Corvallis Natural Features Project ESEE Analysis Report (Economic, Social, Environmental, and Energy) was completed in compliance with the requirements associated with the implementation of Statewide Planning Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources procedures;

WHEREAS, the City of Corvallis has completed the requirements associated with the implementation of Statewide Planning Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources and in doing so has evaluated and balanced the protection of natural features with conflicting use needs;

WHEREAS, the enactment of this Ordinance (2004-??) is subject to prior or simultaneous enactment of Ordinance 2004-?? pertaining to the adoption of the Natural Features Inventory and Ordinance;

WHEREAS, with the approval of the proposed Legislative Amendment (portion of CPA04-00003) to the Comprehensive Plan Text, that adopts the ESEE analysis as part of the Comprehensive Plan, the City Council will have further completed Work Tasks 2, 8, 10, and 13;

WHEREAS, the Legislative Amendment (portion of CPA04-00003) to the Comprehensive Plan Text will not take effect until it is acknowledged by the State Department of Land Conservation and Development and implemented via a final order by the City Council;

WHEREAS, the process of getting the Legislative Amendment (portion of CPA04-00003) to the Comprehensive Plan Text acknowledged by the State Department of Land Conservation and Development and then implemented via a final order by the City Council will be at least a

number of months beyond December 1, 2004;

WHEREAS, the Corvallis Urban Fringe Management Agreement requires joint public hearings between the City of Corvallis and Benton County officials regarding Comprehensive Plan Text Amendments for lands within the Urban Fringe;

WHEREAS, the Benton County Planning Commission participated in a joint public hearing with the Corvallis Planning Commission which was conducted, after proper legal notice, on September 9, 2004; the Benton County Planning Commission conducted deliberations on September 14, and 16, 2004; the Corvallis Planning Commission conducted deliberations on September 14, 16, 23, and 30, 2004; and the among the matters considered as part of the public hearing were the Legislative Amendment (portion of CPA04-00003) to the Corvallis Comprehensive Plan Text and the Comprehensive Plan Map and interested persons and the general public were given an opportunity to be heard. The Benton County Planning Commission has reviewed all matters presented and has provided its recommendations to the Benton County Board of Commissioners. The Corvallis Planning Commission has reviewed all matters presented and has provided its recommendations to the Corvallis City Council;

WHEREAS, the Benton County Board of Commissioners participated in a Joint Public Hearing with the Corvallis City Council on November 4, 2004, November 8, 2004, and November 9, 2004, and on November 9 and 30, 2004 voted to approve the Legislative Amendment of the Comprehensive Plan Text (portion of CPA04-00003) that adopts the ESEE Analysis into the Comprehensive Plan;

WHEREAS, the City Council conducted, after proper legal notice, a public hearing on November 4, 2004, November 8, 2004 and November 9, 2004, and deliberations on November 9, 2004, November 15, 2004, and November 22, 2004, concerning the proposed changes to the Comprehensive Plan, and interested persons and the general public were given an opportunity to be heard; and

WHEREAS, the complete staff report to the Corvallis City Council, dated October 21, 2004, including exhibits; and the portion of the minutes of the November 4, 2004, November 8, 2004, and November 9, 2004 public hearing and the November 9, 2004, November 15, 2004, and November 22, 2004 deliberations, containing the staff presentations and deliberations by the Council that demonstrate support for the proposed Legislative Amendment (portion of CPA04-00003) to the Comprehensive Plan Text are by reference incorporated herein and are hereby adopted by the Corvallis City Council;

NOW THEREFORE, THE CITY OF CORVALLIS ORDAINS AS FOLLOWS:

Section 1. Exhibit A, a detailed set of findings regarding the Comprehensive Plan Text Amendment (portion of CPA04-00003) to incorporate the ESEE Analysis as Article 39 of the Comprehensive Plan is incorporated in and made part of this Ordinance.

Section 2. Exhibit B is hereby incorporated in and made part of this Ordinance, and is hereby adopted into the Comprehensive Plan Text as new Article 39;

Section 3. Exhibit C, the complete ESEE Analysis, is hereby incorporated in and made part of this Ordinance, and is hereby adopted into the Comprehensive Plan Text as outlined in Section 2 above;

Section 4. Ordinance 98-53 as amended is hereby amended.

Section 5. The enactment of this Ordinance (2004-??) is subject to prior or simultaneous enactment of Ordinance 2004-?? pertaining to the adoption of the Natural Features Inventory;

Section 6. The general welfare of the public will be promoted if this Ordinance takes effect following the adoption of a final implementation order by the City Council, and the expiration of any lawful appeal period or appeals of the Council's final implementation order decision. The general welfare of the public will also be promoted if the adoption of this final implementation order by the City Council takes place following receipt by the City of acknowledgment of the revised Comprehensive Plan Map and Text by the State of Oregon Department of Land Conservation and Development, and the expiration of any lawful appeal period or appeals of the Department's decision. Therefore, implementation of the revised Comprehensive Plan Text as outlined in this Ordinance shall take effect following: the receipt by the City Community Development Department of written acknowledgment of the Comprehensive Plan Text Amendment (portion of CPA04-00003) by the State Department of Land Conservation and Development and the expiration of any lawful appeal period, or the resolution of lawful appeals pursuant to ORS 197; and the adoption of a final implementation order by the City Council, and the expiration of any lawful appeal period or lawful appeals of the Council's final implementation order decision.

PASSED by the Corvallis City Council this _____ day of December, 2004.

APPROVED by the Mayor this _____ day of December, 2004.

EFFECTIVE upon the receipt by the City Community Development Department of written acknowledgment of the Comprehensive Plan Text revisions outlined in this Ordinance by the State Department of Land Conservation and Development and the expiration of any lawful appeal period, and the resolution of lawful appeals pursuant to ORS 197; and upon the adoption of a final implementation order by the City Council, and the expiration of any lawful appeal period of lawful appeals of the Council's final implementation order decision.

_____
Mayor

ATTEST: City Recorder

_____