



SOUTH ALBANY AREA PLAN

TASK 2 MEMORANDUM

**OAK CREEK OPEN SPACE REVIEW AND
RECOMMENDATIONS**

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INTRODUCTION

The City of Albany is refining its Comprehensive Plan and Development Code in anticipation of future growth in the South Albany area. The study area for this task covers an approximately three-mile segment of Oak Creek between Interstate 5 and Highway 99E (Pacific Boulevard). The City has mapped natural resources and natural hazard areas associated with Oak Creek, including the Oak Creek riparian corridor, locally significant wetlands, and the 100-year floodplain. The purpose of this memorandum is to integrate recent natural resources data with existing baseline information to update and refine the Open Space Zoning District and Comprehensive Plan Designation boundary in the Oak Creek corridor of the study area. The updated natural resources and natural hazards information will serve as a basis for the refinement of the Open Space boundary.

Winterbrook used the best available data to refine the existing inventory, and conducted a reconnaissance-level field survey to ground-truth existing resources within the study area. Map refinements were completed by the City GIS staff.

This memorandum provides a summary of findings and proposed refinements to City maps, particularly those showing Open Space areas. It also recommends natural resource management policies for lands adjacent to Open Space areas.

OAK CREEK STUDY AREA

The study area covers approximately 2,106 acres of land in the vicinity of Oak Creek between Interstate 5 and Pacific Boulevard (Hwy. 99E) (see Figure 1). For the purpose of this review, the Oak Creek corridor was divided into three reaches, based in part on reach breaks identified in the City's riparian corridor study at major road crossings. The reaches range in length from approximately 5,000 to 6,600 feet. The location and length of each reach is summarized in Table A.

Table A. Reach Location, Length and Area

Reach	Location/boundaries	Approximate Length
Reach 1	Highway 99E to Lochner Road	6,600 ft.
Reach 2	Lochner Road to Columbus Street	5,000 ft.
Reach 3	Columbus Street to Interstate 5	6,300 ft.

DEFINITIONS

Floodplain – Refers to the 100-year floodplain, which is the combined area of the floodway and the flood fringe. This area has a one percent chance of flooding in any given year.

Open Space District – Includes both the City comprehensive plan designation and zoning district. It is intended for the establishment, continuation, and preservation of

agricultural uses, park and recreation areas, wildlife habitats, wetlands, natural areas, and other uses that do not involve the construction of structures other than minor facilities that might be required to conduct the principal use (Albany Development Code (ADC) 3.025).

Riparian Corridor – An area along a river, lake, or stream which includes the water areas, fish habitat, wetlands, and adjacent riparian areas that mark the transition from an aquatic ecosystem to a terrestrial ecosystem.

Wetland – An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions (ADC 22.400).

INVENTORY METHODS

Review of Existing Information

A review of existing studies, maps, and other source materials was conducted to identify natural features within the study area, including wetlands, riparian corridors, floodplains, and habitat areas. The document review included the following sources of information:

- Oak Creek Area Concept Plan (Preliminary Draft, City of Albany/John Stewart, 2006)
- Albany Development Code (City of Albany, 2007)
- Albany Comprehensive Plan and supporting documentation (City of Albany, 2007)
- City of Albany Local Wetlands Inventory for the Willamette Calapooia, and Oak Creek (Pacific Habitat Services, 1999)
- City of Albany Riparian Inventory for the Willamette River, Calapooia River, and Oak Creek (Pacific Habitat Services, 1999)
- 100-Year Floodplain and Base Flood Elevation Lines (FEMA, 1999)
- Aerial Photographs showing 1996 Flood (Army Corps of Engineers, 9 Feb 1996)
- Oak Creek property ownership map (City of Albany, 2007)
- Maps, data and reports from local property owners

City of Albany Geographic Information System (GIS) data was used as the basis for the mapping of Oak Creek natural resources and natural hazards. The following data layers were used:

City of Albany GIS data

- Albany City Limits (City of Albany, 2007)
- City of Albany UGB (City of Albany, 2007)
- Oak Creek Study Area Boundary (City of Albany, 2007)
- Parcels (Linn County, 2007)
- Streets (City of Albany Mapping Project from 152.852 MM F.L Aerial Photos. Photogrammetry by 3Di West GeoTerra, Inc, 2006)
- Streams (City of Albany Mapping Project from 152.852 MM F.L Aerial Photos. Photogrammetry by 3Di West GeoTerra, Inc, 2006))

- Hydrography (City of Albany Mapping Project from 152.852 MM F.L Aerial Photos. Photogrammetry by 3Di West GeoTerra, Inc, 2006)
- City of Albany Local Wetlands Inventory for the Willamette Calapooia, and Oak Creek (Pacific Habitat Services, 1999)
- City of Albany Riparian Inventory for the Willamette River, Calapooia River, and Oak Creek (Pacific Habitat Services, 1999)
- 100-Year Floodplain (FEMA Flood Insurance Rate Map, Community Panels 4101370005F & 4101360190B, revised 1999)
- Topographic contours (City of Albany Mapping Project from 152.852 MM F.L Aerial Photos. Photogrammetry by 3Di West GeoTerra, Inc, 2006); 2 ft. interval)
- Ortho photography (City of Albany Mapping Project from 152.852 MM F.L Aerial Photos. Photogrammetry by 3Di West GeoTerra, Inc, 2006 ; 6" pixels))
- Open Space District boundary (City of Albany, 2007 -- originally digitized from paper maps (1971 Albany Comprehensive Plan and 1981 Albany Development Code,)

Field Inventory

Recent studies completed for the City include inventories of wetlands and riparian corridors within the Oak Creek study area. Winterbrook Planning conducted a reconnaissance-level survey of natural features to field check existing information on wetlands, riparian corridors, vegetation, wildlife habitat, and floodplains.

The survey was generally completed using an off-site methodology that included off-site viewing of natural features from public lands and rights-of-way. In addition, access to several private properties was obtained by the City. Site visits were conducted at some of these properties, to the extent permitted by the consultant's scope of work. Field checks, whether on or off site, included review of existing mapping and natural features data, and additional documentation of vegetation, wetland, riparian, and habitat conditions where appropriate.

Mapping

Federal Emergency Management Agency (FEMA) base flood elevations on their flood maps for the area are based on topographic data from 1929. In some cases the floodplain boundary on the FEMA maps does not follow natural contours, and is obviously incorrect. Consistent with the City's map refinement approach outlined in ADC 6.080 of the Albany Development Code, Winterbrook used current FEMA Base Flood Elevation Lines and updated City topographic data (including spot elevations and two-foot contours) to refine the location of floodplain boundaries.

Additional sources of information for the floodplain boundary refinement included aerial photographs of the 1996 floods along Oak Creek, field observations, and discussions with landowners of past flood elevations and review of landowner flood photographs.

Other mapping methods included field checks of wetland and riparian corridors and refinement of the associated mapping in limited circumstances. Printed maps edited by Winterbrook were then digitized by the City of Albany GIS staff. The refined natural feature layers are shown in Figures 2 through 4.

FINDINGS

This section describes the results of the review of existing information and field survey. The review summarizes findings for each resource type, then examines the implications for the City's designated Open Space district.

Winterbrook Planning conducted reconnaissance-level field surveys of natural features within the Oak Creek study area on April 11 and May 29, 2007. The purpose of the surveys was to field check existing information on wetlands, riparian corridors, wildlife habitat, and floodplains. As noted above, field checks were completed using a combination of on- and off-site assessment methodologies.



Camas lily, one of many native plants found within the Oak Creek riparian corridor and associated wetlands and floodplains.

Using the field-checked existing data, including data provided by resource agencies and local landowners, Winterbrook examined the City's Open Space District designation and made recommendations for refinements to the boundary.

Resource Overview

This section summarizes the findings for individual resources based on the review of source materials, contacts with resource agencies and landowners, and field visits.

Wetlands

The City of Albany completed a Local Wetlands Inventory (LWI)¹ for the Oak Creek study area in 1999. This inventory included areas inside and outside the current City limits, but within the city's urban growth boundary. The LWI was completed using a combination of on-site and off-site assessment methodologies. Much of the Oak Creek

¹ A LWI is a collection of maps and information about wetlands throughout a local community that provides a planning tool for balancing the protection of wetland functions with other community needs. LWIs satisfy the requirements for wetland inventories under Statewide Planning Goal 5 (Natural Resources). Once approved, LWIs become part of the Statewide Wetlands Inventory. Mapped LWI wetland boundaries are generally accurate to within 25 feet, but may be less in areas that could not be field verified. A wetland boundary delineation may be needed to determine whether regulations apply to a particular development proposal.

study area was identified as wetlands in the LWI. However, a smaller area was determined to contain “locally significant wetlands” or LSWs².

The City identified 14 locally significant wetlands totalling 201 acres within the Oak Creek area. All of the wetlands are forested wetlands or a mix of wetland classes that include a forested wetland component. The LSWs range in size from 0.45 acre to 80.27 acres. Five of the wetlands identified are comprised of a mosaic of wetland and uplands, so that actual area of wetlands is less than the total mapped area. Locally significant wetlands within the study area are shown in Table 1.

Table 1. Oak Creek Locally Significant Wetlands

Oak-22	Oak-26H	Oak-40
Oak-23A	Oak-26I	Oak-41A
Oak-26A	Oak-26M	Oak-41B
Oak-26B	Oak-32A	Oak-41C
Oak-26G	Oak-36A*	

* Wetland is within study area but along separate riparian corridor south of Ellingson Road.

The total area of locally significant wetlands by stream reach is shown in Table 2.

Table 2. Locally Significant Wetlands by Oak Creek Reach

Reach	Location	Total Area of LSWs
1	Highway 99E to Lochner Road	76 acres
2	Lochner Road to Columbus Street	66 acres
3	Columbus Street to Interstate 5	60 acres

Locally significant wetlands mapped by the City in 1999 generally appear to reflect current conditions.³ In one location, wetlands were noted where they had not previously been mapped. This area is approximately 23 acres in size and occurs west of the railroad line that parallels Pacific Boulevard, between mapped wetlands Oak-23A and Oak-26B.⁴ Because of the potential presence of a wetland-upland mosaic within this oak-ash forest, the riparian boundary was assumed to follow the southern edge of the forest as noted below.

Wetland delineations that have been approved by the Department of State Lands (DSL) generally supercede the mapped wetland boundaries shown on the LWI. At this time, several delineation reviews are pending at DSL, but we are not aware of any that have received formal DSL concurrence.

² A LSW provides functions or exhibit characteristics that are pertinent to community planning decisions made at a local scale. These wetland sites were determined by the City of Albany to meet the significance criteria in OAR 141-086-0350.

³ No wetland data plots were conducted for this reconnaissance level survey, and most wetland sites were viewed from off site.

⁴ Since no on-site access was provided, Winterbrook could not determine the extent of the wetland but it is well within the Oak Creek floodplain.

Riparian Corridors

Oak Creek is the primary riparian corridor flowing through the study area. Several small tributaries join Oak Creek within the study area. One tributary, located in the southwest corner of the study area near Ellingson Road, joins Oak Creek west of Pacific Boulevard at approximately 39th Avenue. Oak Creek is a tributary to the Calapooia River, which discharges to the Willamette River at Monteith Riverpark in downtown Albany.



A densely wooded section of the Oak Creek riparian corridor.

The main stem of Oak Creek is designated as a fish-bearing stream by the Oregon Department of Forestry and Oregon Department of Fish and Wildlife.

The City identified one generally continuous riparian corridor along Oak Creek, comprised of six distinct riparian segments. The total area of the corridor is 67 acres. The riparian corridor is composed of a mixed Oregon ash (*Fraxinus latifolia*) and Oregon white oak (*Quercus garryana*) forest. Oak Creek riparian corridor segments within the study area are shown in Table 3.

Table 3. Oak Creek Riparian Corridor Segments

R-Oak-9A	R-Oak-10	R-Oak-12
R-Oak-9B	R-Oak-11	R-Oak-13

The total area of riparian corridors by stream reach is shown in Table 4.

Table 4. Riparian Corridor Area by Oak Creek Reach

Reach	Location	Total Area of Riparian Corridors
1	Highway 99E to Lochner Road	23 acres
2	Lochner Road to Columbus Street	12 acres
3	Columbus Street to Interstate 5	32 acres

During the course of the present survey, Winterbrook identified two areas where riparian corridor refinements appeared appropriate, at least for the purposes of the present study. The first has been mentioned previously: the riparian area should follow the forested wetland mosaic located between wetlands Oak-23A and Oak-26B. The current mapping makes a zig-zag around the south side of wetland Oak-23A, then north through the oak-ash forest, then east to the railroad. A more consistent mapping, given the presence of wetlands in the area, is for the riparian area to follow the south edge of the Oak Creek forest continuously between Pacific Boulevard and the railroad bed.

The second area of refinement is at wetland Oak-26M, a small stream tributary entering Oak Creek from the south. It located outside of the city limits, roughly half way between the aforementioned railroad and Lochner Road. This is a mapped LSW but the stream connecting the wetland to Oak Creek and other wetlands is not recognized as significant or as part of the riparian corridor. There is a hydrological connection to the Oak Creek corridor here, and for the purposes of this study, the LSW should be considered part of the riparian corridor.

Wildlife Habitat

The Oak Creek riparian area and associated wetlands and floodplains provide high quality habitat for a wide variety of birds, mammals, amphibians and invertebrates. Fish have also been documented in Oak Creek itself. The Wildlife Habitat Assessment (WHA) methodology employed by many communities in Oregon to address Statewide Planning Goal 5 (Natural Resources) was used for the Oak Creek corridor. Each of the three Oak Creek reaches was found to contain consistently high quality habitats.



Oak Creek provides high quality food, water, and cover for a diverse mix wildlife species.

Wildlife habitat assessments are summarized in Table 5.

Table 5. Wildlife Habitat Assessment by Oak Creek Reach

Reach	Habitat Component Ratings	Overall Rating
1	Water: High Food: Moderately High Cover: Moderately High Connectivity: Medium	94 (High)
2	Water: High Food: Moderately High Cover: Moderately High Connectivity: Medium	95 (High)
3	Water: High Food: Moderately High Cover: Moderately High Connectivity: Medium	87 (High)

Oak Creek wildlife habitat characteristics include the following elements:

The forested parts of the Oak Creek riparian corridor are dominated by mature Oregon ash and Oregon white oak as noted previously. Ash is typically dominant in wetter areas (including wetlands) while oak is more common on dryer lands but can also be found in the wetlands. Other trees include black hawthorn (*Crataegus douglasii*), black

cottonwood (*Populus balsamifera trichocarpa*), cascara (*Rhamnus purshiana*), and bigleaf maple (*Acer macrophyllum*). Two invasive tree species noted were European hawthorn (*Crataegus monogyna*) and ornamental cherry (*Prunus avium*); however, these species are not widespread.

The understory layer is typically dominated by common snowberry (*Symphoricarpos albus*) and also includes Pacific ninebark (*Physocarpus capitatus*), osoberry (*Oemleria cerasiformis*), Nootka rose (*Rosa nutkana*), poison oak (*Toxicodendron diversilobum*), dewberry (*Rubus ursinus*), serviceberry (*Amelanchier alnifolia*), oceanspray (*Holodiscus discolor*), mockorange (*Philadelphus lewisii*), and various willow species (*Salix* sp.). The willows and ninebark are commonly associated with wetlands. Himalayan blackberry (renamed “Armenian” blackberry) (*Rubus armeniacus*) is a common invasive shrub in clearing and forest edges.

The herbaceous layer varies with soil moisture conditions similar to the other vegetation layers. Common drier riparian community plants included large-leaved avens (*Geum macrophyllum*), candy flower (*Montia sibirica*), cleavers (*Galium aparine*), Stachy’s hedge nettle (*Stachys cooleyae*), fringecup (*Tellima grandiflora*), and sword fern (*Polystichum munitum*). Wetland and wet meadow species included camas lily (*Camassia quamash*), chocolate lily (*Fritillaria lanceolata*), rushes (*Juncus effusus* and *J. patans*), slough sedge (*Carex obnupta*). Reed canarygrass (*Phalaris arundinaceae*), an invasive wetland species, was an occasional component of wetland areas.

Floodplain

The 100-year floodplain, as mapped by the Federal Emergency Management Agency (FEMA), covers a total of 434 acres within the Oak Creek study area. The FEMA floodplain mapping relied on generalized U.S.G.S. topographic data from the 1970s. The City’s new topographic data and aerial imagery is of a much higher resolution and accuracy than the pre-existing data. When overlain on the City’s new topographic contours, the FEMA floodplain boundary appears to climb slopes and cross existing buildings that are located on high ground.



A broad floodplain and wetland area transitioning to upland.

The FEMA floodplain maps are scheduled to be updated in 2009. To obtain a more accurate picture of the actual floodplain in the meantime, the consultant team reviewed the FEMA floodplain base data against the updated topographic information (including two-foot contours and spot elevations).⁵ Consistent with the method FEMA will use to

⁵ Of course, formal FEMA floodplain boundary amendments must be prepared by FEMA, but this review followed the general process for correcting boundaries, as outlined by FEMA and the City of Albany.

update their floodplain maps and with the City's map refinement approach outlined in ADC 6.080, Winterbrook used current FEMA Base Flood Elevation Lines (NGVD 1929) and updated City topographic data to refine the location of floodplain boundaries. ADC 6.080 provides as follows:

"Precise floodplain district boundaries may be difficult to determine from the maps referred to above due to their large scale and lack of site specific studies. In such instances, the Director may apply FEMA base flood elevations to topographic maps or site surveys in order to determine actual boundaries."

Additional sources of information for the floodplain boundary refinement included aerial photographs of the 1996 floods along Oak Creek, field observations and discussions with landowners of past flood elevations and review of landowner flood photographs.

Winterbrook prepared a draft refinement map of the Oak Creek floodplain boundary within the study area. This area was then digitized by City GIS staff. The result is a modified boundary that more accurately reflects the low-lying, flood-prone areas within the study area. The net change in the area encompassed by the floodplain is a decrease of 21 acres, from 434 acres to 413 acres.

Open Space District Boundary

At the time of the adoption of the City of Albany's Open Space district boundaries (1971 for the Comprehensive Plan Designation and 1981 for the Zoning District), the City had not completed a Local Wetland Inventory or Riparian Corridor Inventory. When preparing the Open Space boundary, the City relied on generalized data and mapping for wetlands, floodplains, and riparian areas. As described above, the floodplain mapping also relied on fairly generalized U.S.G.S. topographic information. With the new information available for these features, the Open Space district boundary can be mapped with greater accuracy and higher resolution.

The Open Space map refinement recommended in this report reflects that new information. The result is an Open Space area that will be removed from some inappropriate locations where it currently exists, such as over homes and institutional buildings that are above base flood elevation, and in areas located far outside of actual floodplains and natural resource areas. In general, areas containing locally significant wetlands, riparian corridors, and/or floodplains are important natural features to be conserved through the City's Open Space district. Wildlife habitat is also an important resource warranting conservation; however, high quality habitats are generally contained within the wetland, riparian, and floodplain areas, as refined and mapped in this report.

The net change in the size of the Open Space District proposed by this study is an increase of 18 acres overall.

As noted in the following discussion of management policies, land uses and development within the larger Oak Creek study area will have potential adverse impacts

on the resources within the Open Space District. Conservation of these areas is recommended through other means, such the use of “low impact development” strategies and the conservation of important upland forest areas (e.g., oak groves). Some of these strategies are evident in the original planning work completed as part of the Draft Oak Creek Area Concept Plan.

NATURAL RESOURCE MANAGEMENT POLICY RECOMMENDATIONS

As part of this task, the City requested a brief discussion of policies and guidelines for natural resource management that may serve to conserve the significant streams, wetlands, habitats and floodplains discussed above.

Preserve natural vegetative cover within the Oak Creek study area.

Natural vegetation such as the oak groves scattered throughout the study area provides important habitat functions and movement corridors or “stepping stones” for a diverse array of wildlife in the area. Natural vegetation also helps maintain the predevelopment hydrology on a site, thereby reducing the need to rely on large-scale stormwater ponds as development occurs. Natural cover on highly permeable soils (Hydrologic Soil Groups A and B) increases filtration and infiltration. Where it can be done without disturbance to trees, locate stormwater infiltration systems on HSG A and B soils. The corollary here is to locate impervious areas on less permeable soils (HSG C and D) to minimize the potential loss of infiltration/recharge capacity.

Prevent direct stormwater discharges to Oak Creek, and to Oak Creek tributaries.

This can be accomplished by siting stormwater facilities outside of the Open Space District, and by avoiding piped discharges to streams and wetlands within the larger Oak Creek study area that feed or are connected to the Oak Creek system. Any discharges to Oak Creek tributaries should follow Best Management Practices for water quality and quantity treatment so that pre-development conditions are not exceeded.

The goal for future development within the study area should be to capture and infiltrate rainwater as close to its source as possible, where soil conditions allow. Integrated Management Practices (IMPs) are recommended in lieu of centralized stormwater ponds. The IMPs include the use of small-scale distributed runoff management features, together with minimization of impervious cover, and strategic placement of buildings, pavement and landscaping.

Minimize the overall impervious cover.

Paved roadways, sidewalks, driveways and parking areas are the primary sources of impervious surface area. Impervious areas alter runoff and recharge values and site hydrology. Maintaining pervious surfaces as part of development allows surface water infiltration and groundwater recharge. There are several practices that can be used to reduce the total runoff volume from impervious surfaces. These practices are recommended to be implemented throughout the Oak Creek study area.

They include:

- Minimize widths of streets and roads (e.g., 28 feet for residential streets with on-street parking, and 20 feet without parking)
- Minimize cul-de-sac diameters, use doughnut cul-de-sacs, or use alternative turnarounds
- Minimize excess parking space construction, utilize pervious pavers in low-use parking areas
- Utilize structured or shared parking
- Reduce home setbacks and frontages
- Where permitted, minimize sidewalk construction by utilizing sidewalks on one side only, utilizing “skinny” sidewalks, or substituting sidewalks with pervious trails through common greenspace.
- Where appropriate, avoid the use of curb and gutter. Utilize vegetated open swales, preferably “engineered swales” with a permeable soil base.
- Minimize compaction of the landscape. In areas where soils will become compacted due to construction equipment, specify that the soils will be “disked” prior to seeding, and amended with loam or sand to increase absorption capacity.

“Disconnect” impervious areas.

Disconnecting streets and parking areas from closed culverts allows drainage to be absorbed by nearby pervious surface areas. This occurs, for example, when downspouts drain to the yard, not the driveway. Disconnecting decreases the runoff volume and increases the time of concentration for reasons discussed below. Disconnected parking lots, for example, can provide sheet flow into bioretention areas or engineered infiltration swales.

Increase the travel time of water off of a site.

Replicating the pre-development Time of Concentration is a key aspect in maintaining predevelopment flow regime, and minimizing downstream impacts.

- Flatten grades for stormwater conveyance to the minimum sufficient to allow drainage.
- Increase the travel time in vegetated swales by using more circuitous flow routes, rougher vegetation in swales, and check dams.
- Utilize “engineered” swales in lieu of pipes or hardened channels.

Revegetate all cleared and graded areas.

Revegetating cleared and graded areas, planting, or preserving existing vegetation can reduce hydrologic impacts by creating added surface roughness as well as providing for additional volume storage.

Utilize level spreading of flow into natural open space.

Ensure that stream corridors, wetlands and floodplains remain hydrologically functional by making them receiving areas for sheet flow, not concentrated flow. Use level

spreaders to help spread water into these areas. Ensure that flow volumes do not cause channelized flow and erosion in receiving areas.

Protect Significant Wetlands, Riparian Corridors, Wildlife Habitat and Floodplains.

Protecting significant wetlands, riparian corridors, wildlife habitats and floodplain resources is an essential management tool. In the course of planning for growth in the Oak Creek Plan area, it will be important to preserve the full integrity of the Open Space District by tightening existing standards while development of lands outside the district increases in density and scope.

Review and amend the ADC to address the following recommendations within the refined Oak Creek Open Space District:

- Allow existing lawful uses to continue.
- Allow ongoing maintenance and management practices to continue.
- Allow pedestrian and bicycle paths and bridges as an outright use, subject to Special District regulations of ADC Article 6.
- Allow agriculture uses on lands outside of wetlands and riparian corridors, where forest removal is not required and where no buildings are constructed, subject to Special District regulations of ADC Article 6.
- Allow outdoor recreational facilities on lands outside of wetlands and riparian corridors, where forest removal is not required and where no buildings are constructed, subject to Special District regulations of ADC Article 6.
- Allow public parks, recreational facilities, and fairgrounds on lands outside of wetlands and riparian corridors, where forest removal is not required and where no buildings are constructed, subject to Special District regulations of Article 6.
- Require new alleys, streets, highways, bridges, and related transportation facilities to meet a public needs test, and be permitted conditionally under ADC Section 2.170 and subject to Special District regulations of ADC Article 6.
- Require neighborhood utilities to meet a public need test, and be permitted conditionally under ADC Section 2.170 and subject to Special District regulations of ADC Article 6.
- Prohibit new residential, institutional, commercial and industrial development, accessory uses, parking areas, and regional/community utilities within the Oak Creek Open Space District.
- Remove the refined Oak Creek Open Space District from the Albany Buildable Lands Inventory.

Identify and implement restoration opportunities.

If and when agricultural and other existing uses within the Open Space District are abandoned or discontinued, look for opportunities to restore wetlands and forested riparian corridors. These lands may also be appropriate for acquisition of conservation easements or fee-simple purchase from willing sellers.

Other restoration opportunities may include the removal or retrofitting of existing piped discharges within the area, removal of drain tile, daylighting of streams, and retrofitting

of road crossings to bridges or other designs that permit unconstrained passage for fish and wildlife. Another important restoration goal is to restore shade canopy over Oak Creek and its tributaries to help reduce summer water temperatures and rebuild continuous wildlife migration corridor.

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APPENDIX: WILDLIFE SPECIES OBSERVED DURING SPRING FIELD VISITS

Latin name	Common Name
Mammals	
<i>Castor canadensis</i>	beaver
<i>Myocastor coypus</i>	nutria
<i>Odocoileus hemionus</i>	black-tailed deer
<i>Procyon lotor</i>	raccoon
Birds	
<i>Agelaius phoeniceus</i>	red-winged blackbird
<i>Aix sponsa</i>	wood duck
<i>Anas platyrhynchos</i>	mallard
<i>Aphelocoma coerulescens</i>	scrub jay
<i>Ardea herodias</i>	great blue heron
<i>Branta canadensis</i>	Canada goose
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Carpodacus mexicanus</i>	house finch
<i>Cathartes aura</i>	turkey vulture
<i>Catharus ustulatus</i>	Swainson's thrush
<i>Colaptes auratus</i>	northern flicker
<i>Corvus brachyrhynchos</i>	common crow
<i>Gallinago gallinago</i>	common snipe
<i>Geothlypis trichas</i>	common yellowthroat
<i>Hirundo rustica</i>	barn swallow
<i>Junco hyemalis oreganus</i>	Oregon junco
<i>Melospiza melodia</i>	song sparrow
<i>Parus atricapillus</i>	black-capped chickadee
<i>Pheucticus melanocephalus</i>	black-headed grosbeak
<i>Pipilo erythrophthalmus</i>	spotted towhee
<i>Psaltriparus minimus</i>	common bushtit
<i>Sitta canadensis</i>	red-breasted nuthatch
<i>Tachycineta thalassina</i>	violet-green swallow
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Turdus migratorius</i>	American robin
<i>Wilsonia pusilla</i>	Wilson's warbler