

ENVIRONMENT AND NATURAL RESOURCES

INTRODUCTION

The environmental and natural resources work for the West of Sandy River Rural Area Plan is guided by two significant requirements; Statewide Planning Goal 5 and its administrative rules, and Title 3 of Metro's Urban Growth Management Functional Plan. There are a number of other state and federal environmental laws and regulations that impact the protection of natural resources in the study area, most notably the Endangered Species Act (ESA). The ESA was not directly addressed as part of this planning effort since the County is undertaking a countywide response to the ESA. However, environmental information collected as part of this effort will be useful in the County's ESA efforts.



Sandy River at Oxbow Park

Statewide Planning Goal 5: Riparian Corridors and Wildlife Habitat

Goal 5 requires "local governments to adopt programs that protect natural resources...for present and future generations." Prior to this planning effort, the Sandy River was designated as a Goal 5 scenic and wildlife habitat resource and was protected with the Significant Environmental Concern (SEC) overlay zone. Portions of Beaver Creek, Kelly Creek, and Johnson Creek were listed in Framework Plan Policy 16-G as significant water resource and wetland sites, but since the ESEE process had not been completed, they were not protected. The watersheds of these creeks are also recognized in Policy 16-G as potentially significant. This plan extends protection to these streams and watersheds.

The implementing rules for Goal 5 require the County to either follow the "safe harbor" guidelines described in the rules or conduct an Economic, Social, Environmental and Energy (ESEE) analysis. The County chose to conduct an ESEE analysis to develop an environmental protection program specific to the resources and development found in the West of Sandy River area. This is consistent with the County's approach in the other rural area plans. This ESEE document is an appendix to this plan. The goal of the ESEE analysis was to assess the economic, social, environmental, and energy effects of regulating or not regulating development that could impact significant wildlife habitat and riparian corridors (Goal 5 resources).

Goal 5 requires the following steps to perform the ESEE analysis:

- Identify conflicting uses;
- Determine the impact area;
- Analyze the ESEE consequences

The results of the ESEE evaluation were used to develop a protection program composed of policies and a zoning ordinance (SEC) to meet Goal 5. The Goal 5 process and results are summarized in detail below and the entire ESEE analysis is adopted as part of this plan and included in the Appendix.

Metro Title 3

Title 3 of the Metro Urban Growth Management Functional Plan requires local jurisdictions to adopt ordinances to regulate development in “water quality and flood management areas.” A significant portion of the West of Sandy River Study is within the Metro Boundary and must therefore comply with Metro’s requirements. In order to provide one set of regulations within the Rural Area these standards have been applied consistently throughout the entire West of Sandy River Rural Area. An official map must be adopted, and specific performance standards for water quality and flood management must be implemented. Title 3 setbacks from streams and wetlands vary from 15 to 200 feet, based on site-specific conditions. The requirements of Title 3 have been met in this planning process through the resource protection program that regulates development near Goal 5 stream corridor resources. The protection program completed for the West of Sandy River area includes a 200 foot riparian protection area to protect the functions and values of the riparian resource while also meeting the requirements of Title 3. In addition, the mapping completed for Goal 5 to identify the natural resources in the study area meets the requirements of Metro’s Title 3.

INVENTORY AND ANALYSIS

The inventory and analysis of wildlife habitat and riparian corridors in the West of Sandy River area was done in accordance with the requirements of Goal 5. The Goal requires an inventory of the quantity, quality and location of the natural resources of interest. As permitted by Goal 5, only riparian corridors and wildlife habitat were inventoried and evaluated in the study area. Wetlands outside of riparian corridors were not inventoried for the plan and will continue to be subject to state regulation based on the Statewide Wetland Inventory (SWI) mapping.

The second step in the process was to determine the significance of those resources. Significance was determined by evaluating the quality, quantity and location information for each resource. Upon determining which resources are significant, the land uses that could conflict with Goal 5 resources were identified. Next, the environmental, social, economic and energy (ESEE) consequences of allowing or not allowing the conflicting uses in the study area were considered.

The key questions asked during this analysis were what would be the environmental, social, economic and energy impacts of:

- Allowing conflicting uses,
- Limiting conflicting uses,
- Prohibiting conflicting uses.

Based on this analysis and input from the Task Force, a recommendation was made to limit conflicting uses within the study area.

The following sections describe the inventory process for riparian corridors and wildlife habitat, how resources were determined to be significant and the methods for reaching a conclusion on how to treat conflicting uses.

Riparian Corridor and Wildlife Habitat Inventory

The natural resource inventory identified the riparian corridor and wildlife habitat resources that are to be considered for protection under Oregon’s Statewide Planning Goal 5.

The inventory methodology consisted of identifying resources by reviewing aerial photos and then field verifying those resources. The field observations were made from public rights-of-way, and the work was completed by trained ecologists. Because of the many roads crossing streams and the accessibility of

many of the wildlife habitat areas this method resulted in an accurate inventory upon which to base the ESEE analysis.

In order to make the inventory and analysis more efficient, the riparian corridors were mapped in combination with wildlife habitat (forests) adjacent to streams. As a result, some of the larger riparian corridor units are a combination of riparian corridor and adjacent upland forested wildlife habitat. The areas within the Sandy River canyon are an example of this. Other riparian corridor segments are mapped as just the stream channel. These segments have adjacent agricultural or other land uses to the top of the stream bank, and no riparian vegetation was apparent on the aerial photos or during the fieldwork. Examples of these conditions are found along segments of Beaver Creek and Johnson Creek.

Assessment sheets were prepared for each riparian corridor and wildlife habitat site based on the aerial photo work and the field observations. The assessment sheets include the site name, site code, location, drainage basin (riparian corridor sheets only), adjacent land use, Township, Range, and Section location, map sheet number, date(s) of field work, general description, stream information, dominant vegetation, functions, significance determination, and recommendations for enhancement.

Determination of Significance

After the inventory was completed, a determination of significance was made to decide whether or not the resource site should be considered for protection through the ESEE analysis. The determination of significance was based on the quality, quantity, and location of the resource. The data sheet assessed the conditions of each site. Each site was then rated high, medium or low for five core ecological functions of:

- Wildlife Habitat
- Water Quality Protection
- Ecological Integrity
- Connectivity
- Uniqueness/Fish Habitat

The core functions represent the basic ecological functions of the resources and are considered as a minimum for any valid and defensible ranking.

Twenty riparian corridor units were inventoried and assessed (see Figure 2). The corridors were determined to be significant when they scored high in one or more of the core ecological functions: fish habitat, wildlife habitat, water quality protection, ecological integrity, or connectivity. Fish listed under the ESA are known to be present in Johnson Creek, Beaver Creek, and the Sandy River; therefore, riparian corridors of these streams rate high for fish habitat. All streams within the study area are either tributaries to Johnson Creek, Beaver Creek, or the Sandy River, and all of these tributaries have the potential to provide fish habitat, or to affect fish habitat downstream (i.e. water quality). Therefore, all riparian corridors in the study area rate high for fish habitat.

Twenty-nine wildlife habitat units were inventoried and assessed, of which nineteen are stream-associated and nine are isolated upland areas (see Figure 2). All stream-associated wildlife habitat units were determined to be significant based upon scoring high in one or more of the following core functions: wildlife habitat, water quality protection, ecological integrity, connectivity, or uniqueness. Five of the isolated wildlife habitat units were determined to be significant (see U1, U2, U3, U6, and U9 – on Figure 2). These isolated wildlife habitat units provide good small bird and mammal habitat; however, these units do not provide as valuable wildlife habitat as the stream-associated wildlife habitat units. Four isolated wildlife habitat units were determined to not be significant. Factors contributing to a determination of non-significance include poor vegetation structure and diversity, no adjacent permanent

or seasonal water, small forest size, no connectivity to riparian corridors due to paved roads or adjacent agricultural land use, grazing disturbance, and high occurrence of invasive species.

West of Sandy River

Significant Goal 5 Resources and Impact Areas

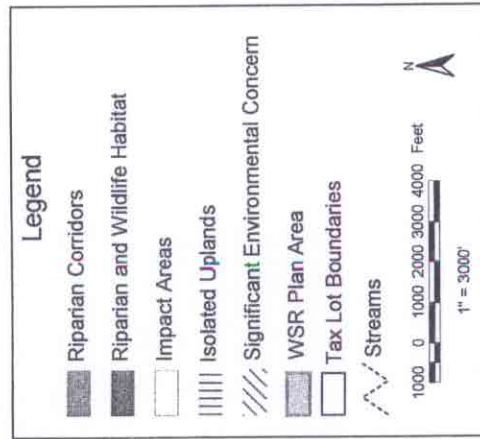
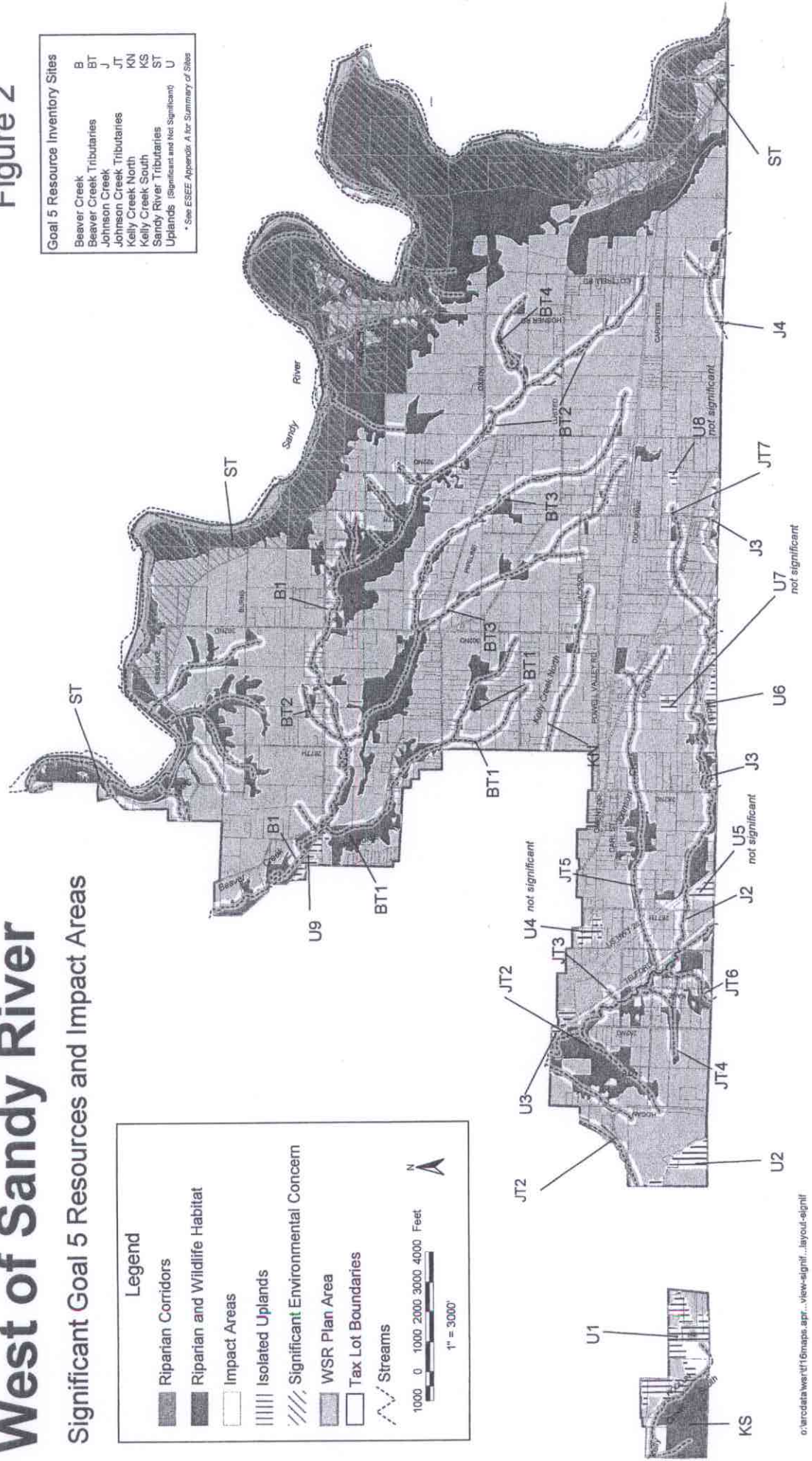


Figure 2

Goal 5 Resource Inventory Sites

Beaver Creek	B
Beaver Creek Tributaries	BT
Johnson Creek	J
Johnson Creek Tributaries	JT
Kelly Creek North	KN
Kelly Creek South	KS
Sandy River Tributaries	ST
Uplands	U

* See ESEE Appendix A for Summary of Sites



Determination of Impact Area

Local governments must determine an impact area for each significant resource site. The impact area is the area where development allowed in the underlying zone could adversely affect the identified resource. The impact area defines the geographic limits within which to conduct an ESEE analysis for the identified significant resource site.

It is the area that is regulated to protect the resource.

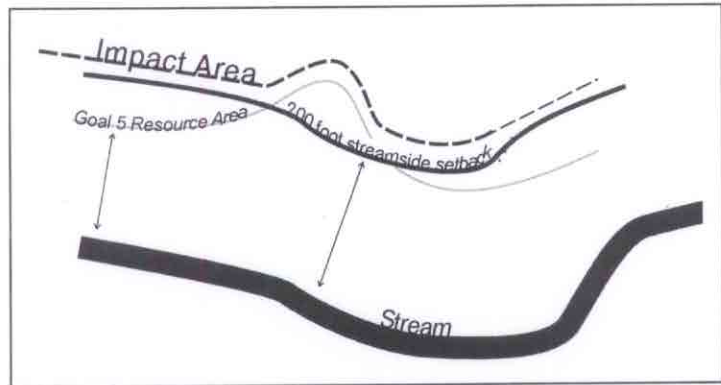


Figure 3: Example of an Impact Area

As shown in Figure 3, the size of the impact area varies with each natural resource. The first boundary is the outline of the entire resource area, which may include both riparian areas as well as wildlife habitat areas. This is illustrated by the "Goal 5 Resource Area" line in Figure 3. A 25 foot impact area is added to this boundary to protect the root zone of forest resources. The "200 foot streamside setback" boundary was drawn to provide a minimum protection of the riparian corridor. This width is based both in the science of the functions and values of riparian corridors. The USFWS suggests that 200 feet is appropriate for Multnomah County based on soils and native trees (Metro, 1999). In addition, the County needs to adopt a Title 3 Water Quality and Floodplain protection ordinance that may include riparian corridors up to 200 feet wide. The final impact area is the most inclusive of these boundaries, and is used in the ESEE analysis.

Conflicting Uses

Goal 5 directs local governments to identify conflicting uses that exist, or could occur within the impact area of significant Goal 5 resource sites. The conflicting uses defined as those land uses that are allowed outright or conditionally in the underlying zone of a resource site or its impact area. As allowed by Goal 5, the conflicting uses in the study area were grouped into broad categories for efficient analysis. The following paragraphs describe those broad categories.

Agriculture

Agriculture uses are permitted outright in all zones in the study area except Rural Residential, where "Limited Farm Use" is permitted as a primary use. The study area includes numerous agricultural uses with nursery and berry farming, and pastures predominating. There is at least one small sheep raising operation, and there may be other small livestock farming uses as well. There are several possible conflicts between farm uses and wildlife habitat. Wildlife connectivity often suffers from the presence of large areas of cultivated land enclosed by fencing that prevents the migration of animals from various areas within their range. The use of pesticides and fertilizers that often accompanies farm uses may discourage native species from flourishing and limit the nature of forage for other species. This impacts both native plant and animal species.

Some farm practices can impact riparian corridors. Livestock found at the edge of a stream can destroy riparian vegetation and trample stream banks. Unfiltered runoff from areas used by livestock can get into the stream and often contributes elevated levels of nitrogen and other nutrients that can impact both fish habitat and native plant habitats.

Although farm use may have impacts upon natural resource values, the County does not regulate most farm practices, therefore the associated impacts are not carried forward into the ESEE analysis. The County does regulate uses associated with agriculture, such as dwellings, roads, commercial activities and structures, and the impacts associated with these uses are analyzed in the ESEE.

Forest

Forest uses are permitted outright in all zones in the study area. The forest land in the study area is found primarily along the Sandy River. Steep forested slopes and broad-forested benches and floodplains characterize the corridor. Generally, the forested areas are not in commercial forest production due to the physical constraints of the study area.

Typical forestry involves the cutting of timber, clearing the site, and then replanting the site with a single commercial species. These disturbances cause a range of impacts to habitat from fragmentation to the loss of native plant and animal species. Much of the forested lands in the plan area are on steep slopes, and commercial forest practices on steep slopes often results in erosion of disturbed soils and can cause geologic instability due to road construction and loss of the root structure that holds fragile soils together. This may lead directly to the deposition of sediments into riparian areas, resulting in the loss of habitat due to the sedimentation of gravels and pools that fish depend upon, as reduced water quality through increased sediment loading.

Typical forest practices often involve the application of chemicals to encourage the growth of commercial tree species. By encouraging the growth of a single tree species, the wide range of other plant species that would otherwise be present is reduced or eliminated. As a result, the structure of the forest is changed from one with a developed duff, shrub, hardwood, and evergreen layer, to one with a single canopy. The wildlife habitat typically found within the structure is thereby eliminated.

The State of Oregon regulates forest practices under the Forest Practices Act; therefore the associated impacts to habitat are not carried forward into the ESEE analysis. As is the case with agriculture, the County does regulate accessory forestry uses and will limit these uses through a protection program.

Residential

Residential uses are permitted outright in the RR, MUA-20 and RC zones, and are permitted subject to standards in the EFU and CFU zones. The study area contains a diverse mix of small lot rural residential use, to larger lot hobby farm residences. Rural residential uses in the area typically rely upon septic systems to provide sanitary sewer, and wells are used for water service in some areas. In high densities, septic systems can infiltrate groundwater and the use of wells can impact the level of the water table. Density varies but residential density in the area increases to one dwelling per acre in the Orient Rural Center area. There are no sanitary sewers in the area, and the roadside stormwater system has limited capacity.

Rural residential development often results in the fragmentation of habitat. Large lawns and landscaped areas, long graveled or paved driveways, stream crossings, and multiple buildings with large areas of impervious surface all contribute to this fragmentation. Increased impervious surface, soil compaction and loss of tree cover contribute to increased stormwater runoff and to stream temperatures too high for healthy habitats. Large lawns and landscaped areas are often treated with fertilizers and pesticides that can end up in adjacent streams and wetlands. Common residential landscaping as well as the removal of native vegetation reduces natural resource values. Landscaping often includes invasive and other non-native species that compete with native vegetation.

Commercial

Commercial uses are currently allowed only as a conditional uses in the EFU, MUA-20, RC and RR zones. Commercial uses are generally characterized by a high level of disturbance. Existing non-farm commercial uses in the area are concentrated in the Orient and Pleasant Home Rural Centers. Smaller scale home occupations and farm related commercial uses exist in limited numbers throughout the study area. Disturbances include site clearing, large building footprints, and large parking areas. These large impervious areas result in alteration of area hydrology, increased stream temperatures and decreased water quality due to runoff from these areas flowing into local wetlands, riparian areas and streams. Storage of chemicals and other toxins related to the commercial uses is also an area of concern. Common attributes include gas tanks, motor oil, and other lubricants and solvents associated with commercial maintenance and repair facilities. If unconfined these products may find their way into local resource sites as stormwater carries them away.

Commercial activities are usually conditional uses under the County zoning code, and the County may place appropriate conditions of approval to limit their impact upon resource functions and values when the County zoning code provides for this.

Industrial

Industrial use is generally considered the most intensive level of development. Industrial uses are generally the most intrusive on the landscape due to large areas of impervious surfaces and clearing, large parking and loading areas, and well as potential sources of toxic run-off, effluent, and other factors that are generally detrimental to significant natural resource sites.

Public Facilities and Community Service Uses

Public facilities and community service uses generally consist of a wide range of uses from building pump stations, schools, etc. The impacts from these uses are highly variable and specific to the individual developments.

Construction of roads results in concentration of surface water, compaction of soils and the resulting loss of water absorption and higher runoff rates, alteration to groundwater recharge (alteration of area hydrology), erosion of side slopes, ditches, and the surface of unpaved roads. Installation of a drinking water pipeline and associated facilities could disrupt the functions and values of the natural resources along its path.

Due to the highly variable nature of the public facilities, it is difficult to assess the impact that *could* take place. In addition, most of the public infrastructure needed to serve the West of Sandy area is already in place. Generally, any implementation of a natural resource program should include a mechanism for the review of the impact these developments may have to the natural resource functions and values, and the projects designed to maintain or replace any disturbed natural resource values.

Summary of Recommended Zoning Code Changes

The protection program proposed by this plan is to limit the potential impacts to habitat areas that could occur during development associated with the uses allowed in the various zones in the plan area. It builds on the County's existing Significant Environmental Concern (SEC) Zoning Overlay District to establish protection standards for both water resource (under Goal 5 and Goal 6) and wildlife habitat (under Goal 5). The expansion of the SEC overlay to include Goal 6 (Water Quality) and Metro's Title 3 is unique to the West of Sandy River area. In other area plans the SEC Overlay is limited to Goal 5 implementation, and the provisions of Title 3 have not been applicable. However, other elements of the

proposed West of Sandy River area SEC Overlay District would be similar to the regulatory approach taken in other areas (e.g., the West Hills area), including:

- Requiring an SEC Permit for regulated development within the SEC Overlay District; and
- Establishing base standards that apply to the entire Overlay District with special standards for specific resources.

The recommended West of Sandy River Rural Area protection program includes two different SEC designations, one for habitat (SEC-h) and one for water resources areas (SEC-wr). The water resources protection zone is focused on riparian resources such as streams, and is more restrictive closer to the resource. The habitat protection zone includes the same level of requirements through the entire area designated as wildlife habitat. For a more detailed description of the recommended zoning code changes see the Appendix under “Environmental Protection Program Code Concepts”.

POLICIES AND STRATEGIES

Goal 5 Policies

Policy 1

Multnomah County recognizes the importance of identifying and protecting natural resources in order to promote a healthy environment and natural landscape that contribute to the livability of the West of Sandy River Rural Area.

Strategies:

- 1.1 Multnomah County shall prepare and maintain an inventory of the location, quality, and quantity of wildlife habitat areas and riparian corridors within the West of Sandy River Rural Area. This inventory should include the riparian corridors associated with the rural eastside streams of Beaver Creek, Johnson Creek and Kelly Creek that are listed in Framework Plan Policy 16G as either significant or potentially significant.
- 1.2 Multnomah County shall utilize the Statewide Wetlands Inventory to identify the general location of wetlands within the West of Sandy River Rural Area.

Policy 2

Multnomah County shall designate selected riparian corridors and wildlife habitat areas as significant natural resources pursuant to Statewide Planning Goal 5.

Strategies:

- 2.1 Those wildlife habitat areas that have been rated as “high” value for at least one of the following ecological functions shall be designated as “significant”:
 - Wildlife Habitat,
 - Water Quality Protection,
 - Ecological Integrity,
 - Connectivity, and
 - Uniqueness.
- 2.2 Those riparian areas that have been rated as “high” value for at least one of the following ecological functions shall be designated as “significant”:
 - Fish Habitat
 - Wildlife Habitat,
 - Water Quality Protection,
 - Ecological Integrity, and

- Connectivity.

Policy 3

Multnomah County shall protect significant riparian corridors and associated impact areas and limit conflicting uses within these areas in the West of Sandy River Rural Area. In considering the protection of these resources, the County shall emphasize an ecosystem based, watershed approach.

Strategies:

- 3.1 Multnomah County shall implement this policy with amendments to the Multnomah County Zoning Code, Significant Environmental Concern Zoning Overlay District for riparian corridors and water resources within the West of Sandy River Rural Area. The protection measures that are incorporated into the SEC Overlay District ordinance will utilize the measures that protect water quality under Policy 6 as one tool to protect riparian corridors and associated impact areas.
- 3.2 This overlay district shall be applied to both the resource and its impact area and shall include areas within 200 feet of each significant stream as measured from top of bank. As stated in Section 6.4 of the *West of The Sandy River Rural Area Transportation and Land Use Plan Natural Resource Inventory and ESEE Report*, this distance is based in the science of the functions and values of riparian corridors. The weight of the science indicates that a significant measure of the functions of riparian corridor habitat exists within the distance that is defined by one potential tree height (PTH) from a stream. The US Fish and Wildlife Service suggests that 200 feet is the appropriate potential tree height (PTH) for Multnomah County based on soils and native trees (Metro, 1999). In addition, the County needs to adopt a Title 3 Water Quality and Floodplain ordinance that can include regulated areas up to 200 feet wide.
- 3.3 The limitation on conflicting uses in this district shall apply to those uses that are regulated by the County and shall allow for conflicting uses within the district if an alternatives analysis demonstrates that no reasonable alternative exists. The standards shall be most protective of the riparian corridor itself and may allow more flexibility for areas outside the corridor but within the impact area.
- 3.4 The County should investigate and consider whether the overlay district ordinance should have as a primary objective, maintaining the Properly Functioning Condition of the riparian corridors and impact areas of significant streams in order to support maintenance and recovery of fish in the area.
- 3.5 Streams in the study area have been significantly impacted by clearing and development. The County should investigate and consider development of a restoration program for study area streams in order to restore fish habitat.

Policy 4

Multnomah County shall protect significant wildlife areas and will limit conflicting uses within these significant natural resource areas and their associated impact areas in the West of Sandy River Rural Area. In considering the protection of these resources the County shall emphasize an ecosystem based, watershed approach.

Strategies:

- 4.1 Multnomah County shall implement this policy by establishing a specific Multnomah County Zoning Code Significant Environmental Concern Zoning Overlay District for wildlife resources within the West of Sandy River Rural Area.

- 4.2 This district shall be applied to areas designated as significant wildlife resources in *West of the Sandy River Rural Area Transportation and Land Use Plan Natural Resource Inventory and ESEE Report* and associated impact areas.

Policy 5

Multnomah County recognizes the need to protect the outstanding public values for which sections of the Sandy River have been designated a National Wild and Scenic River and a State Scenic Waterway.

Strategy:

- 5.1 Work with State Parks and other agencies to review development standards in the County Significant Environmental Concern provisions and in the Oregon Administrative Rules specific to the designated areas.

Water Quality Policies (Title 3, Goal 6)

Policy 6

Multnomah County recognizes the importance of protecting the water quality within the West of Sandy River Rural Area and shall adopt standards to protect the water quality resources from the impacts of development pursuant to the requirements of Title 3 of the *Metro Urban Growth Management Functional Plan* (3.07.340).

Strategies:

- 6.1 Multnomah County shall implement this policy by establishing a specific Multnomah County Zoning Code Significant Environmental Concern Zoning Overlay District for riparian corridors and water resources which substantially complies with the water quality standards of *Title 3 of the Metro Urban Growth Management Function Plan*.
- 6.2 Standards adopted to protect water quality shall preserve the water quality related functions and values of primary and secondary protected water features:
- Primary protected water features shall include: Title 3 wetlands, rivers, streams, and watercourses downstream from the point at which an area of 100 acres or more is drained to that water feature (regardless of whether it carries year-round flow); streams that carry year-round flow; springs which feed streams and wetlands and have year-round flow; and natural lakes.
 - Secondary protected water features shall include intermittent streams, watercourses, and seeps downstream of the point at which 50 acres are drained and upstream of the point at which 100 acres are drained to that water feature.
- 6.3 Standards adopted to regulate the water quality impacts of “development” shall apply to the following:
- “Development” means any man-made change defined as buildings or other structures, mining, dredging, paving, filling, or grading in amounts greater than ten (10) cubic yards on any lot or excavation. In addition, any other activity that results in the removal of more than 10 percent of the vegetation in a protected water feature or its vegetated corridor on a lot is defined as development.
 - Development shall not include the following:
 - Stream enhancement or restoration projects approved by cities and counties;

- Farming practices as defined in ORS 30.930 and farm use as defined in ORS 215.203, except that buildings associated with farm practices and farm uses are subject to the requirements of Title 3; and
- Forest practices conducted under an Oregon Department of Forestry permit.

Policy 7

Multnomah County recognizes that it is important to protect vegetated corridors in order to maintain their water quality functions including the following:

- Separation of protected water features from development;
- Maintaining or reducing stream temperatures;
- Maintaining natural stream corridors;
- Minimizing erosion, nutrient and pollutant loading into water;
- Filtering, infiltration and natural water purification; and,
- Stabilizing slopes to prevent landslides contributing to sedimentation of water features.

Strategy:

- 7.1 Require that new development or redevelopment maintain vegetated corridors along primary and secondary water features whenever feasible. The width of the vegetated corridors shall be based on the type of water resource and the slope of the adjacent banks.
- The width of vegetated corridors adjacent to primary protected water features shall be 50 feet from the top of bank or ravine. The top of the ravine is the break in the greater than or equal to 25% slope. The starting point for measurements shall be the top of bank, which is the same as “bankful stage” defined in OAR 141-85-010(2).
 - The width of vegetated corridors adjacent to secondary protected water features with slopes less than 25% shall be 15 feet and where slopes are greater than or equal to 25%, the vegetated corridor shall be 50 feet.
 - In no case shall the width of the vegetated corridor be required to exceed 200 feet from top of bank.

Policy 8

Multnomah County shall take steps to limit visible and measurable erosion from development throughout the West of Sandy River planning area in accordance with the water quality standards of *Title 3 of the Metro Urban Growth Management Function Plan*.

Strategies:

Multnomah County shall implement this policy by establishing standards that:

- 8.1 Apply erosion and sediment control regulations to all development activities that may result in visible or measurable erosion. Visible or measurable erosion includes, but is not limited to:
- Deposits of mud, dirt sediment or similar material exceeding one-half cubic foot in volume on public or private streets, adjacent property, or onto the storm and surface water system, either by direct deposit, dropping discharge, or as a result of the action of erosion.
 - Evidence of concentrated flows of water over bare soils; turbid or sediment-laden flows; or evidence of on-site erosion such as rivulets on bare soil slopes, where the flow of water is not filtered or captured on the site.
 - Earth slides, mudflows, earth sloughing, or other earth movement that leaves the property.
- 8.2 Help prevent erosion by requiring the use of prevention practices such as non-disturbance areas, construction schedules, erosion blankets and mulch covers. To the extent that erosion cannot be completely prevented, sediment control measures are to be designed to capture, and retain on site, soil particles that have become dislodged by erosion.

- 8.3 Adopt a limited construction season for development within primary and secondary water feature corridors to allow disturbance to occur during dry parts of the year and limit it during wet seasons.
- 8.4 Control stormwater from developed areas in a manner that does not increase runoff, and does not contribute to increased flow in area drainages and creeks. Investigate how runoff could be reduced from parking and maneuvering areas through use of pervious materials.
- 8.5 Require that stream crossings be avoided where possible, and when unavoidable, require maintaining watershed function in development of regulations for stream crossings, e.g. crossing does not disturb the bed or banks of the stream, is of the minimum width necessary to allow passage of peak winter flows, etc.

Other General Policies

Policy 9

Regulations to protect natural resources and water quality should allow changes to existing development when the overall resource value of the property is improved.

Strategy:

- 9.1 Include language in natural resource protection and water quality standards that allows changes to existing development which result in a net benefit to the protected resource.

Policy 10

Multnomah County should continue to make information about other agency programs and educational materials available to the public at the planning counter and on the internet.

Strategy:

- 10.1 Multnomah County will work with the East Multnomah Soil and Water Conservation District, the Oregon Department of Agriculture, the County Assessor, the U.S. Natural Resources Conservation Service and others to provide landowners with information about various agency programs. Programs may include property tax deferral and exemption programs available for stream enhancement and agricultural plans to protect streams and their watersheds.