

City of Shady Cove

Ordinance 279

AN ORDINANCE OF THE CITY OF SHADY COVE, OREGON, AMENDING THE COMPREHENSIVE PLAN AND THE SHADY COVE CODE OF ORDINANCES TO ADOPT A RIPARIAN PROTECTION ORDINANCE

Whereas, Chapter 154, of the Shady Cove Code of Ordinances governs Type IV Legislative Procedures within the corporate limits of the City and requires, if approval is recommended by the Planning Commission, that the City Council of the city of Shady Cove make the final decision regarding the application; and,

Whereas, the Shady Cove Planning Commission, after providing proper public notice, met in Public Hearing on December 10, 2015 and January 14, 2016, to consider amendments to the Shady Cove Comprehensive Plan and Shady Cove Code of Ordinances to add riparian area protection standards; and,

Whereas, on January 14, 2016, following the close of the public hearing, the Planning Commission deliberated on the record of the proceedings, after which a motion was made and duly seconded, to recommend that the City Council approve Planning File No. CPA 15-01 to establish a Riparian Ordinance; and,

Whereas, on February 4, 2016, and February 18, 2016, the City Council conducted properly noticed public hearings to consider the Planning Commission recommendation, and on April 7, 2016, and May 5, 2016, deliberated in public sessions.

THE COUNCIL OF THE CITY OF SHADY COVE ORDAINS AS FOLLOWS:

The Shady Cove Comprehensive Plan Natural Hazards is amended to include additional information about riparian corridor protection, attached as Exhibit A.

The Shady Cove Code of Ordinances is amended as follows:

- | | |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 1: Title: | This Ordinance shall be known as the Riparian Ordinance of the City of Shady Cove, Oregon. |
| Section 2:Description | Riparian Protection regulations, attached as Exhibit B, approved by the City Council |
| Section 3:Amendment | The Shady Cove Code of Ordinances is amended to add Riparian Protection regulations. |
| Section 4: | The City Council adopts as its own, and adopts by reference, the Planning Commission recommendation attached as Exhibit C, to the extent that it is consistent with the City Council decision |

PASSED AND APPROVED by the City Council of the City of Shady Cove the 16th day of June 2016.

Approved:


Tom Anderson
Mayor

Attest:


Aaron Prunty
City Administrator

Council Vote:

Mayor Anderson	<u>Y</u>
Councilor Burgess	<u>Y</u>
Councilor Mitchell	<u>Y</u>
Councilor Sanderson	<u>Y</u>
Councilor Ulrich	<u>Y</u>

FISH AND WILDLIFE HABITAT

The main stem of the Rogue River is important to the maintenance of anadromous fish (steelhead, Chinook salmon, Coho salmon, and sea-run cutthroat trout) in the Rogue River Basin. Indian Creek and Long Branch Creek are important tributaries of the Rogue River for their influence on downstream fish habitat.

Healthy fish habitat includes clean, cold and flowing water. And temperature is one of the most important environmental influences on salmon and steelhead. Stream temperature controls the metabolism of the fish and influences the abundance or lack of food for the fish.

Riparian protection along all waterways was begun in earnest in 1994 throughout Oregon. Over the past 20 years riparian protection has been voluntary on private lands with varying degrees of success. With increased development in the Shady Cove area the native trees and shrubs that had helped shade the pools where fish rested disappeared. Without the shade along the stream banks stream temperatures can rise to impede fish migration and can rise to lethal levels. What seems cold to us as we wade in the Rogue River can be just marginal, or not even adequate, for the fish and their aquatic food supplies.

The State of Oregon (ODEQ) is responsible for creating direction and guidelines to help all areas of Oregon to meet the 1972 Federal Clean Water Act. All cities, Shady Cove included, must meet TMDL (Total Maximum Daily Load) standards for maintaining Oregon water quality. A TMDL is the calculated pollutant (heat, or temperature) amount that a waterbody can receive and still meet Oregon water quality standards. Riparian protection is one of the most effective ways to comply with the standards.

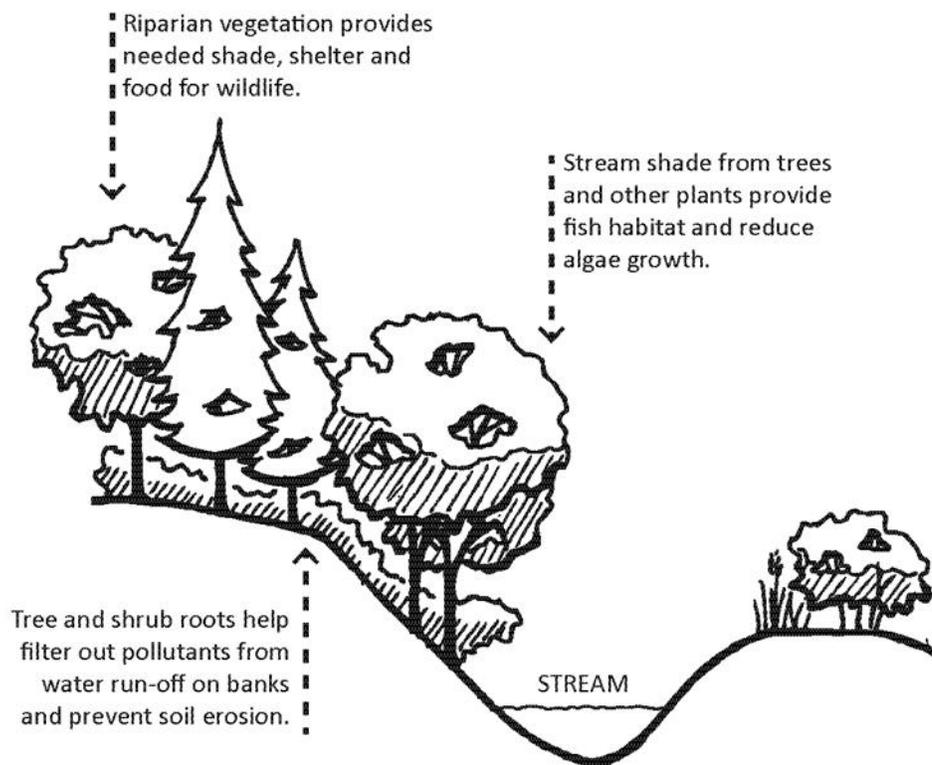
Wherever possible, stands of native vegetation should be maintained for wildlife habitat. In 1987 there were 142 species of native wildflowers inventoried in the Shady Cove area. An annual Wildflower Show is held in Shady Cove displaying these native plants in bloom.

The area outside the Shady Cove UGB is designated in the Jackson County Comprehensive Plan by Oregon Department of Fish and Wildlife as “especially sensitive” deer and elk habitat. This designation establishes a minimum parcel size to be 160 acres.

EXHIBIT B

City of Shady Cove Riparian Ordinance

[These regulations will be located in Chapter 155 of the Shady Cove Code of Ordinances. This will affect property inside city limits, along the Rogue River and its tributaries, including Red Lick and Indian Creeks.]



Section I. Riparian Conservation Corridor

(A) Purpose:

- 1) To implement the goals and policies of the Natural Resources Element of the Comprehensive Plan.
- 2) To protect and restore the City of Shady Cove water bodies and associated riparian areas.
- 3) To protect and restore the water quality through control of erosion and sedimentation, through flood management and thermal regulation (shading).

- 4) To protect and restore the natural aesthetic qualities of the resource recognizing these areas as community assets.
- 5) To protect and restore fish and wildlife habitat in and around the waterways and water bodies of the City.
- 6) To meet State requirements for Safe Harbor [OAR 660-023-0090] in lieu of the standard inventory ESEE process [OAR 660-023-0040 & 0050]
- 7) To comply with the requirements of the Endangered Species Act, the Clean Water Act, the Federal Emergency Management Agency's National Flood Insurance Program, Oregon Statewide Planning Goals 5, 6 and 7, and to comply with the Rogue Basin Total Maximum Daily Load (TMDL) implementation for Shady Cove.
- 8) To work in conjunction with the Flood Damage Prevention Ordinance; where the Riparian Ordinance and the Flood Damage Prevention Ordinance conflict, the most restrictive shall prevail.

(B) Where these Regulations Apply

These regulations apply to all areas within the city of Shady Cove located along the Rogue River and its tributaries, including Red Lick and Indian Creeks.

(C) When these Regulations Apply

- 1) Residential and Commercial site development
- 2) All Land Divisions
- 3) Removing, cutting, mowing, clearing, burning, or poisoning native vegetation. Non-native vegetation is exempt from the regulations, except that if it is removed, it must be replaced with native vegetation [**refer to Attachment A**]. Removal of other vegetation is prohibited, but limited management of that vegetation may be approved.
- 4) Changing topography or grading, in the corridor area.
- 5) Resource Enhancement projects
- 6) Dedications and Expansion of Right of Ways
- 7) All filling, grading, and excavating within the riparian corridor

Section II. Definitions & Riparian Corridors

(A) Definitions: The following definitions shall apply to Chapter 155 of the Shady Cove Code of Ordinances:

- 1) "Dangerous tree" means a dead, diseased, or other tree that poses an obvious health, safety, or welfare threat to persons or property.
- 2) "Development" is any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving excavation and drilling operations. Development does not include signs, markers, direction aids, etc. placed by a public agency to serve the public.

- 3) "Fish-Bearing Stream" is a stream inhabited at any time of the year by anadromous or game fish species, or fish that are listed as threatened or endangered species under the federal or state Endangered Species Act.
- 4) "Fish habitat" means those areas upon which fish depend in order to meet their requirements for spawning, rearing, food supply, and migration.
- 5) "Grading" is any stripping, cutting, filling, or stockpiling of earth or land, including the land in its cut or filled condition, to create new grades
- 6) "Impervious Surface" is any material which reduces and prevents absorption of storm water into previously undeveloped land.
- 7) "Lawns" consist of grass or similar materials maintained as a ground cover of less than 6 inches in height, and generally managed to restrict the growth of shrubs and trees that inhibit the growth of grasses and forbs (vegetation other than grasses). For purposes of this ordinance, lawn is not considered native vegetation regardless of the species used.
- 8) "Low Impact Development" involves minimizing or eliminating pollutants in storm water through natural processes and maintaining pre-development hydrologic characteristics, such as flow patterns, surface retention, and recharge rates.
- 9) "Mitigation" is a means of compensating for impacts to a riparian corridor including: restoration, creation, or enhancement. Some examples of riparian impact mitigation actions are replanting trees, removal of nuisance plants, and restoring streamside vegetation where it is disturbed or where it has been degraded due to past practices.
- 10) "Natural Vegetation Line" is the point at which native vegetation grows on the river.
- 11) "Restoration of Riparian Areas" is to limit development, re-establish native vegetation and ensure the limitation of negative impacts to fish and wildlife and their habitat in and around waterways and water bodies within the city limits of Shady Cove.
- 12) "Riparian area" is the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem.
- 13) "Riparian corridor" is a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian area boundary.
- 14) "Riparian corridor boundary" is an imaginary line that is a certain distance upland from the natural vegetation line. If no natural vegetation line exists below the top of bank, then the boundary shall be measured upland from the top of each bank.
- 15) "Stream" is a channel such as a river or creek that carries flowing surface water, including perennial streams and intermittent streams with defined channels, and excluding man-made irrigation and drainage channels.
- 16) "Structure" is a building or other major improvement that is built, constructed, or installed, not including minor improvements, such as fences, utility poles, flagpoles, or irrigation system components, that are not customarily regulated through zoning ordinances.
- 17) "Top of bank" shall mean the stage or elevation at which water overflows the natural banks of streams or other waters of the state and begins to inundate the upland. Where this cannot be determined, "top of bank" shall have the same meaning as "bankfull stage" defined in OAR 141-085-0510(5), which is the two-year recurrence interval flood elevation.

- 18) Water area" is the area between the banks of a lake, pond, river, perennial or fish-bearing intermittent stream, excluding man-made farm ponds.
- 19) Water-dependent use" means a use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production, or source of water.
- 20) "Water-related" means uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.

(B) Riparian Corridors

The following riparian corridors are established:

- 1) Because the Rogue River has an average annual stream flow greater than 1,000 cubic feet per second (cfs) the riparian corridor boundary shall be 75 feet upland from the natural vegetation line. If no natural vegetation line exists below the top of bank, then the boundary will be 75 feet upland from the top of each bank.
- 2) Where the riparian corridor includes all or portions of a significant wetland as identified in the Comprehensive Plan, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland. Shady Cove does not have a local wetlands inventory, but relies on the National Wetlands Inventory.
- 3) Along all fish-bearing streams, including Red Lick and Indian Creeks, with an average annual stream flow less than 1,000 cfs, the riparian corridor boundary shall be 50 feet upland from natural vegetation line. If no natural vegetation line exists below the top of bank, then the boundary will be 50 feet upland from the top of each bank.

Section III. Activities Within the Riparian Area

This section of the ordinance attempts to meet the riparian corridor goals by excluding new structures from the riparian buffer areas around fish-bearing streams and associated wetlands. Protection of the resource is also achieved by prohibiting vegetation removal or physical alteration except through enhancement of the buffer area. For cases of hardship, this section provides a procedure to reduce the riparian buffer. Alteration of the riparian area in such cases is offset by appropriate restoration or mitigation, as described in this section.

(A) Preexisting Activities in the Riparian Corridor

1. Any use, sign, or structure, and the maintenance thereof, lawfully existing on the date of adoption of the provisions herein, is permitted within a riparian corridor. Such use, sign, or structure may continue at a similar level and manner as existed on the date of adoption of the provisions herein. **Preexisting uses existing fully**

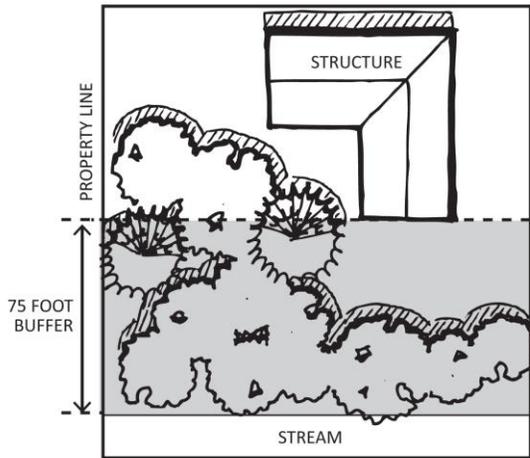
or partially within the riparian corridor may be expanded, provided the expansion does not occur within the riparian corridor.

2. The maintenance, alteration, and replacement of pre-existing landscaping is permitted within a riparian corridor as long as no additional riparian vegetation is disturbed. Any herbicide, pesticide, or fertilizer applications must strictly comply with the manufacturer's label and avoid saturation, drift, or runoff to water bodies. Maintenance trimming of existing trees is permitted, but under no circumstances can the trimming maintenance be so severe as to compromise the tree's health, longevity, and resource functions.
3. The provisions of this section shall not be affected by any change in ownership of properties containing a riparian corridor.

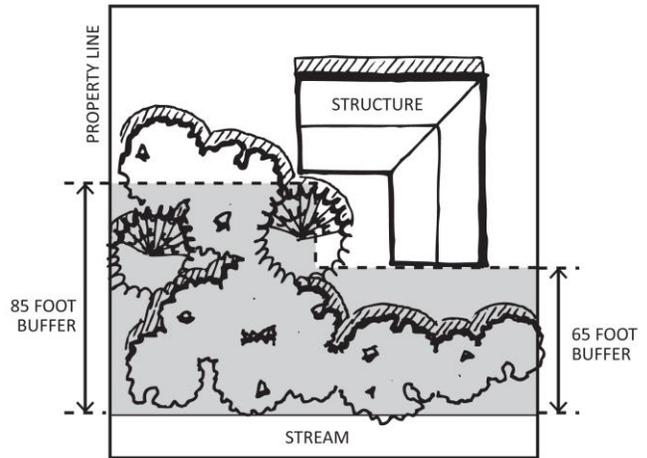
(B) Allowed Activities in the Riparian Corridor:

The City may approve the following activities, and maintenance thereof, within a riparian corridor, subject to obtaining applicable permits, if any, from the Oregon Department of State Lands and the U.S. Army Corps of Engineers. All plans for development and/or improvements within a riparian corridor shall be submitted to the Oregon Department of Fish and Wildlife for a habitat mitigation recommendation pursuant to O.A.R. 635-415 "Fish and Wildlife Habitat Mitigation Policy."

- 1) Streets, roads, and private paths.
- 2) Drainage facilities, utilities, and irrigation pumps.
- 3) Water-related and water-dependent uses.
- 4) Replacement of existing structures with structures in the same location.
- 5) Expansion of existing structures in the riparian corridor that do not disturb additional riparian surface areas, including second story additions, cantilevered additions supported from the existing structure, and basement additions (subject to compliance with Chapter 151 – Floods).
- 6) Removal of non-native vegetation and replacement with native plant species **[refer to Attachment A for a list of non-invasive plants native to Oregon]**.
- 7) Removal of vegetation necessary for the development of water-related or water-dependent uses.
- 8) Permanent alteration of the riparian area by placement of structures or impervious surfaces within the riparian corridor boundary established under subsection (II)(B) upon a demonstration that equal or better protection for identified resources will be ensured through restoration of riparian areas, enhanced buffer treatment, or similar measures including, stormwater controls that infiltrate stormwater and are characteristic of Low Impact Development or green infrastructure such as bioswales, rain gardens, and vegetated filter strips [refer to Attachment B]. In no case shall alterations occupy more than 50 percent of the width of the riparian area measured from the upland edge of the corridor. This adjustment affects only the Rogue River riparian area; it is not permitted along tributaries.



STANDARD BUFFER WIDTH



VARIABLE BUFFER WIDTH

- 9) Perimeter mowing and other cutting necessary for fire hazard prevention.
- 10) Except in emergency circumstances, the City shall review requests for removal of dangerous trees. All trees removed are required to be replaced (one for one) by like native species or alternate approved native species [refer to Attachment A for a list of non-invasive species native to Oregon]. The City shall conduct inspections or use other means to verify the trees are surviving. Those that do not survive must be replaced.
- 11) Stream bank stabilization and flood control structures that legally existed on the effective date of this ordinance may be maintained. Any expansion of existing structures or development of new structures shall be evaluated by the City Administrator and appropriate state and federal natural resource agency staff. Such alteration of the riparian corridor shall be approved only if less-invasive or non-structural methods will not adequately meet the stabilization or flood control needs.
- 12) Stream restoration and enhancement activities that are approved by the Oregon Department of State Lands.
- 13) Maintenance and protection of the function of City utilities and transportation facilities located within riparian corridors.

(C) Prohibited Activities in the Riparian Corridor:

The following practices are prohibited within stream setback area, unless otherwise approved by the City and all applicable state and federal regulatory agencies:

- 1) Expansion of pre-existing non-native landscaping such as lawns;
- 2) Permanent alteration by placement of structures or impervious surfaces, except as allowed in Section (B);
- 3) Storage or dumping of herbicides, pesticides, fertilizers, solvents, fuels, or other hazardous or toxic materials or wastes;
- 4) Dumping, piling, or disposal of refuse (trash or garbage);
- 5) Channelizing, culverting, straightening, or otherwise modifying natural

- drainageways;
- 6) Dumping, piling, disposing, or composting of yard debris, fill, or other potentially harmful material, except for single-family residential composting which must be kept a minimum of ten feet from the top of bank;
 - 7) All filling, grading, or excavating;
 - 8) Application of herbicides, pesticides, or fertilizers, except as permitted under Section III (A), or as otherwise approved by the city and all applicable state and federal agencies for the protection of public safety and the enhancement or maintenance of the stormwater conveyance or flood control capacity;
 - 9) Removing vegetation for the creation of fuelbreaks;
 - 10) Dumping or disposal of yard debris, refuse or chemicals in the rivers or streams or in storm drains.

Section IV. Development Review Procedures

Application Requirements -

A Riparian Development Permit shall be obtained prior to initiating development activities in any areas designated as a riparian area. An application for a Riparian Development Permit along with the required fee (as set by resolution) shall be submitted to the City Administrator on forms furnished by the City. If structures (including hardscape) are involved, items A & B below are required prior to starting any development activity. Item C is required within 90 days of structure completion. If no structures are involved, then items A, B & C are required before starting any development activity.

(A) Site Plan

- 1) Top of Bank and natural vegetation line
- 2) Boundaries of the Riparian Corridor in the site
- 3) Existing improvements such as structures, buildings, utility lines, fences, etc.
- 4) Areas where riparian area has been previously disturbed
- 5) Areas where new disturbance in the riparian area is proposed
- 6) Outline of trees, shrubs and ground covers

(B) Construction Management Plan

Identify measures that will be taken during construction or mitigation work to protect the remaining resources at and near the construction site and a description of how the undisturbed areas will be protected. For example, describe how trees will be protected, erosion controlled, stormwater managed, and construction equipment located and controlled and the timing of construction in relation to season.

(C) Landscape Plan

In addition to the construction management plan, a landscape plan will be required for newly disturbed areas in the riparian corridor prior to issuance of permits. The plan shall include the extent of vegetation removal proposed, characteristics of the existing vegetation (types, density), proposed riparian enhancement or restoration measures,

proposed alterations of topography or drainage patterns, and existing uses on the property. The plan will be referred to the Oregon Department of Fish and Wildlife for recommendation.

(D) Completion

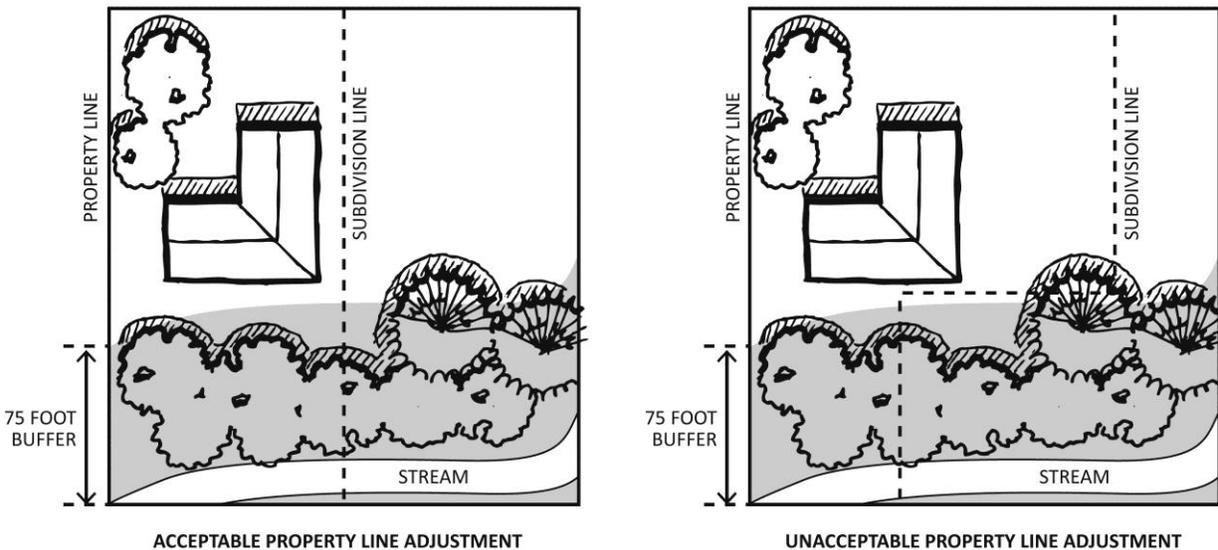
The property owner will advise the City administrator when the permitted work has been accomplished. The City Administrator and his/her designee will conduct a Type I review to determine if the work is consistent with the approved plans.

E) Expiration of Riparian Permit

A Riparian Permit shall become invalid unless the work authorized by the permit is commenced within 180 days after its issuance, or if the work is suspended or abandoned for a period of 180 days after the work commences. Extensions for periods of not more than 180 days each shall be requested in writing to the City Administrator or his/her designee and may be subject to review.

Section V. Property Line Adjustments and Subdivisions

Subdivisions, partitions, and property line adjustments must be designed so that the resulting lots or parcels can be developed in conformance with the provisions of this ordinance.



Section VI. Hardship Variances and Restoration Provisions

For any existing lot or parcel demonstrated to have been rendered not buildable by application of this ordinance, the property owner may apply for a Class C Variance (Section 154.419) under the following provisions:

Granting of a Variance requires findings that:

- A) The proposed development requires deviation from the riparian standards as set forth in this section; and
- B) Strict adherence to the riparian setback and other applicable standards would effectively preclude a use of the parcel that could be reasonably expected to occur in the zone, and that the property owner would be precluded a substantial property right enjoyed by the majority of landowners in the vicinity.

Section VII. Site Maintenance

The limitations imposed by this Section do not preclude the routine maintenance of structures and landscaped areas.

- 1) Maintenance and replacement of existing lawns, non-native riparian planted vegetation, or landscaping is allowed but shall not expand lawn areas or remove or damage any native nondangerous tree.
- 2) The application of herbicides or other pesticides, and the application of fertilizers are subject to applicable state and federal regulations; and developed properties shall be subject to the restrictions set forth in the Shady Cove Code of Ordinances.
- 3) Where replanting is done, vegetation shall be replanted with native species or approved alternatives, with the exception of continued Agricultural Uses.
- 4) Maintenance pruning of existing trees shall be kept to a minimum and shall be in accordance with the American National Standards Institute (ANSI) A300 standards for Tree Care Operations [**refer to Attachment C**]. Under no circumstances shall the maintenance pruning be so severe that it compromises the tree's health, longevity, and resource functions.
- 5) Vegetation within utility easements shall be kept in a natural state and replanted when necessary with native plant species [**refer to Attachment A**].
- 6) Disposal of yard waste or other organic materials, with the exception of downed trees, leaf litter from Riparian Vegetation, and mulch for allowed riparian plantings, is prohibited within riparian corridors.

Section VIII. Compliance With State And Federal Laws

Activities wholly or partially within the riparian corridor are subject to all applicable federal and state regulations. The following regulations commonly apply within the resource areas (Note: other regulations not listed may also apply; it is the property owner's responsibility to adhere to all applicable State and Federal regulations):

- 1) Oregon Department of State Lands permit requirements under the Removal- Fill Law.
- 2) U.S. Army Corps of Engineers permit for fill activities as required under Section 404 of the Clean Water Act.

- 3) Department of Environmental Quality permit requirements for stormwater under the Clean Water Act and state water quality regulations.
- 4) Oregon Department of Fish and Wildlife regulations may apply to development activities that could impact one of the sensitive, threatened, critical, or endangered species indigenous to the region.
- 5) Section 9 of the federal Endangered Species Act (ESA) prohibits any action that causes a “taking” of any species of endangered fish or wildlife listed as endangered without authorization from the listing agency.
- 6) National Flood Insurance Program regulations as they are enforced through the Flood Insurance Reform Act (FIRA). Refer to Chapter 151 of this Code for additional floodplain regulations.

Section IX. Enforcement

This chapter shall be enforced in accordance with Chapter V. Powers and Duties of Officers, Section 24. Municipal Court and Judge.

Section X. Appeals

The appeals process shall be the same as stated in Section 151.068 of the Shady Cove Code of Ordinances.

Section XI. Penalties

The penalties for violation of this chapter shall be the same as stated in Section 151.999 of the Shady Cove Code of Ordinances.

**BEFORE THE PLANNING COMMISSION
OF THE CITY OF SHADY COVE
COUNTY OF JACKSON, STATE OF OREGON**

IN THE MATTER OF CONSIDERATION OF A)
COMPREHENSIVE PLAN AMENDMENT AND LAND) RECOMMENDATION
USE REGULATION AMENDMENT TO ADOPT A) TO CITY COUNCIL
RIPARIAN ORDINANCE)

APPLICANT: City of Shady Cove Planning File No. CPA 15-01

RECITALS:

- 1) Chapter 154, of the Shady Cove Code of Ordinances governs Type IV Legislative Procedures within the corporate limits of the City and requires, if approval is recommended by the Planning Commission, that the City Council of the City of Shady Cove make the final decision regarding the application; and,
- 2) The Shady Cove Planning Commission, after providing proper public notice, met in Public Hearing on December 10, 2015 and January 14, 2016, to consider amendments to the Shady Cove Comprehensive Plan and Shady Cove Code of Ordinances to add riparian area protection standards. The draft revision to the Comprehensive Plan Natural Resources and Hazards element is attached as Exhibit A; the draft addition to the Code of Ordinances is attached as Exhibit B. The Commission received testimony from interested parties and staff. The staff recommendations, as submitted to the Planning Commission, are contained in a staff memorandum that is part of the record; and,
- 3) On January 14, 2016, following the close of the public hearing, the Planning Commission deliberated on the record of the proceedings, after which a motion was made and duly seconded, to recommend that the City Council approve Planning File No. CPA 15-01 to establish a Riparian Ordinance.

NOW THEREFORE, the Planning Commission of the City of Shady Cove finds, concludes, and recommends as follows:

SECTION 1: FINDINGS

- 1) The Planning Commission hereby incorporates by reference all written and oral deliberations and findings of fact established in the record of the public hearing, and cites by reference: oral and written testimony of interested citizens and agencies favoring and opposing the amendments, and the City Planner's staff report which are a part of the record; and,
- 2) The Planning Commission hereby finds that it has received all information and evidence necessary to consider the above request; and,

- 3) The Planning Commission finds that the City provided public notice through the Upper Rogue Independent, and mailed notices to owners of all waterfront properties within the city limits via United States Postal Service.
- 4) The criteria used to evaluate the requested Riparian Ordinance are contained in Section 154.438. The Planning Commission finds that the request meets the criteria and is necessary to demonstrate compliance with the Oregon Department of Environmental Quality (DEQ) Total Maximum Daily Load (TMDL) program.

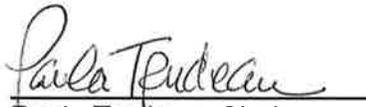
SECTION 2: CONCLUSION

The Planning Commission concludes that the proposed Riparian Ordinance complies with procedural requirements of the Shady Cove Code of Ordinances and appropriately implements DEQ's TMDL program.

SECTION 3: DECISION

Based on the record of the public hearing on this matter, the Planning Commission recommends approval of Planning File CPA 15-01 to amend the Comprehensive Plan and establish a Riparian Ordinance, subject to further evaluation of the mitigation process and further evaluation of property rights law.

This RECOMMENDATION for APPROVAL is given to the Shady Cove City Council this 28th day of January 2016, in Shady Cove, Oregon.


Paula Trudeau, Chair

ATTACHMENT A



Landscape Plants: Native Woody Plants of Oregon

Woody plants that are native to Oregon are listed below in alphabetical order by their "scientific names" (their Latin binomials), more or less according to their height, ranging from large trees to low growing ground covers.

Native Oregon Trees - more than 100 feet high

Needle or scale-leaved (conifers)

[*Abies amabilis*](#) [Pacific Silver Fir] 100-180 feet

[*Abies concolor*](#) [White Fir] to 200 feet

Note: recent evidence indicates that the apparent *Abies concolor* found in Oregon forests are actually a hybrid between *Abies concolor* and *Abies grandis*, Grand Fir, and are now designated as *Abies concolor* × *grandis*.

[*Abies grandis*](#) [Grand Fir] 125-250 feet

[*Abies magnifica*](#) [California Red Fir] 125-200 feet

[*Abies procera*](#) [Noble Fir] 140-200 feet

[*Chamaecyparis lawsoniana*](#) [Port Orford Cedar] 125-200 feet

[*Larix occidentalis*](#) [Western Larch] 100-180 feet

[*Picea sitchensis*](#) [Sitka Spruce] 125-180 feet

[*Pinus jeffreyi*](#) [Jeffrey Pine] 80-140 feet

[*Pinus lambertiana*](#) [Sugar Pine] 150-200 feet

[*Pinus monticola*](#) [Western White Pine] 120-180 feet

[*Pinus ponderosa*](#) [Ponderosa Pine] 125-180 feet

[*Pseudotsuga menziesii*](#) [Douglas Fir] 100-250 feet

[*Sequoia sempervirens*](#) [Coastal Redwood] 180-370 feet

[*Thuja plicata*](#) [Western Red Cedar] 150-200 feet

[*Tsuga heterophylla*](#) [Western Hemlock] 125-200 feet

Broad-leaved (deciduous and evergreen)

[*Chrysolepis chrysophylla*](#) [Golden Chinkapin] (may also be shrubby at limits of its range) 90-150 feet

[*Fraxinus latifolia*](#) [Oregon Ash]

[*Populus trichocarpa*](#) [Black Poplar] 100-200 feet

Native Oregon Trees - 75-100 feet high

Needle- or scale-leaved (conifers)

[*Calocedrus decurrens*](#) [Incense Cedar] 70-110 feet

[*Chamaecyparis nootkatensis*](#) [Alaska Yellow Cedar](syn. *Xanthocyparis nootkatensis*) 70-100 feet

[*Picea engelmannii*](#) [Englemann Spruce] 80-100 feet

[*Pinus contorta* var. *latifolia*](#) [Lodgepole Pine] to 110 feet
[*Tsuga mertensiana*](#) [Mountain Hemlock] 60-100 feet

Broad-leaved (deciduous and evergreen)

[*Acer macrophyllum*](#) [Bigleaf Maple] 40-100 feet
[*Arbutus menziesii*](#) [Pacific Madrone] 60-100 feet
[*Lithocarpus densiflorus*](#) [Tanbark Oak] 60-100 feet
[*Umbellularia californica*](#) [Oregon Myrtle, California Bay] 60-100 feet

Native Oregon Trees - 50-75 feet high

Needle- or scale-leaved (conifers)

[*Abies lasiocarpa*](#) [Subalpine Fir] 40-100 feet
[*Picea breweriana*](#) [Brewer Spruce] 50-80 feet

Broad-leaved (deciduous and evergreen)

[*Alnus rhombifolia*](#) [White Alder] 40-80 feet
[*Alnus rubra*](#) [Red Alder] 40-50 feet ...plus
[*Betula papyrifera*](#) [Paperbark Birch] 30-75 feet
[*Populus angustifolia*](#) [Narrowleaf Cottonwood] 50-65 feet
[*Populus tremuloides*](#) [Quaking Aspen] 30-80 feet
[*Quercus chrysolepis*](#) [Canyon Live Oak] 30-80 feet
[*Quercus garryana*](#) [Oregon White Oak] 40-80 feet
[*Quercus kelloggii*](#) [California Black Oak] 40-80 feet

Native Oregon Trees - 30-50 feet high

Needle- or scale-leaved (conifers)

[*Cupressus bakeri*](#) [Baker Cypress, Modoc Cypress] less than 50 feet
[*Juniperus occidentalis*](#) [Western Juniper] 20-60 feet
[*Juniperus scopulorum*](#) [Rocky Mountain Juniper] 30-40 feet
[*Pinus albicaulis*](#) [Whitebark Pine] 20-50 feet
[*Pinus attenuata*](#) [Knobcone Pine] 40-80 feet
[*Pinus contorta* var. *contorta*](#) [Shore Pine] to 45 feet
[*Taxus brevifolia*](#) [Pacific or Western Yew] 30-50 feet

Broad-leaved (deciduous and evergreen)

[*Cornus nuttallii*](#) [Pacific Dogwood] to 60 feet
[*Prunus emarginata*](#) [Bitter Cherry] 20-50 feet
[*Rhamnus purshiana*](#) [Cascara, Cascara Buckthorn] 50 feet

Native Oregon Trees - 20-30 feet high

Needle- or scale-leaved (conifers)

[*Juniperus communis*](#) [Common Juniper] (from prostrate mats, less than 18 inches, to 30 ft trees)

Broad-leaved (deciduous and evergreen)

<i>Acer circinatum</i>	[Vine Maple]	shrub 20' tree 30-40'
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	(syn. <i>Alnus tenuifolia</i>) [Thinleaf Alder, Mountain Alder]	to 40 feet
<i>Alnus sinuata</i>	[Sitka Alder]	20-40 feet
<i>Amelanchier alnifolia</i>	[Western or Pacific Serviceberry, Saskatoon Berry]	to 40 feet
<i>Betula occidentalis</i>	[Water Birch, Red Birch]	to 30 feet
<i>Celtis reticulata</i>	[Netleaf Hackberry]	shrub or tree to 30 feet
<i>Malus fusca</i>	[Western Crabapple]	30 feet
<i>Prunus subcordata</i>	[Klamath Plum]	to 25 feet
<i>Prunus virginiana</i>	[Common Chokecherry]	to 30 feet

- See the smaller, more shrub-like Western Chokecherry, [*Prunus virginiana* var. *demissa*](#)

Native Oregon Shrubby Trees/Tall Shrubs - 8-20 feet high

Needle- or scale-leaved (conifers)

<i>Juniperus communis</i>	[Common Juniper]	
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Broad-leaved (deciduous and evergreen)

<i>Acer glabrum</i>	[Rocky Mountain Maple]	shrub 12 feet tree 20-30 feet
<i>Artemisia tridentata</i>	[Big Sagebrush]	to 15 feet
<i>Betula glandulosa</i>	[Bog Birch, Dwarf Birch, Scrub Birch]	to 12 feet
<i>Ceanothus integerrimus</i>	[Deer Brush]	4-12 feet
<i>Ceanothus sanguineus</i>	[Redstem Ceanothus, Buckbrush, Oregon-tea]	5-10 feet
<i>Ceanothus thyrsiflorus</i>	[Blue Blossom]	12 feet --tree to 20 feet
<i>Ceanothus velutinus</i>	[Snowbrush, Tobacco Bush, Cinnamon Bush]	2-10 feet
<i>Cercocarpus betuloides</i>	[Birchleaf Mountain-mahogany]	15 to 40 feet tree
<i>Cercocarpus ledifolius</i>	[Cutleaf Mountain-mahogany]	15 to 40 feet tree
<i>Cornus sericea</i>	[Redosier Dogwood]	to 15 feet
<i>Corylus cornuta</i> var. <i>californica</i>	[Western Hazelnut, California Hazelnut]	15 feet shrub, 30 feet tree
<i>Crataegus columbiana</i>	[Columbian Hawthorn]	10-20 feet
<i>Crataegus douglasii</i>	[Douglas or Black Hawthorn]	10 feet shrub, 30 feet tree
<i>Garrya elliptica</i>	[Wavyleaf Silktassel, Coast Silktassel]	shrub 8 feet, tree 20-30 feet
<i>Garrya fremontii</i>	[Fremont Silktassel]	to 10 feet
<i>Holodiscus discolor</i>	[Oceanspray]	15 feet
<i>Lonicera ciliosa</i>	[Western Trumpet Honeysuckle]	vine to 30 feet
<i>Lonicera involucrata</i>	[Twinberry, Black Twinberry]	
<i>Menziesia ferruginia</i>	[Rusty Menziesia, Fool's Huckleberry, False Azalea]	to 12 feet
<i>Myrica californica</i>	[Pacific Waxmyrtle]	shrub/tree 30-40 feet
<i>Oemleria cerasiformis</i>	[Indian Plum]	15 feet
<i>Philadelphus lewisii</i>	[Wild Mockorange, Lewis Mockorange]	12 feet
<i>Physocarpus capitatus</i>	[Ninebark, Western Ninebark]	12 feet
<i>Prunus virginiana</i> var. <i>demissa</i>	[Western Chokecherry]	7-20 feet
<i>Rhododendron macrophyllum</i>	[Pacific Rhododendron]	to 12 feet
<i>Rhododendron occidentale</i>	[Western Azalea]	to 10 feet
<i>Rhus diversiloba</i> (syn. <i>Toxicodendron diversilobum</i>)	[Poison Oak]	shrub to 10 feet, tree climbing vine
<i>Rhus glabra</i>	[Smooth Sumac]	15 feet
<i>Ribes sanguineum</i>	[Flowering Currant]	to 10 feet

<i>Rubus spectabilis</i>	[Salmonberry]	3-10 feet
<i>Sambucus caerulea</i>	[Blue Elderberry]	10-20 feet or more
<i>Sambucus racemosa</i>	[Red Elderberry]	8-20 feet
<i>Shepherdia argentea</i>	[Silver Buffaloberry]	4-20 feet
<i>Sorbus scopulina</i>	[Greene's Mountain-ash, Western Mountain-ash]	15 feet
<i>Sorbus sitchensis</i>	[Sitka Mountain-ash]	shrub 10 feet, tree 25 feet
<i>Vaccinium ovatum</i>	[Box Huckleberry, Evergreen Huckleberry]	to 10 feet
<i>Vaccinium parvifolium</i>	[Red Huckleberry]	4-10 feet, even to 18 feet
<i>Viburnum edule</i>	[Mooseberry, Highbush Cranberry]	10 feet
<i>Viburnum ellipticum</i>	[Oregon Viburnum, Western Wayfaring Tree]	12 feet

Native Oregon Large Shrubs - 5-8 feet high

Needle- or scale-leaved (conifers)

[*Juniperus communis*](#) [Common Juniper]

Broad-leaved (deciduous and evergreen)

<i>Arctostaphylos columbiana</i>	[Hairy Manzanita]	2 -10 feet
<i>Arctostaphylos patula</i>	[Green Manzanita, Greenleaf Manzanita, Buckbrush]	to 6 feet
<i>Baccharis pilularis</i>	[Coyote Brush, Chaparral Broom]	to 24 inches to 10 feet
<i>Berberis aquifolium</i> (syn. <i>Mahonia aquifolium</i>)	[Oregon Grape]	3-10 feet
<i>Ceanothus cuneatus</i>	[Narrowleaf Buckbrush, Wedgeleaf Ceanothus]	8 feet
<i>Chamaebatiaria millefolium</i>	[Fernbush, Desert Sweet]	8 feet
<i>Chrysothamnus nauseosus</i>	[Gray Rabbitbrush]	7 feet
<i>Gaultheria shallon</i>	[Salal]	6 feet occasionally to 10 feet
<i>Mahonia aquifolium</i> (syn. <i>Berberis aquifolium</i>)		
<i>Myrica gale</i>	[Sweetgale, Bog Myrtle]	6 feet
<i>Physocarpus malvaceus</i>	[Mallow Ninebark]	to 7 feet
<i>Purshia tridentata</i>	[Bitterbrush, Antelope Bush]	2-10 feet
<i>Quercus sadleriana</i>	[Sadler Oak, Deer Oak]	6 feet sometimes to 10 feet
<i>Rhamnus californica</i>	[California Buckthorn, California Coffeeberry]	4-8 feet
<i>Rhus trilobata</i>	[Skunkbush Sumac]	7 feet
<i>Ribes aureum</i>	[Golden Currant]	6 - 8 feet
<i>Ribes cereum</i>	[Wax Currant]	6 feet
<i>Ribes divaricatum</i>	[Coast Black Gooseberry]	8 feet
<i>Rosa gymnocarpa</i>	[Little Wood Rose, Wood Rose, Baldhip Rose]	to 8 feet
<i>Rosa nutkana</i>	[Common Wild Rose, Nootka Rose]	6+ feet
<i>Rubus leucodermis</i>	[Western Raspberry, Blackcap]	to about 6 feet
<i>Rubus parviflorus</i>	[Thimbleberry]	to 8 feet
<i>Shepherdia canadensis</i>	[Russet Buffaloberry, Soapberry]	to 6 feet
<i>Symphoricarpos albus</i>	[Common Snowberry]	to 6 feet

Native Oregon Medium Shrubs - 3-5 feet high

Needle- scale-leaved (conifers)

[*Juniperus communis*](#) [Common Juniper]

Broad-leaved (deciduous and evergreen)

<i>Chrysothamnus viscidiflorus</i>	[Green Rabbitbrush]	1 – 4 feet
<i>Leucothoe davisiae</i>	[Sierra, Mountain, or Black Laurel, Western Leucothoe]	to 5 feet
<i>Potentilla fruticosa</i>	[Bush Cinquefoil]	to 5 feet
<i>Quercus garryana</i> var. <i>breweri</i>	[Brewer's Oak]	to 5 feet
<i>Ribes nevadense</i>	[Mountain Pink Currant, Sierra Currant]	3-6 feet
<i>Ribes roezlii</i>	[Sierra Gooseberry]	to 4 feet
<i>Rosa woodsii</i>	[Woods' Rose]	2 -10 feet
<i>Spiraea douglasii</i>	[Douglas Spirea, Western Spirea]	2 - 7 feet
<i>Vaccinium membranaceum</i>	[Big, Mountain, or Blue Huckleberry]	1 - 5 feet

Native Oregon Small Shrubs - 18 inches - 3 feet high

Needle- or scale-leaved (conifers)

None available

Broad-leaved (deciduous and evergreen)

<i>Arctostaphylos uva-ursi</i>	[Kinnikinick, Bearberry]	
<i>Ledum glandulosum</i>	[Pacific Labrador-tea]	to 3 feet
<i>Mahonia nervosa</i> (syn. <i>Berberis nervosa</i>)	[Longleaf Mahonia]	to 30 inches
<i>Paxistima myrtifolia</i> (syn. <i>Pachistima myrsinites</i>)	[Oregon Boxwood]	7-36 inches
<i>Spiraea betulifolia</i>	[Shiny-leaf, White, or Birchleaf Spirea]	to 3 feet
<i>Spiraea densiflora</i>	[Mountain Spirea]	to 3 feet
<i>Symphoricarpos mollis</i>	[Creeping or Spreading Snowberry]	to 18 inches
<i>Rubus ursinus</i>	[Trailing Blackberry] (long canes, may climb on other plants to 20 feet), not sure of height, but mostly trailing	

Native Oregon Low Growing Shrubs - less than 18 inches high

Needle- or scale-leaved (conifers)

None available

Broad-leaved (deciduous and evergreen)

<i>Cornus canadensis</i>	[Bunchberry]	8 inches
<i>Ceanothus prostratus</i>	[Squawcarpet]	inches
<i>Fragaria chiloensis</i>	[Sand, Beach or Chilean Strawberry]	1 to 4 inches
<i>Linnaea borealis</i>	[Twin-flower]	less than 8 inches
<i>Mahonia repens</i> (syn. <i>Berberis repens</i>)	[Creeping Mahonia]	inches
<i>Oxalis oregana</i>	[Oregon Oxalis]	to 4 inches
<i>Vancouveria hexandra</i>	[Northern Inside-out Flower]	to 20 inches
<i>Vancouveria planipetala</i>	[Small Inside-out Flower]	to 20 inches
<i>Vaccinium cespitosum</i>	[Dwarf Bilberry]	to 18 inches
<i>Vaccinium deliciosum</i>	[Cascade Bilberry]	to 18 inches
<i>Vaccinium myrtillus</i>	[Whortleberry]	to 18 inches
<i>Vaccinium scoparium</i>	[Grouse Whortleberry]	to 18 inches

Last update of Native Plants List: December 15, 2014



Attachment B

**STORMWATER
SOLUTIONS**

LID Low Impact Development:
Protecting Oregon's waters as we grow



LID

Low Impact Development (LID) is an approach to land development that preserves natural resources and mimics natural systems for managing stormwater runoff while meeting development goals.

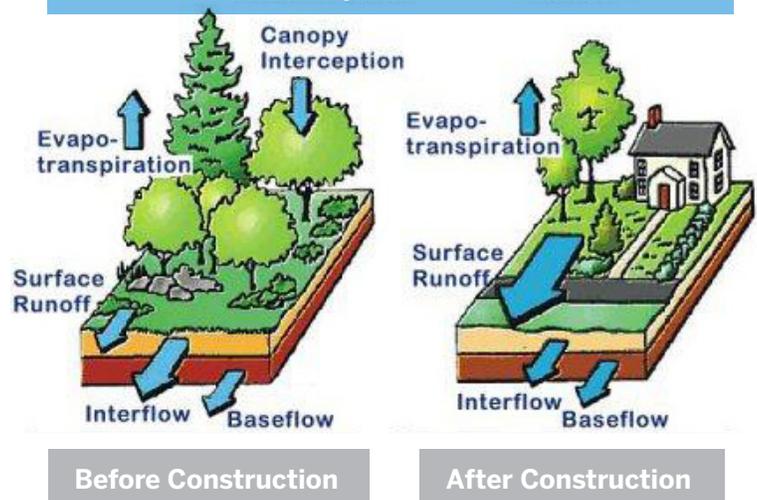
In undeveloped areas, very little rainwater or snowmelt runs off the land like it does in cities. Trees, plants and soil capture much of the precipitation, and some of it evaporates back into the air. Most of the precipitation that doesn't evaporate or get captured by vegetation soaks into the ground where soil and microbes remove pollutants naturally. The water slowly recharges streams, wetlands and groundwater. Very little runs off, except in very large storms.

This natural hydrologic cycle is radically changed when land is developed in the way it has been for decades. Typical development clears the land of vegetation and covers it with hard surfaces such as roads, parking lots and rooftops. Construction compacts soils, so that even landscaped areas can generate unnaturally high runoff volumes. Storm drains are installed to get water out of the way by sending it into local streams or injecting it underground without treatment. Development dramatically increases runoff volumes which, even when controlled by detention basins, causes flooding, damages fish and wildlife habitat, and delivers urban pollutants such as oils and pesticides to local waterways.

The decreased infiltration results in less cool, clean groundwater to recharge streams in the dry summer months.

LID mimics the natural hydrology of the site by using improved site design and careful construction practices, preserving trees and natural areas, careful construction practices, and managing water close to where it falls. LID can be used for public projects, residential and commercial development and redevelopment, and has proven to be a cost-effective way to manage runoff and protect the environment. It also increases livability by making communities greener and more attractive.

Conventional Development Increases Runoff



THE BENEFITS

If implemented properly, LID practices can produce great outcomes all around.

For the environment

- Protects water quality
- Maintains natural stream flows in rivers, creeks and wetlands
- Provides and protects fish and wildlife habitat
- Improves air quality
- Maintains soil quality

For developers

- More attractive, sustainable neighborhoods that sell faster and for a premium
- Reduces stormwater utility fees
- Reduces the cost of clearing, excavation, compaction, erosion control, and infrastructure construction
- Can provide more buildable lots by distributing stormwater management around the site in small facilities instead of building a single large detention pond

For communities

- Helps prevent flooding and reduces the cost of associated damage
- Helps maintain clean drinking water supplies
- Can lower cost of streets, curbs, gutters and other infrastructure
- Increases the aesthetics of neighborhoods
- Reduces long-term maintenance costs

For agencies

- Helps meet regulatory requirements, including the Federal Clean Water Act (MS4 permits and TMDL plans), Endangered Species Act, Safe Drinking Water Act, and state land use planning goals 5 and 6

LID BEST PRACTICES

1

Improved site design

- Cluster development on a smaller part of the site to preserve areas with native vegetation.
- Minimize impervious surfaces by using narrower streets, shared driveways, and fewer parking spaces.
- Trees are an important part of site design. They provide great aesthetic value to communities, and are vital in capturing stormwater. Plan to give root systems room to grow, so they can be effective.



LID minimizes impacts throughout the development process.

2

Careful construction practices

- Avoid compacting soils so they retain the ability to absorb stormwater.
- Prevent / control erosion by mulching exposed soils and using compost berms, compost socks or wattles (in photo, at left) instead of sediment fences, which are ineffective.
- Protect trees by fencing them off around the dripline. Trees are often killed by soil compaction and root disturbance.
- Use compost to restore the health of soils disturbed by construction.



3

Maintenance and education

- Develop reliable and long-term maintenance programs with clear and enforceable guidelines.
- Educate property owners and landscape crews on the purpose of LID facilities and how to maintain them properly.



4



4

Bioretention facilities

Shallow, landscaped basins use soil and plants to soak up runoff and filter out pollutants. Examples include: tree wells, rain gardens, swales, filter strips, and stormwater planters.



LID manages water close to where it falls.

On areas of the site that are developed, LID uses small-scale stormwater facilities that are integrated into the landscape and reduce reliance on traditional storm sewers, pipes, and detention ponds. These practices can also be used to retrofit already developed sites.

Porous pavement

A variety of alternative surfaces for walking, driving or parking can remove pollutants as water passes through before soaking into the ground. Examples include permeable pavers, pervious concrete, porous asphalt, and porous flexible paving systems filled with grass or gravel.

5



Rainwater harvesting

Runoff can be collected and treated for use in irrigation, toilet flushing or drinking. This reduces runoff and demand for treated municipal water.



Photo: Tammie Stark

Vegetated roofs

These green roofs have a waterproof layer, lightweight growing media, and plants. They reduce runoff through evaporation, provide insulation as well as wildlife habitat, improve air quality, and outlast conventional roofs.

7



LID ECONOMICS

Even though LID is in its infancy, there are over 200 best practices that provide **practical, viable and economical solutions** to development projects of any type or scale.



Reduced hard infrastructure

LID can reduce traditional costs for hard infrastructure, like paving for roads and driveways and installing curbs and gutters. This can reduce the size of, or completely eliminate the need for detention ponds, resulting in more buildable lots. LID can also offset costs associated with regulatory requirements for stormwater control, like permits for drywells or Underground Injection Controls (UICs).

Reduced costs

A City of Portland study found that in retrofit projects for sewer overflows and flooding, bioretention facilities were much less expensive than pipe-only solutions, and also benefitted community aesthetics.¹

An EPA analysis of 17 developments with conventional stormwater management requirements around the U.S., found that, in most cases, LID project costs were lower than the compared conventional solution. Total capital cost savings ranged from 15-80% when LID methods were used.²

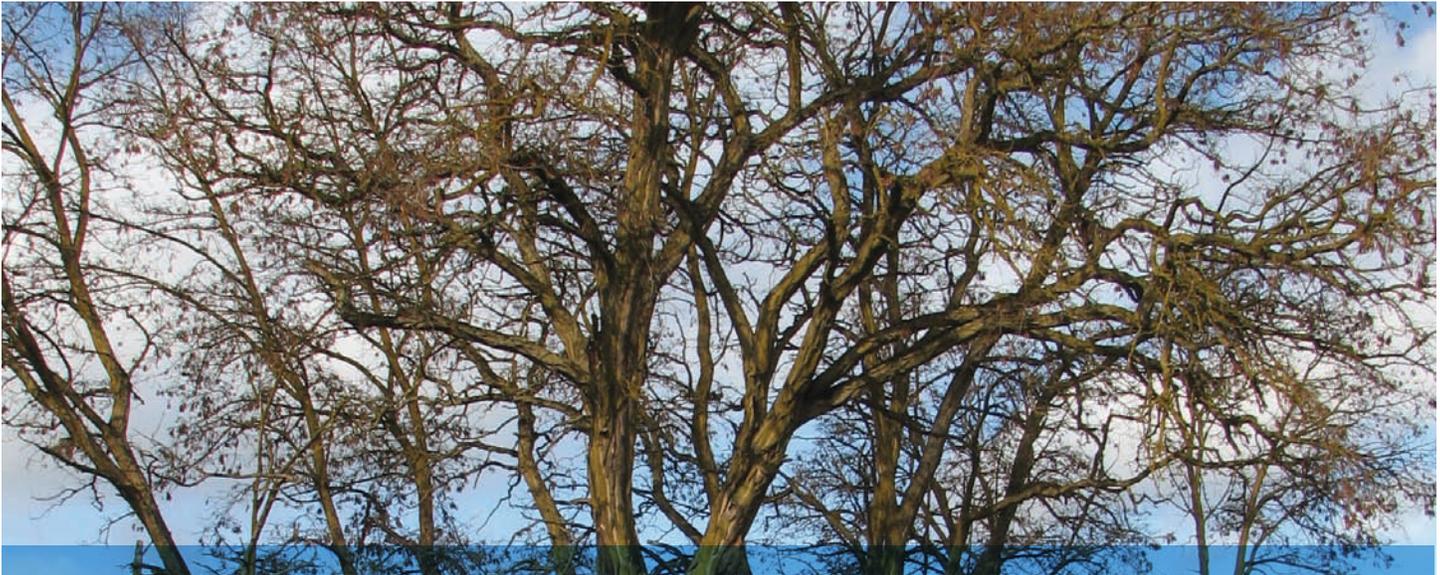
Techniques like minimizing impervious surfaces, building over previously disturbed areas, reducing excavation, limiting compaction and aligning utilities in one trench all reduce construction and landscape restoration costs, even in jurisdictions without stormwater management requirements.

Installation and design costs of LID will continue to decline over time as its users, suppliers and general practices becomes more widespread.

Environmental + community benefits

LID provides ecosystem services and economic benefits to the community that conventional stormwater controls do not.





Common concerns have practical solutions

Clay soils There are many LID options for areas with low soil infiltration rates. Bioretention facilities can be designed to treat water quality with small amounts of infiltration. Green roofs manage runoff solely through evaporation. Porous pavements are ideal if the clays aren't expansive. They manage only the precipitation that falls directly on them, and are built on top of a base layer of crushed stone with high voids that provide space for water storage. There are many non-structural practices for clay soil sites, like roughening surfaces to delay overland runoff, compost amendment, rainwater harvesting, limiting compaction, and planting trees.

Local codes and standards Municipalities with outdated stormwater regulations typically require that builders file variances if they want to use LID practices. This can increase a builder's design and regulatory costs, delay construction and increase financing costs. Updating local development codes and standards to encourage LID can help reduce the regulatory risk and expense that builders sometimes face.

Maintenance Maintenance costs for well-designed vegetated LID facilities are 5-7%. Maintenance of vegetated stormwater systems is similar to that of traditional landscapes with some added maintenance for conventional components like catch basins. Porous pavements require annual vacuum sweeping. Maintenance costs for well-designed vegetated LID facilities are 5-7% of the construction costs compared to 3-5% for conventional stormwater facilities.²

State plumbing code The state plumbing code does not preclude the use of LID.

Detention ponds are not LID

To protect streams from high flows, regulations sometimes require developers to install large ponds. Yet ponds don't reduce the overall volume of runoff, they don't recharge aquifers, and they don't remove pollutants as effectively as bioretention. Ponds also take up valuable land, are difficult to maintain, create mosquito breeding areas, and can be unattractive and unsafe for small children. In addition, stormwater released from ponds can be too warm for salmon. LID presents an improved set of tools for developing land and managing runoff.



STORMWATER SOLUTIONS

CHOOSE LID.

Improve Oregon's waters and communities.

Low Impact Development benefits all – developers, communities, agencies and the environment. Learn more about the many LID options that can be implemented on your projects, and how to implement them with success.

References

¹City of Portland. (2009). Tabor to the River: Brooklyn Creek Basin Program. Retrieved December 10, 2009 from <http://www.portlandonline.com/bes/index.cfm?c=50500&a=230066>.

²United States Environmental Protection Agency. (2009). Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices. Retrieved December 10, 2009 from <http://www.epa.gov/owow/nps/lid/costs07/>.

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Project Partners

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LID Around Oregon

The photos in this fact sheet highlight examples of public and private LID projects from around the state. Photo descriptions and credits:

Cover: Salmon (photo: Michael Brunk), Bottom row, left to right: Raingarden in North Portland (photo: OEC), Green street in SE Portland (photo: City of Portland), Preserved trees at Twin Creeks Community in Central Point (photo: OEC), RCC-SOU Medford Campus stormwater planter (photo: OEC), Villebois Residential Community, Wilsonville (photo: Costa Pacific Communities)

Page 2: Illustration: Maryland Department of the Environment

Page 4:

1. Graphic by AHBL for the LID Technical Guidance Manual for Puget Sound, 2005. Reprinted with permission from the Puget Sound Partnership
2. Erosion prevention example (photo: Green Girl Land Development Solutions)
3. City of Salem 12th Street bioswale (photo: OEC)

Page 5:

4. Left: Gresham green street bioswale (photo: City of Gresham) Boardman City Center bioswale (photo: City of Boardman)
5. Top: Port of Portland pervious asphalt (photo: Century West Engineering)
Porous pavers at Clean Water Services Field Operations Center in Beaverton (photo: OEC)
6. Cistern at a private home in Eugene (photo: Tammie Stark)
7. SeQuential Biofuels fueling station green roof in Eugene (photo: SeQuential Biofuels)

Page 6/7:

Porous pavers on a public street in Gresham (photo: City of Gresham), Rain garden at Lane Transit District Springfield station (photo: OEC), Twin Creeks Community, Central Point (photo: OEC)



To learn more about LID in Oregon, please visit our website: oeconline.org/stormwater <http://extension.oregonstate.edu/watershed/>

ATTACHMENT C

Pruning Trees a guide

■ How Much To Prune



When deciding how much to prune a tree, as little as possible is often the best rule of thumb. All pruning place stress on a tree and increase its vulnerability to disease and insects. On no account, prune more than 25% of the crown and ensure that living branches compose at least 2/3 of the total height of the tree. Pruning more risks fatally damaging your tree. In some cases, storm damage or the height reduction of the tree to avoid crowding utility lines, your pruning choices are made for your situation. But even in these instances, prune as little as you can get away with.