WATERSHED RESTORATION GRANT APPLICATION

Revised
January 2014

OWEB's Mission
To help protect and restore healthy watersheds and natural habitats that support thriving communities and strong economies.

All sections of applications, including the new budget form, must be completed using the January 2014 application forms. Applications submitted using previous forms will not be accepted.

GENERAL INSTRUCTIONS

1. Please read the "Instructions for Completing Restoration Grant Applications" before beginning your application.
2. Please use **8½″ x 11″** paper. A double-sided application and materials are **optional** except for oversized maps and designs or multiple sets for reviewers. All materials included with the application should be **single-spaced** wherever possible, **unstapled and unbound**.
3. Complete Sections I, II and III.
4. Complete the required forms and attachments: Section IV, Attachments A, B, C and D
5. Avoid color, except maps, and detail that will not photocopy clearly (see below*).
6. Read and sign the Restoration Grant Application (Section I Certification).

*** IMPORTANT:** Submit **one COLOR Project Location map** on 8½″ x 11″ paper. This map will be used to track project locations, and color will provide identifying features that are not legible in black and white. **If there are map(s), photo(s) or design(s) that you want the reviewers to see in color, supply 25 copies of each. If more than one map/photo/design is included, assemble and staple as a set; provide 25 sets for distribution to reviewers. This is the only exception to the use of staples.**

SUBMISSION OF GRANT APPLICATIONS

Grant applications may be submitted to OWEB by hard copy via mail or delivery to our Salem office.
No faxes or e-mails will be accepted.

Oregon Watershed Enhancement Board
775 Summer Street NE, Suite 360
Salem OR 97301-1290
Phone: (503) 986-0178

Section I
APPLICANT INFORMATION

Type in the information for Sections I and II.

Name of project: Southern Flow Corridor – Landowner Preferred Alternative

OWEB funds requested: 600,000 **Total cost of project:** 600,010

PROJECT LOCATION:

This project occurs in one region only. Region 1 ☒ **Region 2** ☐ **Region 3** ☐ **Region 4** ☐ **Region 5** ☐ **Region 6** ☐

This project occurs in multiple regions. Check all that apply. Region 1 ☐ **Region 2** ☐ **Region 3** ☐ **Region 4** ☐ **Region 5** ☐ **Region 6** ☐

This project occurs statewide / in all regions. ☐

This project occurs at (check one): ☐ **Site unknown at this time** ☒ **A single site** ☐ **Multiple sites**

Watershed Name(s)	County or Counties
Tillamook, Trask, Wilson	Tillamook

Township, Range, Section(s) (e.g., T1N, R5E, S12)	Longitude, Latitude (e.g., -123.789, 45.613) (required for federal/state reporting)	Watershed code(s) – Please note the 10-digit hydrologic unit code, previously 5th Field HUC
T1S, R10W, 23, 24, 25	45°27-28'N 123° 50-53'W	1710020305, 1710020304, 1710020303

Applicant	**Project Manager**
Name: Tillamook County Board of Commissioners	**Name:** Paul Levesque
Organization: Tillamook County	**Organization:** Tillamook County
Address: 201 Laurel Avenue	**Address:** 201 Laurel Avenue
Tillamook, OR 97141	Tillamook, OR 97141
Phone: 503-842-3403	**Phone:** 503-842-1809
Fax: 503-842-1384	**Fax:** 503-842-1384
Email: bbaertle@co.tillamook.or.us	**Email:** plevesqu@co.tillamook.or.us

Fiscal Agent	**Landowner(s)**
Name: Deborah Clark	☒ **Public: Agency:** Tillamook, City of Tillamook
Organization: Tillamook County	☒ **Private: Name(s):** Barbara Aufdermauer, Traskview Farms, Inc., Robert Garrigues, Loten Hooley, Doug Rosenberg
Address: 201 Laurel Avenue	
Tillamook, OR 97141	
Phone: 503-843-3439	
Fax: 503-842-1829	
Email: dclark@co.tillamook.or.us	

CERTIFICATION:

I certify that this application is a true and accurate representation of the proposed work for watershed restoration and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements (***see Application Instructions***) of an OWEB grant and are prepared to implement the project if awarded.

Applicant Signature: Bill Baertlein Date: August 13, 2014

Print Name: Bill Baertlein Title: Chair, Tillamook County Board of Commissioners

Co-Applicant Signature: _____ Date: _____

Print Name: _____ Agency: _____

Section II
PROJECT INFORMATION

1. Abstract. In approximately 200 words, 1) identify the project location, 2) state the watershed issue or problem to be addressed, 3) the proposed solution including the area or other measurable units to be treated, 4) any proposed effectiveness monitoring, and 5) how OWEB funds will be used.

Working with a diverse set of partners, Tillamook County intends to restore the 519 acres of restored tidal habitats at the confluence of the Tillamook Bay's two most productive salmon systems, the Wilson and Trask Rivers. The Southern Flow Corridor-Landowner Preferred Alternative (SFC-LPA) addresses both flooding and estuarine habitat loss.

Within the project area, the SFC-LPA will remove manmade impediments to flood flows to the maximum extent possible. The project accomplishes this by extensive removal of existing levees and fill and construction of new setback tidal dikes to protect adjacent private lands.

Representing 10% of the watershed's historic tidal acreage and a far greater percentage of the "restorable" tidal lands, the project area contains an expansive mosaic of tidal wetlands, disconnected freshwater wetlands, and drained pasture lands. Once restored to a tidal regime, the resulting range of habitats will provide substantial habitat benefits to coho and numerous other species.

The Institute for Applied Ecology has completed an effectiveness monitoring plan. Implementation is underway and partially funded by OWEB (214-1043-11003).

The County will use OWEB funds for project management and on-the-ground construction work.

2. Has this project or any element of this project, ever been submitted in a previous application(s) to OWEB? ☒ **Yes** ☐ **No**

If yes, what was the application number(s)? 211-108

3. Is this project, or any element of this project, a continuation of a previously funded OWEB restoration project(s)? ☒ **Yes** ☐ **No**

If yes, what was the grant number(s)? 99-804, 99-421, 214-9903

4. Is this project a result of a previously funded OWEB Technical Assistance project(s)? ☐ **Yes** ☒ **No**

If yes, what was the grant number(s)?

5. Does this application propose a grant for a property in which OWEB previously invested funds for purchase of fee title or a conservation easement; or is OWEB currently considering an acquisition grant for this property? ☒ **Yes** ☐ **No**

If yes, what is the grant number(s)? 99-804, 99-421, 214-9903

6. Is this project related to a proposed or funded Oregon State Weed Board grant application(s)? ☐ **Yes** ☒ **No**

If yes, list the month and year, or grant application(s) number, and briefly describe how this project is related to the Weed Board application or grant.

7. Project Partners. Show all anticipated funding sources, and indicate the dollar value for cash or in-kind contributions. Be sure to provide a dollar value for each funding source. If the funding source is providing in-kind contributions, briefly describe the nature of the contribution in the Funding Source Column. Check the appropriate box to denote if the funding status is secured or pending. In the Amount/Value Column, provide a total dollar amount or value for each funding source.

Funding Source Name the Partner and what their contribution is.	Cash	In-Kind	Secured (x)	Pending (x)	Amount/Value
USFWS	$600,000	$	☐	☒	$600,000.00
Impact Consulting	$	$10.00	☒	☐	$10.00
Landowner(s) or other partners:	$	$	☐	☐	$
	$	$	☐	☐	$
Total Estimated Funds (add all amounts in the far-right Column):					*$600,010.00

* The total should equal the total cost of the project on page 1 of the application.

8. Have any conditions been placed on other funds that may affect completion? ☐ **Yes** ☒ **No**

If yes, explain:

9. Are you requesting OWEB funds for Effectiveness Monitoring? ☐ **Yes** ☒ **No**

If you check "Yes", follow the instructions in Question R17

10. Are you requesting OWEB funds for Plant Establishment? ☐ **Yes** ☒ **No**

If you check "Yes", follow the instructions in Question R18

Section III
SPECIFIC RESTORATION PROJECT ACTIVITY

These essay questions and their answers are designed to guide you and reviewers through a logical process of understanding and identifying the problem to "fixing" the problem and measuring for success. **Refer to the Application Instructions for clarification and helpful examples.**

You may use the application form to respond to the questions, using additional sheets of paper as necessary **OR** answer the questions on separate pages. Be sure to include the question numbers and text of the questions before you begin typing your answers to assist the reviewers in evaluating your application.

Use 8½″ x 11″ paper. A double-sided application and materials are **optional** except for oversize maps and designs or multiple sets for reviewers. All materials should be **single-spaced** wherever possible, **unstapled** and **unbound**, except for sets of maps/photos/designs (see Page 1 of the application instructions for assembling multiples for reviewers). Use an 11-pt type size to answer the questions and a 10-pt type size for the tables. Use bullets where appropriate. Use **bold face** and *italics* for emphasis only. Do not use color highlights for text emphasis or in tables as the highlight turns black when the application is scanned. If the project involves multiple sites, be specific for each. If the question is in parts (e.g., "a" and "b"), make sure you answer in parts. **Refer to the Application Instructions for clarification and helpful examples.**

R1. Contextual Overview

Provide the location and significance of the project including why that location was chosen and a brief explanation of the history of the issues leading to the project. Describe the project in the context of the landscape including the key water quality, water quantity, species, habitat, land use and resource management issues (physical or social) that are proposed to be addressed in that watershed. **See the Application Instructions for clarification.**

Flood Mitigation

Five major rivers drain into Tillamook Bay. The lower valleys of the Wilson, Trask, and Tillamook Rivers merge to form a broad floodplain at the head of the bay on which the City of Tillamook is located. The Wilson River flows through a steep canyon out of the mountains and does not have any significant floodplain until around six miles above the bay.

The river channel is perched, meaning it runs in a channel with natural banks that are higher than the floodplains around it. Consequently, flood flows that leave the Wilson River, especially to the much larger southern floodplain, never return to the channel but flow south to the lowest part of the valley and west to meet the Trask and Tillamook Rivers. Highway 101 crosses the Wilson River floodplain at grade and so suffers frequent deep inundation across its lowest portions between Hoquarton and Dougherty Sloughs.

Recent decades have seen a number of damaging floods occur in Tillamook County. The 1996 flood in particular was noted for its long duration and extensive damages. Since then, large floods have occurred in 1998 and most recently in 2006 and 2007, causing further damages.

Habitat Loss & Declining Fish Populations

Listed as "threatened" under the federal Endangered Species Act (ESA), Oregon coastal coho populations have been severely impacted by the loss of off-channel and tidal wetland habitats. In few places is this impact more pronounced than in Oregon's Tillamook Bay, where almost 90% of the estuary's tidal wetlands have been lost to agricultural and urban/residential development.

The resulting lack of available tidal wetland habitats has been a primary contributor to the decline of Tillamook Bay coho, and today's runs (just over 2,000 fish in 2012) represent a fraction of estimated historic abundance (~200,000). Likewise, the lack of available tidal wetland habitats has been identified as a key impediment to species recovery. These tidal habitat losses have impacted the Bay's four other anadromous species, as well, particularly Chinook which use tidal wetlands extensively for rearing.

Project History

In 2001, Tillamook County, in concert with numerous partners, purchased 377 acres from private landowners specifically for the purposes of habitat restoration. Tillamook County holds title to the land, but the *Wetlands Management Plan*[1], developed by multiple stakeholders, governs its use. The County's efforts to restore the 377 acres stalled when hydraulic analyses, modeled by the US Army Corps of Engineers (ACOE), concluded that full restoration of the entire site would cause unacceptable increases within the City of Tillamook's Highway 101 business district. The study concluded partial restoration of the 377 acres was possible, but flood level reductions were minimal.

In 2006 and 2007, Tillamook County suffered large floods and extensive damages. After the 2006 flood, Governor Ted Kulongoski established the flood mitigation effort as an "Oregon Solutions" (OS) project. The OS process provides a structure and process for public and private sectors to collaborate in addressing technically and politically challenging community needs. Subsequently, a 37-member Project Team (PT) of federal, state, and local government agencies as well as community groups, business organizations, and individuals was assembled. In 2007, the PT prioritized projects and began implementation.

Northwest Hydraulic Consultants Inc. (NHC) in conjunction with HBH Engineering Consultants was selected by the Design Team (DT) to analyze flooding on the Wilson River floodplain and develop solutions to reduce flood levels. After an alternatives analysis and several rounds of revision and input from the DT, the preferred alternative Project Exodus was selected. Project Exodus consisted of three separate, independent elements that addressed flood level reduction in the lower Wilson River floodplain, the Southern Flow Corridor (SFC) being one of them.

The DT decided to pursue implementation of the SFC as a priority. Among the reasons was that the SFC provides by far the largest benefits in flood damage reduction, both in terms of flood levels and area benefitted, and that the SFC had potential significant funding available in the form of FEMA alternate project funds through the Port of Tillamook Bay (POTB). At the same time, concerns were raised with the original SFC scope in regards to the conversion of agricultural lands to restored marsh as a result of the proposed levee removals. NHC was then directed to evaluate the hydraulic impacts of the SFC on its own as a standalone project, and to investigate alternatives that minimized the amount of agricultural lands that might be lost. NHC presented its findings in June 2010, which demonstrated that the SFC did indeed provide flood level reduction benefits on its own, and that alternatives were available that allowed some of the originally targeted agricultural lands to remain as such rather than being acquired and converted to salt marsh.

With this information, Tillamook County began real estate discussions with three landowners whose properties were required to be purchased outright for the project. Leo Kuntz of Nehalem Marine began discussions with adjacent landowners and those whose lands were identified as needing dike modifications but not acquisition. As a result of these discussions, the project was slightly modified and renamed the Southern Flow Corridor – Landowner Preferred Alternative (SFC-LPA), meeting landowner desires and functioning as a natural overland path for Wilson River floodwaters.

NHC modeled this modification to ensure continued flood level reduction performance. In addition to its extraordinary habitat benefits, the SFC-LPA project was shown to be the most cost effective flood level reduction measure by creating a flow corridor from Highway 101 out to Tillamook Bay. In May 2011, the OS DT approved this modification, which was subsequently approved by the PT.

To carry out project implementation, the DT formed a project management team comprised of Tillamook County, POTB, Tillamook Estuaries Partnership (TEP), and Tillamook Bay Habitat and Estuary Improvement District (TBHEID). A Memorandum of Agreement governs the new team.

Project Area and Ownership

The project area encompasses 642 acres. In addition to the current 396 acres in public ownership (predominately Tillamook County), an additional 125 acres of acquired land and 121 acres of temporary construction and permanent floodway easements are necessary. Funds for acquiring land are pending through the Oregon Watershed Enhancement Board (OWEB). 521 acres of the project area will be permanently protected in public ownership, thereby ensuring the longevity of the restoration.

R2. Problems to be Addressed

Provide information specific to the project: a) The specific problem(s) you are addressing; and b) the *root* cause(s) of the problem(s). **DO NOT describe the project here; you will do so in question #R3.** You may add narrative in addition to the table.

Specific Problem(s)	Root Cause(s) of the Problem
Habitat Loss and Simplification	An estimated 86% of the 6,035 acres of historic tidal wetlands in the Tillamook Bay estuary have been lost to urban and agricultural development. Early settlers altered tidal wetlands in the estuary for agriculture and dikes, tidegates, culverts, and ditching are prevalent. The lower floodplains of the five rivers draining into the Bay, once tidal but now largely diked, provide high quality pasture and support a dairy industry.[2] Systematic removal of large wood from the estuary further disconnected streams and adjacent floodplains and wetlands. In the late 19th century, natural wood jams near the mouths of the Wilson and Trask were cleared and channels were modified for navigation in the lower Trask and Hoquarten Slough. Major forest fires from the 1930s to the 1950s resulted in greatly increased sediment loads in the watershed. In the 1950s, the Bayocean spit was breached, resulting in an additional massive sediment load being added to the Bay before being repaired. River channels within tidal influence experienced aggradation which was compounded by extensive diking that prevented natural deltaic sediment distribution processes from operating in the confined channels. In more recent times, reforestation of burn zones has decreased riverine sediment loads, as evidenced by channel narrowing and gravel bar reforestation upstream.[3] Dredging of the Wilson River in the early 1970s resulted in the placement of the spoils onsite adjacent to the river dike. Remaining habitats tend to be degraded and fragmented along outmigration corridors for native salmonid species.
Water Quality	Habitat loss and simplification, resultant from the aforementioned causes, have also led to water quality limitations. The lower Wilson and Trask mainstems are water quality limited for temperature and bacteria and sections of the rivers and sloughs are dissolved oxygen (DO) limited.
Flooding	Four of the five rivers draining into Tillamook Bay unite in the upper estuary just west of the City of Tillamook and Highway 101. Manmade alterations within the project area exacerbate flooding and disrupt the natural hydrological processes that shape and sustain critical habitats for salmonid species.

R3. Project Description

Using the table below, provide a description of the project that describes the restoration activities to occur (e.g., direct flow, remove 36″ culvert, construct free spanning bridge, place 12 three log clusters between RM 44 and 52, etc.), including a description of the methodologies (e.g., juniper – burning or cutting; tree release – manual or herbicide; etc.) and the equipment planned for use. In addition, describe any Project Management functions/ activities necessary to implement the project (e.g., acquire permits or landowner approval; solicit bids, award contracts, etc.). The degree of detail should match the project complexity and technical difficulty to allow for full evaluation of technical viability. For projects involving multiple sites, be sure to identify and describe them separately, as appropriate. **This is not the place to describe the benefits of the project, but rather the specific elements of the proposed project.** You may add narrative in addition to the table.

Project Element	Proposed Action
Restoration Activity	***Quantity***
Levee Removal	6.9 miles
Levee Lowering	2.1 miles
Levee, Dredge Spoil, and Fill Removal	85,000 cubic yards
New Floodgate Installation	1
Drainage Tidegate Installation	7
Road Removal	2.1 miles
Structure Removal	1 house, 3 barns
Ditch Filling	3.3 miles
Channel Reconnections	18 locations
New Tidal Channel Excavations	0.9 miles
Large Wood Installation	to be determined on site

Given the complexity of the project and the interrelatedness of the individual project elements, describing the construction actions is better conveyed in a comprehensive construction sequencing narrative.

Temporary Construction, Site Preparation: Existing levees and roads that will serve as haul roads will be upgraded as needed to withstand construction traffic. All existing tidegates will have fish mitigation devices removed to maximize interior drainage and lower water levels for construction. Fish exclusion nets will be installed on existing tidegates to prevent ingress during construction. Designated refueling and stockpile areas will be constructed.

Clearing and Grubbing: The new levee alignment, landward sides of perimeter levees, and dredge spoil piles will be cleared of vegetation and topsoils. Native shrubs and trees will be stockpiled for placement in the restoration area. Non-native species will be removed. Topsoils will be used to fill existing interior ditches in order to ensure natural tidal channels can develop without being short-circuited by the linear ditches. Topsoils may also be stockpiled for use on the levee face.

First Phase of Levee Removal and Levee Construction: Levee removal will provide the conveyance capacity increase that results in reduction of flood levels over a wide area of the lower Wilson River floodplain. In general, material will be removed to slightly below natural floodplain/marsh level. This elevation is around nine feet at the mouth of the Wilson River, increasing to 10+ feet farther upstream. Lowering areas further than this could provide some additional flood level reduction, but the cost increase would be large and the benefits temporary. The fill to be removed will be used for the new dikes and ditch filling, with any remaining soils spread on site to speed rebuilding to natural salt marsh elevations.

Because of land subsidence from diking and draining, the existing land elevations in the southeastern project area are too low to support continued use as pasture without the dikes. Given the lack of landowner interest in selling their property and the importance of preservation of agricultural lands for Tillamook County, these dikes will be lowered to 12 feet to convey floodwaters.

New and upgraded existing tidal dikes will be constructed in three segments (north, middle, and south) in order to protect adjacent agricultural lands from tidal influence in the project area. Most of the dikes will be built to the design elevation of 12 feet, with some adjustments where they tie into existing dikes or high ground. This elevation will pass river flood flows out while preventing high tides and coastal storm surges from getting in. The downstream side of each dike will have a 5:1 slope in order to pass overtopping floodwaters with minimal damage.

Levee construction will begin with excavation of interior levees and dredge spoils. The exterior will be excavated to design grade, which is just above summer high tides. If necessary, a small 1-2 foot berm will be left on the riverward side of the exterior levees to prevent tidal overtopping. Material will be trucked to the new levee alignments, laid down in lifts and compacted. There is not enough material from the existing levees to be removed on the south side of Hoquarten Slough to construct the new South Dike and therefore, material from the northern area will need to be transported over. The material will be hauled via truck or a temporary bridge may be used to move material across

Hoquarten Slough. Organic soils will be used to cap the levee faces to promote vegetation. A crushed rock driving surface will top the new levee.

Drainage Structures: A new high capacity floodgate structure will be incorporated in the middle dike to replace the existing gates, provide additional conveyance capacity, and allow rapid post flood drainage. The four 5x12 foot side hinge gates on the existing flood gate at the western end of the project area will be reused on the new floodgate, and an additional four gates added. The structure is anticipated to be a cast in place concrete structure with a sheet pile seepage cut off wall. The gates are designed to function only during floods and so will be set around floodplain elevation rather than in a channel. The upper end of the relict Nolan Slough channel will be excavated to the outlet of the new floodgates to serve as the exit channel from the gates. Flood flows will pass through the gates every second or third year, a sufficient frequency which will keep the channel open and able to convey flood flows out to the main river channels and bay. Seven tidegates will be installed in the new dikes to provide equal or better drainage from adjacent pasture lands. Existing five and six foot diameter round tidegates currently installed on the western end of the site will be reused on these replacement pipes if their condition allows.

Road Decommissioning and Channel Excavation: The few roads on site, including one accessing a residence to be demolished, will have gravel surfaces removed and the roadbed de-compacted. Existing relict tidal channels will have plugs and culverts removed to allow full tidal access. In the north dike, the outlet channels will use existing or constructed sinuous tidal channels to provide connections to the main river. Excavation of a Hall Slough-Blind Slough channel will further increase connectivity. Improvements to the existing drainage ditches inside the new dike will be made as necessary to connect them to the new tidegates and ensure that equal or better drainage is maintained once the project is implemented. Note that while one mile of tidal channels will be excavated during construction to provide drainage from diked lands and/or improve habitat connectivity, 14 miles of tidal channels will ultimately be restored throughout the site.

Large Wood Placement: Large spruce and other trees exist along the levees and in other construction areas. Trees removed in order to implement project elements will be placed opportunistically in the wetland and channel habitats to offer predation cover for fish. Wood placement will complete the interior area work. At this point the new flood and drainage gates must be functional and the new levees built up with a minimum crest elevation of ten feet.

Levee Removal: Once all interior work is completed the site will be ready to receive tidal waters. The levees will be breached and access to the interior floodplain will no longer be feasible. Exterior tidegates will be removed and relict channels connected to the river. Final excavation will require working within tide cycles, working back out of the project site without the benefit of loop haul roads, and more difficult sediment control measures.

Construction Completion: Final grading of new levees to design height, installation of permanent erosion control measures, hydroseeding the new levees, and repair of any damage to County or City roads used for hauling will complete construction of the project.

Re-vegetation: Native vegetation re-establishment in saline environments often occurs naturally, given the appropriate hydrological conditions. With the difficulty in predicting salinity gradients, which guides the planting strategy, a passive re-vegetation approach may be employed. Following construction and post-project monitoring, the need for a re-vegetation plan, likely focusing on higher elevation areas, will be evaluated, and developed and implemented as needed.

R4. Project Objectives

What are the proposed project objectives? Provide specific objectives based on the location, size and significance of the project and provide information on how the objectives could be evaluated. The measurements should be able to be reported to document successful implementation. **See the Application Instructions for the distinction between project objectives and achievement of goals.**

Project Element	Specific Objectives	Measure for Evaluation
-Levee Removal -Levee, Dredge Spoil, and Fill Removal -New Floodgate Installation -Drainage Tidegate Installation -Road Removal -Structure Removal -Ditch Filling -Channel Reconnections -New Tidal Channel Excavations -Large Wood Installation	***Increased extent of native tidal wetland vegetation.*** Increased area of tidal wetlands; reduced prevalence of non-native plant species; reduced extent of non-native-dominated plant communities.	Tidal inundation regime; percent cover of non-native plant species; area of native-dominated and non-native-dominated plant communities
	Re-establishment of tidal wetland physical conditions. Restored tidal inundation regime similar to the reference sites (at the same elevation); increased soil salinity in the parts of the project site near the bay; restored tidal influence on groundwater regime; restored sediment accretion rates (compared to reference areas in the same landscape setting and at the same elevation); initiation of channel morphology changes associated with restoration of tidal flows.	Tidal inundation frequency and duration; soil salinity; shallow groundwater level; sediment accretion; channel morphology (width, depth, and shape)
	Re-establishment of target fish species use, prey resources, and habitat. Increased use of the project site by target fish species; improved quality of habitat for target species at the project site.	Fish: Fish presence, abundance, diversity, and species richness Prey Resources: Benthic macroinvertebrate density and taxonomic composition Habitat: Tidal exchange; channel water temperature; salinity; dissolved oxygen; tidal channel morphology; in-stream habitat including large woody debris (LWD) abundance
	Flood attenuation. Quantify changes in flood levels in the vicinity of the project during flooding events.	Water levels (stage recorders), maximum water levels (crest gages), floodplain structures and conditions

R5. Project Design

a) Provide a list of qualifications and experience you will require for the project designer. If a project design has been completed, identify the designer and what qualifications and experience they have.

NHC is leading a team to provide permitting, final design, and construction management services. NHC has prepared the 25% designs and is under contract with the POTB to compete the SFC-LPA project. Assisting NHC will be HBH Engineering Consultants (civil design), Shannon & Wilson (geotechnical), and Latimer Environmental (permitting).

NHC is an internationally known firm specializing in hydraulic and hydrologic engineering, water resources engineering, river engineering, fluvial morphology, aquatic habitat restoration, and numerical and physical modeling. Vaughn Collins, P.E. is the lead designer for the SFC-LPA project. Mr. Collins has 21 years of experience in the analysis and design of numerous flood control and habitat restoration projects, including multiple projects in estuarine environments similar to Tillamook Bay.

b) Describe the design criteria used or proposed and how those criteria take into consideration natural events and conditions (e.g., culvert design to 100-year flood event, wood placement to readjust with higher than bankfull flows, cultivation to retain at least 75% stubble, 4-strand fence to allow for wildlife passage, etc.).

New Levees: Design elevation optimized to minimize blockage to flood flows overtopping the levee while protecting agricultural lands from daily tidal inundation.

Levee and Fill Removal: Remove to natural pre-development ground level.

Tree Removal: Minimize removal, remove with rootwad intact, leave on site and place parallel to flood flow.

Agricultural Drainage (ditches and culverts): Replace or repair to ensure equal or greater drainage capacity.

Tidal Channel Restoration: Reconnect relict channels with river, pilot channel excavation in select locations,

allow natural development of full tidal geometry.

R6. Design Alternatives

Were alternative designs or solutions considered? (check one) ☒ **Yes** ☐ **No**

If yes, explain why the design or approach proposed was chosen. If no, explain why alternative approaches were not explored.

In short, the SFC-LPA was selected because it maximizes both habitat restoration and flood reduction benefits for the area compared with smaller or partial restoration alternatives that were evaluated.

R7. Proposed Project Schedule

Use the table below to show the anticipated schedule for the project. Add or change the list of project elements to fit your project. **See the Application Instructions for clarification and an example.**

Project Elements	Start Date	End Date	Description
Phase 1			
Land Acquisitions	Ongoing	Oct 2015	The County acquires fee-title to 125 acres and secures easements on 121 acres.
Baseline Monitoring	Aug 2013	Sept 2015	Contractors complete baseline monitoring activities consistent with the *Monitoring Plan*.
Final Design/Permitting	Ongoing	July 2015	All required permits/authorizations are acquired from respective agencies. The Environmental Impact Study is completed.
Bidding	Jan 2016	Mar 2016	Qualified contractors are solicited and a contract awarded.
Phase 2 - Construction			
Site Preparation	May 2016	June 2016	Existing levees and roads that will serve as haul roads will be upgraded as needed to withstand construction traffic. All existing tidegates will have fish mitigation devices removed to maximize interior drainage and lower water levels for construction. Designated refueling and stockpile areas will be constructed.
Interior Perimeter Work	June 2016	Sept 2016	The new levee alignment cleared. Native shrubs and trees will be stockpiled for on-site placement. Non-native species will be removed. Levee material will be removed. Fill to be removed will be used for the new dikes and ditch filling, with any remaining soils spread on site to speed rebuilding to natural salt marsh elevations.
Interior Restoration	July 2016	Sept 2016	A new high capacity floodgate structure will be incorporated in the middle dike to replace the existing gates. The four 5×12 foot side hinge gates on the existing flood gate at the western end of the project area will be reused on the new floodgate, and an additional four gates added. The upper end of the relict Nolan Slough channel will be excavated to the outlet of the new floodgates. Seven tidegates will be installed in the new dikes. Existing 5 and 6 foot diameter round tidegates will be reused on these replacement pipes if their condition allows. Roads will have gravel surfaces removed and the roadbed de-compacted. Existing relict tidal channels will have plugs and culverts removed. The Hall Slough-Blind Slough connector channel will be excavated. Wood placement will complete the interior restoration work.
New Levees	July 2016	Oct 2016	New and upgraded existing tidal dikes will be constructed in three segments (north, middle, and south). Levee construction will begin with excavation of interior levees and dredge spoils. Levees not slated for full removal will be lowered.
Final Breaching	Oct 2016	Nov 2016	The levees will be breached and access to the interior floodplain

			will no longer be feasible. Exterior tidegates will be removed and relict channels connected to the river. Final excavation will require working within tide cycles, working back out of the project site without the benefit of loop haul roads, and more difficult sediment control measures.
Construction Completion	Nov 2016	Nov 2016	Final grading of new levees to design height, installation of permanent erosion control measures, hydroseeding the new levees, and repair of any damage to County or City roads used for hauling will complete construction of the project.
Phase 3			
Post-Project Monitoring	June 2017	Oct 2020	Minimum planned post-project monitoring will occur at Year 2 Post (2017-2018) and Year 4 Post (2019-2020) and include a variety of parameters.

R8. Salmon/Steelhead Populations Targeted and Expected Benefits to Salmon/Steelhead

The information provided will be used by OWEB to better meet federal and state reporting requirements. Completion of this section is required but will not be used to evaluate this application for funding.

☐ This project is **NOT** specifically designed to benefit salmon or steelhead.

► If you check this box, STOP here and GO TO Question R9.

Targeted Salmon/Steelhead Populations: Select one or more of the salmon ESUs (Evolutionary Significant Unit) or steelhead DPSs (Distinct Population Segment) that the project will address/benefit. For species where the ESU/DPS name is not known or determined, use the species name with unidentified ESU (e.g., Chinook salmon – unidentified ESU). Additional information on the designation and location of the salmon/steelhead populations can be found at http://www.westcoast.fisheries.noaa.gov/maps_data/species_population_boundaries.html

Chinook Salmon (*Oncorhynchus tshawytscha*)	
☐	Deschutes River summer/fall-run ESU
☐	Lower Columbia River ESU
☐	Mid-Columbia River spring-run ESU
☒	Oregon Coast ESU
☐	Snake River Fall-run ESU
☐	Snake River Spring/Summer-run ESU
☐	Southern Oregon and Northern California Coastal ESU
☐	Upper Klamath-Trinity Rivers ESU
☐	Upper Willamette River ESU
☐	unidentified ESU
Chum Salmon (*O. keta*)	
☐	Columbia River ESU
☒	Pacific Coast ESU
☐	unidentified ESU

Coho Salmon (*O. kisutch*)	
☐	Lower Columbia River ESU
☒	Oregon Coast ESU
☐	Southern Oregon/Northern California ESU
☐	unidentified ESU
Steelhead (*O. mykiss*)	
☐	Klamath Mountains Province DPS
☐	Lower Columbia River DPS
☐	Middle Columbia River DPS
☒	Oregon Coast DPS
☐	Snake River Basin DPS
☐	Washington Coast DPS (SW Washington)
☐	Upper Willamette River DPS
☐	Steelhead/Trout unidentified DPS

Expected Benefits: Write a brief description of the goals and purpose of the project and how it is expected to benefit salmon/steelhead or salmon/steelhead habitat. This answer should be no longer than 2000 characters, which is approximately 330 words. **See Application Instructions for examples and ideas on how to calculate the number of words or characters in your answer.**

The purpose of this project is to restore habitats and ecological processes in the upper estuary of Tillamook Bay and the Wilson and Trask River deltas in order to: 1) improve habitat for native fish and wildlife, 2) improve water quality and reduce sedimentation, 3) reduce flood hazards, and 4) enhance the overall ecological health of Tillamook Bay.

Loss of estuarine rearing habitat has limited the production of salmonids in the Tillamook Bay Basin[4]. Some of the key factors affecting salmonid survival in estuarine environments are related to their ability to access habitats and the quality of the habitats that they occupy. These, combined with the quantity of suitable habitat, play a large role in determining the magnitude of the production bottlenecks.

Implementation of the SFC-LPA will directly benefit Tillamook Bay salmonids by addressing these habitat-based factors (i.e. habitat access, quality, and quantity). The project will restore 519 acres of marsh and wetland fringe habitat at the confluence of the Bay's two most productive salmon systems (the Wilson and Trask Rivers). Once restored to a tidal regime, the resulting range of habitats (including mud flats, aquatic beds, emergent marsh, scrub-shrub wetlands, forested wetlands and sloughs) will provide substantial habitat benefits to Tillamook Bay salmonids.

The project location is considered to be ideal, largely because it lies within the migration pathway of salmonids that emigrate as juveniles from the Wilson, Trask, and Tillamook Rivers, and is also within the potential home range of juveniles from other tributaries and rivers.

R9. Project Relationship to Regional Priorities

If the project specifically implements a plan or larger conservation effort, identify the effort and the specific role of this project. Explain whether the project implements a regional plan (e.g., ESA Recovery Plan, Coastal Coho Assessment, NWPCC Subbasin Plan, Groundwater Management Area). Specifically identify the relationship between the proposed project and the OWEB Basin Priorities. Priorities can be found on the OWEB website at: www.oregon.gov/OWEB/restoration_priorities.shtml. **(See the Application Instructions for helpful links to various regional plans.)**

Project justification is widely documented and supported. The following plans target recovery of ESA *Threatened* Oregon Coast Coho Salmon populations:

Summary of the Watershed Health Indicators for the Oregon Coast Coho ESU 2007 (OWEB, 2008). OWEB's North Coast Basin restoration priorities include several limiting factors in the Wilson, Trask, and Tillamook Rivers. For aquatic/instream habitats, the SFC-LPA project addresses limiting factors for water temperature, water quality, summer and winter rearing habitat, large wood, barriers, and channel modification. For tideland habitats, this project addresses limiting factors for hydromodification, water quality, vegetation modification, tidal wetland loss, and tidal flat loss.

Tillamook Bay Comprehensive Conservation and Management Plan (CCMP) (Tillamook Bay National Estuary Project (TBNEP), 1999). This plan calls for the protection and restoration 750 acres of tidal wetlands, 70% of which is met through the SFC. The project will also meet nine CCMP actions aimed at protecting and enhancing wetland, instream, removing salmon migration barriers, reconnecting sloughs and rivers, and improving sediment storage and routing.

Pacific Coast Salmon Management Plan (Pacific Fisheries Management Council, 1997). Pacific coast salmon fisheries in Council-managed waters focus on Chinook and coho salmon. The core of the plan includes conservation objectives and harvest allocations across fisheries. The Council must comply with laws such as the ESA. SFC-LPA implementation will help meet conservation goals and provide more fish available for harvest.

The Oregon Coastal Coho Assessment (Oregon Department of Fish and Wildlife (ODFW), 2007). This assessment identifies several 'risk factors' that threaten the viability of the Coastal Coho Evolutionary Significant Unit. This project addresses the risk factors associated with stream complexity and water quality.

The Oregon Plan for Salmon and Watersheds (State of Oregon, 1997). The SFC-LPA advances the *Oregon Plan* by enhancing high priority habitat types for numerous fish and wildlife species, including ESA listed Oregon coast coho salmon.

Oregon Conservation Strategy (ODFW 2005). The project is consistent with several actions in the *Strategy* that aim to conserve fish species. Actions include maintaining and restoring channel complexity and habitat quality.

The Tidal Wetland Prioritization for the Tillamook Bay Estuary (Ewald, M.J., and L.S. Brophy. 2012). This study delineates 'sites' that have contiguous wetland areas with strong internal hydrologic connectivity and consistent alteration levels. Sites were then prioritized for the highest likelihood of contributing to tidal wetland function once restored (if restoration was necessary). The SFC-LPA includes seven sites, four of which received a high and three a medium-high ranking.

This project also advances: TBNEP's *Trask Watershed Assessment* (1998), US Fish and Wildlife Service's *Regional Wetlands Concept Plan* (1990) and *Strategic Plan: The Coastal Program* (2007), Oregon Wetlands Joint Venture's *Joint Venture Implementation Plans: Northern Oregon Coast* (1994), Oregon Division of State Lands and Oregon State Parks and Recreation Division's *Oregon Wetlands Priority Plan* (1989), Oregon Department of Land

Conservation and Development's *The Oregon Estuary Plan* (1987), and the Oregon Department of Environmental Quality's *Tillamook Bay Watershed Total Maximum Daily Load* (2001).

R10. List each component or activity of the project that requires a permit(s) and/or license(s) from a local, state or federal agency or governing body.

Use the table provided to list the activities and permit(s)/license(s) including the entity issuing the permit(s)/license(s). Every project will vary in the number and types of permits and licenses needed. In Column 1 and in separate rows, list the project activities requiring a permit or license. In Column 2, provide the name of the permit or license. In Column 3, provide the name of the entity issuing the permit or license. **See Application Instructions pages 10-12 for clarification and examples before completing the table.**

Project Activity Requiring a Permit/License	Permit or License Name	Entity Issuing Permit or License
Wetland Fill Removal and Placement	Nationwide Permit 27	US Army Corp of Engineers
Wetland Fill Removal and Placement	Removal/Fill General Authorization, Wetland Determination & Delineations	OR Division of State Lands
Stream Restoration Project within Essential Fish Habitat	SLOPES (IV)	National Marine Fisheries Service
In-water Work in Fish Bearing Waters of the State	In-Water Timing Guidelines, Fish Passage Requirements, Habitat Mitigation Recommendation	OR Dept. of Fish & Wildlife
Construction Within Coastal Zone Management zone	Coastal Zone Management Act Consistency Certification	OR Dept. of Land Conservation & Development
Construction > 1 acre	1200-C Storm Water Permit, 401 Water Quality Certification	OR Dept. of Environmental Quality
Ground Disturbance	National Historic Preservation Act Section 106	OR State Historic Preservation Office
Construction in Floodplain	Development Permit, Flood Hazard Assessment	Tillamook County

Additionally, the permits listed in the above table will support the National Environmental Policy Act (NEPA) analysis being led by Federal Emergency Management Agency (FEMA).

R11. Project Relationship to Watershed Processes and Functions

The restoration and protection of natural watershed process is the foundation of achieving watershed health. Since natural watershed processes have been eliminated, altered, or reduced in many areas, habitat restoration activities are the primary method for reintroducing the necessary functions to watersheds that have been altered due to past management practices and/or disturbance events. Restoration activities are intended to address the watershed functions necessary to support natural processes that are indicative of healthy watersheds. This includes, but is not limited to improving water quality, water quantity, habitat complexity, flood plain interaction, vegetation structure, and species diversity.

OWEB wants to be able to track how restoration projects are addressing watershed process and function. Please check all the boxes below that apply to your restoration project. You may add narrative in addition to checking the boxes.

	Project Element	Narrative
☒	Stream complexity	Large wood will be placed in tidal channels. Full tidal inundation will restore natural channel formation processes which will result in highly sinuous, complex tidal channel systems.
☐	Riparian vegetation structure	
☒	Species diversity	Restoration will result in a 642-acre ecologically diverse site that spans a rapid transition zone, from freshwater spruce forest, tidally influenced freshwater wetlands, high salt marsh down to low marsh and intertidal mudflats. The diversity of natural habitats will support diverse native species populations. In particular, the expansive restored tidal wetlands will support the diverse life histories salmonid species exhibit.
☐	Vegetative ground cover	
☒	Floodplain connectivity	Removing the levees surrounding the site and along the sloughs will restore river and slough connections with adjacent floodplains.
☒	Species migration patterns	Removing juvenile migration barriers (earthen and culvert/tidegate) at 18 locations throughout the project site will result in 14 miles of reconnected and restored slough/channel habitat for juvenile salmonid rearing.
☒	Sediment transport	Levee removal combined with daily high tides and river flows will immediately begin delivering sediment to the site. Over time it is expected the lands will rebuild from their current subsided condition up to high marsh. Rates of marsh building are expected to occur on the timescale of decades. The abundant sediment supply and proximity to the rivers should help to accelerate the process. Areas close to the river and connected tidal channels will rebuild quicker, while more distant portions of the marsh will accrete slower.
☐	Nutrient cycling	
☒	Water quality	Levee removal will allow a greater natural exchange of water between the rivers (Wilson and Trask), the sloughs (Blind, Nolan, and Hall), and the expansive network of off-channel areas. Increased exchange will enhance salmon habitat by improving DO levels. Temperature and salinity levels should parallel those measured outside.
☐	Water quantity	
☐	Water storage	
☐	Hydrologic cycle	
☐	Other (please describe)	

R12. Other Related Conservation Actions

a) Explain how the project complements other efforts under way or completed in the watershed. Identify other restoration, technical assistance, monitoring, assessment or outreach projects, conservation actions and ecological protection efforts in the watershed and explain how this project relates to those actions.

Since 2001, dozens of partners have injected over $50 million into wetland, instream, and riparian projects that have resulted in over 100 stream miles and 450 acres of improved and/or protected habitats. In 2011, the TEP implemented a 58-acre wetland restoration project at the mouth of Miami River. The Nature Conservancy is restoring 67 acres in the lower Kilchis in summer 2015.

The SFC-LPA project will augment this existing network of protection and restoration projects. The subsequent restoration will expand and complement the comprehensive program to enhance the many important ecological functions and habitats in Tillamook Bay.

This project relates to several plans that target recovery of the ESA *Threatened* Oregon Coast Coho Salmon populations. A description of how this project relates to those plans is provided in R9.

b) If the project is a continuation of previously completed activities, describe the results of the previous project(s) and identify what you have learned from the implementation of similar project(s).

This project area has a fifteen year history of assessments, modeling, monitoring, and restoration and flood reduction project planning. Projects implemented include the Blind Slough and Nolan Slough tidegate replacements, Tillamook County's 377-acre and 12-acre land acquisitions, spillway construction, and demolition of a residence along the Wilson River. The SFC-LPA project will ultimately carry out the restoration work at the Tillamook, Trask, and Wilson River deltas that has been contemplated for over a decade.

R13. Project Inspection

Identify who will inspect and sign off on the completed project.

Name of Person & Agency/Organization	*Telephone Number*	*Email Address*	*Project Element Inspected*
Vaughn Collins, NHC	206-241-6000	vCollins@nhcweb.com	All

R14. Outreach

If your project proposal includes outreach activities (e.g., a site tour for local citizens, landowner meetings, informational materials), please describe the proposed activities and products and why they are necessary for the overall success of the restoration proposal. **For clarification of eligible outreach costs, review the January 1, 2014 Budget Categories: Definitions and Policy document at:** http://www.oregon.gov/OWEB/forms/2014-01budget_category_defs.pdf

Regional review teams will evaluate the appropriateness of proposed outreach activities with respect to their necessity for success of the restoration project, budget, and other factors.

This project proposal does not include a request to support outreach activities.

R15. Project Maintenance and Reporting

Use the table below to document how the project will be maintained over time. State who will maintain the project. Identify their affiliation and provide contact information. In addition, please indicate who will conduct Post-Implementation Status Reporting following project completion.

Name of Person & Agency/Organization and Addresses	Telephone Number Email Address	What will be done and for how long?
Paul Levesque, Tillamook County 201 Laurel Avenue, Tillamook	503-842-1809 plevesqu@co.tillamook.or.us	To be determined in the revised Management Plan

R16. Budget Development

OWEB's Budget Categories Definitions and Policies changed for all applications submitted after January 1, 2014 (except for Small Grants, changes effective July 1, 2014). Before filling out your application budget, review the full list of OWEB budget categories, definitions, ineligible activities and policies by downloading the January 1, 2014 Budget Categories: Definitions and Policy document at: http://www.oregon.gov/OWEB/forms/2014-01budget_category_defs.pdf

OWEB staff and application review teams carefully review application budgets and may question how costs were developed. Use this section of the application to explain how project costs were estimated.

Do not lump all contract costs into one row, except when a contractor bids a lump-sum amount for a discrete deliverable. Contract costs should be broken out and should match the scope of work described in the application.

a) Explain how costs were determined for the budget elements.

Project management estimates for Impact Consulting are based upon current consulting rates for comparable work and estimated monthly hours to be expended.

Construction cost estimates are based upon current prevailing wage information, and labor/equipment rate breakouts on construction based on recent projects. Costs were cross checked against similar projects the

engineering consultant has been involved in. Extensive planning has been undertaken to account for bid results, levee settlement, suitability of existing levee for upgrades, and on-site fill for new levees while keeping tides out.

b) If the budget identifies a contingency amount for specific line item(s) within the Contracted Services and Materials and Supplies budget categories, explain the specific reasons a contingency is needed for each line item.

Not applicable.

◆ **R17. Effectiveness Monitoring.** If you plan to conduct Effectiveness Monitoring beyond post-implementation status reporting and you are requesting more than $3,500 in OWEB funds to support these EM activities, complete the R17 Effectiveness Monitoring Application Insert, print it out and add after Question R16. See the R17 Effectiveness Monitoring Insert Instructions for clarification.

◆ **R18. Planting Activities.** If you are proposing a Riparian, Upland or Wetland Planting activities and you are requesting more than $3,500 in OWEB funds for planting activities and/or for post-planting activities that are necessary for long-term survival of the plantings, you **must** complete the R18 Planting Activities Insert, print it out and add after Question R17 or R18 as appropriate. Please see the definition of "plant establishment activities" in R18. If you are asking for $3,500 or less, you may answer the questions if you would like the reviewers to have additional information on the planting component of the project. See the R18 Planting Activities Application Insert Instructions for clarification.

References

[1]Sowers. D., and M. Trenholm. 2001. Tillamook Bay Wetlands: Management Plan for the Wilson, Fuhrman, and Farris Wetland Acquisition Properties. Prepared for the Wetlands Management Plan Development Team, Tillamook County Performance Partnership, Garibaldi, Oregon.

[2]Tillamook Bay National Estuary Project (TBNEP). 1998. Tillamook Bay Environmental Characterization. TBNEP, Garibaldi, Oregon.

[3]Pearson, M.L. 2002. Fluvial Geomorphic Analysis of the Tillamook Bay Basin Rivers. Prepared for the Portland District, US Army Corps of Engineers and Tillamook County, Oregon. BOHICA Ent., Monmouth, Oregon.

[4]Nicholas, J.W. and D.G. Hankin. 1988. Chinook salmon populations in Oregon coastal river basins: Description of life histories and assessment of recent trends in run strengths. Oregon Department of Fish and Wildlife. Information Report Series Fisheries Number 88-01.

Section IV
WATERSHED RESTORATION BUDGET

Totals automatically round to the nearest dollar

A	B	C	D	E	F	G
Itemize projected costs under each of the following categories:	**Unit Number**	**Unit Cost**	**OWEB Funds**	**Cash Match**	**In-Kind Match**	**Total Costs**
	(e.g., # of hours)	(e.g., hourly rate)				(add columns D, E, F)
SALARIES, WAGES AND BENEFITS. List position titles, include only costs of employees charged to this grant.						
						0
		SUBTOTAL (1)	0	0	0	0
CONTRACTED SERVICES. Labor, supplies, and materials to be provided by *non-staff* for project implementation.						
Impact Consulting (Sept 2014-Sept 2016)	800 hrs	$75/hr	60,000		10	60,010
Construction Work						
Channel Reconnection Excavation & Haul	2,000 cy	$17.50/cy	35,000			35,000
Ditch Filling with Organics & Levee Spoils	18,000 cy	$15/cy	270,000			270,000
Upper Nolan Slough Tidal Channel Excavation	8,000 cy	$17.50/cy	140,000			140,000
Haul in Material for New South Levee from Spoils Pile	3,455 cy	$27.50/cy	95,000			95,000
		SUBTOTAL (2)	600,000	0	10	600,010
TRAVEL. Mileage, per diem, lodging, etc. Must use current State of Oregon rates.						
						0
		SUBTOTAL (3)	0	0	0	0
MATERIALS/SUPPLIES. Refers to items that are "used up" in the course of the project. Costs to OWEB must be directly related to the implementation of this grant.						
						0
		SUBTOTAL (4)	0	0	0	0
EQUIPMENT/SOFTWARE. List portable equipment costing **$300** or more per unit. Must remain property of a governmental entity, tribe, watershed council, SWCD, institution of higher learning or school district.						
						0
		SUBTOTAL (5)	0	0	0	0
OTHER. Costs must be necessary and reasonable for successful completion of this grant.						
						0
		SUBTOTAL (6)	0	0	0	0
[Add all subtotals, (1-6) above]		**CATEGORY TOTALS (7)**	600,000	0	10	600,010

GRANT ADMIN. Not to exceed **15% of Category Totals (7) Funds**. Compute by multiplying by 0.15 or less. See the January 2014 Budget Categories Definitions at http://www.oregon.gov/OWEB/forms/2014-01budget_category_defs.pdf for eligible costs. Indicate which billing method will be used for this grant by checking one appropriate box.						
☐ direct cost billing ☐ direct cost allocation ☐ indirect costs (if checked, attach copy of the Federal Indirect Cost Negotiation agreement)						0
		SUBTOTAL (8)	0	0	0	0
POST-GRANT. Pre-paid costs ($3,500 or less) that are associated with either post implementation status reporting or effectiveness monitoring or plant establishment costs. List each separately.						
Post-Implementation Status Reporting ($3,500 or less)	/yr					0
Effectiveness Monitoring ($3,500 or less)	/yr					0

A	B	C	D	E	F	G
Itemize projected costs under each of the following categories:	**Unit Number**	**Unit Cost**	**OWEB Funds**	**Cash Match**	**In-Kind Match**	**Total Costs**
	(e.g., # of hours)	(e.g., hourly rate)				(add columns D, E, F)
Plant Establishment ($3,500 or less)	/yr					0
		SUBTOTAL (9)	0	0	0	0

RESTORATION BUDGET TOTAL **Totals automatically round to the nearest dollar**

RESTORATION BUDGET TOTAL (10) [Add Category Totals (7), Subtotals (8) and (9)]	600,000	0	10	600,010

EFFECTIVENESS MONITORING BUDGET TOTAL

EFFECTIVENESS MONITORING BUDGET TOTAL (11) **This only applies if you are doing Effectiveness Monitoring; see Application Instructions and R17. Transfer Grant Budget Total (9) from the Effectiveness Monitoring Budget Insert.**	0	0	0	0

PLANT ESTABLISHMENT BUDGET TOTAL

PLANT ESTABLISHMENT BUDGET TOTAL (12) **This only applies if you are doing a planting project; see Application Instructions and R18. Transfer Grant Budget Total (9) from the Plant Establishment Budget Insert.**	0	0	0	0

GRANT BUDGET TOTAL ***Totals automatically round to the nearest dollar**

GRANT BUDGET TOTAL [Add Totals (10), (11), and (12) as applicable]	600,000	0	10	600,010

ATTACHMENT A

MATCH FUNDING FORM

Document here the match funding shown on the budget page of your grant application

OWEB accepts all non-OWEB funds as match. An applicant may not use *another OWEB grant* to match an OWEB grant; this includes ODA Weed Board projects because they are funded through OWEB grants. However, an applicant who benefits from a pass-through OWEB agreement with another state agency, by receiving either staff expertise or a grant from that state agency, may use those benefits as match for an OWEB grant. (Example: A grantee may use as match the effort provided by ODFW restoration biologists because OWEB funding for those positions is the result of a pass-through agreement). At the time of application, match funding for OWEB funds requested does not have to be *secured*, but you must show that at least 25% of match funding has been *sought*. On this form, you do not necessarily need to show authorized signatures ("secured match"), but the more match that is secured, the stronger the application. Identify the type of match (cash or in-kind), the status of the match (secured or pending), and either a dollar amount or a dollar value (based on local market rates) of the in-kind contribution. In the table below, the match may be identified as Effectiveness Monitoring (EM), Plant Establishment (PE) or Other (OTHER) Dollar Value. **If you are not requesting funds from OWEB to support effectiveness monitoring or plant establishment, disregard the EM column or the PE column and use only the OTHER column.**

EFFECTIVENESS MONITORING (EM): If you are requesting more than $3,500 in OWEB funds to support Effectiveness Monitoring activities as part of a Watershed Restoration Grant Application and filling out information for Question R17, you must include matching funds which will be used as match for the effectiveness monitoring portion of the project. This is identified in the table below as the EM Dollar Value.

PLANT ESTABLISHMENT (PE): If you are requesting more than $3,500 in OWEB funds to support Plant Establishment as part of a Watershed Restoration Grant Application and filling out information for Question R18, you must include matching funds which will be used as match for the Plant Establishment portion of the application. This is identified in the table below as the PE Dollar Value.

If you have questions about whether your proposed match is eligible or not, see Allowable Match document in OGMS http://apps.wrd.state.or.us/apps/oweb/fiscal/nologin.aspx under Restoration application or contact your local OWEB regional program representative (contact information available in the instructions to this application).

Project Name: Southern Flow Corridor - Landowner Preferred Alternative Applicant: Tillamook County

Match Funding Source	Type (√ one)	Status (√ one)**	EM Dollar Value	PE Dollar Value	OTHER Dollar Value	Match Funding Source Signature/Date**
Impact Consulting	☐ cash ☒ in kind	☒ secured ☐ pending			$10	
	☐ cash ☐ in kind	☐ secured ☐ pending				
	☐ cash ☐ in kind	☐ secured ☐ pending				
	☐ cash ☐ in kind	☐ secured ☐ pending				
	☐ cash ☐ in kind	☐ secured ☐ pending				
	☐ cash ☐ in kind	☐ secured ☐ pending				
	☐ cash ☐ in kind	☐ secured ☐ pending				

** **IMPORTANT**: If you checked the "Secured" box in the Status Column for any match funding source, you must provide either the signature of an authorized representative of the match source in the final Column, or attach a letter of support from the match funding source that specifically mentions the dollar amount you show in the EM, PE or OTHER Dollar Value Column(s).

ATTACHMENT B

LAND USE INFORMATION FORM

This information is needed to determine if the proposed project complies with statewide planning goals and is compatible with local comprehensive plans (ORS 197.180). ***The form must be submitted at the time of application (OAR 695-050-0035(1)(a)) with the applicant completing at least #1 below.*** *The completed and signed form must be submitted before OWEB releases grant funds. OWEB will release grant funds only if the project either is not regulated by, or is compatible with, the local comprehensive plan and zoning ordinance. If a project is regulated by the local comprehensive plan and zoning ordinance, OWEB will void grant agreements for projects the county determines to be incompatible with the local comprehensive plan and zoning ordinance. If the county requires additional local approvals for a project regulated by the local comprehensive plan and zoning ordinance, OWEB will not release grant funds until these conditions are satisfied.*

1. TO BE COMPLETED BY THE APPLICANT/GRANTEE

Applicant/Grantee Name: Tillamook County

Project Name: Southern Flow Corridor - Landowner Preferred Alternative

2. TO BE COMPLETED BY CITY/COUNTY OR TRIBAL PLANNING OFFICIAL

Complete this section only after section 1, above, has been completed. Check the box below that applies:

* Development Permit required

- ☐ This project is not regulated by the local comprehensive plan and zoning ordinance.
- ☒ This project has been reviewed and is compatible with the local comprehensive plan and zoning ordinance.
- ☐ This project has been reviewed and is not compatible with the local comprehensive plan and zoning ordinance.
- ☐ Compatibility of this project with the local planning ordinance cannot be determined until the following local approvals are obtained:

  ____ Conditional Use Permit
  ____ Development Permit
  ____ Plan Amendment
  ____ Zone Change
  ____ Other

An application has ____ has not ____been made for the local approvals checked above.

* Signature of Local Official

8/11/14
Date

Print Name: Bryan Poh/

Phone: (503) 812-4277

Title: Director

Email: bpoh/@co.tillamook.or.us

****Must be an authorized signature from your local City/County or Tribal Planning Department, regardless of which box is checked above.***

ATTACHMENT C

PUBLIC RECORD CERTIFICATION

Oregon Administrative Rule 695-005-0030(4) states that "All applications that involve physical changes or monitoring on private land must include certification from the applicant that the applicant has informed all landowners involved of the existence of the application and has also advised all landowners that all monitoring information obtained on their property is public record. If contact with all landowners was not possible at the time of application, explain why."

INSTRUCTIONS: All applicants must complete Part One. In Part One, if you check the first box, skip Part Two and sign and date in the signature box below. If you check the second box, you must complete Part Two and sign and date in the signature box below.

PART ONE

☐ Public land only (STOP: go to signature box and complete)

☒ Private land only, or a mix of public and private land (complete Part Two and sign and date in the signature box)

PART TWO

☒ I certify that I have informed all participating private landowners involved in the project of the existence of the application, and I have advised all of them that all monitoring information obtained on their property is public record. The following is a complete list of all participating private landowners.

1. City of Tillamook
2. Traskview Farms, Inc.
3. Barbara Aufdermauer
4. Robert Garrigues
5. Loten Hooley
6. Doug Rosenberg
7. _____
8. _____
9. _____
10. _____

☐ I certify that contact with all participating private landowners was not possible at the time of application for the following reasons:

Furthermore, I understand that should this project be awarded, I will be required by the terms of the OWEB grant agreement to secure cooperative landowner agreements with all participating private landowners prior to expending Board funds on a property.

APPLICANT/CO-APPLICANT SIGNATURE

Bill Baertlein Applicant Signature	August 13, 2014 Date
Bill Baertlein Print Name	Chair, Tillamook County Board of Commissioners Title
Co-Applicant Signature	Date
Print Name	Agency

ATTACHMENT D

RESTORATION METRICS FORM

OWEB receives a portion of its funds from the federal government and is required to report how its grantees have used both federal and state funds. The information you provide in the following form will be used for federal and state reporting purposes.

Please complete all portions of the form below as they apply to your project and submit all pages (do not exclude any pages). Please provide specific values, do not enter values like "2-3" or "<100". Enter your best approximation of what the project will accomplish.

If you have any questions, please contact Cecilia Noyes, OWEB Federal Reporting Coordinator, at 503-986-0204 or cecilia.noyes@state.or.us.

Section 1 - Project Overview

Answer all five questions below, even if you have answered a similar question in a previous section in the grant application.

1. Land Use Setting: CHECK ONE BOX ONLY.

☐ **Urban/Suburban/Exurban** *(Projects located within urban growth boundaries or rural residential areas)*	☒ **Rural** *(Projects located outside urban growth boundaries or rural residential areas.)*

2. Dominant Watershed Setting: CHECK ONE BOX ONLY. Example: Your project involves managing erosion in the upland area with some erosion control extended to the riparian area. Because most of the work is to occur in the upland area, you would check only the Upland box below.

☒ **Estuary** *(where freshwater meets and mixes with saltwater of ocean tides.)*	☐ **Riparian** *(adjacent to a water body, within the active floodplain.)*
☐ **Instream** *(below the ordinary high-water mark or within the active channel — includes fish passage.)*	☐ **Upland** *(above the floodplain.)* ☐ **Groundwater** *(Projects that recharge groundwater or primarily affect the subsurface water table.)*
☐ **Wetland** *(areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.*	

3. Total Acres Treated: 519 **Total Stream Miles Treated:** _____ *(**do not include** upstream stream miles made accessible to fish with passage improvements)*

4. Project Identified in Plan or Watershed Assessment: List the primary watershed/subbasin plan(s) or assessment(s) in which this project type is identified as a priority. The plans identified in Section III, question #R9 should include the plans or assessments listed below. Attach additional page, if needed.

Title	Author(s)	Date
Tillamook Bay Comprehensive Conservation and Management Plan (CCMP)	Tillamook Bay National Estuary Project	1999
The Tidal Wetland Prioritization for the Tillamook Bay Estuary	Ewald, M.J., and L.S. Brophy	2012
The Oregon Coastal Coho Assessment	Oregon Department of Fish and Wildlife	2007
The Oregon Plan for Salmon and Watersheds	State of Oregon	1997

5. Project Monitoring: All OWEB funded restoration projects require post-implementation status reporting including photo point monitoring. Please indicate below: 1) the location of the monitoring activities relative to the project, including photo point locations, 2) whether effectiveness monitoring is planned, and 3) whether additional monitoring will be conducted for this project.

5.1) Identify the location for the planned monitoring activities relative to the restoration project location. Check as many boxes as apply.

☒ Onsite	☒ Downstream	☒ Upstream	☐ Upslope

5.2) ☒ Effectiveness monitoring will be conducted for this project, this can be selected regardless of whether the effectiveness monitoring is funded by OWEB (refer to definition of effectiveness monitoring in the Application Instructions under R17).

5.3) Will this project conduct monitoring activities beyond the required post-implementation status reporting and photo point monitoring?

☒ Yes ☐ No If you answer yes, select the monitoring activities below, if you answer no proceed to Section 2.

Check all proposed monitoring activities

☐ Adult Fish presence/absence/abundance/distribution survey(s)	☐ Riparian vegetation (Presence/Absence)
☒ Juvenile Fish presence/absence/abundance/distribution survey(s)	☐ Spawning surveys
☐ Instream Habitat surveys	☐ Upland vegetation (Presence/Absence)
☒ Macroinvertebrates	☒ Water quality
☒ Noxious weed (Presence/Absence)	☐ Water quantity
☐ Other Biological Monitoring (bird counts, amphibian surveys)	☒ Other (explain): groundwater, tidal channel, soils, sediment accumulation, mosquito, blue carbon

Section 2 - Project Activities

Provide values for each Project Activity applicable to your application. ***Leave blank any Project Activity or metric line that is not appropriate to your application.*** *All data entered in this form should be what you* ***plan*** *to do with the project. Data about* ***completed*** *projects will be reported at the end of the project to the Oregon Watershed Restoration Inventory (OWRI).*

For each activity type where you enter metrics, ***estimate*** *the percentage of the total cost of the project (OWEB and all other funding sources, shown on page 1 of this application) that applies to the activity. The sum of all of the activity cost percentages should equal 100%. Please distribute all administrative, project management and other general project costs among the various project activities when estimating percentages.*

Example*: A project will remove a fish passage barrier, place large boulders instream, and plant a riparian buffer. You would enter the appropriate metrics into the Fish Passage, Instream Habitat, and Riparian Habitat activity sections of this form. Then, estimate the percentage of the total cost of the project for each activity. For instance: 20% towards Fish Passage activities, 25% towards Instream Habitat activities, and 55% towards Riparian Habitat activities.*

Fish Screening Projects: *Projects that result in the installation or improvement of screening systems that prevent fish from passing into areas that do not support fish survival, for example into irrigation diversion channels.*

____ % Estimate the percentage of total cost of the project applied to fish screening activities

New Fish Screens Installed

____ # Estimate the number of new screens installed (do not count diversions where existing screens are replaced)

____ cfs Estimate the cubic feet per second of flow influenced by new screen(s) installed (to nearest 0.01 cfs)

Existing Screens Replaced, repaired or modified

____ # Estimate the number of existing screens replaced, repaired or modified

____ cfs Estimate the cubic feet per second of flow influenced by existing screen(s) screens (to nearest 0.01 cfs)

Fish Passage Improvement: *Projects that improve fish migration by addressing a migration barrier problem.*

Complete sections A-E as they apply to the proposed project. Projects that improve fish passage at road crossings should complete both sections A (define the problem) and B (define the treatment). Non-road crossing improvements are reported in sections C and D. Section E should be completed for all fish passage improvement projects. Refer to the application instructions for additional information and examples.

A. Road Crossings – Define *Existing* Fish Passage Problem

1. Culverts hindering fish passage	____ # crossings
2. Bridges hindering fish passage	____ # crossings
3. Fords hindering fish passage	____ # crossings

B. Road Crossings – Define the Fish Passage *Improvements* to be implemented by this project

1. Culverts installed/improved - *Improvements may include installing baffles inside culverts or installing/improving engineered bypasses (e.g. weirs) directly below a culvert outlet to improve passage.*	____ # crossings	____ str. mi with improved access*
2. Bridges installed/improved - *Improvements may include installing/improving engineered bypasses (e.g. weirs) directly below a bridge crossing to improve passage.*	____ # crossings	____ str. mi with improved access*
3. Fords installed/improved	____ # crossings	____ str. mi with improved access*
4. Road Crossings removed and not replaced	____ # crossings	____ str. mi with improved access*

**Estimate stream miles in the main channel and tributaries made more accessible above the crossing(s) (to nearest 0.01 mile). If a barrier exists upstream, report the length made accessible up to that next upstream barrier.*

C. Fish Passage Barriers – Other than Road Crossings

1. Type(s) of barriers to be treated/removed to improve fish passage.	☐ Diversion Dam ☐ Push-up Dam ☐ Wood or Concrete Dam ☐ Weir (not associated with a road crossing) ☐ Logs (not weirs) ☐ Debris ☐ Tidegates ☐ Boulder/Rock Barrier (not weirs) ☐ Landslide Other (explain) ____
2. ____ # Estimate the total number of **non-road** crossing barriers (listed under C.1 above) to be removed or altered to improve passage.	

D. Fish Ladders or Engineered Bypasses (not associated with Road Crossings)

1. Fish ladders will be installed/improved	____ # fish ladders to be installed/improved
2. Engineered bypasses will be installed/improved. *This includes weirs, rock boulder step pools, and chutes constructed/roughened in bed rock. Do not count engineered bypasses located at a road crossing to improve passage at the crossing. These types of improvements should be identified above in section B as a Road Crossing Fish Passage Improvement.*	_____ # engineered bypasses to be installed/improved

E. Fish Passage Summary Metrics

1._____ % Estimate the percentage of total cost of the project applied to fish passage improvements

2. _____ mi Estimate the total stream miles that will be made more accessible in the main channel and tributaries above the project (to nearest 0.01 mile). *This metric summarizes the stream miles for all of the proposed passage improvements (defined above in Sections A-D). If a barrier exists upstream of the project, report the length made accessible up to that next upstream barrier.*

3. _____ # Estimate the total number of barriers (this includes road crossings, diversion dams, push up dams, wood or concrete dams, weirs, tidegates, etc.) to be removed or altered to improve passage.

4. _____ % Estimate the percentage of fish passage activity costs applied to tidegates. If you do not select tidegate as a type of fish passage barrier for question C.1, leave this value blank. Example: Your project will remove a tidegate. You estimated that 100% of the total project cost will apply to fish passage improvements and one quarter of the fish passage improvements costs will apply to the tidegate removal, you would report 25%.

Instream Flow: *Projects that maintain and/or increase the instream flow of water.* Irrigation improvements that are primarily designed to improve water quality should be reported under Upland – Agriculture Management Activities.

Check all proposed activities.

☐ Irrigation practice improved to increase instream flows (e.g. install diversion headgate, replace open ditches with pipes)	☐ Water flow gauges installed to measure water use
☐ This project will dedicate instream flow.	☐ Other (explain): _____

_____ % Estimate the percentage of total cost of the project applied to instream flow activities

_____ mi. Estimate the miles of stream where increased flow is the result of decreased/eliminated water withdrawals

_____ cfs Estimate the increase in flow of water in the stream as a result of conservation effort (cubic feet per second)

_____ mm/dd/yyyy Initial start date of irrigation practice improvement

_____ mm/dd/yyyy Final end date of irrigation practice improvement (if improvement is permanent enter 12/31/9999)

Instream Habitat: *Projects that are designed to improve instream habitat conditions.*

Check all proposed activities.

☐ Channel reconfiguration and connectivity (e.g., creating instream pools, meanders, improving floodplain connectivity, off-channel habitat, removal or alteration of levee or berm, removal of sediment)	☐ Spawning gravel placement
☐ Channel structure - large wood placement	☐ Plant Removal/control (instream) List scientific names of plants _____
☐ Channel structure - boulder placement	☐ Beaver introduction
☐ Channel structure placement (other than large wood or boulder placements), e.g., engineered structures or deflectors, barbs, weirs, etc.	☐ Carcass or nutrient placement: ☐ salmonid carcass; ☐fish meal brick; ☐other nutrient
☐ Streambank stabilization (includes bio-engineering)	☐ Animal species removal (e.g. northern pike minnow, non-native fish, invasive animals)
	☐ Other (explain): _____

_____ % Estimate the percentage of total cost of the project applied to instream habitat activities

_____mi. Estimate the miles of stream to be treated with instream habitat treatments (to nearest 0.01 mile)

_____ % Estimate the percentage of insteam activity costs for carcass or nutrient placements. If you do not select carcass/nutrient placements as an instream habitat activity, leave this value blank. *Example: Your project will place salmon carcasses. You estimated that 25% of the total project cost will apply to instream habitat activities and one half of the instream improvements costs will apply to the carcass placement, you would report 50%.*

Riparian Habitat: *Projects above the ordinary high-water mark of the stream and within the floodplain of the stream.* This includes lakeshores of connected lakes.

Check all proposed activities.

☐ Riparian planting	☐ Non-native/noxious plant control
☐ Riparian exclusion fencing	☐ Vegetation management (e.g. prescribed burnings, stand thinning, stand conversions, silviculture)
☐ Water gap development (fenced livestock crossing or livestock bridge)	☐ Debris/structure removal (e.g. tires, appliances, old cars or buildings)
☐ Riparian exclusion by means other than fencing (includes placing obstacles to exclude livestock, people, vehicles, etc., but not for individual plant protection)	☐ Other (explain): _____ *Do not report livestock water developments here, report livestock water developments under upland habitat treatments.*
☐ Conservation grazing management (e.g., rotation grazing)	

_____ % Estimate the percentage of total cost of the project applied to riparian habitat activities

_____ ac. Estimate the acres of riparian habitat to be planted (to nearest 0.1 acres)

_____ ac. Estimate the acres of riparian habitat to be treated for non-native/noxious weeds (to nearest 0.1 acres)

_____ ac. Estimate the total riparian acres to be treated. (to nearest 0.1 acres)

_____ mi. Estimate the miles of riparian streambank to be treated (to nearest 0.01 mi). Stream sides treated ☐ one ☐ two
(Do not double count miles if a second side is treated)

Upland Habitat: *Projects implemented above the floodplain.* Check all proposed activities.

☐ Erosion control structures (e.g., sediment collection basins, WASCOBs)	☐ Upland Agriculture Management – (e.g., no/low-till, wind breaks, filter strips, and irrigation improvements)
☐ Planting/seeding for erosion control (e.g., convert from crops to native vegetation, plant area where non-native/noxious weeds removed, grassed waterways) List scientific names of plants _____	☐ Livestock Manure Management (e.g., feedlot improvements to reduce runoff , relocate/improve manure holding structures and manure piles to reduce/eliminate drainage into streams)
☐ Slope stabilization (e.g., grade stabilization, landslide reparation, terracing slopes)	☐ Livestock/Wildlife Water Developments
☐ Non-native/noxious plant control; List scientific names of plants: _____	☐ Upland Livestock Management (other than livestock water developments), e.g., grazing plans, fencing
☐ Juniper removal/control	☐ Restore Historic Upland Habitats (e.g. oak woodland, oak savannah, upland prairie restoration)
☐ Vegetation Management (other than non-native/noxious plant control or juniper removal, e.g. tree thinning, brush control, burning, stand conversion, silviculture) List scientific names of plants: _____	☐ Trail or Campground Improvements (to decrease upland erosion; these may extend into or are in the riparian zone)
	☐ Other (explain): _____

_____ % Estimate the percentage of total cost of the project will apply to upland habitat activities

_____ # Estimate the number of livestock/wildlife water developments

_____ac. Estimate the acres of upland habitat to be treated for non-native/noxious plants (to nearest 0.1 acres)

_____ac. Estimate the total acres of upland habitat to be treated (do not include acres of upland habitat affected by livestock water developments (to nearest 0.1 acres)

_____ % Estimate the percentage of upland activity costs applied to Livestock Manure Management. If you do not select Livestock Manure Management as an upland habitat activity, leave this value blank. *Example: Your project will relocate a feedlot to reduce livestock manure runoff. You estimated that 33% of the total project cost will apply to upland habitat activities and one half of the upland improvements costs will apply to the feedlot relocation, you would report 50%.*

Road Activities: *Projects designed to improve road impacts to watersheds.* Check all proposed activities.

☐ Road drainage system and surface improvements & reconstruction	☐ Other (explain): _____
☐ Road closure, relocation, obliteration (decommissioning)	

_____ % Estimate the percentage of total cost of the project applied to road activities

_____ mi. Estimate the miles of road treated (to nearest 0.01 mile)

Urban Impact Reduction: Check all of the urban impact related activities that will be used by this project:

☐ Sewage outfall clean-up or reducing outfall)	☐ Bioswales
☐ Pesticide reduction: list names of each pesticide: _____	☐ Detention Facility
☐ Toxin (other than pesticide) reduction (herbicides, mine dredge tailings, other toxics): list names of each toxic species, element or material: _____	☐ Other urban impact reduction (explain): _____
☐ Stormwater/wastewater modification or treatment (includes rain gardens)	

Check all of the water quality limiting factors addressed by the Urban Impact Reduction activities selected above**. Do not** select limiting factors addressed by other types of restoration activities:

☐ Bacteria	☐ Pesticides	☐ Nutrients
☐ Dissolved Oxygen	☐ Toxics	☐ Sediment
☐ Heavy Metals	☐ High Temperature	☐ Other (explain): _____

_____% Estimate the percentage of total cost of the project applied to urban impact activities

Wetland Habitat: *Projects designed to create or improve wetland or meadow areas.*

Check all proposed activities.

☐ Wetland planting	☐ Artificial wetland area created from an area not formerly a wetland
☐ Non-native/noxious/invasive plant control	☐ Other (explain): _____
☐ Wetland improvement/restoration of existing or historic wetland (other than vegetation planting or removal)	

_____ % Estimate the percentage of total cost of the project applied to wetland habitat activities

_____ ac. Estimate the acres of wetland habitat to be treated for non-native/noxious/invasive plants (to nearest 0.1 acres)

_____ ac. Estimate the acres of artificial wetland created (to nearest 0.1 acres)

_____ ac. Estimate the total acres of wetland habitat (existing or historic) treated (to nearest 0.1 acres)

Estuarine Habitat: *Projects that result in improvement or increase in the availability of estuarine habitat.*

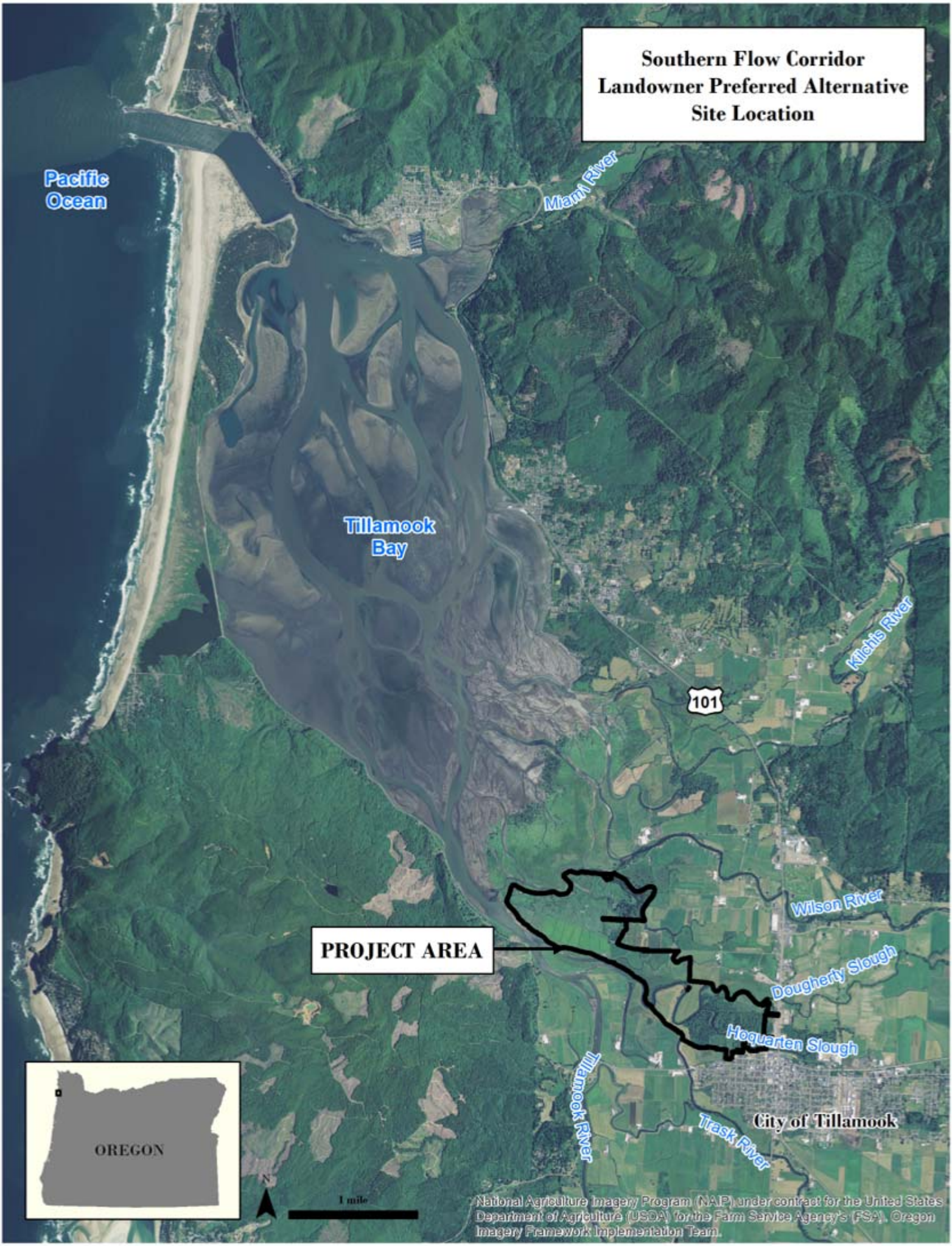
Check all proposed activities.

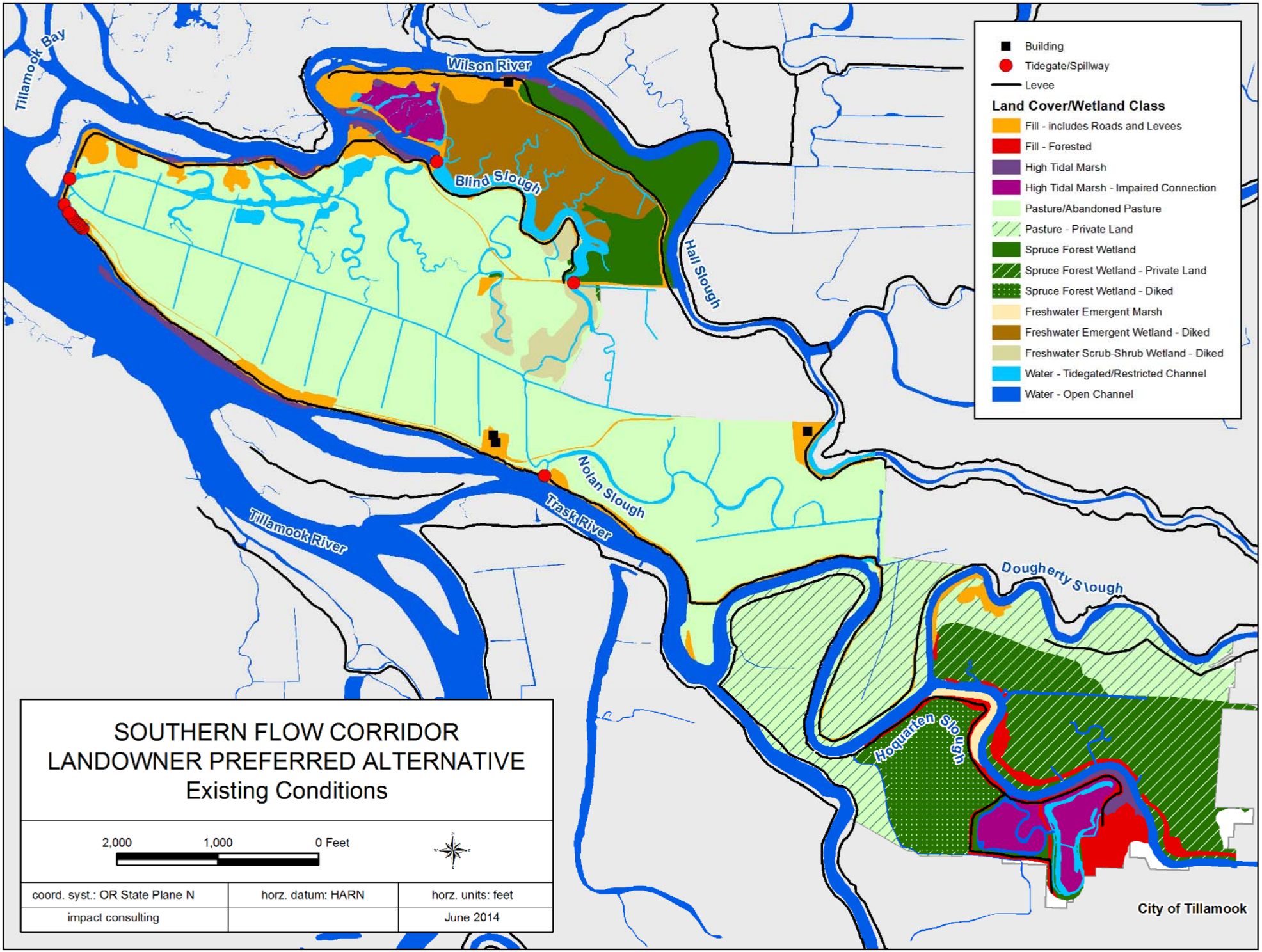
☐ Estuarine planting	☒ Non-native/noxious plant control
☒ Channel modification/creation (e.g., improve intertidal flow to existing estuarine habitat or create more habitat)	☒ Creation of new estuarine habitat where one did not exist previously by methods other than tidegates or dikes
☒ Dike or berm modification/removal	☒ Estuarine culvert modification / removal
☒ Removal of existing fill material	☐ Exclusion devices (commonly includes fencing, installation of mooring buoys, boardwalks/trails, etc. to keep public/animals away)
☐ Placement of fill material (for proper terrestrial function)	☒ Other (explain): large wood placement, ditch filling, road/structure removal

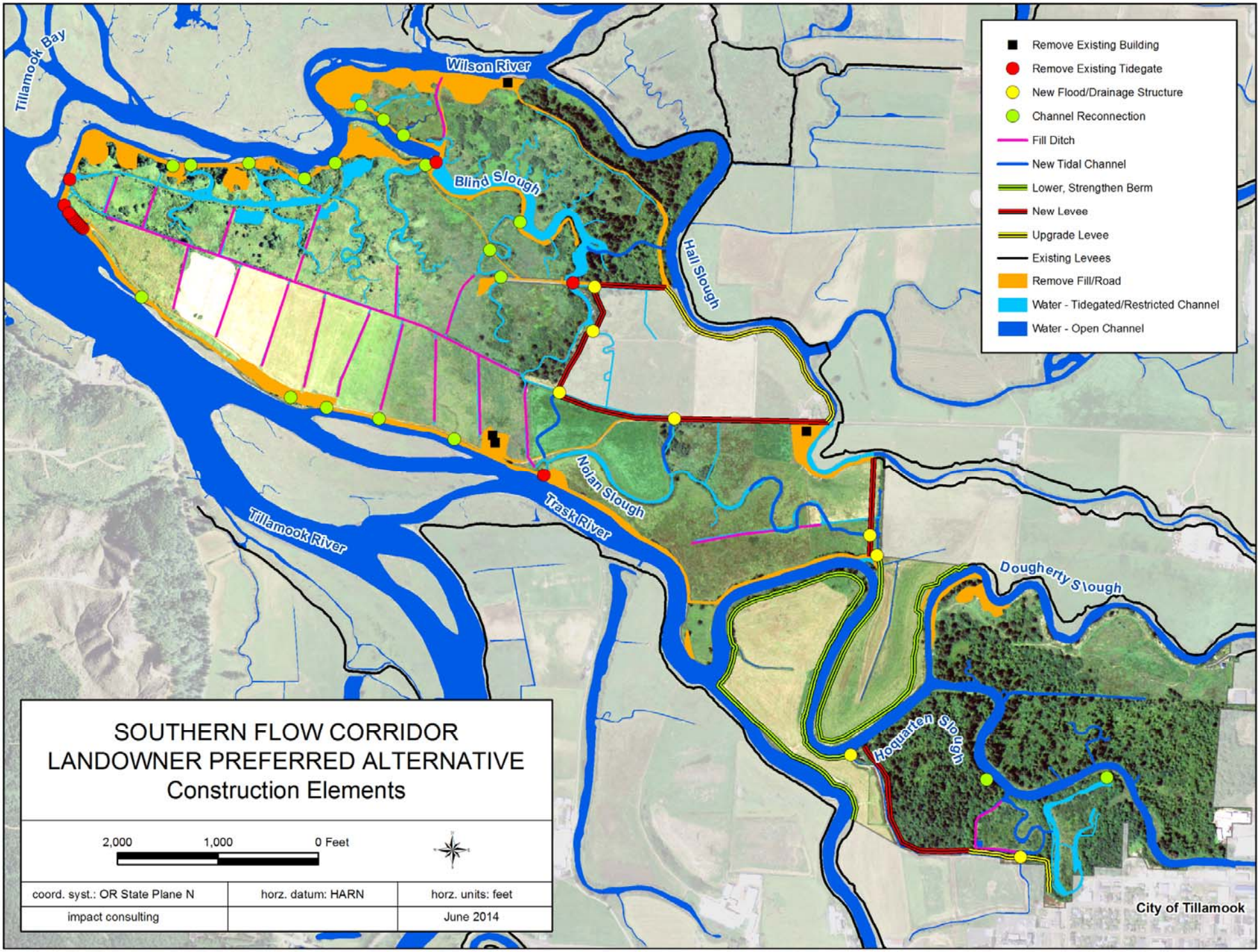
100 % Estimate the percentage of total cost of the project applied to estuarine habitat activities

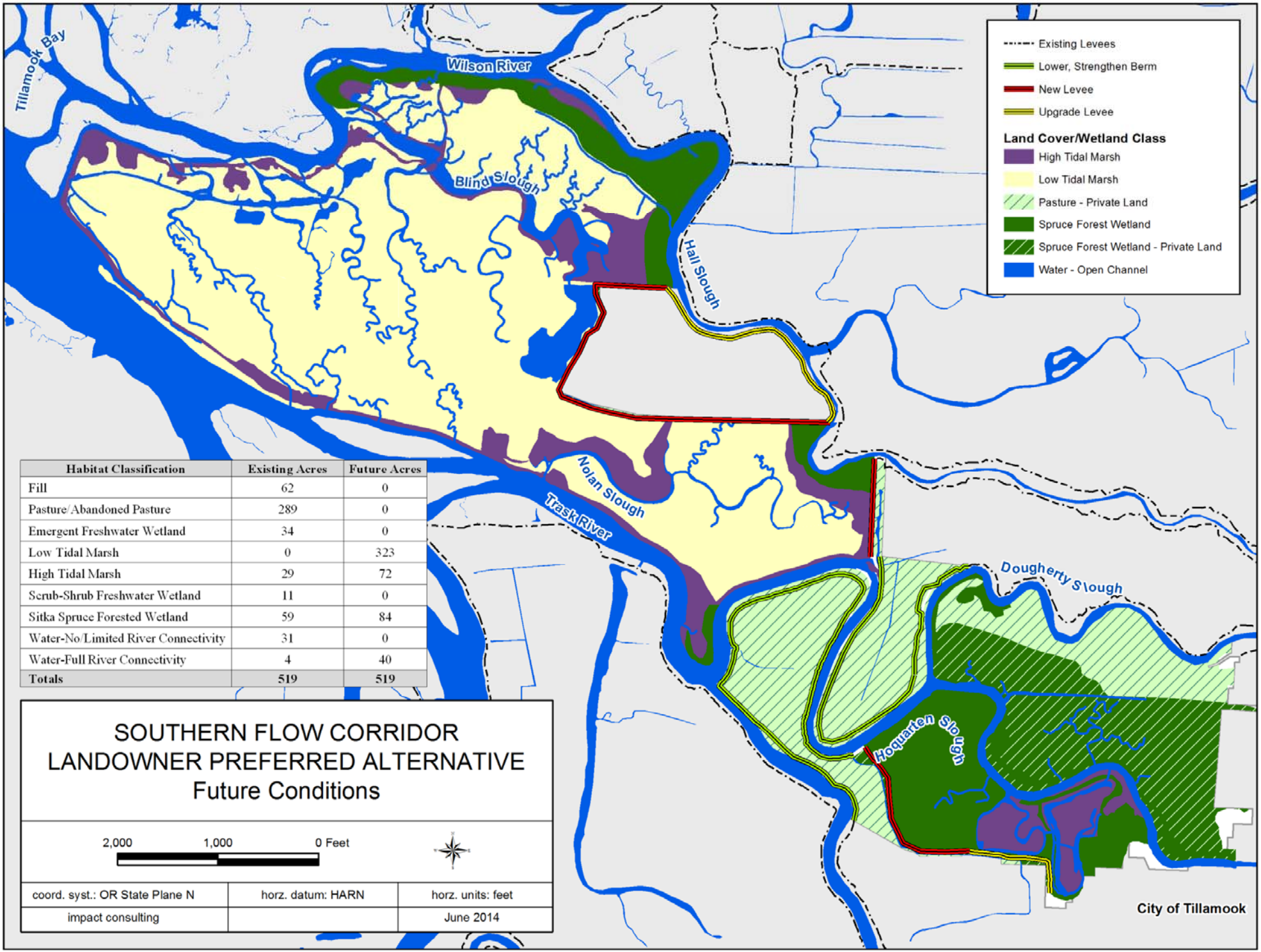
519 ac. Estimate the acres of estuarine habitat to be treated for non-native/noxious plants (to nearest 0.1 acres)

519 ac. Estimate the total acres of estuarine habitat (existing or historic) to be treated (to nearest 0.1 acres)


Southern Flow Corridor
Landowner Preferred Alternative
Site Location
Pacific Ocean
Miami River
Tillamook Bay
Kilchis River
101
PROJECT AREA
Wilson River
Dougherty Slough
Hoquarten Slough
Tillamook River
Trask River
City of Tillamook
OREGON
N
1 mile
National Agriculture Imagery Program (NAIP) under contract for the United States Department of Agriculture (USDA) for the Farm Service Agency's (FSA), Oregon Imagery Framework Implementation Team.


Tillamook Bay
Wilson River
Blind Slough
Hall Slough
Nolan Slough
Tillamook River
Trask River
Dougherty Slough
Hoquarten Slough
City of Tillamook
Building
Tidegate/Spillway
Levee
Land Cover/Wetland Class
Fill - includes Roads and Levees
Fill - Forested
High Tidal Marsh
High Tidal Marsh - Impaired Connection
Pasture/Abandoned Pasture
Pasture - Private Land
Spruce Forest Wetland
Spruce Forest Wetland - Private Land
Spruce Forest Wetland - Diked
Freshwater Emergent Marsh
Freshwater Emergent Wetland - Diked
Freshwater Scrub-Shrub Wetland - Diked
Water - Tidegated/Restricted Channel
Water - Open Channel
SOUTHERN FLOW CORRIDOR
LANDOWNER PREFERRED ALTERNATIVE
Existing Conditions
2,000
1,000
0 Feet
coord. syst.: OR State Plane N
horz. datum: HARN
horz. units: feet
impact consulting
June 2014


Tillamook Bay
Wilson River
Blind Slough
Hall Slough
Nolan Slough
Trask River
Tillamook River
Dougherty Slough
Hoquarten Slough
City of Tillamook
Remove Existing Building
Remove Existing Tidegate
New Flood/Drainage Structure
Channel Reconnection
Fill Ditch
New Tidal Channel
Lower, Strengthen Berm
New Levee
Upgrade Levee
Existing Levees
Remove Fill/Road
Water - Tidegated/Restricted Channel
Water - Open Channel
SOUTHERN FLOW CORRIDOR
LANDOWNER PREFERRED ALTERNATIVE
Construction Elements
2,000
1,000
0 Feet
coord. syst.: OR State Plane N
horz. datum: HARN
horz. units: feet
impact consulting
June 2014



Habitat Classification	Existing Acres	Future Acres
Fill	62	0
Pasture/Abandoned Pasture	289	0
Emergent Freshwater Wetland	34	0
Low Tidal Marsh	0	323
High Tidal Marsh	29	72
Scrub-Shrub Freshwater Wetland	11	0
Sitka Spruce Forested Wetland	59	84
Water-No/Limited River Connectivity	31	0
Water-Full River Connectivity	4	40
Totals	**519**	**519**

SOUTHERN FLOW CORRIDOR
LANDOWNER PREFERRED ALTERNATIVE
Future Conditions

2,000 1,000 0 Feet

coord. syst.: OR State Plane N	horz. datum: HARN	horz. units: feet
impact consulting		June 2014