Columbia County
Voluntary Stewardship Program

Work Plan
July 2018

Funded by the
Washington State Conservation Commission

STATE OF WASHINGTON
CONSERVATION COMMISSION
PO Box 47721 • Olympia, Washington 98504-7721 • (360) 407-6200 • FAX (360) 407-6215

July 30, 2018

Kim E. Lyonnais
Director of Planning & Building
Columbia County
114 S. 2nd
Dayton, WA 99328

Re: Approval of Columbia County Voluntary Stewardship Program Work Plan

Dear Mr. Lyonnais:

The Voluntary Stewardship Program (VSP) Technical Panel (TP) has reviewed the work plan submitted by the County and has approved the work plan at a formal review meeting on July 27, 2018.

As a result of the approval of the work plan by the TP, and in accordance with RCW 36.70A.725 (3) (a) (ii), the Director of the Commission must approve the work plan.

Therefore, by this letter, as Executive Director of the Washington State Conservation Commission, I formally approve the work plan for the County as of the date of this letter.

If any amendments have been made to the work plan during the Technical Panel review process, please provide the Commission an electronic link to the final version of the work plan. That link can be sent to Alicia McClendon at **amcclendon@scc.wa.gov**.

Thank you for your continued engagement in and support of VSP, and congratulations on the approval of the county's plan. If you have any questions, please feel free to contact me.

Sincerely,

Mark Clark
Executive Director
Washington State Conservation Commission

Columbia County VSP Work Plan

Adopted July 27, 2018

Prepared for:

Columbia County VSP Work Group

Columbia County

Dayton, WA

Prepared by:

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Cover art based upon an original painting by Wanda Keefer. Used by courtesy of the artist.

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ABBREVIATIONS

AWEP	Agricultural Water Enhancement Program
CARA	Critical Aquifer Recharge Area
CD	Conservation District
County	Columbia County
CPPE	Conservation Practice Physical Effect
CRP	Conservation Reserve Program
CSP	Conservation Stewardship Program
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EQIP	Environmental Quality Improvement Program
FEMA	Federal Emergency Management Agency
FFA	Frequently Flooded Area

FSA	Farm Service Agency
FWHCA	Fsh and Wildlife Habitat Conservation Area
GHA	Geologically Hazardous Area
GMA	Growth Management Act
NRCS	Natural Resources Conservation Service
PHS	Priority Habitats and Species
RCPP	Regional Conservation Partnership Program
RCW	Revised Code of Washington
USDA	U.S. Department of Agriculture
VSP	Voluntary Stewardship Program
WDFW	Washington Department of Fish and Wildlife
WHIP	Wildlife Habitat Improvement Program
Work Group	Columbia VSP Work Group
Work Plan	Columbia County VSP Work Plan
WRIA	Water Resource Inventory Area
WSCC	Washington State Conservation Commission
WSDA	Washington State Department of Agriculture

Chapter One: Introduction

The Washington State Growth Management Act (GMA) was adopted by the Washington State Legislature in 1990. The GMA provides for citizens, communities, local governments, and the private sector to cooperate and coordinate in comprehensive land-use planning. The GMA requires county and local governments to adopt development regulations that protect critical areas.

In 2011, the Legislature amended the GMA with the intent to protect and enhance critical areas in areas where agricultural activities are conducted, while maintaining and improving the long-term viability of agriculture. This amendment established the Voluntary Stewardship Program (VSP), a new, non-regulatory, and incentive-based approach that balances the protection of critical areas on agricultural lands while promoting agricultural viability. VSP presents a unique opportunity to address an important environmental topic that has been a source of controversy in recent decades—how to protect and restore critical areas on agricultural lands while keeping agriculture economically viable.

1.1 Frequently Asked Questions

What is a Voluntary Stewardship Program?
VSP is a new, non-regulatory, and incentive-based approach that balances the protection of critical areas on agricultural lands while promoting agricultural viability. VSP is allowed under the GMA as an alternative to traditional approaches to critical areas protection, such as "no touch" buffers. Columbia County is one of 28 counties that has "opted in" to VSP and received funding to develop a VSP work plan.

What is meant by "Voluntary Participation" in VSP?
VSP is voluntary; agricultural landowners and operators (commercial and noncommercial) are not required to participate. Agricultural producers who choose to participate are free to withdraw at any time without penalty (Revised Code of Washington [RCW] 36.70A.760). Separate from VSP, landowners are expected to comply with any new or existing contractual agreements under government or other programs for which they have obligated themselves for implementing a practice.

Agricultural producers who do not formally participate in VSP are not required to take actions to protect critical areas. The Columbia County VSP Work Plan (Work Plan) can remain viable at the County level, even without full landowner participation, if the County is meeting protection goals and benchmarks (see Chapter 5). However, agricultural producers are encouraged to avoid impacts to critical areas, and other applicable laws and regulations still apply (such as federal wetland protections and state hydraulic project approvals).

What is a "Individual Stewardship Plan?"
An Individual Stewardship Plan is an implementation tool developed by the Columbia VSP Work Group (Work Group) to help the technical leads and agricultural producers identify the potential presence of critical areas on a farm and develop a plan to protect critical areas on a farm, based on voluntary participation. An Individual Stewardship Plan Checklist is included in Appendix E to help facilitate the development of Individual Stewardship Plans by identifying examples of practices and programs that further the goals and benchmarks of this Work Plan.

Conservation practices included in an Individual Stewardship Plan do not necessarily need to meet Natural Resources Conservation Service (NRCS) or other government-based standards for practices, unless enrolled in a specific agency program or agreement. Individual Stewardship Plans should:

- Identify the potential presence of critical areas
- Identify existing practices that may protect critical areas
- Identify additional opportunities to protect critical areas
- Identify additional opportunities to enhance critical areas

Additionally, Individual Stewardship Plans will help assist the Work Group report progress on the Work Plan goals and benchmarks for VSP participation and critical areas protection.

What is meant by "Baseline Conditions?"

The effective date of the VSP legislation is July 22, 2011. Under the law, this is the date that identifies the baseline for protecting critical areas functions and maintaining agricultural viability. Under VSP legislation:

- Implementation of this Work Plan must prevent further degradation of critical areas functions as they existed on July 22, 2011, while maintaining agricultural viability. Goals for enhancement of critical areas functions must also be identified.
- Failure to meet the goals and benchmarks for critical area functions will represent failure of the Work Plan and trigger a regulatory approach to critical areas protection under the GMA.

What are the Critical Areas we are concerned with?

There are five critical areas: Wetlands, Geologically Hazardous Areas, Frequently Flooded Areas, Critical Aquifer Recharge Areas and Priority Habitats. Definitions and a fuller explanation of these are provided in Chapter Two. Under VSP, critical areas on lands where agricultural activities are conducted are managed under this voluntary program. Lands used for non-agricultural purposes are regulated under the County's Critical Areas Ordinance.

What does it mean to "Protect and Enhance Critical Areas?"

VSPs require creation of measurable benchmarks that are designed to protect and enhance critical area functions and values (e.g., shade, cover, or water flow into a wetland) through voluntary actions by agricultural producers while maintaining agricultural viability. Per VSP definitions:

- Protection requires prevention of the degradation of functions and values of baseline conditions (conditions existing as of July 22, 2011, when VSP legislation was passed).
- Enhancement means to improve the processes, structure, and functions of baseline conditions for ecosystems and habitats associated with critical areas (RCW 36.70A.703).

What does it mean to "Maintain Agricultural Viability?"

To receive approval, the Work Plan must protect critical areas in a way that maintains agricultural viability (RCW 36.70A.725). Activities or methods that protect critical areas must also be neutral to or benefit farm operations, such as reducing input costs or reducing soil erosion. Further, the VSP will not require an agricultural producer to discontinue agricultural activities that legally existed before July 22, 2011 (RCW 36.70A.702). Agricultural viability is discussed further in Chapter 3.

Who will be responsible for administering VSP after the Work Plan is adopted?

Columbia County Planning will serve as the VSP Coordinator and the Columbia Conservation District will be the technical lead. The VSP coordinator will collect participation data from existing conservation program leads and entities and coordinate reporting, monitoring, and adaptive management procedures with the Work Group. The VSP Coordinator will rely on existing agencies, the conservation district, and local organizations to provide the technical assistance to producers. The technical assistance will include administering the Individual Stewardship Plan survey and related services. The Work Group will continue to oversee VSP in Columbia County.

As illustrated below, the VSP is intended to balance critical areas protection and agricultural viability at the county level through voluntary actions by agricultural producers. VSP is not a replacement for compliance with other laws and regulations, but participation in the program can often help agricultural producers comply with these requirements.

Agriculture is widely recognized as a pillar of the Washington State and Columbia County economies. The VSP law is explicit that critical areas are to be protected while, "maintaining and improving the long-term viability of agriculture" (RCW 36.70A.700). Both objectives, critical areas protection and maintaining agricultural viability, have to be met in our Work Plan.

Agricultural viability in the County includes regional and individual farm elements. These are defined, respectively, as the region's ability to sustain agricultural production over time and an individual farm's ability to meet financial obligations and make a profit.

Agricultural viability can be defined as the ability of a farmer or group of farmers to:

- Productively farm on a given piece of land or in a specific area
- Maintain an economically viable farm business
- Keep the land in agricultural use for the long-term, and
- Steward the land so it will remain productive into the future

At the regional level, agricultural viability is the support system that helps individual farms to succeed. This system also helps to mitigate against potential threats and supports local producers in their operations and their ability to take advantage of business opportunities.

1.2 Background and Purpose

In 2012, the Board of County Commissioners of Columbia County passed a resolution to "opt-into" the VSP. The Commissioners came to the following conclusions:

- Farming is vital to the economy of the County.
- The County watersheds provide critical and economically important functions that may be impacted by farming.
- Biological diversity within the County watersheds is important to water and habitat quality and viability.

1.3 Work Plan Elements

The Work Plan is intended to fulfill the state requirements outlined under the RCW 36.70A.720(1), which includes several elements. These elements are addressed in the following major components of this Work Plan:

- Evaluate existing information and resource conditions.
- Establish protection and enhancement goals and measurable benchmarks for critical areas while maintaining agricultural viability.
- Establish participation goals by agricultural producers to meet measurable benchmarks.
- Provide a framework for monitoring and reporting.
- Facilitate landowner participation and outreach.

1.4 Work Plan Goals

One of the main goals of the Work Plan is to identify stewardship strategies and practices that are implemented under existing programs or voluntarily implemented through producer-funded practices and identify goals and benchmarks for

continued protection and enhancement of the County's critical area functions and values.

Producer participation is a key component of Work Plan implementation and program success. Failure of the Work Plan in meeting production goals will trigger a regulatory approach to protecting critical areas under the Growth Management Act, such as applying buffers and setbacks along streams or wetlands. Additionally, the regulatory approach for protecting critical areas on agricultural lands would not have the equally important VSP goal of maintaining and enhancing agricultural viability. Neither would it necessarily encourage outreach or technical assistance for agricultural operators. Therefore, producer participation will be encouraged as a central component of the Work Plan, through new and continued implementation of stewardship strategies and practices, to help ensure the success of VSP and protect agricultural viability.

1.5 Work Plan Organization

This Work Plan, including its appendices, contains detailed information intended to fulfill the state requirements outlined under the Revised Code of Washington (RCW) 36.70A.720(1)(a through l), which requires Work Plans to include critical area protection and enhancement goals with measurable benchmarks, and an implementation, reporting and tracking framework. Below is a summary description of the Work Plan organization.

Columbia County VSP Work Plan Organization

- **Chapter 1 – Introduction:** Background on VSP legislation and how it applies to the County.
- **Chapter 2 – Columbia County Regional Setting:** Overview of County conditions, including descriptions of critical areas.
- **Chapter 3 – Baseline & Existing Conditions:** Description of county-wide critical areas presence and functions and values as of 2011.
- **Chapter 4 – Protection and Enhancement Strategies**: Description of currently implemented stewardship practices that protect and enhance critical areas functions and values**.**
- **Chapter 5 – Goals, Benchmarks & Adaptive Management:** Description of VSP goals for critical area protection and enhancements, measurable benchmarks, and indicators and methods for adaptive management.
- **Chapter 6 – Implementation:** Detailed plan outlining implementation of VSP actions by the VSP Coordinator and Work Group.
- **Appendices –** Additional detailed information referenced by the above sections.

1.6 Work Plan Development – Roles and Responsibilities

RCW 36.70A.705 identifies roles and responsibilities for state agencies, counties, and VSP work groups. The table below provides a summary of these roles and responsibilities, adapted to the Work Plan development process, and including participation by producers, conservation districts (CDs), local and state agencies, and others. The Work Group developed this Work Plan. Implementation roles and responsibilities are further described in Chapter 6.

One of the main purposes of the VSP process is to allow members of the public to participate and provide information – to have an active role in protecting critical areas and maintaining agricultural viability. The Columbia County VSP Work Group was appointed by the Columbia County Board of County Commissioners to serve as a conduit between the VSP Work Group and the citizens of the county. Members of the Work Group represent a cross section of the County and come from various interests. (See Appendix E)

Environmental groups and the Tribes were invited to participate in the Work Group and the development of the Work Plan, however, there was no indication of interest from those groups. Mailings and notices continued to be sent to them and all parties who expressed an interest in Columbia County's VSP process.

State – Approval and Administration	
Washington State Conservation Commission (WSCC)	Administers VSP statewide; approves/rejects locally developed Work Plans
VSP Tech Panel	Provides technical review of draft Work Plans; makes recommendations on whether to approve or reject the Work Plan
VSP Statewide Advisory Committee	Works with the WSCC to revise rejected draft Work Plans
Local – Administration and Work Plan Development	
Columbia County	Administers VSP funding/grant for Work Plan development
Columbia VSP Work Group	Develops and proposes Work Plan for approval by WSCC
Conservation District	Provides technical information to support Work Plan development
Other Technical Providers	Provides technical input during Work Plan development
Agricultural Producers – Outreach Focus	
Landowners/Operators/Others	Provide input to the draft Work Plan

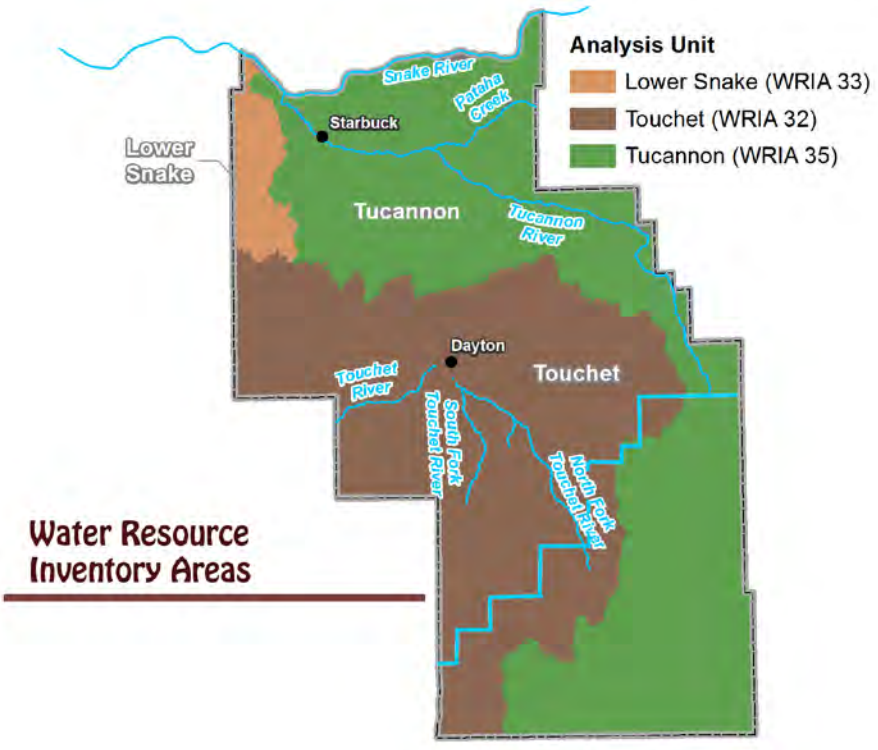
Chapter Two: Columbia County Regional Setting

Columbia County Profile

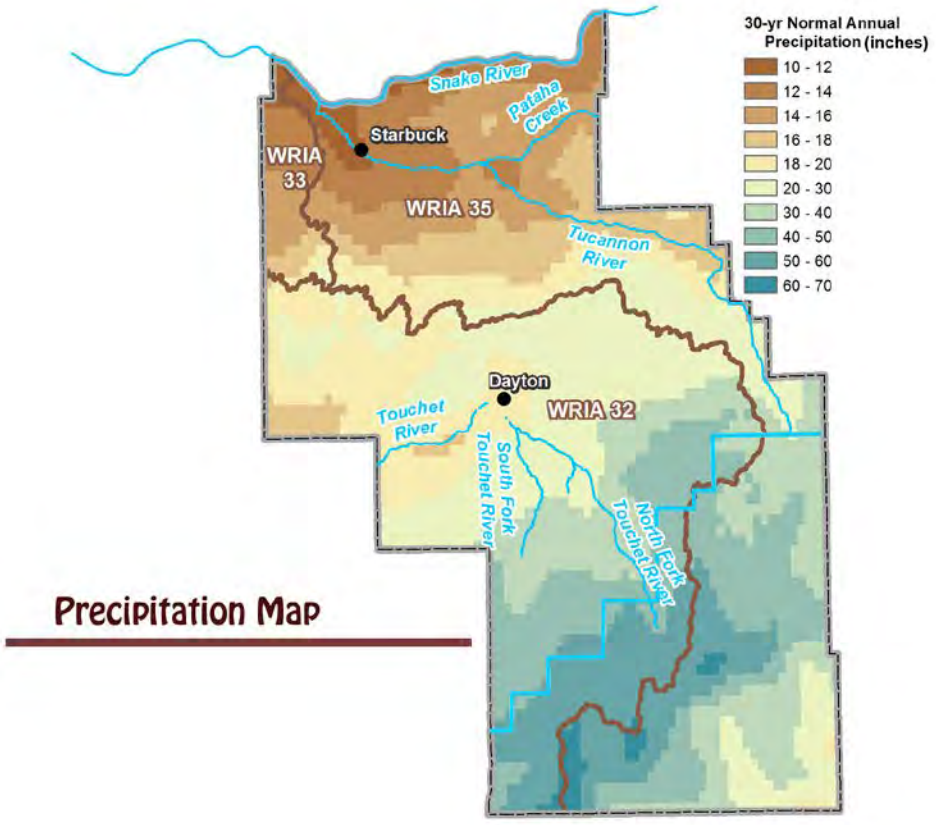
The County is located in southeast Washington and bound by the Oregon border on the south, Garfield County on the east, Walla Walla County on the west and the Snake River on the north.

2.1 Water Resources and Precipitation

Water Resources – The County includes portions of three major watersheds, which are known as Water Resource Inventory Areas (WRIAs). Most of the County is in the Middle Snake WRIA (WRIA 35). The western portion of the County is in the Walla Walla WRIA (WRIA 32), and a relatively small area in the northwestern portion of the County is in the Lower Snake WRIA (WRIA 33). Watershed planning under RCW 90.82 has previously been undertaken which focuses on issues relating to water quality, water quantity and habitat.



Precipitation – Annual precipitation is between 10 to 20 inches over most of the agricultural lands increasing to 40 inches or more in the higher elevations of the Blue Mountains. The average winter season snowfall varies from 20 to 40 inches. Snow can be expected in November and to remain on the ground from periods ranging from a few days to two months between the first of December and March. Snowfall and the depth on the ground increase along the slopes of the mountains.



Precipitation Map

2.2 Soils and Terrain

The relief, or topography, of the landscape indirectly influences the formation of soils. It greatly affects drainage, erosion, depth of the soil, penetration of water into the soil, microclimate of the soil, and the type of vegetation that grows on the soil. Elevation, slope, and aspect are the important elements of relief in the survey area. Generally, precipitation increases and temperature decreases with an increase in elevation. The total plant growth is greater, and the breakdown of plant materials is slower on foothills of Blue Mountains than in the area around Starbuck. Slopes range from 0 to 3 percent on the stream bottoms, 3 to 15 percent on plateaus and broad ridgetops, 8 to 30 percent on the rolling to hilly uplands, and 30 to 65 percent in the deep canyons and on steep mountains. Areas where slopes are 0 to 3 percent are somewhat poorly drained in places.

Nearly all of these areas are subject to deposition of materials washed from adjacent uplands. Normal profiles have formed where slopes are 3 to 30 percent. Erosion is no concern in areas where the natural vegetation is intact, but it Is potentially a serious concern on cultivated soils that have slopes of 8 to 30 percent. Thin soils have formed where slopes are 30 to 65 percent. Soils that are deeper than normal have formed on north-facing exposures, and shallow and rocky soils have formed on the south-facing exposures.

The soils map is located in Appendix A. Its level of detail is too extreme to display effectively in this narrative section.

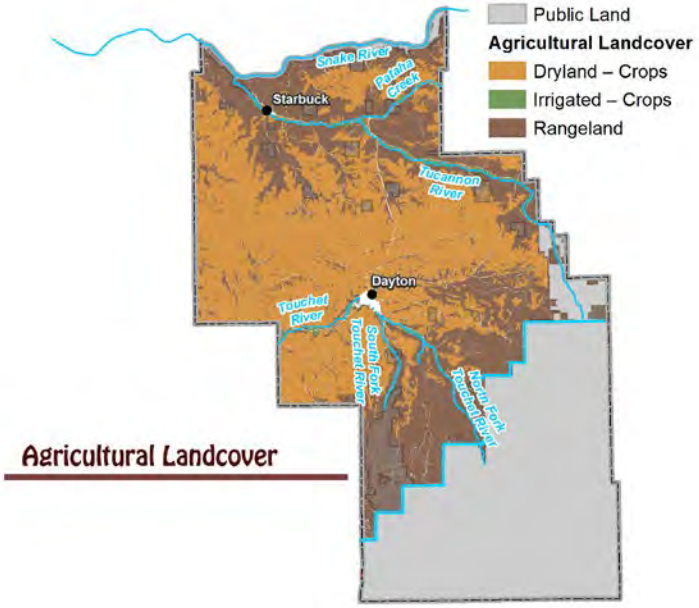
In Columbia County, the slopes that face south and southwest receive the more direct rays of the sun and have higher temperatures than slopes that face north and northwest. Evaporation is less on the cooler, north-facing slopes so that more water is available for plant growth. North-facing slopes also receive additional moisture from the melting snow washed and blown from adjacent ridgetops. As a consequence, the soils on north-facing slopes are darker than soils elsewhere. The Onyx, Yakima, Patit Creek, and Covello soils occur on stream bottoms and are subject to occasional overflow and silt deposition. The Covello soils are somewhat poorly drained. About 60 percent of the area is rolling uplands. The Athena, Palouse, Ritzville, and Walla Walla soils are characteristic of the rolling uplands. The soils on north-facing slopes have a thicker, darker colored A horizon than those on south-facing slopes.

About 85 percent of Columbia County was once grassland. The vegetation was deep-rooted bunch grasses capable of extracting soil moisture deep in the soil and of shallow-rooted grasses that matured, produced seed in a short season, and became dormant early in summer. The native plant cover varied in kind, composition, and density. Bluebunch wheatgrass grew under a wide range of soil and moisture conditions. Needle-and-thread, prairie junegrass, and other plants grew under a narrower range of conditions.

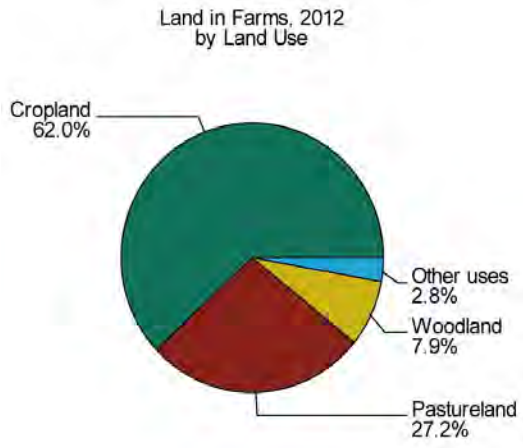
Trees grow in this area under a variety of conditions. Soils that are on stream bottoms and receive 16 to 19 inches or more of precipitation are timbered. Similarly the soils on mountains, broad ridgetops, and on slopes that face northwest, north, northeast, and some that face east are timbered. (U.S. Soil Survey, 1973)

2.3 Land Use and Landcover

Land Use and Landcover – The County is predominantly rural and dominated by agricultural and larger land tracts outside of cities and town. The largest city in the County is the county seat, Dayton, where most housing, commercial, and industrial activities are centered.



Agriculture on privately owned lands is divided into dryland crops, rangeland and irrigated cropland. Of the total 556,160 acres in Columbia County, 297,412 acres are currently farmed. (2012 date) The largest portion (36% of the total County area) is in dryland farming with 201,728 acres. In the County, there are 150,236 acres of rangeland (27% of the total County area). A quite small fraction of the County is irrigated agricultural land: 2,320 acres which is 0.4% of County. A significant portion of the County's land lies within the Umatilla Forest Service and other public lands (181,162 acres or 32% of total.) Crops produced in Columbia County are mostly under dryland production (non-irrigated) and primarily winter wheat and spring wheat. Rotational crops include spring barley, canola, spring peas, chickpeas (garbanzos), lentils, and yellow mustard. The chart illustrates the percentages of land use in farms.



2.4 Agricultural Activities

Agriculture is the predominant land use in the County. The Work Plan's goals and measurable benchmarks for voluntary landowner participation apply to agricultural producers on privately owned land in the unincorporated areas of the County. A summary of the agricultural picture in Columbia County is provided below.

In the state of Washington, between 1988 and 2007, the total area in farms decreased about 5.5% to 15.1 million acres. The farm numbers fell 13.2% to 33,000 farms. The number of farms in Columbia County has gone from a high of 706 in 1900 to a low of 246 in the 1990s. Since then, the number has steadily increased to 308 in 2012 agricultural census.

In 2010, there were 138 people employed directly on farms in Columbia County. Approximately half of that number own or lease agricultural lands – they are the ag producers.

Between 1988 and 2007, the average size of a farm in Washington State has increased about 0.5% to 458 acres. The average size of farms in Columbia County has decreased in the past two decades from 1,303 to 966 acres. The total farm acreage in the County fluctuates over the years as land is taken in and out of production. In 2012, there were over 297,000 acres in production.

As may be expected, the level of productivity per acre has shown substantial improvement over time. For example, in 1939 the County produced 1,889,300 bushels of grain. This increased to 2,248,100 bushels in 1949 and rose to 5,861,600 bushels in 2012.

Raising cattle holds an important role in the agricultural picture of the County. In 2012, there were 71 farms raising 5,896 head of cattle which is an increase over 2007, when there were 62 farms with 5,762. In 1997, there were 129 farms with 83,400 acres of wheat in production. That has been reduced such that by 2012 there were 94 farms with 74,251 acres of wheat being produced in the County.

Looking at more specifics for the agricultural sector in the County, there are 308 farms with 297,412 acres. The average size is 966 acres and median size is 211 acres. The total cropland has 260 farms with 184,477 acres and the harvested cropland with 147 farms with 98,182 acres.

The land in orchards in 2012 shows 4 farms with 185 acres total (all irrigated). For all grains in 2012, there were 94 farms with 74,251 acres harvesting 5,861,603 bushels. In 2007, there were 77 farms with 77,970 acres harvesting 5,095,533 bushels. For just winter wheat in 2012, there were 88 farms with 55,052 acres harvesting 4,727,810 bushels. This is a change from 2007, when there were 73 farms with 58,543 acres harvesting 4,286,362 bushels.

In 2007, there were 126 farms with 105,501 harvested acres. In 2012, this changed to 147 farms with 98,182 harvested acres. In terms of the market value of the agricultural products sold, in 2007, there were 283 farms which sold $39,819,000 (an average of $140,702 per farm). This increased in 2012, when 308 farms sold $57,732,000 (average $187,443 per farm). Grains, oilseeds, dry beans, dry peas brought in $34,083,000 for 82 farms in 2007. In 2012, 100 farms sold $51,125,000 of those products. For wheat, in 2007, 77 farms sold $27,512,000 which increased in 2012, when 94 farms sold $41,335,000.

2.5 Critical Areas

This Work Plan sets forth two over-arching goals with respect towards Critical Areas.

- Prevent the degradation of watershed-level critical area functions and values existing as of the July 22, 2011 baseline due to agricultural activities, for each watershed and each type of critical area.
- Promote and account for the enhancement of conditions from the 2011 baseline of critical area functions and values through voluntary measures on lands used for agricultural activities.

The definitions of the five Critical Areas that will be managed under VSP are given below.

Critical areas that will continue to be reviewed under the County's Critical Areas Ordinance, include Geologically Hazardous Areas (GHA) for landslide or seismic hazards, and any structures that are proposed within agricultural lands for any of the five critical areas, whether they support agricultural activities or not.

"Geologically hazardous areas" means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, may pose a risk to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.

Functions: Water quality, hydrology, soil and habitat

"Fish and Wildlife Habitat Conservation Area" means an area, range, or habitat within which a species has a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term. Examples include areas of high relative density or species richness, breeding habitat, winter range, and movement corridors. These areas may also include habitats that are of limited availability or high vulnerability to alteration.

Land and waters managed to maintain populations of fish and wildlife species in suitable habitats within their natural geographic distribution over the long term within connected habitat blocks and open spaces. Includes ranges and habitat elements where federal and state listed endangered, threatened and sensitive species have a primary association; Lakes, rivers, ponds, streams, inland waters, and underground waters.

Functions: Water quality, hydrology, soil and habitat

"Critical Aquifer Recharge Area" means areas that have a critical recharging effect on groundwaters used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. Examples of aquifer recharge areas include: (1) Wellhead protection areas delineated pursuant to the Federal Safe Drinking water Act; and (2) Other areas with a high level of susceptibility or vulnerability to contamination as demonstrated through the use of the DRASTIC Model.

Functions: Water quality and hydrology

"Frequently Flooded Areas" means flood hazard areas. Lands in the flood plain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. Includes streams, rivers, lakes, wetlands, and areas where high groundwater forms ponds on the ground surface. **Functions**: Water quality, hydrology, soil and habitat	

	**" Wetlands"** means areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands generally do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities; or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands may include those artificial wetlands intentionally created from non-wetland areas created to mitigated conversion of wetlands. **Functions**: Water quality, hydrology and habitat

2.6 Critical Areas Funtions and Values

VSP legislation requires that this Work Plan develops goals and benchmarks to protect and enhance critical area functions and values (RCW 36.70A.720(1)(e)). The key functions and values provided by the five critical areas in Columbia County can be summarize into four major functions, which include: 1) water quality; 2) hydrology; 3) soil; and 4) fish and wildlife habitat. The goals and benchmarks developed for this Work Plan, included in Section 5, are based upon protection and enhancement of these four key functions.

Each critical area provides one or more of these key functions and values, which are summarized in the table below. The relationship between each critical area with key functions and values is discussed further in the following sections. See Section 3.1 for further discussion on the baseline conditions of the critical areas within Columbia County's ag lands. See Section 4 for stewardship strategies and practices that provide functional benefits to these key functions.

Critical Areas Primary Functions

Primary Functions	Aquifer Recharge Areas (CARA)	Wetlands (WET)	Fish & Wildlife Habitats (F & W)	Geologically Hazardous Areas (GHA)	Frequently Flooded Areas (FFA)
Water Quality	✓	✓	✓	✓	✓
Hydrology	✓	✓	✓	✓	✓
Soil Health		✓	✓	✓	✓
Wildlife Habitat	✓	✓	✓	✓	✓

Water Quality

Critical areas, such as stream channels, wetlands and riparian areas, are part of the aquatic ecosystem that filters and retains excess fine sediments and cycles out excessive nutrients (such as phosphorus and nitrogen) and other pollutants. These functions provide cleaner water, which is essential for supporting habitat for fish and other aquatic species. Critical areas also help moderate water temperatures by providing vegetative shade and cooler water from recharged groundwater which helps maintain cooler in-water temperatures and dissolved oxygen levels needed to support aquatic species.

All five of Columbia County's critical areas provide water quality functions, as summarized in the table below:

Critical Areas	Water Quality Functions
 Wetland	~ Reduces siltation and erosion ~ Provides water filtration ~ Moderates water temperature by providing shade
Fish & Wildlife Habitat Conservation Area 	~ Reduces siltation by stabilization of streambanks from riparian vegetation ~ Nutrient cycling and removal of excess nutrients and provides water filtration ~ Moderates water temperature by providing shade
 Critical Aquifer Recharge Area	~ Infiltration through soil column and underlying geology improves groundwater quality and protects public drinking water supplies
Geologically Hazardous Area 	~ Affects rate of soil erosion and associated movement of sediment deposited in surface waterbodies
 Frequently Flooded Areas	~ Vegetation in FFAs holds underlying soil in place and also provides area for new sediment depositions to settle out ~ Moderates water temperature by shallow groundwater infiltration and releases from unconfined aquifers of cooler groundwater back to streams and by vegetation that can provide shade

Hydrology

Hydrology is the process of water delivery, movement and storage. In an ecosystem, hydrology is affected by land- forms, geology, soil characteristics and moisture content and climate (including precipitation.) Water is delivered to streams primarily from surface and shallow subsurface runoff and in some cases, from ground-water. Stream channels, wetlands and riparian areas are also part of the aquatic ecosystem that stores and transports water and sediment, maintains base flows and can support vegetation and microorganism communities.

In Columbia County, agricultural practices can affect the amount of moisture retained within soils and the amount of storage during periods of precipitation. Farming practices can also protect the land from loss of soil due to erosion associated with hydrology and topographic conditions. Water retention is especially important for maximizing dryland crop yields. Hydrology in Columbia County watersheds are characterized by high flows in spring and early summer, followed by much lower flows in the late summer and early autumn.

All five of Columbia County's critical areas provide hydrology functions, as summarized in the table below:

Critical Areas	Hydrology Functions
WET Wetland	- Stores water to reduce flooding and contributes to base water flows
Fish & Wildlife Habitat Area (F & W)	- Stores and retains water to reduce flooding and contributes to base water flows - Large wood recruitment/channel stabilization and habitat for beaver
CARA Critical Aquifer Recharge Area	- Recharges groundwater resources
Geologically Hazardous Area (GHA)	- Affects rate of groundwater infiltration and rate of surface water runoff
FFA Frequently Flooded Areas	- Stores and retains surface water in floodplain - Recharges groundwater that can later be returned to help maintain base water flows

Soil Health

The soil provides an underground living ecosystem which is essential to preserving plant and animal life. Soil conservation is important in Columbia County to support healthy soils that have the following characteristics:

- Reduce susceptibility to erosion
- Hold and slowly release water
- Filter pollutants and in many cases, detoxify them
- Store, transform and cycle nutrients
- Physically support plants

In Columbia County, agriculture preserves lands from more intensive development. Farmers can be the County's most effective soil managers by effectively managing tillage, pesticide and fertilizer applications to the lowest effective level. Intensive tillage reduces surface residue, can lead to increased soil erosion and soil loss and intensifies the loss of soil organic matter.

Three of Columbia County's critical areas provide soil functions as shown in the table below:

Critical Areas	Soil Functions
FFA Frequently Flooded Areas	~ Supports moisture content in soils, reduces rate of erosion and supports plant growth that can increase organic inputs to soil
Fish & Wildlife Habitat Conservation Area (F & W)	~ Reduces rate of erosion by providing vegetative cover
GHA Geologically Hazardous Area	~ Improves structure of soil to minimize some types of erosion

Fish and Wildlife Habitat

Habitats are the natural environment in which a particular species or population can live. The habitat requirements are unique for different species and can be distinctive for different life stages of a species. Habitat loss is the primary threat to the survival of native species.

In Columbia County, agriculture has impacted habitats by replacing historically diverse landscapes with an intensely-managed agricultural landscape. Although ag lands can provide vast tracts of semi-natural habitat, species biodiversity is higher in the remnant natural areas of the County. Farmers that provide greater landscape variability, and high perimeter-to-area habitats on their land, can provide meaningful benefits to many different species. There is a great amount of high-quality deer and bird habitat on land that is actively farmed, particularly rangeland. Of course, many crops provide a food source for herbivores such as deer.

Four of Columbia County's critical areas provide habitat functions as shown in the table below:

Critical Areas	Habitat Functions
WET Wetland	~ Provides aquatic and woody vegetated habitat for fish and wildlife
Fish & Wildlife Habitat Conservation Area (F & W)	~ Provides in-stream spawning, rearing and migratory habitat for fish and habitat for beaver which impact hydrology and riparian areas ~ Provides upland and riparian migration corridors, refuge, forage, nesting and rearing areas for wildlife
FFA Frequently Flooded Areas	~ Provides aquatic and riparian habitats for wildlife, plants and fish
Geologically Hazardous Area (GHA)	~ Affects rate of erosion as it relates to sediment inputs to stream and wetland aquatic habitats

Chapter Three: Baseline and Existing Conditons

The effective date of the VSP legislation is July 22, 2011. This is also the date chosen by the legislature as the applicable baseline for accomplishing the following items found in RCW 36.70A.703:

- Protecting critical areas functions and values,
- Providing incentive-based voluntary enhancements to critical areas functions and values,
- Maintaining and enhancing the viability of agriculture in the County.

The 2011 baseline sets the conditions from which Columbia County will measure progress in implementing this Work Plan and meeting measurable benchmarks (see Chapter 5). Stewardship strategies and practices have been implemented since 2011 to improve agricultural productivity, reduce erosion, conserve water and improve soil quality, water quality and habitat. These stewardship strategies and practices will be credited towards meeting the Work Plan goals and benchmarks.

It is important to note that changes to baseline conditions outside of VSP are likely to occur due to non-agricultural effects (e.g., climate change, natural events, wild fires, floods, forest practice activities), or other changes outside of the scope and jurisdiction of the VSP or the control of producers (including

changes in federal program eligibility conditions). Additional changes to the baseline may occur in Columbia County that are the result of activities outside of the County, such as effects to watercourses that occur upstream and outside of the County limits. These changes will not be counted against the agricultural community and will be documented through the reporting and adaptive management processes discussed in Chapters 5 and 6.

3.1 Baseline Intersection of Critical Areas and Agricultural Land Uses

This Chapter provides a summary of baseline conditions of the intersections of critical areas on agricultural lands. The following appendices provide additional information and methods relied upon for the baseline conditions summary:

- Appendix A: VSP Map Folio
- Appendix B-1: Baseline Conditions Summary
- Appendix B-3: Critical Areas Designations

Use of Maps
The data sources and maps that were used to assess the potential presence of critical areas within the County and intersection with agricultural lands were used for planning-level purposes only. Actual critical areas presence is determined on a case-by-case basis through farm stewardship planning.

The overlap between agricultural land use and mapped critical areas generally accounts for 94% of the total agricultural land in Columbia County. Most agricultural lands do not contain critical areas other than water erosion potential areas. However, most of the wetlands, CARAs, FFAs and FWHCA in the County are on agricultural lands. Although the portion of agricultural lands that intersect with these mapped critical areas is a relatively small fraction of the County's agricultural land base, these lands includes many areas of high functioning habitats, which provide important ecological functions.

Table 3-1 below summarizes the potential presence of critical areas within Columbia County that intersect with agricultural activities on private lands. Of the 558,037 total acres in Columbia County, 67.5% (376,875 acres) are private and the balance is public (181,162 acres). The predominant landcover of the private lands in the County is agriculture and the presence of potential critical areas on those lands covers a majority of the ag lands. It should be noted that there is some overlap of critical areas. For example, Fish and Wildlife Habitat Conservation Areas frequently overlap with Wetlands and due to the large amount of acreage that has water erosion potential, those Geologically Hazardous Areas can and do overlap with other critical areas. It should also be noted that under Geologically Hazardous Areas, the water and wind erosion potential areas are exactly that: *potential* erosion areas. This designation is based upon specific soil types identified within the County. This is a concern in terms of soil loss from farming which can impact ag viability and sedimentation in streams which impacts critical areas. Due to generations of conservation practices by ag producers in Columbia County, this potential erosion hazard has been greatly

diminished. There is, however, always the potential for some erosion given a convergence of weather conditions and seasonal timing.

Table 3.1 Summary of Critical Areas

Summary of Critical Areas

Total County acreage.....558,037
Agricultural acreage.....334,284
(only counting private lands)
Percentage of Ag in County.....63.5%
Dryland ag.....201,728 acres (36%)
Rangeland ag....150,236 (64%)
Irrigated ag.....2,320 (0.4%)

Ag acreage intersecting with Critical Areas...335,142 (94.6% of all private ag lands)

Critical Area Type	Acres Within Agricultural Lands	% of Total Agricultural Lands	% of Total County
 **Wetlands**	772	< 1 %	0.14%
 **Critical Aquifer Recharge Area**	6,358	1.89%	1.14%
 **Frequently Flooded Areas**	7,893	2.35%	1.41%
 **Fish & Wildlife Habitat Conser-vation Areas – includes both game and non-game species**	241,776	72.1%	43.3%
 **Geologically Hazardous Areas: Water Erosion Potential**	331,416	98.88%	59.40%
Wind Erosion Potential	25,311	7.55%	4.54%

Agricultural areas included in this summary are limited to privately-owned lands. Publicly owned lands are not managed under VSP.

3.1.1 Wetlands

The Wetlands of Columbia County are generally associated with the streams and rivers. Some wetlands, including marshes, are isolated and stand alone.

Characteristics and functions overview: Wetlands can help reduce erosion and siltation; provide filtration and produce cleaner water; retain water to reduce flooding and support base flows; and provide wildlife, plant and fisheries habitats. In Columbia County, most are Freshwater Forested/Shrub Wetlands (47%), 24% are Freshwater Emergent and 19% are associated with Riverine environments.

Intersections on agricultural lands: As shown on the mapped resources, potential Wetlands are found on 772 acres of private ag lands which is less than 1% of total ag lands. (Appendix A) Most Wetlands that intersect with agricultural lands are found on Rangelands (87%), 11% are found on Dryland Ag lands and a very small percentage are found associated with Irrigated Ag lands. Data on the Wetlands was derived from the National Wetland Inventory Data by the U.S. Fish and Wildlife Service (2010).

3.1.2 Fish & Wildlife Habitat Conservation Areas

Characteristics and functions overview: FWHCA include streams, riparian vegetation and upland habitats that provide water quality, hydrology, soil health and habitat functions. FWHCA provide migration corridors; breeding and reproduction areas; forage, cover and refugia space; and wintering habitat for wildlife species. Streams provide a key habitat and streamside vegetation functions as a source of organic materials, habitat structures and cover, slope and streamside stabilization, and shade to help regulate water temperatures. Large habitat areas provide for species that require hefty spaces or range for migration, forage and cover. Habitats of local importance may support sensitive species throughout their lifecycle or are areas that are of limited availability or high vulnerability to alteration. FWHCA help improve water quality, affect hydrology, contribute to soil health and provide a variety of habitats. Streams that seasonally go dry can still provide important functions for the stream network; such areas should be considered when identifying enhancements. Identifying appropriate protections for such places through a field visit is a good approach that WDFW can help with.

3.1.2.a Streams and Riparian Vegetation

Intersections on agricultural lands: Approximately 52% of the total stream miles mapped in Columbia County are within agricultural lands (Appendix A). This number doesn't include streams associated with Washington State's Department of Natural Resources (DNR) "Unknown" stream type. Field reconnaissance has confirmed that most of these unknown type streams lack the characteristics of a stream (they have no water) and do not constitute FWHCA. These stream types would need to be field-verified to identify appropriate protections for potential fish life or habitat use, if any.

Table 3-2
Critical Area Streams within Columbia County Agricultural Lands

Stream Type	Miles in County	Miles Within Ag Lands	% of County Total
Streams Total	2,910	1,517	52.10%
Shorelines of the State	117	75	4.90%
Other Types	354	130	8.60%

Stream types within agricultural areas included in this summary are limited to privately-owned lands. Publicly owned lands are not managed under VSP. The vast majority of stream and riparian areas that intersect with agricultural lands are found on Rangelands (360 of the 362 miles). Data on the streams and rivers was derived from the Washington Department of Natural Resources (2015).

Riparian Vegetation

Riparian vegetation includes the vegetated areas along water sources (wetlands and streams) characterized by plants accustomed to soils with higher water content than adjacent areas. In Columbia County, riparian vegetation typically consists of grasses, shrubs and some trees. Riparian vegetation provides habitat for fish and wildlife, reduces siltation by trapping sediments, provides slope and bank stability and helps moderate in-water temperatures by providing vegetative shade. The recruitment of large wood provides a key function and all riparian vegetation aids in providing a function to " channel complexity." Riparian vegetation aids in providing key functions for "slope and bank stability."

3.1.2.b Priority Habitats and Species

Intersections on agricultural lands: Priority Habitats and Species (PHS) have been mapped and identified on less than 1% of the total land area of Columbia County for species and habitat that are state-listed or candidate species or associated with vulnerable aggregations (1,919 acres). However, when including game and recreation species, the amount of PHS climbs to 72% of the agricultural land with 241,776 acres. In this latter category are included birds such as chukar and ring-necked pheasant and large mammals such as big-horned sheep, Rocky Mountain elk, mule deer and Northwest white-tailed deer. Due to the extent of these PHS, there is much overlap with other critical areas (Appendix A). Priority game species habitat is highly prevalent throughout the County, particularly on and around agricultural lands and adjacent riparian and upland habitats. Appendix A presents a comprehensive list of PHS, including game species habitat that the Washington Department of Fish and Wildlife (WDFW) has identified in Columbia County.

1,678 of the1,919 acres of PHS that intersect with agricultural lands are found in Rangelands. Most are habitats on cliffs and bluffs (89%). Bird and waterfowl concentrations comprise the balance of PHS habitats. Data on PHS was derived from the Washington Department of Fish and Wildlife (2010).

Game species in Priority Habitat and Species Maps:
PHS maps maintained by WDFW provide a reference to the potential existence of FWHCA. Game species habitat mapped in PHS almost entirely overlap existing cultivated and range agricultural land. Agriculture is expected to continue providing a positive benefit to deer, elk and other game species habitat. Accordingly, it is not a protection focus of this Work Plan, except where there is overlap with other FWHCA, such as riparian and other habitat types. Protection of these habitats is also expected to benefit game species. VSP enhancement goals can help improve habitat conditions for game and other species.

Game Species in Priority Habitat and Species (PHS):
PHS data and mapping are maintained by the Washington Department of Fish and Wildlife in part to provide a reference to the potential existence of Fish and Wildlife Habitat Conservation Areas (FWHCA). Game species habitat are mapped in PHS within approximately 241,000 acres of Columbia County's private agricultural lands, primarily comprised of Northwest White-tailed Deer, Mule Deer and Rocky Mountain Elk habitat. These habitats almost entirely overlap existing dryland agriculture and range lands. Agriculture is expected to continue providing a suitable habitat for these game species.

Protection Goals: Protection efforts under VSP are focused on the rare and undisturbed natural habitats that exist in the County, such as wetlands, steep canyon cliffs and riparian areas. Game species areas that overlap with existing agricultural lands are not the primary protection focus of this Work Plan, except where there is overlap with other habitat types as referenced above. The protection goals included in the Work Plan (Chapter 5.1) for these habitats are also anticipated to benefit game species.

Enhancement Goals: Enhancement efforts under this Work Plan include conservation efforts that focus on improving habitat conditions for game (along with other species) on existing agricultural lands (for example, the Conservation Reserve Program or field fringe habitat). These enhancement efforts will be counted towards meeting the Work Plan's enhancement goals and benchmarks.

See Appendix A and Appendix B-3 for additional details on PHS species, including recreation and gaming species.

3.1.3 Critical Aquifer Recharge Areas

Characteristics and functions overview: CARAs provide protections to public drinking water supplies. CARAs affect groundwater quality and hydrology through groundwater infiltration. Most CARAs are located in areas where potential contaminants on the land surface, such as fuel, pesticide or fertilizer, could potentially infiltrate into public drinking water supplies, however this is minimal on rangelands as opposed to croplands. This is noteworthy since the vast majority are found on rangelands (5,639 of the 6,358 acres of CARAs that intersects with agricultural lands) is found in rangelands (89%).

Intersections on agricultural lands: CARAs are found on less than 2% of Columbia County's agricultural lands. Combined with the CARAs on public lands, the CARAs represent slightly more than 2% of the total land area in the County. These CARAs are primarily associated with wellhead protection areas mapped for the public drinking water supply (Appendix A). Most are within Rangelands found close to municipal water supplies around Dayton. Data on CARAs was derived from the Washington Department of Health (2015).

3.1.4 Geologically Hazardous Areas (Erosion)

Characteristics and functions overview: This Work Plan addresses only a narrow focus of geologic hazards related to potential wind and water erosion areas. The importance of this pertains to maintaining agricultural viability by keeping productive soils in the fields used to produce crops, improving water quality and maintaining habitat. This is different than protecting inherent functions and values of other types of critical areas. Columbia County's Critical Areas Ordinance defines erosion hazard areas as those areas identified by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "moderate to severe", "severe" or "very severe" rill and inter-rill erosion hazard. These erosion potential areas, along with wind erosion hazards, are considered in this Work Plan for soil conservation and to reduce the risk of erosion effects on other functions such as surface water quality, water infiltration into soil to improve groundwater conditions and soil health. Most County soils are generally characterized as loess, which are highly erodible soils deposited by wind from the post glacial outwash of the Cascades. In the developed areas (outside of VSP), geologically hazardous areas can affect areas where con-structing structures may not be suitable due to landslide, earthquake or other geologic risks.

Intersections on agricultural lands: Water erosion potential areas are designated as erosion hazard areas within the County and are found on 98.8% of the County's total agricultural lands (Appendix A). 10% of these lands are within

moderate risk areas and 90% are within severe risk areas. It should be noted that there are no very severe risk lands within Columbia County. High wind erosion potential areas are only found on 7% of the County's agricultural lands. Although wind erosion potential areas are not officially designated as erosion hazardous areas in Columbia County's Critical Areas Ordinance, they are still considered within this Work Plan as they pertain to agricultural viability.
59% of water erosion areas are within dryland agricultural lands, 40% are found in rangelands. Soil health is a key contributor to agricultural viability in Columbia County. Data on wind and water erosion potential was derived from the Natural Resources Conservation Service (2014).

Geologically Hazardous Areas for Seismic and Landslide Hazards

Geologically hazardous areas for seismic and landslide hazards are of limited concern because these hazards traditionally are considered under GMA as areas to avoid for constructing buildings, bridges, roads, etc. In areas where there is risk, that the developer should include additional requirements to protect structures from earthquake, landslide or other geologic hazards. Under this Work Plan, structures in agricultural lands will continue to be permitted and regulated under Columbia County's Critical Areas Ordinance.

3.1.5 Frequently Flooded Areas

Characteristics and functions overview: Frequently Flooded Areas (FFAs) protect public health and safety by providing temporary flood water storage and conveyance. They also provide riparian habitat and other wildlife benefits and can improve water quality and hydrology (timing and magnitude of flows, and alluvial aquifer recharge), improve or degrade soil health based upon vegetative conditions and contribute to riparian habitat diversity. Flooding throughout the County is mainly caused by heavy rainfall combined with snowmelt over frozen ground (rain-on-snow) during winter or early spring months.

Intersections on agricultural lands: FFAs are found on only 2% of Columbia County's total aglands (Appendix A). FFAs typically overlap or are adjacent to wetlands and some FWHCA. 52% of frequently flooded areas are within rangelands. 31% are found in dryland agricultural lands. The majority of FFAs are found along the Touchet and Tucannon Rivers and their tributaries. Data on FFAs was derived from the Federal Emergency Management Agency.

3.2 Agricultural Viability Baseline Conditions

Agriculture is widely recognized as a pillar of the Washington State and Columbia County economies. The VSP law is explicit that critical areas are to be protected while "maintaining and improving the long-term viability of agriculture" (RCW 36.70A.700). Both objectives, critical areas protection and maintaining agricultural viability, have to be met in this Work Plan, as illustrated in the figure of the balance scale on page four.

Agricultural viability in Columbia County includes regional and individual farm elements. These are defined, respectively, as the region's ability to sustain agricultural production over time and an individual farm's ability to meet financial obligations and make a profit. The tables below identify agricultural viability concepts for the regional and individual farm perspectives within the County.

At the regional level, agricultural viability is the support system that helps individual farms to succeed. This system also helps to mitigate against potential threats as well as supporting local producers in their operations and their ability to take advantage of business opportunities.

Regional Elements	
Concept	**Detail**
Stable and secure agricultural land base	Land conversion
	Stable water rights
Infrastructure and services	Utilities and irrigation
	Market access and transportation
Support for best farm management services	Economically viable solutions
	Balanced approach
Education, training and succession planning	Apprenticeship and training
	Interconnectivity with end users
Welcoming business environment	Stable regulatory environment
	Partnership-based environmental protection
Solid marketing environment	New and expanding market opportunities
	Reliable marketing of goods and services

At the farm level, agricultural viability rests mostly on the productivity of the land and the ability of the operator to balance input costs with sales and market pressures. In Columbia County, one of the main farm-level agricultural viability concerns is land productivity. Land production capacity can be impacted by soil erosion and soil quality (moisture and nutrient management). Maintaining and enhancing land production capacity can be addressed through stewardship and land-management practices. Many of these stewardship strategies and practices also have the dual benefit of protecting and enhancing critical areas as well as enhancing land production capacity. Additionally, reduction of input costs (for example fuels and fertilizers) can also result from these practices and technology improvements can help enhance production capacity. The table below illustrates these concepts.

Farm Elements	
Concept	**Detail**
Reduce inputs	Energy (power and fuels)
	Chemicals
	Labor
Maintain or enhance land production capacity	Soil health
	Water systems and moisture management
	Nutrient management
	New technologies
Flexibility to respond to market conditions	Changing land in production
	Individual schedule for implementing stewardship strategies and practices
	Cropping choices
Incentives	Payment for measures
	Tax incentives or breaks
Managed farmland conversion	Maintain resource lands
	Change to non-ag only adjacent to Dayton
"No Surprises" regulatory environment	County permitting (when applicable)
	Clean Air Act, Clean Water Act, Endangered Species Act
Protect private property rights	Recognize and respect rights
Environment variation	Rainfall, temperature, etc. affects activities

The Work Group identified a number of issues which have the potential to impact agricultural viability in Columbia County. These are summarized in this table:

Strengths	Weaknesses
~ High quality ag products ~ Good services available locally ~Strong infrastructure ~Strong history of conservation practices ~ Dams, hydropower & windpower are major assets for this region for transportation & energy	~ Volatility of market prices of ag products ~ Most ag is dependent upon water from sky ~ Limited flexibility for type of crops that can be produced ~ Average age of farmer in County is 57 ~ Incentivising younger generation to farm
Opportunities	**Threats**
~ Education of local populace on value of ag economy ~ Hunting and wildlife management coexisting with agriculture ~Strong infrastructure ~ Promote recognition of local ag products ~ New markets and opportunities ~ Other crops like industrial hemp ~ Agri-tourism	~ Sale of agricultural lands to state agencies ~ Conversion of agricultural lands to other uses ~ Adjacent land uses affect/impact ag practices ~ State/federal/county regulations ~ Foreign agricultural producers ~ Detrimental changes in government policies ~ Degraded soil through water/wind erosion ~ If funding is cut for CRP, the impact upon finances and acreages would be harmful

Overall, the Columbia County VSP Work Plan has been designed to support and promote the regional and individual agricultural viability elements listed in this chapter. The program places emphasis on practices, flexibility, incentives and other opportunities mutually beneficial to agricultural viability and critical areas protections, supporting continued agricultural viability within the County. Agricultural viability is a component of conservation activities as described in Chapter 4 and in each of the goals provided in Chapter 5. Protecting and enhancing agricultural viability will continue to be a key performance measure that must be met during plan implementation.

Chapter Four: Protection & Enhancement Strategies

Agricultural producers are key to the stewardship and management of private lands and resources within Columbia County and Washington State. Agricultural producers are continually evaluating agricultural practices, applying new science and technology, and implementing stewardship strategies and practices which generally reduce agricultural impacts on critical areas and improve our natural resources. In addition, these practices maintain or increase the viability of the agricultural economy. In Columbia County, for generations, agricultural producers have adopted practices to address a variety of resource concerns, including practices to improve habitat, reduce soil erosion and improve soil and water quality.

This chapter introduces the connection between stewardship strategies and practices and critical areas functions and values. See the figure below. Additionally, this chapter discusses stewardship strategies and practices that have been implemented since 2011 (the baseline date), highlighting protections to critical areas and associated functions and values these practices are already providing.

VSP Crosswalk - Functions and Values Connection with Stewardship Practices

4.1 Examples of Stewardship Strategies & Practices that Protect Critical Areas

As discussed in Chapter 2, key critical areas functions include water quality, hydrology, soil health and habitat. Many stewardship strategies and practices have been developed within Columbia County that provide a wealth of benefits to these critical areas functions, while maintaining the viability of agriculture.

VSP Checklist
The VSP Checklist is a helpful tool to help assess how the VSP could support individual agricultural producers. It includes additional examples of stewardship strategies and practices that protect and enhance critical areas and promote agricultural viability.

Participation in Funded Programs
Federal, state and local government, and private-sector programs and opportunities are available to support producers in addressing agricultural and resource concerns. See Chapter 6 for additional resources and technical assistance available to agricultural producers on a voluntary basis. ***Participation in a government-funded program is not required to be a VSP participant.***

Table 4-1 summarizes some examples of practices that have been applied by agricultural producers in the County under NRCS programs. This table helps illustrate the types of practices that have been or can be implemented to protect critical areas functions. As noted in the table, these examples also address the promotion of agricultural viability. Additionally, a VSP Checklist has been developed for agricultural producers to determine how the VSP could support their farm operations by promoting agricultural viability while protecting critical area functions. See Appendix C for a more comprehensive "toolbox" of example practices that have been or could be implemented by agricultural producers in the County.

Columbia County has historically taken measures to protect critical areas. As shown in soil erosion potential maps, for example, large areas of the County potentially could experience wind or water erosion, but ag producers voluntarily have undertaken practices such as minimal till to minimize and protect that

critical area. Likewise, even when land is withdrawn from CRP, the protection of functions and values of impacted critical areas continues voluntarily.

Table 4-1

Example of Stewardship Strategies & Practices	Description	Critical Area Functions		Agricultural Viability
Residue and Tillage Management	Managing crop and plant residue and limiting soil disturbance (e.g. direct seed or reduced-till)	Water Quality	~ Reduces runoff and erosion ~ Reduces transport of nutrients and sediment	~ Soil quality & conservation ~ Weed mgt ~Yield & fertility
		Hydrology	~ Increases infiltration and decreases evapotranspiration to increase water availability to crops	
		Soil	~ Maintains & improves soil structure & increases cover to reduce wind and water erosion	
		Habitat	~ Provides food & cover for wildlife	
Integrated Pest Management	Managing pesticide use to minimize environmental impact	Water Quality	~ Pesticide choice to minimize impact on surface and groundwater	~ Soil quality & conservation ~ Weed mgt ~ Pollinator/ beneficial organisms
		Soil	~ Decreases wind and water erosion	
		Habitat	~ Reduces the bio-accumulation of pesticides on habitats	
Nutrient Management	Managing application of nutrients to minimize loss to runoff	Water Quality	~ Residual nutrients in surface and groundwater due to matching plant needs to the amount, timing and placement of nutrients	~ Soil quality & conservation
		Habitat	~ Optimizes health and vigor of desired plant species ~ Increases food and cover for wildlife	~ Yield & fertility ~ Weed mgt

4.2 Changes Since 2011 Baseline

Since 2011, agricultural producers have implemented practices that provide protections and enhancements to critical areas and promote agricultural viability through private projects and projects funded by government agencies. One of the key purposes of the VSP and this Work Plan is to leverage existing resources by relying on existing local work and plans, existing private-sector activities and government programs to achieve Work Plan goals (as per RCW 36.70A.700 (2).

The following sections summarize documented stewardship strategies and practices that have been implemented since 2011 which have protected and/or enhanced critical area functions and improved agricultural viability over baseline conditions.

These documented practices likely represent only a fraction of all the steward-ship strategies and practices that have been implemented since 2011. Many agricultural producers in Columbia County implement practices independent of government programs. Accounting for these improvements would require an extensive self-reporting and documentation processes that are not yet in place and are not economically feasible. Additionally, it should be acknowledged that during this same time, there are likely some practices which have been discontinued.

It is expected that stewardship strategies and practices, such as fencing and stock watering facilities, will see very little discontinuation due to their capital investment. Less than 3% per year of these types of practices are anticipated to be discontinued or removed each year. There are other stewardship strategies and practices (such as pest and nutrient management) where a slightly higher rate of discontinuation (6%) is anticipated. See Table 4-2 for the various estimated disenrollment rates that are anticipated. See Chapter 5.2 for a discussion on how these anticipated disenrollment rates are considered in establishing the Work Plan's protection and enhancement benchmarks.

Programs may see a higher reduction in enrollment with the expiration of long-term government contracts, such as the Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP), that temporarily enhance wildlife habitat. However, this will occur on agricultural lands historically cultivated and may not have been part of designated critical areas. Measures and systems are typically put in place when lands are returned to production to conserve resources and protect affected critical areas adjacent to lands no longer enrolled in CRP (see Chapter 4.2.3 for additional CRP information).

It should be noted that there also exist a number of actions that have been predominately undertaken by non-ag producers to provide significant protection and enhancement to certain critical areas. These actions include numerous projects coordinated by the Snake River Salmon Recovery Board in and along the waterways of Columbia County to improve critical habitat for salmon and other animals.

Table 4-2

Anticipated Range of Disenrollment or Discontinuation	Stewardship Strategies and Practices Category	Example Practices
None	**Easements & Infrastructure** ~ Permanent stewardship strategies and practices	~ Permanent easements ~ Major infrastructure
Lower 0-3%	**Conservation Investments** ~ High Barriers to Entry or Exit - Conservation easements - Maintenance cost - Effectiveness ~ Increases land productivity ~ Lowers costs	~ Irrigation management ~ Watering facilities ~ Fencing
Higher 0-6%	**Conservation Actions** ~ Low Barriers to Entry or Exit - Easily removed ~ Reduced land in production ~ Rotational use - Market-driven rotation ~ Reliance on unstable conservation funding or incentives (e.g. Conservation Reserve Program and CREP)	~ Tillage management ~ Pest management ~ Nutrient management ~ Habitat restoration ~ Managed grazing ~ Cover crop ~ Range planting

4.2.1 NRCS Conservation Practices

Conservation projects have been implemented over 14,000 acres in Columbia County since 2011 through NRCS-funded programs on agricultural lands. The top practices that have been implemented include projects that protect water quality, reduce soil erosion and enhance soil quality, such as nutrient and pest management, access control, livestock watering and cover crops. As summarized in Table 4-1 (above), these practices also promote agricultural viability.

Table 4-3 provides a summary of top NCRS practices implemented under the Environmental Quality Incentives Program (EQIP), Wildlife Habitat Improvement

Program (WHIP), and Agricultural Water Enhancement Program (AWEP) for number of projects and acreages.

VSP definitions determine whether a stewardship activity or project qualifies as a protection or an enhancement under the VSP. Under the VSP definitions "enhance…means to improve the processes, structure and functions existing as of July 22, 2011…" and "protect…means to prevent the degradation of functions and values existing as of July 22, 2011." Because most conservation practices or projects installed since 2011 were designed to improve functions, they should generally be counted as enhancements. See Chapter 5.2 for further discussion on how these practices implemented since 2011 are counted toward protection and enhancement benchmarks.

Table 4-3
Top NRCS Conservation Practices Implemented from 2011 to 2016

Conservation Practice	Area Impacted	Projects Implemented
Access Control (472)	5956 acres	4
Nutrient Management (590)	2524 acres	9
Integrated Pest Mgt (595)	2524 acres	9
Livestock Pipeline (516)	1450 linear feet	1
Tree/Shrub Establishment (612)	309 acres	16
Cover Crop (340)	300 acres	6
Conservation Crop Rotation (328)	200 acres	1
Irrigation Water Mgt (449)	180 acre	2

Note: The information in the above table does not include private operations or self-funded conservation practices.

Table 4-4 summarizes enhancement projects implemented under NRCS's Conservation Stewardship Program (CSP), which provides additional incentives for producers to enhance existing practices by providing funding to actively manage, maintain, and expand existing conservation practices. Since 2011, CSP practices have been applied to over 37,000 acres in Columbia County. These practices have been in the areas of pest- and grazing- and nutrient-management, enhancing efforts to protect water quality, soil health and habitat. Stewardship enhancements under CSP can be reviewed during implementation

to assess the level of enhancements that could be counted toward the Work Plan's goals and benchmarks.

Table 4-4
NRCS Practices Implemented under CSP from 2011 to 2016

CSP Conservation Practice	Critical Area Functions	Area Impacted	Projects Implemented
Pest Management	~ Soil quality & conservation ~ Weed mgt	20375 acres	11
Nutrient Management	~ Yield & fertility ~ Weed mgt ~ Soil quality & conservation	14130 acres	4
Integrated Pest Mgt	~ Pollinator and beneficial organisms	2379 acres	1
Livestock Pipeline	~ Soil quality & conservation	523 linear feet	3
Tree/Shrub Establishment	~ Soil quality & conservation	13 acres	2

Note: The information in the above table does not include private operations or self-funded conservation practices.

4.2.2 Conservation District-Led Projects

Numerous other projects have also been implemented through the local conservation district (CD) and are often funded directly by the CD or through programs administered by other agencies like Bonneville Power Administration, Washington State Conservation Commission, Salmon Recovery Funding Board/Recreation Conservation Office, United States Department of Agriculture, Department of Ecology, and the Confederated Tribes of the Umatilla Indian Reservation. Major stewardship strategies and practices implemented by the CD include Fencing (#382), Riparian Forest Buffer (#391 which is primarily accounted for in CREP acres), and Stream Habitat Improvement and Management (#395). Other practices are implemented by the CD that are similar with the NRCS tables above.

The District can provide a mechanism to seek funding and supply technical assistance for designing and implementing Best Management Practices (BMPs), BMPs are the same as NRCS practices. NRCS practice #395 – Stream Habitat Improvement and Management is a common BMP installed through the District

because funding sources are eager to put money towards ESA listed species and their habitats. Columbia County has multiple ESA listed/focal species within its boundaries.

Table 4-5 below summarizes those projects. These projects provide further protection and enhancement of critical area functions and values.

Table 4-5
Conservation Practices Implemented by the Local CD from 2011 to 2016

CCD Conservation Practice	Area Impacted	# of Contracts
Stream Habitat Improvement and Management (#395)	8.39 miles (44,299 feet)	6
Fencing (#382)	3.17 miles (16,737 feet)	3
Riparian Forest Buffer (#391)	40.84 acres	2

Note: The information in the above table does not include private operations or self-funded conservation practices.

In addition to the above, there are other efforts which have been implemented that are effective stewardship strategies and practices. The strategies and practices have been implemented by various entities in accordance with the CCD Long-Range Plan, Sub-basin Plans, Tucannon Conceptual Restoration Plan, Integrated Species Plan, Snake River Salmon Recovery Plan, and WRIA 32 & 35 Watershed Plans. Other strategies have been implemented on the producer's own justification to improve ag viability while protecting the natural resources present. For example, producers coming out of the CRP program, have left grass or filter strips in areas where erosion potential is more prevalent than others.

4.2.3 Conservation Reserve Program

Congress created the Conservation Reserve Program(CRP) in the 1985 Farm Bill to address concerns over soil erosion and as a cropland retirement mechanism to help a struggling farm economy due to the large surplus of certain commodity crops. The CRP is managed by the Farm Service Agency (FSA) and is a federally-funded program that pays a annual rental amount in exchange for producers removing cropland from agricultural production and establishing native

plant species. Acres enrolled in CRP vary from year to year, depending upon the availability of federal funding. The enrolled amount in Columbia County reported by FSA for 2011 was 50,014 acres. That amount has declined to 34,201 acres in 2016. (This latter figure also includes CREP acreage).

When the CRP program was introduced, many Columbia County producers welcomed it as a stewardship tool for selected areas in their farm management plan. In addition, there was a significant acreage of Columbia County crop land in the lower rainfall areas of the county that was enrolled due to additional incentives. The first was an economic incentive in that the annual payment rate was uniform across the county on a per-acre basis, not on a historic yield potential. Hence, zones with limited annual moisture (below 15 inches annually} had a higher enrollment rate because the potential net income from payments exceeded any anticipated net from cropping, even in years having above average crop yield or price. The second factor was that the demographic composition of the active producers in this lower rainfall zone had a significant percentage approaching retirement age. Enrollment criteria could easily be met on a whole-farm basis giving a transition to continued good resource stewardship with a stable retirement income insured.

Although it is recognized that properly functioning CRP lands do provide improved habitat for certain game species they do not become a wildlife critical area. These CRP lands are federally classified as agricultural lands and per the Shoreline Management Act (RCW 90.58.065) “allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state or federal conservation program”. For the 2011 baseline condition, this land was accounted for as agricultural land with temporary habitat enhancements benefits, not as a critical area that would need to be protected or offset by other stewardship strategies and practices to meet protection benchmarks. CRP will be accounted for as a reported value in the enhancement category for each year CRP acreage is enrolled.

Columbia County producers that have returned CRP acreage to crop production have done this with good resource stewardship. With encouragement from the Columbia Conservation District, the WSU Agronomy Department jointly with WSU Extension conducted field trials in the early 90’s and developed protocol for return of the land to cropping using direct seeding or other low disturbance practice. These systems have been utilized in most of the acreage that has not been continued in the program and returned to crop production. Additionally, acreages within fields that classifies as highly sensitive are nearly always left in permanent cover.

Agricultural viability can be affected by CRP in that it reduces the amount of land in agricultural production impacting the economic viability of local businesses which support agricultural supply distribution.

Federal funding for land retirement programs (like CRP) has been decreasing in recent years, while spending on performance-based programs like the CSP, EQIP and the Conservation Reserve Enhancement Program (CREP) has increased.

Accordingly, CRP lands with temporary habitat improvements have been determined through the VSP process to not be designated as critical areas in Columbia County. Habitat benefits from CRP lands are included in VSP as enhancements and the level of CRP-base enhancement varies based upon the public funding available and how this translates into acres enrolled in the program in a given year. For the 2011 baseline condition, this land was accounted for as agricultural land with temporary habitat enhancements benefits, not as a critical area that would need to be protected or offset by other stewardship strategies and practices to meet protection benchmarks. CRP will be accounted for in the enhancement benchmark as a reported value for each year that CRP acreage is enrolled, on a county basis.

Producers with expiring CRP contracts are encouraged to renew or transition into higher priority practices (e.g., direct seeding, CSP, field-edge filter strips, wetland restoration) while maintaining agricultural viability through self-funded efforts, or through public partnership programs, as applicable. Agricultural viability can be affected by CRP when it reduces the amount of land in agricultural production and the economic viability of local businesses which support agricultural viability.

4.2.4 Other Programs

Additional programs, entities and agencies that support farmers in implementing stewardship strategies and practices are further described in Chapter 6.4. Technical assistance is available from the Columbia County Cattlemen's Association, the Columbia County Farm Bureau, the Washington Association of Wheat Growers and the Washington State University Extension Service. Additional technical assistance and stewardship programs and incentives are also provided through Washington State Department of Ecology, Washington State Department of Fish and Wildlife and the Washington State Conservation Commission and through private lands programs such as the Farmed Smart Partnership and Aquatic Land Enhancement Account.

Snake River Salmon Recovery Board

One of the programs which has implemented numerous projects in and along the waterways of Columbia County is the Snake River Salmon Recovery Board (SRSRB). The SRSRB is located in Southeast Washington and was first convened in 2002 for the purpose of developing a locally supported, technically sound plan to recover salmon that has been adopted by the State of Washington and Federal Government. The SRSRB is represented by each of the five counties in Southeast Washington and the Confederated Tribes of the Umatilla Indian Reservation. The SRSRB has met monthly for the last 10 years to advise, recommend, and approve funding for habitat projects, monitoring programs and administrative functions necessary to implement the salmon recovery plan. As context and guiding principles for the work the SRSRB conducts the following information is provided.

The Federal Government is required by law to develop plans to recover plants and animals when they become endangered with the risk of extinction. The act is known as the Endangered Species Act (ESA). Salmon and steelhead in the Columbia Basin, which includes the Snake River, were determined to be at risk of extinction in the 1990's following one hundred years of declining numbers to the Columbia River.

The reason the number of salmon and steelhead declined over the last century is due to many factors. Over fishing from the late 1800's to 2000 (over harvest is not a significant factor since 2000), habitat loss, hydropower, and over use of hatcheries are factors that humans are responsible for but there are also ocean conditions, droughts, diseases and predation by other animals that must also be considered. Combined, these factors proved to be too much for wild salmon and steelhead, causing decline in their numbers from as many as 18 million to less than 1 million over the last century.

Recovering salmon and steelhead requires a balance. The SRSRB seeks to balance the needs of fishermen, habitat (property) owners, and hydropower in a way that supports the recovery of our salmon and steelhead. The SRSRB uses hatcheries as a way to provide fishing opportunities and as a way to conserve our salmon and steelhead populations when needed. The SRSRB improves survival of salmon and steelhead at our dams in a way that allows for the continued generation of hydropower and navigation. The SRSRB works with landowners to restore and protect habitat on their property. And, the SRSRB manage fisheries in a way to protect wild fish and to harvest hatchery produced fish.

Today, the SRSRB we have a plan to recover these fish that reflects a balance between the needs of the salmon and the needs of people. This plan is unique in that it was develop and approved by local cities, counties, landowners, not by the state and federal agencies. State and federal agencies provided the information

and were great partners but they did not write the plan. This is important because while the ESA requires the Federal Government to develop recovery plans, the Federal Government does not have the local knowledge and ability to commit implementation of the actions (projects, programs and policies) needed to achieve recovery.

With the completion of the 2005 Snake River Salmon Recovery Plan for SE Washington, habitat factors limiting each population were identified leading restoration objectives. In the 2005 restoration plan, habitat factors most limiting salmonid populations regionally included; barriers, unscreened diversions, low/dewatered streams, high stream temperature, lack of stream channel complexity, fine sediments, absent or degraded riparian cover and stream channel confinement.

Since initiation of restoration implementation, great strides have been made in removing fish passage barriers, unscreened irrigation diversions, minimizing fine sediments and planting riparian buffers (see Table 4-6 below). The removal of barriers has opened greater than 229 miles of habitat and improved access to even more, and the placement of screens has reduced mortality on juvenile salmonids. The conversion from conventional agricultural tillage practices to ones which minimize tillage and increase ground cover have greatly reduce the loss of soil from uplands, improving spawning and rearing habitat. The planting of hundreds of miles of riparian buffers has had a synergistic effect of further reducing fine sediment, shading the stream channel reducing temperature and providing large wood debris increasing channel complexity.

Table 4-6: Habitat restoration metric completed by the project sponsors between 1999 and 2012 in the Snake River Salmon Recovery Region. Note that these projects include public lands.

Limiting Factor Addressed	Number	Unit of Measure
Fish Passage Barriers Removed or Modified	52	Number
Irrigation Diversions Properly Screened	526	Number
In-stream Flow Increased Through Efficiency and Leases	81.8	Cubic Feet/Sec
Channel Complexity (Meeting 1 key piece per bank width)	13.49	Miles
Upland Agriculture Best Management Practices Reduce Erosion	121,730	Acres
Riparian Habitat Restored	262	River Miles
Stream Channel Confinement Reduced	7.26	River Miles

Blue Mountain Land Trust

The Blue Mountain Land Trust is committed to partnering with landowners to voluntarily preserve the natural, scenic, and agricultural value of privately-owned land for future generations. Throughout the Blue Mountain region they have conserved roughly 4,000 acres of productive river bottoms, prime agricultural lands, and critical wildlife corridors. In Columbia County, the Blue Mountain Land Trust is the "go-to" organization for conservation easements. A specific example that has been implemented within Columbia County involves a conservation easement along the Touchet River. Larry and Barbara Fairchild chose their 100-acre site on the Touchet River because of its natural beauty. The largely-untouched forest along the river provides habitat for an abundance of wildlife, and the river contains critical spawning habitat for salmon and steelhead.

Because they had been drawn to the land's natural setting, the Fairchilds wanted to enhance that aspect of their property. For several years, Larry and Barbara worked with the Columbia Conservation District to restore salmon habitat on their property, planting willows along the banks and restoring pools in the stream channel. On the advice of the Conservation District, they also contacted the Blue Mountain Land Trust to learn more about preserving this valuable habitat.

After consulting with Blue Mountain Land Trust staff, Larry and Barbara chose to pursue a conservation easement that would extinguish all development rights outside the existing home site, permanently protecting the unspoiled natural areas on the property and the restoration work the Fairchilds had completed.

The Fairchilds sold this conservation easement to BMLT for the full value of the unused development rights. Because of the property's high-quality fish habitat, the Snake River Salmon Recovery Board funded this purchase.

Timber Management Plans

In Columbia County, a number of private landowners have chosen to participate in the state Timber Land and Designated Forest Land classification. To enroll in this program, the landowner must have a minimum of twenty contiguous acres, must develop a Timber Management Plan and comply with other requirements. The benefit towards the protection of critical area function and values comes through the wise stewardship of the forest lands. Especially important is the protection of streamside habitat and the provision for wildlife habitat.
Watershed Resource Inventory Area (WRIA)

Within Columbia County there are portions of three WRIAs. Each WRIA has a Watershed Plan which was approved by the WRIA Watershed Planning Unit and then adopted by the Columbia County Board of Commissioners. Working in concert with local landowners involved in forestry, agriculture, cattle, and range practices as well as citizens and local, state, federal and tribal governments enabled us to discuss complex resource issues and come to consensus on

important issues throughout the WRIA. The Planning Units efforts were guided by the following mission statement:

> *"Treat water as a valuable resource through the development and implementation of a watershed plan consistent with RCW 90.82 for the beneficial management of water resources to balance the present and future needs of local rural and urban communities, agriculture and other industries, fish and wildlife, and tribal communities and treaty rights."*

The WRIA Plans contain obligations and recommendations that provide solutions and strategies for short-term and long-term water resource management within the WRIA. The Plans are an informed, up-to-date effort to balance water supply and demand and to provide a cooperative grass roots process for local and state agencies to continue to work together with local citizens to manage the water resources within the respective WRIAs. Crucial components of the Plans include:

- Setting Minimum In-stream Flows for the creeks and rivers;
- Monitoring stream flows, assessing in-stream habitat, and conducting ground water studies for future instream flow and groundwater management recommendations;
- Managing water resources by balancing the in-stream and out-of-stream needs within the WRIA.

Specific projects and plans relating to Columbia County can be found at http://asotinpud.org/watershed-planning-documents/

Chapter Five: Goals, Benchmarks & Adaptive Management

5.1 Goals

The VSP law requires Work Plans to include measurable benchmarks for the protection and enhancement of critical areas functions and values, along with goals for participation by agricultural producers (RCW 36.70A.720 (1)(c)).

The figure below illustrates these steps on the VSP Crosswalk.

VSP Crosswalk - Stewardship Practices Connection with Goals and Benchmarks

Protection and enhancement goals were developed consistent with the functions and values provided by each critical area per RCW 36.70A.720. Each critical area includes a protection goal for maintaining the conditions that existed in 2011, along with an enhancement goal to improve onditions from the 2011 baseline. Each goal is summarized and accompanied by specific objectives for applicable critical area functions that would be protected or enhanced and key conservation practices. For each protection goal, participation benchmarks are identified and are designed to provide quantifiable measures that will ensure protection of the County's critical area functions and values is being achieved, as discussed in Section 4.4.3. VSP requires Work Plans to include measurable benchmarks for the protection and enhancement of critical area functions and values, along with goals for participation by agricultural operators (RCW 36.70A.720 (1)(c)) to meet these benchmarks. This is required to continue the voluntary, non-regulatory approach under VSP. Note that meeting enhancement goals is encouraged, but not required, to continue the voluntary, non-regulatory program under VSP for protecting critical areas. Work Plans are also required to incorporate applicable data and plans into development of Work Plan goals and benchmarks (RCW 36.70A.720 (1)(a)).

This chapter identifies the following elements in support of RCW 36.70A.720 (1) (a) and (c); and Chapter 5.2 includes measurable benchmarks:

- **Goals**: Participation goals are defined for protection and enhancement of Columbia County's critical areas and key functions.
- **Agricultural viability**: The ancillary benefits to agricultural production, profitability and sustainability are noted for each goals, as well as when financial assistance may be necessary to offset costs associated with implementing stewardship strategies and practices, including the purchase of associated equipment and other costs.
- **Objectives**: Objectives are identified for each goal to help define specific applications that advance each goal. To accomplish these objectives, agricultural producers can implement the stewardship strategies and practices that are applicable to their land, agriculturally viable and protect and/or enhance the critical areas functions.
- **Key stewardship strategies and practices:** Example stewardship strategies and practices are tied to each objective; however, it is acknowledged that other practices, including those administered outside of established government programs, can also help meet the objectives. Additionally, it is understood that new practices may emerge and existing practices may be phased out during implementation of this Work Plan. Selection of example stewardship strategies and practices for each objective are based upon practices commonly utilized in Columbia County.
- **Existing plans**: Existing plans are also referenced, where applicable, to identified goals. See Appendix B-2 and Appendix D for additional discussion on review of applicable data and plans as a part of the process for establishing measurable benchmarks and associated indicators.

WRIA Watershed Plans and Assessments
The WRIA 35 watershed plans and assessments provide management recommendations for improving habitat, in-water flows, and aiding salmon recovery within the watershed. Included in these documents are recommendations and considerations for engaging landowners through conservation programs and habitat restoration efforts. These plans were used to assess existing conditions and inform management objectives described in Section 4.

Snake River Salmon Recovery Board and Snake River Salmon Recovery Plans
The Snake River salmon recovery plans provide a framework for restoring habitat and protecting floodplain and riparian functions within the Snake River basin.

Southeast Washington Coalition Shoreline Master Program Plan
The SMP Restoration Plan describes regional conditions within the Southeast Washington counties, including planning area characteristics and existing land cover and land use. Similar to VSP, the plan uses existing restoration planning, programs, and regional partners to assist with implementation. Additionally, the plan provides priority restoration and enhancement opportunities, in addition to mitigation measures, to obtain no net loss of ecological function within the coalition area.

5.1.1 Regulatory Context

VSP legislation and this VSP work plan cannot "limit the authority of a state agency, local government, or landowner to carry out its obligations under any other federal, state, or local law" (RCW 36.70A.702(5)). This means that agricultural operators are still subject to the regulations of other applicable federal, state, and local laws. In fact, it is the stated intent of VSP to "improve compliance with other laws designed to protect water quality and fish habitat" (RCW 36.70A.700(f)). To accomplish this the Columbia County VSP work group may, "request a state or federal agency to focus existing enforcement authority in that participating watershed, if the action will facilitate progress toward achieving work plan protection goals and benchmarks," once the work plan is approved (RCW 36.70A.720(3)). However, "nothing in RCW 36.70A.700 through 36.70A.760 may be construed to grant counties or state agencies additional authority to regulate critical areas on lands used for agricultural activities" (RCW 36.70A.702(4)). Further, this work plan may, "Incorporate into the work plan any existing development regulations relied upon to achieve the goals and benchmarks for protection" (RCW 36.70A.720(1)(h).

The Columbia County VSP work plan does not rely on any existing development regulations to achieve critical area protection in areas where they intersect with agricultural activities. Additionally, the work group does not anticipate requesting a state or federal agency to focus existing enforcement authority in a participating watershed. However, this work plan, and the work group, expect compliance with all other environmental regulations, and acknowledge that other federal, state and local laws help to achieve protection of critical areas in Columbia County.

Table 5-1
Federal Regulations that Apply to Agriculture

Regulations	Agency	Description	VSP Intersect
Agricultural Bill (Farm Bill)	U.S. Dept. of Agriculture	The Farm Bill, reauthorized in 2014, eliminates direct payments and continues crop insurance	The Farm Bill includes the "swampbuster" conservation policy prohibiting land owners from converting wetlands to cropland. The "sodbuster" provision requires participating parties to maintain a specified level of conservation.
Clean Water Act (CWA)	U.S. Environmental Protection Agency; regulated locally by Washington State Dept of Ecology	The CWA regulates discharges of pollutants into waters of the United States, including discharges of dredge or fill material in wetlands. CWA exemptions for agriculture are designed consistent with and supporting existing Dept of Agriculture programs.	Compliance with the CWA maintains or enhances water quality, which in turn benefits critical areas, including wetlands and fish and wildlife habitat conservation areas.
Safe Drinking Water Act (SDWA)		The SDWA protects public drinking water supplies in the U.S., including sole-source aquifers. The USEPA provides technical and financial resources under the Clean Water State Revolving Fund for improving water quality, protecting drinking water sources and controlling nonpoint source pollution.	The SDWA is designed to protect critical aquifer recharge areas, an important source for drinking water that is vulnerable to contamination.
National Pollution Discharge Elimination System (NPDES)		NPDES is promulgated under the CWA to regulate discharges to waters of the US from animal feeding operations.	Regulated discharges to waters of the US helps to protect water quality in critical areas, including wetlands and fish and wildlife habitat conservation areas.

Federal, state, and local laws relevant to this section include but are not limited to:

- Clean Air Act of 1956, as amended (42 U.S.C. §7401 et seq.)
- Agricultural Act of 2014 (H.R.2642) (as well as future “Farm Bills”)
- Federal Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq)
- Federal Insecticide, Fungicide, and Rodenticide Act of 1947, as amended (P.L. 80-104)
- Federal Land Policy and Management Act of 1976, as amended (P.L. 94-579)
- Federal Noxious Weed Act, as amended (P.L. 93-629; 7 U.S.C. 2801 et seq.)
- Federal Water Pollution Control Act of 1948, as amended (33 U.S.C. §1251-1376)
- Food Quality Protection Act of 1996, as amended (P.L. 104-170)
- National Environmental Policy Act of 1969, as amended (P.L. 91-190)
- National Historic Preservation Act of 1966 (P.L. 89-665), as amended (16 U.S.C. 470 et seq.)
- Washington State Endangered, Threatened, and Sensitive Species (WAC Chapters 232-12-014 and 232-12-011)
- Washington Hydraulic Code (WAC Chapter 77.55)
- Washington State Clean Air Act (RCW Chapter 70.94)
- Washington State Environmental Policy Act (RCW Chapter 43.21C)
- Washington Water Law (RCW Chapter 90)
- American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act (Secretarial Order 3206)
- Washington State Regulatory Fairness Act (RCW Chapter 19.85)
- Columbia County Critical Area Ordinance (as applicable)
- Southeast Washington Coalition Shoreline Master Program Plan

This graphic displays the relationship between goals, objectives and measurable benchmarks.

The case for participation benchmarks. In developing this VSP Work Plan, the Work Group discussed two different options for setting benchmarks for critical area protection and enhancement: 1) directly monitor ecological parameters that measure a critical area's functions and values; and 2) measure the county-wide participation levels of conservation activities that protect and enhance critical area functions and values. The work group chose to use the second option for the following reasons:

- It is the best way to directly measure agriculture's contribution to critical area protection and enhancement. Ecological parameters can change for a wide variety of reasons completely outside the control of local agriculture. Columbia County producers do not want to be held accountable for things completely outside of their control.
- Columbia County producers have a long history of implementing conservation activities and are committed to continuing to implement them.

- Measurable trends in ecological parameters may take years to decades to become detectable, which does not line up well with the reporting cycle of VSP.

The work group does recognize the importance of directly monitoring ecological parameters. Ecological parameters will be used as indicators of critical area protection and enhancement and are discussed in further detail in 5.3.

Table 5-2
Protection and Enhancement Goals

Overarching Critical Areas Goal, Benchmark, and Measurement - Priority	
Critical Area Protection	
Goal-I.	In areas of critical area intersect with agricultural activities, and at the watershed level: prevent the degradation of critical area functions and values, due to agricultural activities, existing as of July 22, 2011 including:  • Geologically hazardous areas • Fish and wildlife habitat conservation areas (e.g., streams, wildlife corridors, etc.) • Wetlands • Frequently flooded areas • Critical aquifer recharge areas
Benchmark-A.	In areas of critical area intersect with agricultural activities, and at the watershed level: protect critical area functions and values through voluntary measures in areas of intersection with agricultural activities across watersheds.

Disclaimer: For Columbia County's Work Plan, the potential failure of certain indicators to meet the benchmarks shall not be dependent upon factors that are completely outside the control of the County and the agricultural producers therein. These can include, but are not limited to, ecological factors (weather), natural disasters (forest fires, landslides) or economic factors (world market prices, funding of the Farm Bill).

Geologic Hazard Areas: areas susceptible to erosion, sliding, earthquake, or other geologic events, where development is not suitable due to public health or safety concerns.

Purpose - Agriculture and Geologic Hazard Areas

1. Avoid and minimize impacts of erosion and landslide hazards on stream quality, important fish and wildlife habitats and protect areas designated from degradation by upland agriculture uses.
2. Avoid and minimize damage to agricultural activities due to erosion, landslides or other naturally occuring geologic events.

Geologic Hazard Areas Benchmark

1. At each five-year benchmark reporting period, baseline conditions of geologically hazardous areas are protected on lands used for agricultural activities in each watershed.
2. At each five-year benchmark reporting period, enhancements of baseline conditions of geologically hazardous areas are promoted and accounted for on lands used for agricultural activities in each watershed.

Geologic Hazard Areas Measurable Objectives

Promote and monitor practices that:

1. Maintain or reduce erosion and sediment loads. Focus efforts in watersheds with water quality impairments and TMDL allocations for sediment.
2. Stabilize steep slopes.
3. Manage risk of landslides.
4. Avoid compaction of soil.
5. Avoid disturbing top and toe of steep slopes.
6. Avoid irrigating unstable slopes.

Geologic Hazard Areas Measurements and Monitoring

1. Type, number and extent of conservation practices retained or implemented for meeting the geologic hazard area objectives stated above.
2. Number of agricultural operators and acreage or percent of acreage meeting conservation compliance certification (AD-1026) requirements for steep slopes and highly erodible lands in order to qualify for Farm Bill incentives.

Fish & Wildlife Habitat Conservation Areas: areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. Includes:

- Rare or vulnerable ecological systems, communities and habitat elements including seasonal ranges, breeding habitat, winter range and movement corridors
- Areas with high relative population density or species richness
- Habitats and species of local importance

Purpose - Agriculture and Fish & Wildlife Habitat Conservation Areas

1. Preserve habitat adequate to support viable populations of native fish and wildlife, protect the functions and values of priority and locally important habitat and provide for connectivity among habitats.
2. Encourage voluntary and non-regulatory methods of habitat retention and enhancement through education, incentives and other programs.

Fish & Wildlife Habitat Conservation Areas Benchmarks

1. At each five-year benchmark reporting period, baseline conditions of fish and wildlife habitat conservation areas are protected on lands used for agricultural activities in each watershed.
2. At each five-year benchmark reporting period, enhancements of baseline conditions of fish and wildlife habitat conservation areas are promoted and accounted for on lands used for agricultural activities in each watershed.

Fish & Wildlife Habitat Conservation Areas Measurable Objectives

Promote and monitor practices that:

1. Maintain or increase stream miles or total area of riparian areas with native vegetation.
2. Replace culverts and other salmon passage barriers on private agricultural lands and expand salmonid access to high priority habitat.
3. Maintain or increase acreage or percent of acreage of functional habitat for locally important, priority and rare species, including suitable native plant communities, in areas with agricultural activities.

Fish & Wildlife Habitat Conservation Areas Measurements and Monitoring

1. Type, number and extent of conservation practices retained or implemented for reducing erosion and sediment loads to fish and wildlife habitat conservation areas.
2. Type, number and extent of conservation practices retained or implemented to protect fish and wildlife habitat and meet the above objectives.

Fish & Wildlife Habitat Conservation Areas Measurements and Monitoring (continued)

3. Type, number and extent of conservation practices retained or implemented to enhance fish and wildlife habitat and meet the above objectives.
4. Quality and function (e.g. effective shade) of riparian areas in relation to acreage or percent of acreage and/or stream miles and average width on lands used for agricultural activites.
5. Acreage of rare habitat types and important, priority and rare species habitats on lands used for agricultural activities (verified on-site).
6. Number of culverts replaced and stream miles opened on lands used for agricultural activities.
7. Number of irrigation intakes screens installed and implemented.

Wetlands: critical areas that are inundated or saturated by surface water or groundwater supporting a prevalence of vegetation adapted for life in saturated soil conditions. Includes:
- Swamps, marshes, bogs and similart areas

Does not include:
- Artificial wetlands intentionally created from non-wetland sites (i.e. irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds and landscape amenities) unless permitted for wetland mitigation.

Purpose - Agriculture and Wetlands

1. Achieve no net loss of wetlands (maintain aggregate baseline conditions) on lands used for agricultural activities in each watershed, avoid and minimize adverse impacts, and increase the quality and functions of wetlands through voluntary measures.
2. Ensure that agricultural activities in wetlands and riparian areas are implemented in a way that will avoid and minimize potential impacts.

Wetlands Benchmarks

1. At each five-year benchmark reporting period, baseline conditions of wetlands are protected on lands used for agricultural activities in each watershed.
2. At each five-year benchmark reporting period, enhancements of baseline conditions of wetlands are promoted and accounted for on lands used for agricultural activities in each watershed.

Wetlands Measurable Objectives

Promote and monitor practices that:

1. Maintain (no net loss) extent of baseline wetland functions and values on lands used for agricultural activities in each watershed.
2. Avoid unmitigated alterations to wetlands.
3. Maintain or increase suitable native plant communities in wetlands and associated riparian protection areas.
4. Implement conservation practices for wetland management, creation or enhancement.

Wetlands Measurements and Monitoring

1. Type, number and extent of conservation practices retained or implemented for reducing erosion and sediment loads to wetlands.
2. Type, number and extent of conservation practices retained or implemented to protect wetlands and associated riparian protection area functions and values (measured using NRCS or equivalent monitoring tools and standards tailored to reflect VSP purposes and definitions).
3. Type, number and extent of conservation practices retained or implemented that enhance wetlands and associated riparian protection area functions and values.
4. Acreage of suitable native plant communities in wetlands and associated riparian protection areas.
5. Extent and rating of wetlands present on participating lands used for agricultural purposes.
6. Number of agriculture operators and/or acreage or percent of acreage meeting wetland conservation compliance certification (AD-1026) requirements for Farm Bill incentive eligibility.

Frequently Flooded Areas: critcal areas in the flood plain subject to at least a one percent or greater chance of flooding in any given year or areas within the highest known recorded flood elevation, or within areas subject to flooding due to high ground-water. Includes:

- Special flood hazard areas such as streams, rivers, lakes, coastal areas, wetlands and areas where high groundwater forms ponds on the ground surface.
- All areas within unincorporated Columbia County identified on flood insurance rate maps prepared by the Federal Insurance Administration.

Purpose - Agriculture and Frequently Flooded Areas

1. Preserve natural flood control, stormwater storage and drainage, and maintain the linkages of teh stream to its floodplain, including flood channels or high-flow channels.
2. Minimize flood damage to agricultural properties and operations..

Frequently Flooded Areas Benchmarks

1. At each five-year benchmark reporting period, baseline conditions of frequently flooded areas are protected on lands used for agricultural activities in each watershed.
2. At each five-year benchmark reporting period, enhancements of baseline conditions of frequently flooded areas are promoted and accounted for on lands used for agricultural activities in each watershed.

Frequently Flooded Areas Measurable Objectives

Promote and monitor practices that:

1. Maintain or reduce impervious surfaces.
2. Avoid permanent unmitigated alterations to floodplain areas that increase net floodwater displacement in the watershed.
3. Maintain and/or enhance floodplain area functions and connectivity of streams to their floodplains.

Frequently Flooded Areas Measurements and Monitoring

1. Type, number and extent of conservation practices retained or implemented for reducing erosion and sediment loads to frequently flooded areas.
2. Type, number and extent of conservation practices retained or implemented that protect flood storage capacity, drainage and connectivity.
3. Acres of impervious surface on lands used for agricultural activities in each watershed.

Critical Aquifer Recharge Areas: critcal areas with a critical recharging effect on aquifers used for potable water including areas where an aquifer that is a source of drinking water is vulnerable to contmination that would affect the potability of the water or is susceptible to reduced recharge.

Purpose - Agriculture and Critical Aquifer Recharge Areas

1. Maintain groundwater recharge and prevent the degradation of ground-water resources. Maintain the delicate balance between surface water and groundwater in order to preserve essential biological, physical and geochemical functions.
2. Protect vital groundwater resources that serve as the primary water source for agricultural activities and balance competing needs for water while preserving natural functions and processes.

Critical Aquifer Recharge Areas Benchmarks

1. At each five-year benchmark reporting period, baseline conditions of critical aquifer recharge areas are protected on lands used for agricultural activities in each watershed.
2. At each five-year benchmark reporting period, enhancements of baseline conditions of critical aquifer recharge areas are promoted and accounted for on lands used for agricultural activities in each watershed.

Critical Aquifer Recharge Areas Measurable Objectives

Promote and monitor practices that:

1. Avoid or minimize the risks of groundwater contamination from agricultural activities, consistent with county and state water quality standards..
2. Maintain or improve groundwater recharge and ensure sufficient infiltration of water at the land's surface to sustain aquifers, maintain base flows in fish-bearing streams, and maintain wetland water levels.

Critical Aquifer Recharge Areas Measurements and Monitoring

1. Type, number and extent of conservation practices retained or implemented for groundwater protection and to maintain recharge functions.
2. Type, number and extent of conservation practices retained or implemented to enhance groundwater quality and aquifer recharge functions.

5.2 Methods

5.2.1 Methods

This chapter identifies the measurable benchmarks required by RCW 36.70A.720 (1)(e) for (1) protection of critical areas functions and values and (2) enhancement of critical areas functions and values through voluntary, incentive-based measures. Protection and enhancement benchmarks are based upon agricultural producer participation in key stewardship strategies and practices that further the Work Plan's goals as identified in Chapter 5.1.

Benchmarks are measured by tracking new implementations and continuation of various stewardship strategies and practices on agricultural lands. Over time, the implementation of these stewardship strategies and practices will be used to demonstrate that the VSP is meeting the protection goals and determine whether or not the VSP is achieving the protection and enhancement goals and benchmarks. See Appendix C for initial results based upon 2011 to 2016 participation data in key stewardship strategies and practices.

The Work Plan includes two measurable benchmarks:

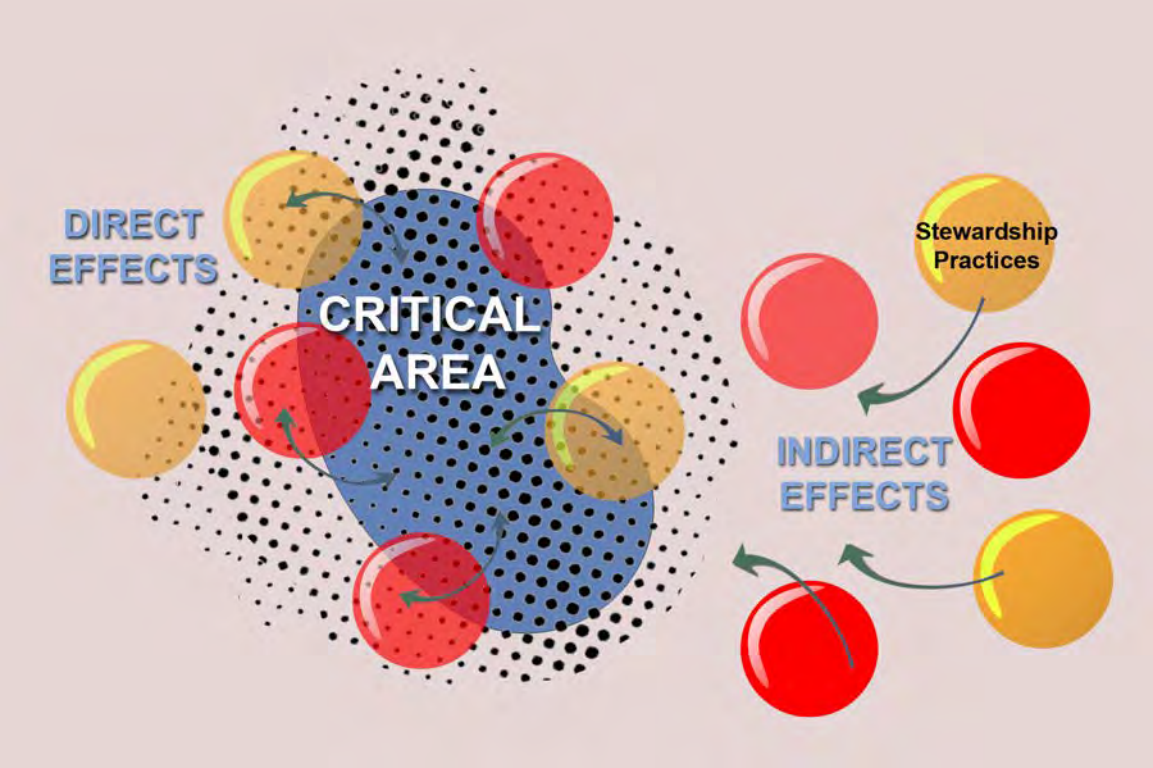
- **Protection Benchmarks** (preventing the degradation of baseline functions existing on July 22, 2011) – The protection benchmark must be met to continue the voluntary, non-regulatory approach of VSP. For each protection goal, participation benchmarks are also identified and are designed to provide quantifiable measures that will ensure protection of Columbia County's critical areas functions and values is being achieved.
- **Enhancement Benchmarks** (enhancements improve baseline critical areas functions and values through voluntary and incentive-based measures) – Meeting enhancement goals is encouraged, but not required in order to further the voluntary, non-regulatory program under VSP for protecting critical areas. At each five-year benchmark reporting period, voluntary enhancements of critical area conditions on lands used for agricultural activities are promoted and accounted for. Benchmarks for enhancement are specific to Columbia County and indicate voluntary measures are leading to desired improvements in critical areas functions and values. Enhancement also provides a measure of certainty that the VSP protection goal will be met if some unforeseen, future loss of critical areas functions and/or values occurs.

Benchmark quantities for stewardship strategies and practice implementation are provided in five-year reporting increments. The methods used to establish protection and enhancement benchmark values for stewardship strategies and practices participation included:

- **Measuring historical participation** in key stewardship strategies and practices to develop an average annual implementation quantity for each practice (Tables 5-4 and 5-5). Historical participation data includes NRCS and conservation district-led practices that were reported between 2011 and 2016.
- **Setting anticipated reduction rate** of agricultural lands that may not continue to maintain the stewardship strategies and practices past the required lifespan or following the end of a contract or for other disenrollment reasons (Tables 5-4 and 5-5). Discontinuation or abandonment of practices can be monitored to reduce this rate further based on actual data. The results of monitoring stewardship activities will inform whether the dis-enrollment rate needs to be adjusted and may either increase or decrease
- **Setting protection benchmarks and performance objectives** The protection benchmark is to realize a "no net loss" condition of acres or feet (from the 2011 baseline) managed under stewardship strategies and practices. Thus, any acres or feet which may be lost as a result of discontinuation or abandonment of practices will need to be replaced. (The anticipated or potential discontinuation or abandonment of practices reduction rates are shown in Table 4-2). It should be noted that numerous non-governmentally funded practices exist and are difficult to measure. However, self-funded practices which protect critical area functions and values will be taken into account for future benchmark calculations to the extent that they can be verified.
- **Setting enhancement benchmarks and performance objectives** Enhancement benchmarks are any improvement greater than protection benchmarks. The enhancement benchmark values are shown on Tables 5-4 and 5-5. It should be noted that numerous non-governmentally-funded practices exist and are difficult to measure. However, self-funded practices which protect critical area functions and values will be taken into account for future benchmark calculations to the extent that they can be verified.

Stewardship strategies and practices can be implemented within or directly adjacent to a critical area (see Figure 5-3 for a conceptual representation). An example of a direct effect would include implementing wetland restoration practices within or adjacent to an existing wetland critical area. Indirect effects occur within agricultural areas that are not adjacent to or within critical areas but still have indirect effects on resource functions.

Figure 5-3
Direct and Indirect Effects of Stewardship Practices on Critical Area Functions



5.2.2 Benchmarks

Work Plan benchmarks are focused on measuring and tracking producer participation in implementing key stewardship strategies and practices identified by the Work Group as having a clear benefit to one or more critical areas functions and values.

Table 5-3 provides a crosswalk of key stewardship strategies and practices, their link to critical areas, critical area functions and agricultural viability aims. In addition, it illustrates strategies and practices that commonly have direct and indirect impacts upon critical area protections.

Key practices include those that address resource concerns and critical areas function protections and are widely implemented in Columbia County. Some practices anticipated for continued application or identified as major practice

trends anticipated in the future. These are the practices utilized as benchmarks for protection and enhancement. However, in the future, additional practices are likely to be implemented that likewise function to protect critical areas functions and values.

Through adaptive management, these new practices can and should be included in the benchmark calculations, even if self-funded, as the paramount concern is the composite protection of all practices, not simply a solitary conservation practice.

Furthermore, it should be noted that the success or possible failure of this Work Plan to protect the functions and values of critical areas cannot be judged nor dependent upon one specific conservation practice, but on the cumulative effects all relevant practices on a county-wide watershed level.

Table 5-3 Key Stewardship Strategies & Practices Crosswalk
In the table on the next page, NRCS is the Natural Resources Conservation Service. The critical areas are WET – Wetlands, FWHCA – Fish & Wildlife Habitat Conservation Area, CARA – Critical Aquifer Recharge Area, GHA – Geologically Hazardous Areas and FFA – Frequently Flooded Areas.

Table 5-3 Key Stewardship Strategies & Practices Crosswalk

Key Stewardship Strategies				Critical Area Protections					Agricultural Viability
TYPE		NRCS	KEY PRACTICES	WET	FWHCA	CARA	GHA	FFA	
INDIRECT INTERSECTS	Residue & Till Mgt.	345 329	Residue Mgt - Mulch Till Residue & Tillage Mgt -No Till/ Direct Seed	X	X		X		~ Protect against erosion risk ~ Protect soil function ~ Reduce invasive/nuisance species ~ Promote yield & fertility
	Pest Mgt.	595 & CSP	Pest Management	X	X	X	X		~ Protect soil function ~ Reduce invasive/nuisance species ~ Provide pollinator species & beneficial organisms habitat
	Nutrient Mgt.	590 & CSP	Nutrient Mgt.	X	X	X			~ Protect soil function ~ Reduce invasive/nuisance species ~ Reduce inputs
	Water Mgt.	449 528 550 614 642 CSP	Irrigation Water Mgt Managed Grazing Range Planting Watering Facility Water Well Water Mgt.	X	X		X	X	~ Protect against erosion risk ~ Protect soil function ~ Reduce invasive/nuisance species ~ Promote yield & fertility
	Soil Mgt.	328 340 384 484	Conservation Crop Rotation Cover Crop Woody Residue Mulching	X	X		X		~ Protect against erosion risk ~ Protect soil function ~ Reduce invasive/nuisance species ~ Promote yield & fertility ~ Provide pollinator species & beneficial organisms habitat
DIRECT INTERSECTS		315 327 342 382 412 422 472 490 582 612 644 645 CSP	Herbaceous Weed Conservation Cover Critical Area Planting Fence Grassed Waterway Hedgerow Planting Access Control Tree/Shrub Site Prep Open Channel Tree/Shrub Establishment Wetland Wildlife Habitat Mgt Upland Wildlife Habitat Mgt Grazing Mgt	X	X		X	X	~ Protect against erosion risk ~ Protect soil function ~ Reduce invasive/nuisance species ~ Promote yield & fertility ~ Provide pollinator species & beneficial organisms habitat

Tables 5-4 and 5-5 provide a summary of protection measurable benchmarks for Indirect and Direct Intersects objectives performance objectives for the five-year reporting increments. Acres for performance objectives are used to represent one-acre of implementation of one practice. Multiple stewardship strategies and practices can be conducted on a single field (which is reported as additional acres). When a new practice replaces existing practices, the benefits to critical area functions would change, but not the acreage. In addition to tracking the net acreage changes, the Work Group will track the overall physical effects of those changes in order to document the protection and enhancement of critical areas functions and values.

In addition to the specific conservation practices shown in Tables 5-4 and 5-5, it should be noted that there exist other strategies and practices in Columbia County that historically have contributed towards furthering the goal of protecting critical area functions and values. These include efforts of the Confederated Tribes of the Umatilla Indian Reservation, the Snake River Salmon Recovery Board and self-funded conservation practices. These practices will be taken into account in the future as part of the cumulative picture of protecting and enhancing critical areas. It is noted that projects that are funded by salmon recovery dollars should result in an overall improvement in watershed function and should not be relied upon to demonstrate achievement of no net loss/protection benchmarks.

Total participation acres in key stewardship strategies and practices since 2011 are overcoming the anticipated reduction in acres (or other measure) with stewardship strategies and practices placed (protection benchmark) and additional acreages with stewardship strategies and practices since 2011 are accounted in the enhancement objectives.

Table 5-4 Protection Benchmarks – Indirect Intersects*

NRCS and CD-Led Practices Historic Participation Data (2011-2016)				Protection Benchmarks			Enhancement Benchmarks			Total Acres in NRCS & CD-led Programs 2011-16
Stewardship Strategies		Average Annual Participation in Key Practices	Estimated Yearly Reduction of Stewardship Strategies and Practices	Benchmark	2021 Performance Objective (disenrollment x 10 years)	2026 Performance Objective (disenrollment x 15 years)	Benchmark	2021 Performance Objective	2026 Performance Objective	
Indirect Intersects	Pest Mgt (CSP)	4,075 acres	244 acres (6%)	No net loss of acres managed under stewardship strategies and practices. No net loss of feet or units managed for protection.	2,445 acres	3,660 acres	Enrolled units based on: Improvement greater than Protection Benchmarks	> 2,445 acres	> 3,660 acres	20,375
	Pest Mgt (595)	504 acres	30 acres (6%)		300 acres	450 acres		> 300 acres	> 450 acres	2,520
	Grazing Mgt (CSP)	2,827 acres	169 acres (6%)		1,690 acres	2,535 acres		> 1,690 acres	> 2,535 acres	14,138
	Nutrient Mgt (CSP)	476 acres	28 acres (6%)		280 acres	420 acres		> 280 acres	> 420 acres	2,380
	Nutrient Mgt (590)	504 acres	30 acres (6%)		300 acres	450 acres		> 300 acres	> 450 acres	2,520
	Water Mgt (CSP)	104 acres	3 acres (3%)		30 acres	45 acres		> 30 acres	> 45 acres	520
	Irrigation Water Mgt (449)	36 acres	1 acre (3%)		10 acres	15 acres		> 10 acres	> 15 acres	180
	Access Control (472)	1,191 acres	36 acres (3%)		360 acres	540 acres		> 360 acres	> 540 acres	5,956
	Nutrient Mgt (590)	505 acres	30 acres (6%)		300 acres	450 acres		> 300 acres	> 450 acres	2,524
	Integrated Pest Mgt (595)	505 acres	30 acres (6%)		300 acres	450 acres		> 300 acres	> 450 acres	2,524
	Livestock Pipeline (516)	290 feet	8 feet (3%)		80 feet	120 feet		> 80 feet	> 120 feet	1,450 ft.
	Tree/Shrub Est'ment (612)	62 acres	1.8 acres (3%)		18 acres	28 acres		> 18 acres	> 28 acres	309
	Cover Crop (340)	60 acres	3.6 acres (6%)		36 acres	54 acres		> 36 acres	> 54 acres	300
	Conservation Crop Rotation (328)	40 acres	2.4 acres (6%)		24 acres	36 acres		> 24 acres	> 36 acres	200

*These stewardship strategies and practices also intersect with existing plans for WRIA, Snake River Salmon Recovery and Southeast Washington Coalition Shoreline Master Program..

Key stewardship strategies and practices include those practices that address concerns and critical function protections and are widely implemented, anticipated for continued application or identified as major practice trends anticipated in the future. Measurable benchmarks are based upon the historic NRCS and reported CD-led participation data (2011-2016) in key stewardship strategies and practices. Monitoring of benchmarks is addressed in Section 6.3

Table 5-5 Protection Benchmarks - Direct Intersects*

NRCS and CD-Led Practices Historic Participation Data (2011-2016)				Protection Benchmarks			Enhancement Benchmarks			Total Acres in NRCS & CD-led Programs 2011-16
Stewardship Strategies		Average Annual Participation in Key Practices	Estimated Yearly Reduction of Stewardship Stategies and Practices	Benchmark	2021 Performance Objective (disenrollment x 10 years)	2026 Performance Objective (disenrollment x 15 years)	Benchmark	2021 Performance Objective	2026 Performance Objective	
Direct Intersects	Critical Area Planting (342)	8 acres	0 (0%)	No net loss of acres managed under stewardship strategies and practices. No net loss of feet or units managed for protection.	8 acres	9 acres	Enrolled units based on: Improvement greater than Protection Benchmarks	> 8 acres	> 9 acres	40 acres
	Fence (382)	3,347 feet	0 (0%)		3,347 feet	3,849 feet		> 3,347 feet	> 3,849 feet	16,737 feet
	Access Control (472)	1,191 acres	35 acres (3%)		350 acres	525 acres		> 350 acres	> 525 acres	5,956 acres
	Nutrient Mgt (CSP)	476 acres	28 acres (6%)		280 acres	420 acres		> 280 acres	> 420 acres	2,380 acres
	Tree/Shrub Site Prep (490)	59 acres	0 (0%)		59 acres	67 acres		> 59 acres	> 67 acres	295 acres
	Tree/Shrub Est'ment (612)	62 acres	1.8 acres (3%)		18 acres	27 acres		> 18 acres	> 27 acres	309 acres
	Stream Habitat Improvement (#395)	8,860 feet	266 feet (3%)		2,660 feet	3,990 feet		> 2,660 feet	> 3,990 feet	44,299 feet
	Grazing Mgt (CSP)	2,826 acres	169 acres (6%)		1,695 acres	2,543 acres		> 1,695 acres	> 2,543 acres	14,130 acres
	Riparian Forest Buffer (#391)	8 acres	0 (0%)		8 acres	9 acres		> 8 acres	> 9 acres	40 acres

*These stewardship strategies and practices also intersect with existing plans for WRIA, Snake River Salmon Recovery and Southeast Washington Coalition Shoreline Master Program..Key stewardship strategies and practices include those practices that address concerns and critical function protections and are widely implemented, anticipated for continued application or identified as major practice trends anticipated in the future.

Measurable benchmarks are based upon the historic NRCS and reported CD-led participation data (2011-2016) in key stewardship strategies and practices. Monitoring of benchmarks is addressed in Section 6.3

5.3 Indicators

Indicators are measurable metrics associated with specific environmental variables, (e.g. nitrate concentrations in a well or stream flow at a particular location). Metrics can be analyzed over time to understand longer term trends related to specific critical area functions and values. Indicator data will be reviewed at least every five years to help focus technical assistance efforts and assess if the anticipated protection and/or enhancement of critical area functions is occurring.

If an indicator shows a loss or gain in the baseline condition for a critical area function, it can be compared to the performance objectives for stewardship strategies and practices implemented. If this analysis does not account for the change, a more targeted evaluation and analysis of the specific effects of agricultural activities can be made for the applicable parameter(s). This analysis would be used to inform if the VSP is meeting the protection standard for critical area functions within agricultural areas and the degree to which non-agricultural factors are influencing one or more indicators.

Indicators affected by both agricultural and non-agricultural factors will generally not be used for purposes of informing whether protection of baseline conditions is being achieved or goals and benchmarks are being met due to the cost and difficulty involved in separating agricultural effects from non-agricultural effects. Such indicators may, however, be used to identify resource trends and focus enhancement efforts on high priority areas.

The table on the next page illustrates the alignment of this Work Plan's goals concerning the four main critical area functions with the indicators and monitoring which is anticipated to occur during the implementation phase.

Table 5-6 Indicators and Monitoring

Goal	Indicator	Parameter	Monitoring
Protect and/or enhance baseline fish and wildlife habitat functions and values of critical areas in Columbia County where agricultural activities occur	1-5	Quality and extent of wetland habitat; extent of riparian areas; extent of CRP lands;	WDFW's High Resolution Change Detection program or other GIS approaches for habitat assessment
Protect and/or enhance baseline water quality functions and values of critical areas in Columbia County where agricultural activities occur	1-1	303d lists	Washington Dept of Ecology
	1-7	Groundwater quality monitoring	Washington Dept of Health
Protect and/or enhance baseline hydraulic functions and values of critical areas in Columbia County where agricultural activities occur	1-2	Water quantity and quality monitoring	U.S. Geological Survey
	1-3	Water quantity and quality monitoring	Washington Dept of Ecology
Protect and/or enhance baseline soil health functions and values of critical areas in Columbia County where agricultural activities occur	1-4	Soil erosion and function monitoring	USDA Natural Resources
	1-6	Soil productivity through long-term crop yield monitoring	Multiple agencies

The following indicators from existing monitoring programs and sources relate to the four major critical area functions:

(1-1) **Water quality indicators** will include Category 4 and 5 303(d) listings, focused on parameters that potentially have an agricultural source. Category 4 includes polluted waters that do not require a TMDL, and Category 5 waters are polluted and require a TMDL or other water quality improvement projects. 303(d) listings within the County can be monitored using Ecology Water Quality tools.

(1-2) **Hydrology indicators** will include tracking flow gauges through the U.S. Geological Survey (USGS), Ecology and other agencies. USGS water data is available online at: https://www2.usgs.gov/water/

(1-3) **Ecology streamflow** and water quality data is available at: https://fortress.wa.gov/ecy/eap/flows/regions/state.asp?region=4

(1-4) **Soil function indicators** will include USDA Natural Resources Inventory monitoring results related to erosion and soil functions and fertility. This monitoring should focus on locations within or adjacent to critical areas in relation to erosion issues, allowing for more natural erosion rates upland of critical areas. Interactive data views at the State level are available online.

(1-5) **Habitat indicators** will include evaluation of publicly available aerial imagery available at the 5- and 10-year performance review periods, based upon adequate resources provided through the state for VSP program implementation to assess critical area resource protections (primarily FWHCA and wetlands). Evaluating random sample areas using aerial imagery and associated GIS methods with and without VSP participation within the watershed analysis areas in Columbia County. Analysis results will be presented in reporting at the county-wide watershed scale. Individual parcels will not be identified and producer privacy will be maintained in the evaluation process. PHS data available through WDFW will also be evaluated in addition to other related information that might become available in the future, such as remote sensing through WDFW's High Resolution Change Detection program or other GIS approaches for habitat assessment, if this information is made available to Columbia County. Ground-truthing will be needed to ensure that change detection data fits the scope and jurisdiction of the VSP and that agricultural activities were actually the cause of any identified degradations. This work will be done in coordination with WDFW during the implementation and reporting phase. Additional 'data truthing' of DNR's "Unknown" stream types in coordination with WDFW will also be conduced during the implementation phase to better under-stand where "direct" effects may also be occurring.

(1-6) **Suggested agricultural viability indicators** include tracking economic survey data from sources such as the WSDA, USDA-NASS or WSU:

- Annual agricultural crop product sales and economic value
- Net farmer/producer income
- Market prices for agricultural product per unit
- Assessed property valuation changes based on reported valuation calculations per the County Assessor's Office (profitability indicator)

(1-7) **Groundwater quality monitoring:** The Washington Department of Health (WDOH) conducts regular testing of all groundwater used for public drinking water. WDOH has agreed to provide annual reports on Columbia County monitoring results that potentially relate to agriculture, including nitrates, pesticides and herbicides.

More info can be found at:
www.doh.wa.gov/CommunityandEnvironment/DrinkingWater

While not determinative of VSP success in maintaining 2011 baseline or better conditions as affected by agricultural activities and stewardship strategies and practices, these participation measures and potential indicators provide important information for evaluating the Columbia County VSP performance and adaptive management actions described in Chapter 5.4. Other indicators may emerge during implementation.

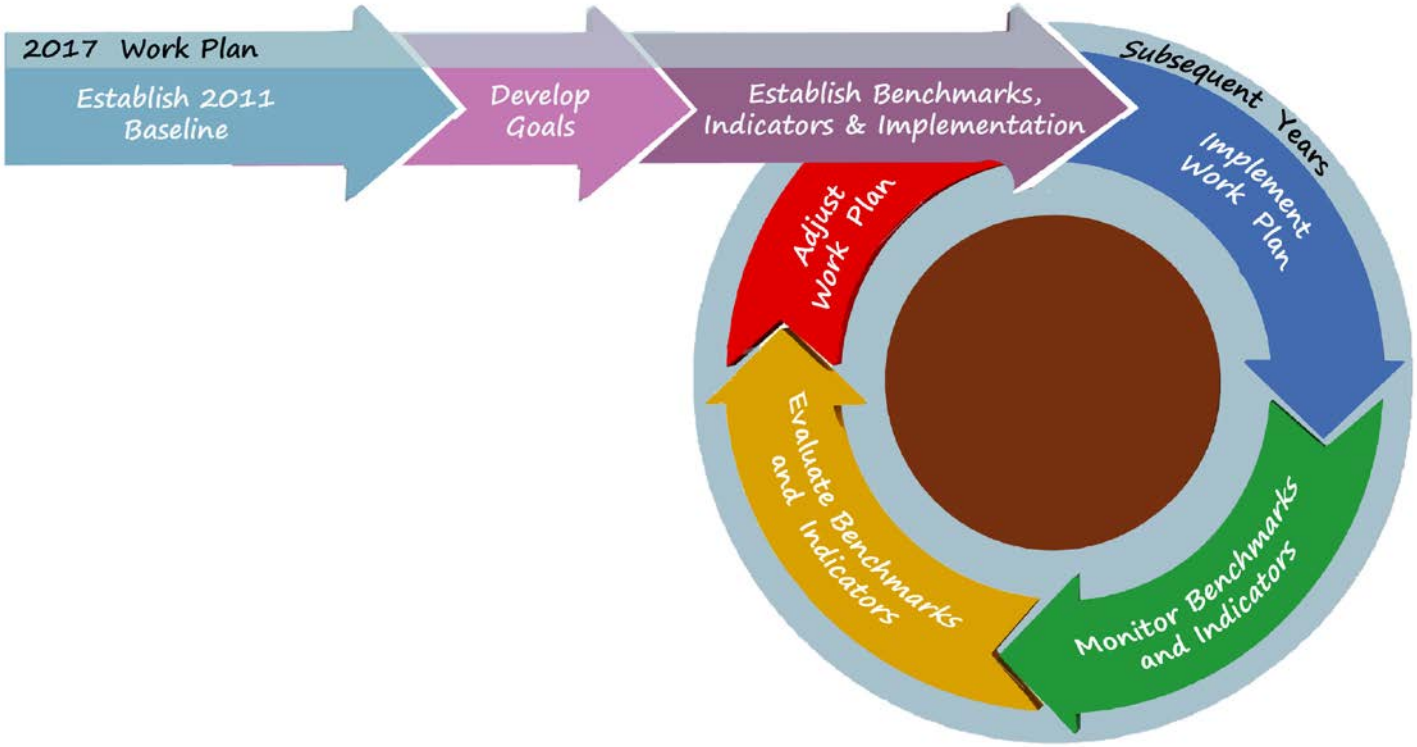
It is important to note that VSP success in Columbia County is determined by participation at the entire broad watershed level, not on a piece by piece basis. The objective of our Work Plan is to increase the number of participants in active practices and strategies that protect critical area functions by 20% of the number established at the baseline levels.

The VSP statute states that, “In developing and implementing the work plan, the watershed group must…Assist state agencies in their monitoring programs” (RCW 36.70A720(1)(k)). As Columbia County gathers information for indicators and monitoring, the summary basis/reports will be readily shared with the applicable state agency within the financial means of the County.

5.4 Adaptive Management

Adaptive management typically consists of a monitoring system to identify changes in the environment coupled with a response system to adjust the activities based on performance results and review of indicators information. The adaptive management system would be applied if the performance review in Year 5 of implementation suggests the VSP program may not be protective of critical areas functions existing in 2011. The adaptive management system for the Columbia County VSP consists of the following five key sequential elements, as illustrated in the figure below:

Figure 5-3
Adaptive Management System for Columbia County VSP



1. **Assess** – Data on participation goals and the indicators described above are compiled. The compiled information is used to identify issues, refine objectives and understand if benchmarks are effective in protecting or enhancing critical area functions and values.

2. **Update Benchmarks** – Based on the results of the assessment stage, updates to the protections and enhancement benchmarks could occur. These updates could represent changes to the level of participation necessary to meet a specific protection or enhancement standard. These updates could also reflect a change in the goals for a specific watershed or critical area function.
3. **Implement and Monitor** – The approved Work Plan is put into action, concurrently with monitoring focused on documenting the protection and enhancement of critical area functions and values. Monitoring data is collected on specific indicators, as well as participation by producers in implementing stewardship strategies and practices.
4. **Evaluate** – Monitoring of participation data are evaluated relative to the protection and enhancement goals. Differences between targeted goals and results are identified, and the causes for those differences investigated, including consideration of participation measures and indicators. Goal adjustments are made as needed to maintain protection of critical area functions and values. Some practices anticipated for continued application or identified as major practice trends anticipated in the future. These are the practices utilized as benchmarks for protection and enhancement. However, in the future, additional practices are likely to be implemented that likewise function to protect critical areas functions and values. Through adaptive management, these new practices can and should be included in the benchmark calculations, even if self-funded, as the paramount concern is the composite protection of all practices, not simply a solitary conservation practice. Furthermore, it should be noted that the success or possible failure of this Work Plan to protect the functions and values of critical areas cannot be judged nor dependent upon one specific conservation practice, but on the cumulative effects all relevant practices on a county-wide watershed level.
5. **Adjust** – Information learned in previous steps is used to adjust the participation benchmarks, stewardship strategies and practices, or level of incentive for enhancement.

The adaptive management process is iterative and would repeat cyclically at least every five years, as part of the implementation of the VSP. If an adjustment is identified, the Work Group would submit a written report identifying the results of the evaluation and a plan to make the necessary adjustments to the Work Plan to the State Conservation Commission. If an adjustment is not necessary, then the report would simply state the results of the evaluation. In either case, the process of adaptive management would be applied at least every five years.

Monitoring and adaptive management is based on two strategies:

1. **Direct Monitoring** of producer participation (Tables 5-6)
   a) **Conservation acres monitoring**. Direct monitoring of stewardship participation in key stewardship strategies and practices implemented is integral to the outreach strategy. Columbia Conservation District will

monitor the items identified in Tables 5-4 and 5-5. Participation goals were developed based on agricultural activities, critical area functions and the anticipated effects of implementing specific stewardship strategies and practices. During outreach and implementation, stewardship strategies and practices data will be frequently reviewed to determine if participation levels are adequate to meet the goals and benchmarks identified in Chapter 5.

b) **Sample verification**. In addition to monitoring stewardship strategies and practices implemented, Columbia Conservation District will also monitor a randomly selected sample of 10% of the reported projects, including self-reported/funded projects, to verify the performance of the stewardship strategies and practices in terms of implementation/ application and maintenance. This sampling will be done annually, at a minimum.

c) **Adaptive management trigger**. If at any point after the first year the participation rate drops below 90% of the annual projected level of stewardship strategies and practices implemented to meet the protection performance objectives, measures would be taken to address the situation. Potential causes for low participation and potential adaptive management actions are described in Table 5-7. Based on stewardship strategies and practices data from 2011-2016, the level of participation has been far exceeding those necessary to meet the protection performance objectives.

2. **Indirect monitoring** of indicators of critical areas and their functions and values (Table 5-7):

a) **Indicators**. Indicators, identified in Chapter 5.3, will be used to assess whether the stewardship strategies and practices implemented under VSP are having the anticipated effect of protecting and/or enhancing critical area functions and values. If the goals are met, but indicators show a negative trend in critical area functions and values, it will be important to analyze whether this is related to agriculture.

b) **VSP applicability**. Some indicators (e.g. stream temperature) may be responding to climatic changes rather than changes in agricultural practices since 2011. If any link to agriculture is determined, additional stewardship strategies and practices, higher participation goals or increased outreach may be necessary. Because detection of long-term trends in environmental indicators is difficult, this review will occur every five years as part of the VSP reporting.

Table 5-7
Producer Participation Goal & Adaptive Management for Low Participation
For the Performance Metrics below, the monitoring shall be conducted by the VSP Coordinator every year. Reporting shall be conducted in two-year status reports and five-year performance reports.

Participation Goal: Promote producer participation in voluntary stewardship of agricultural lands and critical areas to meet the protection and/or enhancement benchmarks and protect critical areas functions and values at a County-wide watershed level.			
Objectives/Benchmarks	**Performance Metric/ Monitoring Method**	**Identified Cause/ Adaptive Mgt Threshold**	**Adaptive Mgt Action**
Sufficient active participation by commercial and non-commercial operators over 10 years that achieves the protection of critical area functions and values at a County-wide watershed level; Objective is a 20% increase in participation over the baseline level	- Number of acres reported in key stewardship strategies and practices - Number of VSP self-assessment checklists submitted - Sufficient producer participation necessary to meet protection and enhancement benchmarks	Key practice not consistent with agricultural viability	Identify alternative practice that provides similar function and is agriculturally viable
		Incentives associated with key stewardship strategies and practices are no longer available	Identify alternative funding or alternative practices that are more likely to be self-funded
		Inadequate self-reporting of voluntary participation	Increase outreach to producers
		Changes in agricultural practices that make key practices less applicable	Develop applicable practices that provide similar functions
		Changes in agricultural economy that make self-funded stewardship strategies and practice implementation difficult	Identify alternative funding or other incentives
Passive participation by commercial and non-commercial agricultural operators in VSP stewardship strategies and practices is maintained or increased over 10 years on agricultural land (including but not limited to those listed in Table 5-7 and Appendix C	- Mapping and aerial photo evaluation and/or rapid watershed assessment of practices in place - Random sampling of producers in the field by technical assistance providers	Decline below the annual average stewardship strategies and practices rate identified in Tables 5-5 & 5-5	Increase outreach to producers
Technical assistance and outreach is provided to agricultural producers to encourage stewardship strategies and practices and VSP participation	- Number of outreach and education events - Number of event attendees	Decline below the annual average stewardship strategies and practices rate identified in Tables 5-5 & 5-5	Increase outreach to producers

Notes for the table above: Active participation includes stewardship activities reported either through publicly-funded programs or self-reported through the VSP self-assessment checklist in coordination with the VSP Coordinator or

technical assistance provider. Passive participation includes un-reported stewardship activities. The Work Group will establish a numeric operator goal which will be determined after two years in the program.

Table 5-8 Adaptive Management Process for Critical Area Functions and Values Protection and Enhancement

For the Adaptive Management Process below, the parties that are responsible for actions include the Conservation District, VSP Coordinator and participating land-owners. The monitoring will be conducted by the Conservation District and/or VSP Coordinator every. year.

Adaptive Management Objective	Indicator Data Source	Performance Metric	Adaptive Mgt Action Threshold	Adaptive Management Action
Ensure steward-ship strategies & practices employed with the goal of protecting or improving water quality are effective	Ecology water quality stations	Change in Category 2 to 5 303(d) listings, focused on parameters that potentially have an agricultural source	Significant trends indicating a decrease in baseline water quality due to agriculture	~ Determine whether water quality parameters are from agriculture or non-agriculture contributors ~ Survey with outreach to agricultural producers along affected watercourse and/or CARA to determine % of participation in stewardship ~ Identify if participation in stewardship strategies and practices is supporting goals ~ Identify stewardship strategies with Work Group to target for implementation to support goal
Ensure steward-ship strategies & practices employed with the goal of maintaining or improving storage capacity and groundwater recharge are effective	USGS Flow gauges	Change in flows that are attributable to agricultural practices (as opposed to a regional drought)	Significant trends indicating a decrease in baseline storage capacity and/or groundwater recharge due to agriculture	~ Determine whether storage capacity and groundwater recharge issues are due to agriculture ~ Survey with outreach to agricultural producers along floodplains & within CARA to determine % of participation in stewardship ~ Identify if participation in stewardship strategies and practices is supporting goals ~ Identify stewardship strategies with Work Group to target for implementation to support goal

Adaptive Management Objective	Indicator Data Source	Performance Metric	Adaptive Mgt Action Threshold	Adaptive Management Action
Ensure steward-ship strategies & practices employed with the goal of maintaining or improving soil functions are effective	USDA Natural Resources Inventory monitoring result	Change in volume of soil and/or overall soil fertility relative to critical areas	Tracking soil data thru USDA Natural Resources Inventory monitoring results, tracking sediment parameter within Ecology's 303(d)	~ Determine whether soil issues are due to agriculture ~ Survey with outreach to agricultural producers to determine % of participation in stewardship ~ Identify if participation in stewardship strategies and practices is supporting goals ~ Identify stewardship strategies with Work Group to target for implementation to support goal
Ensure steward-ship strategies & practices employed with the goal of protecting or improving habitat are effective	WDFW Priority Habitats & Species data or other aerial and GIS approaches for habitat mapping. The ISP Survey will also function as an Indicator	Changes in amount of FWHAs and wetlands	Net loss of vegetation within wetlands/wetland buffers and riparian areas is greater than 75% of the wetland/riparian areas that experience enhancement	~ Determine whether habitat issues are due to agriculture ~ Survey with outreach to agricultural producers to determine % of participation in stewardship ~ Identify if participation in stewardship strategies and practices is supporting goals ~ Identify stewardship strategies with Work Group to target for implementation to support goal

Chapter Six: Implementation

6.1 Framework for Implementation

Work Plan implementation is expected to continue largely through established programs and organizations. As noted previously, many agricultural-based programs, activities, and efforts are already in place to protect and, in many cases, enhance critical areas and agricultural viability.

Significant progress has been made to these ends in recent years. This Work Plan has been designed to fit within this existing framework, with supplemental efforts identified to meet state VSP requirements, including documenting critical areas baseline conditions, establishing goals and measurable benchmarks, identifying stewardship activities, and establishing monitoring and adaptive management measures to track Work Plan performance in protecting critical areas and maintaining agricultural viability. The tracking timeframe for this Work Plan is the first 10 years of implementation.

Per RCW 36.70A.705, the Work Group is responsible for developing the Work Plan and overseeing its implementation. Work Plan implementation responsibilities include: agricultural producer participation and outreach; technical

assistance; program performance tracking and reporting; and adaptive management.

Columbia County Planning will serve as the VSP Coordinator and the Columbia Conservation District will be the technical lead. The VSP coordinator will collect participation data from existing conservation program leads and entities (identified in Section 6.4) and coordinate reporting, monitoring, and adaptive management procedures with the Work Group. The VSP Coordinator will rely on existing agencies, the conservation district, and local organizations to provide the technical assistance to producers. The anticipated implementation budget for this Work Plan is summarized in Table 6-1, under the assumption that State funding for VSP is continued at a level of $220,000 each biennium for the County.

Table 6-1 Implementation Budget

Task	Activities	Who	Biennium Budgets
Education, Outreach, and Technical Assistance	• Conduct outreach and develop education materials • Assist producers in developing stewardship plans • Facilitate Self-Assessment Checklist reporting • Identify cost-share to leverage other conservation project funding	VSP Coordinator with help from technical assistance providers	$135,000
Monitoring, Reporting, and Adaptive Management	• Annual monitoring and tracking • Develop adaptive management as needed • Prepare 2-year status reports • Prepare 5-year progress reports	VSP Coordinator with help from technical assistance providers or contract services	$70,000
Work Group Coordination	• Attend quarterly meetings • Coordinate report and adaptive management review and approvals	VSP Coordinator with help from technical assistance providers	$15,000
	Total State Budget		**$220,000**

Notes:
1. Assumes State funding for VSP is continued at a level of $220,000 each biennium for the County.
2. Costs will be less in non-reporting years to support annual monitoring and tracking efforts. The majority of budget item will support costs during the 2-year and 5-year reporting years: 2021, 2026, 2031 and onwards.

Ultimately, agricultural producers play the most integral role in VSP implementation. Success of the VSP relies on these producers to voluntarily implement conservation actions that help meet Work Plan goals and benchmarks for critical areas protection and agricultural viability.

6.2 Agricultural Producers Participation, and Technical Assistance and Outreach

Many producers are already implementing stewardship strategies and practices that are protecting or enhancing critical areas and supporting agricultural viability throughout the County, as described in Section 4. Two participation objectives have been established for Columbia County VSP implementation:

- Better identify and document the existing measures that have been put in place since 2011 through private-sector activity and outside of government programs.
- Increase the level of participation among agricultural producers in implementing stewardship strategies and practices by 20% over baseline levels. .

Regarding the first objective, it is expected the measures summarized in Section 4 represent only a portion of the total measures implemented during this period. Outreach to individual landowners, as well as to private industry groups, is planned in Years 0 to 2 to better document existing practices and identify future practices that might be implemented outside of government programs. Additional outreach and coordination with the private sector, resulting from the initial outreach activities, is expected to continue through the remaining eight years of the initial 10-year performance-tracking period.

The second participation objective is focused on increasing the number of stewardship strategies and practices implemented by agricultural producers, helping to meet protection and, where possible, enhancement performance goals outlined in Section 5. Achieving this objective includes offering technical assistance to producers with the development of individual stewardship plans, and making them aware of available private- and public-sector financial incentives and programs.

This technical assistance would also include helping to estimate the expected benefits that can be realized from implementing the measures identified in individual stewardship plans, including agriculture viability benefits at the farm level. The Columbia Conservation District (CCD) will be the lead technical provider during the implementation phase following adoption of the Work Plan.

Results from these conservation efforts will be documented, along with documenting any lands converted from stewardship strategies and practices back to more conventional farming, so the overall net effect on protecting (and where applicable, enhancing) critical areas is characterized. VSP success depends on producer participation. According to guidance from the WSCC, statutory provisions on the confidentiality and disclosure of a farm plan also apply to a VSP "individual stewardship plan" that a conservation district helps a producer develop (unless the producer expressly permits disclosure). The WSCC believes the individual stewardship plan meets the definition of farm plan in the statutes. (See Appendix E for Individual Stewardship Plan survey)

The Commission's position is that it believes that similar to farm plans developed by conservation districts, individual stewardship plans are confidential and exempt from disclosure, unless permission is granted by the landowner or operator. Further, additional confidentiality requirements are invoked if the landowner's farm plan is a requirement under federal law. The Statewide Advisory Committee concurs with the position of the Commission that similar to farm plans developed by conservation districts, individual stewardship plans are confidential and exempt from disclosure, unless permission is granted by the landowner or operator, provided they are provided by or created in conjunction with a conservation district.

VSP technical assistance providers can provide more detail on applicable confidentiality and disclosure provisions for particular types of agricultural operations and conservation programs.

6.2.1 Organization Leads

The VSP Coordinator will rely on local organization leads to continue to provide technical assistance to providers:

- The Columbia Conservation District will continue to implement public -sector program participation efforts within their respective boundaries, supported by other agencies, such as Washington State Department of Agriculture, WDFW, and Ecology, NRCS and FSA, others with their respective programs, and support from the private sector.
- Local entities including the Columbia County Cattlemen's Association, Columbia County Farm Bureau, and Columbia County Association of Wheat Growers will continue to provide technical assistance to producers.

6.2.2 Technical Assistance and Outreach

Technical assistance occurs in a variety of ways, including developing individual stewardship plans, providing advice on use of specific practices, range management plans, and sharing information at forums, meetings, and other venues where stewardship strategies and practices are highlighted for environmental and economic benefits. The VSP Coordinator will work with local organization leads to prepare biennial work plans that incorporate public-sector activities to be implemented to achieve VSP outreach and technical assistance objectives, and also identify plans for working with the private sector to capture information about practices put in place through their efforts. See Table 6-3 and Appendix D for additional detail on public-sector plans, programs, and agency partners that support the goals of this Work Plan. Table 6-2 identifies potential VSP outreach strategies, opportunities and forums.

Table 6-2 VSP Outreach Opportunities

Venue	Description
Tours	• Conservation District-led annual tours • Legislative and partner agencies outreach tours • Private sector industry • Washington State University Extension
Meetings	• Conservation District monthly board meetings (public meetings) • Conservation District annual meetings • Annual Southeast Washington Conservation District meetings • Local government • Private sector industry-led meetings • Washington State University Extension
Media	• Conservation District and private sector industry websites, newsletters, and social media sites • Columbia County website • Washington State Conservation Commission news and announcement webpage • Articles, announcements, and advertisements with local newspapers • E-mail distribution lists • Farm Service Agency newsletter • Washington State University Extension newsletter • News releases
Others	• Informational booths and displays at fairs and agricultural conventions • Individual outreach consistent with Conservation District policies • Private-sector industry marketing efforts • Washington State University Extension

Table 6-3 includes a list of technical assistance providers and public-sector conservation programs that are currently available. Private-sector programs are available through existing agri-businesses and associations serving the County, such as the Columbia County Cattlemen's Association, the Columbia County Farm Bureau, and the Columbia County Association of Wheat Growers.

Appendix D contains more detail for each program and links to the programs' webpages.

Table 6-3 Public Sector Conservation Programs Summary

Lead	Description	Technical Assistance	Financial Assistance	Partnership Agreements	Contractor Easement Agreements
Natural Resources Conservation Services	Provides technical and financial assistance to help agricultural producers make and maintain conservation improvements on their land and offers conservation easement programs and partnerships to leverage existing conservation efforts on farm lands.	●	●	●	●
Farm Service Agency	Oversees several voluntary, incentive-based conservation-related programs that work to address several agriculture-related conservation measures, including programs such as Conservation Reserve Program and Conservation Reserve Enhancement Program		●		●
Washington State Conservation Commission	Works with Conservation Districts to provide voluntary, incentive-based programs for implementation of conservation practices; supports the Conservation Districts through financial and technical assistance; administrative and operational oversight; program coordination; and promotion of Conservation District activities and services.		●	●	
Washington State Department of Fish and Wildlife	Provides financial assistance for habitat projects that restore and/or preserve fish and wildlife habitat through funding opportunities such as the Aquatic Lands Enhancement Account Volunteer Cooperative Grant Program.	●	●		

Washington State Recreation and Conservation Office	Provides funding to protect aquatic lands and for projects aimed at achieving overall salmon recovery, including habitat projects and other activities that result in sustainable and measurable benefits for salmon and other fish species. Funding is provided through programs such as Aquatic Lands Enhancement Account and Salmon Recovery Funding Board Grant Program.		●		

Lead	Description	Technical Assistance	Financial Assistance	Partnership Agreements	Contractor Easement Agreements
Washington State Department of Ecology	Provides funding for water quality improvement and protection projects, including programs such as the Water Quality Financial Assistance program and voluntary partnership programs such as the Farmed Smart Partnership.		●	●	
Washington State University Extension	Provides agricultural producers with technical assistance, research, and education services. Leads the Water Erosion Prediction Project, which is a hydrological characterization model to predict runoff and erosion that may be useful in identifying effective stewardship strategies and targeted locations in the County.	●			
Columbia Conservation District	Works through voluntary, incentive-based programs to assist landowners and agricultural operators with the conservation of natural resources throughout the Conservation District, including cost-share and watershed -based partnership programs such as the Regional Conservation Partnership Program	●	●	●	

6.3 Monitoring, Reporting, and Adaptive Management

Monitoring performance, reporting progress on Work Plan goals and benchmarks, and implementing adaptive management measures when necessary are part of this Work Plan. Tracking program performance and reporting includes the following tasks:

- **2-year status reports**. Conducting a program evaluation and providing a written report on the status of the Work Plan, including accomplishments to the County and to the WSCC within 60 days (by the end of September) after the end of each biennium. Based ona January 2016 receipt of funding date, 2-year reports are due by end of September in 2018, 2020, 2022, 2024, 2026 and onwards.
- **5-year performance reports.** Developing and providing to the WSCC 5-year progress reports on Work Plan performance in meeting goals and benchmarks. Based on a January 2016 start date, 5-year progress reports would be due in early 2021 and 2026 and onwards.

The 2-year status and 5-year performance reports would be developed by the VSP Coordinator under the direction of the Work Group. Draft reports would be prepared and presented to the Work Group for review and comment. Comments would be addressed and edits made to the reports, and then approved by the Work Group, after they are satisfied the reports are accurate and complete. Reports would be distributed to the County, WSCC, and others by the VSP Coordinator on behalf of the Work Group. The general timing for reporting will be as follows:

- Monitoring will focus on the measurable benchmarks described in Section 5 and will include periodic evaluations every 2 years.
- The Work Group must report no later than 5 years after receipt of funding on whether the protection and enhancement goals are being met or identify an adaptive management plan to meet VSP goals and benchmarks.
- The Work Group must report not later than 10 years after receipt of funding, and every 5 years thereafter, whether it has met the protection and enhancement goals and benchmarks of the Work Plan.
- In addition to the above, the Work Group will satisfy any other reporting requirements of the program in accordance with State RCWs.

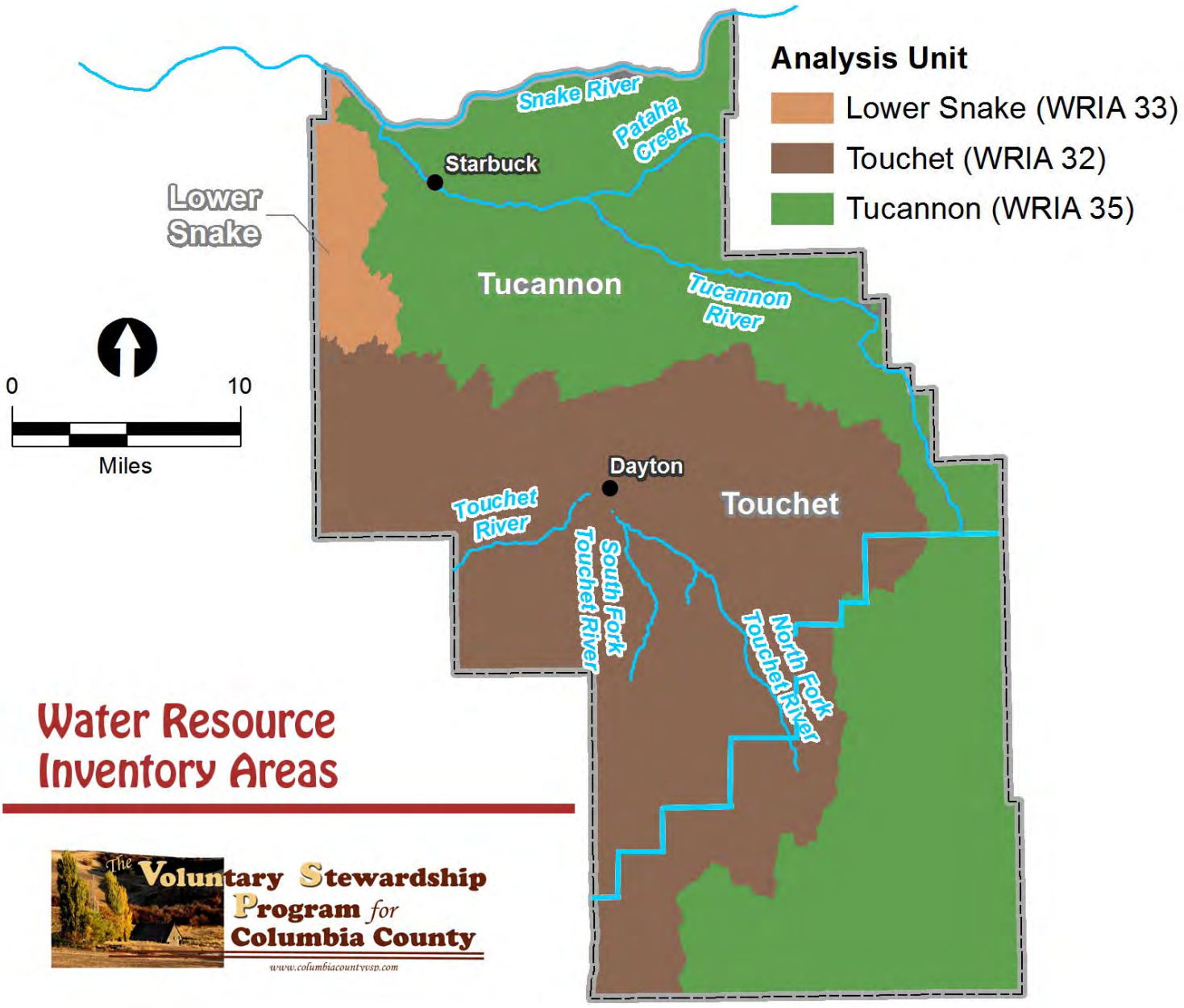
Work plans often need to adapt to changing conditions and observations of results that aren't consistent with established goals. Adaptive management is the process for "continually improving management policies and practices by learning from the outcomes of the operational programs" (Nyberg 1999). If the Work Group determines goals have not been met, they must propose and

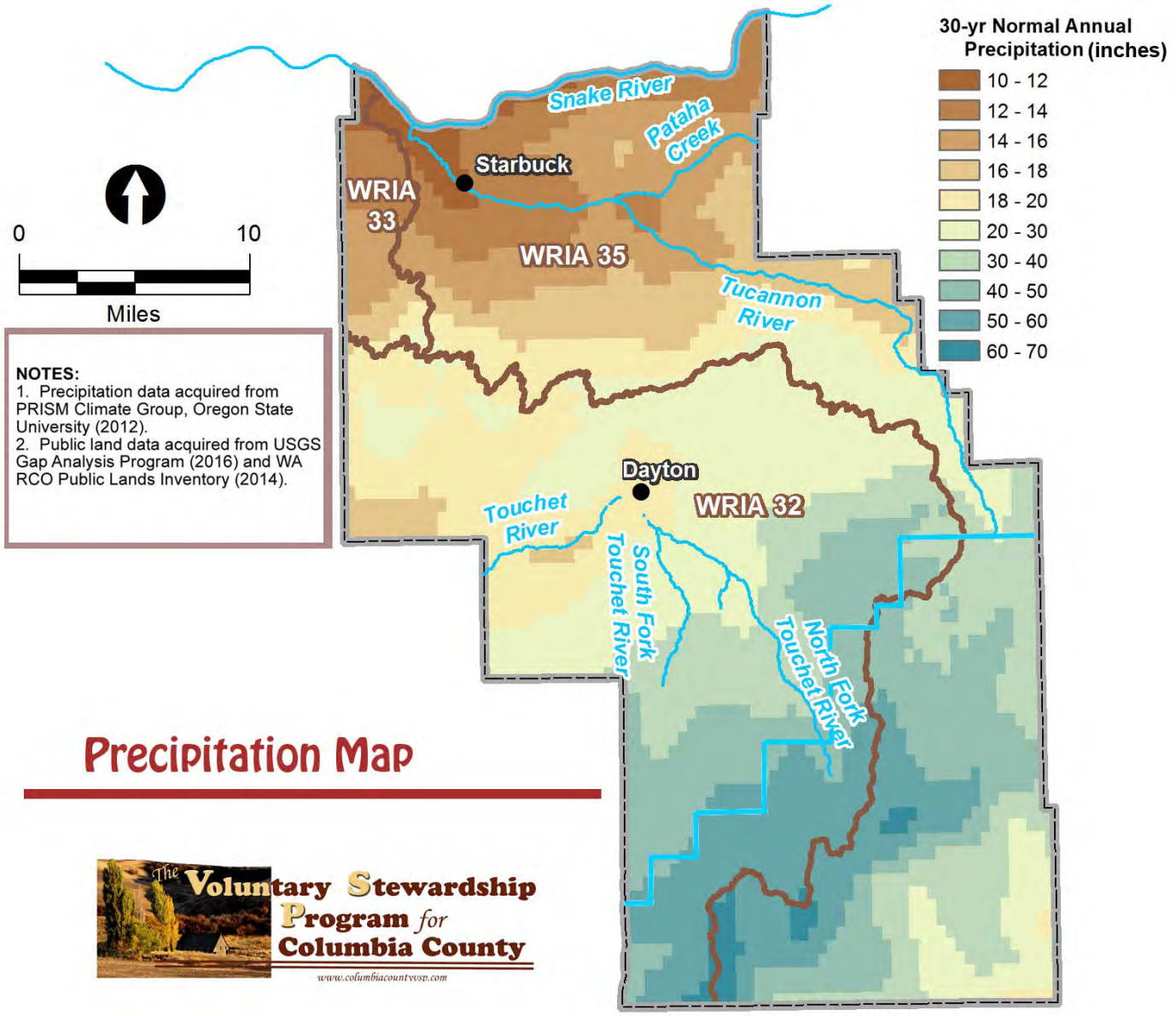
submit an Adaptive Management Plan to achieve the goals and benchmarks. The adaptive management process is outlined in Section 5. Monitoring indicators will inform the long-term viability of the Adaptive Management Plans, based on goals for protecting critical area functions. Monitoring will focus on the measurable benchmarks and goals also described in Section 5.

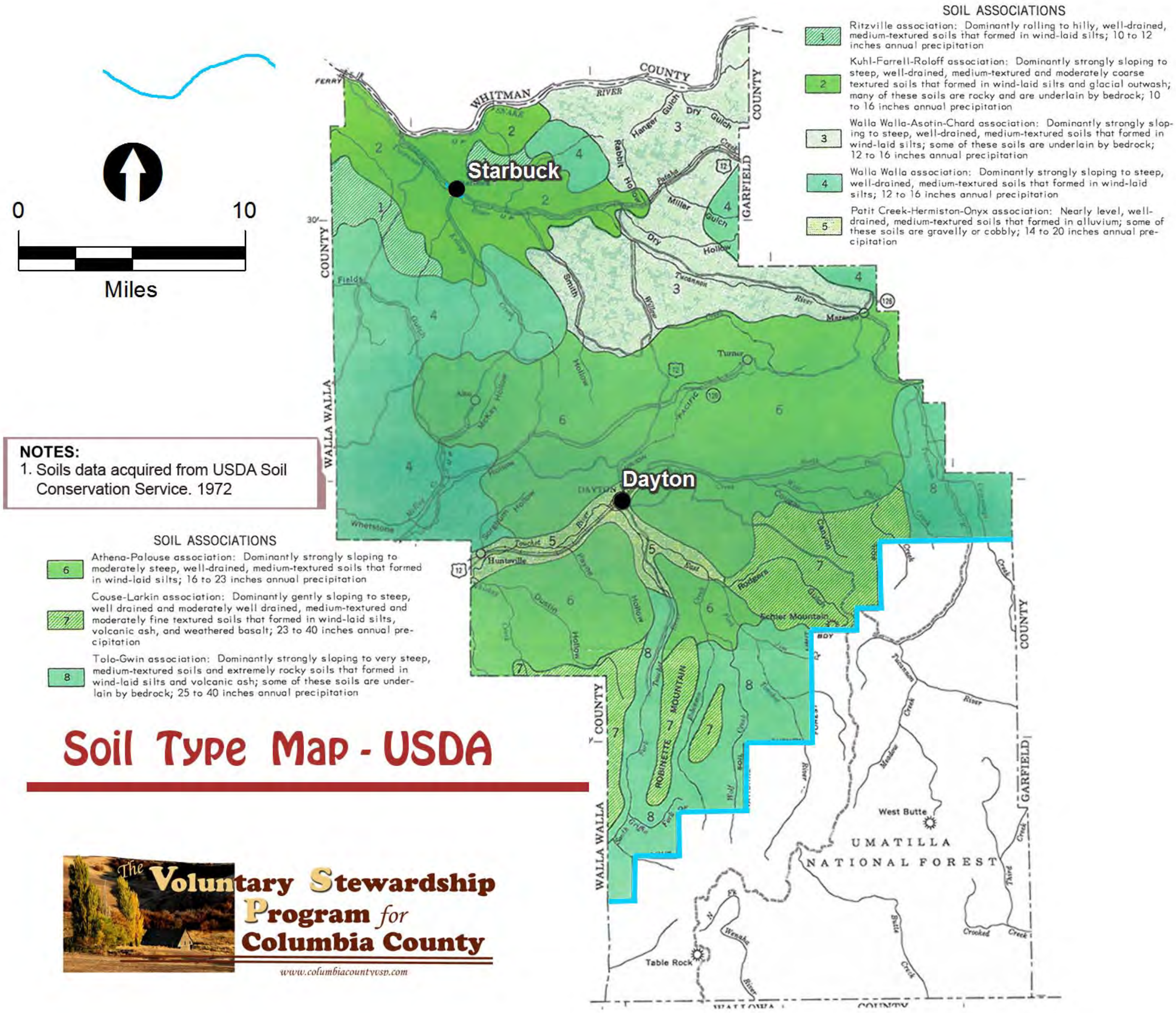
6.4 Regulatory Backstop

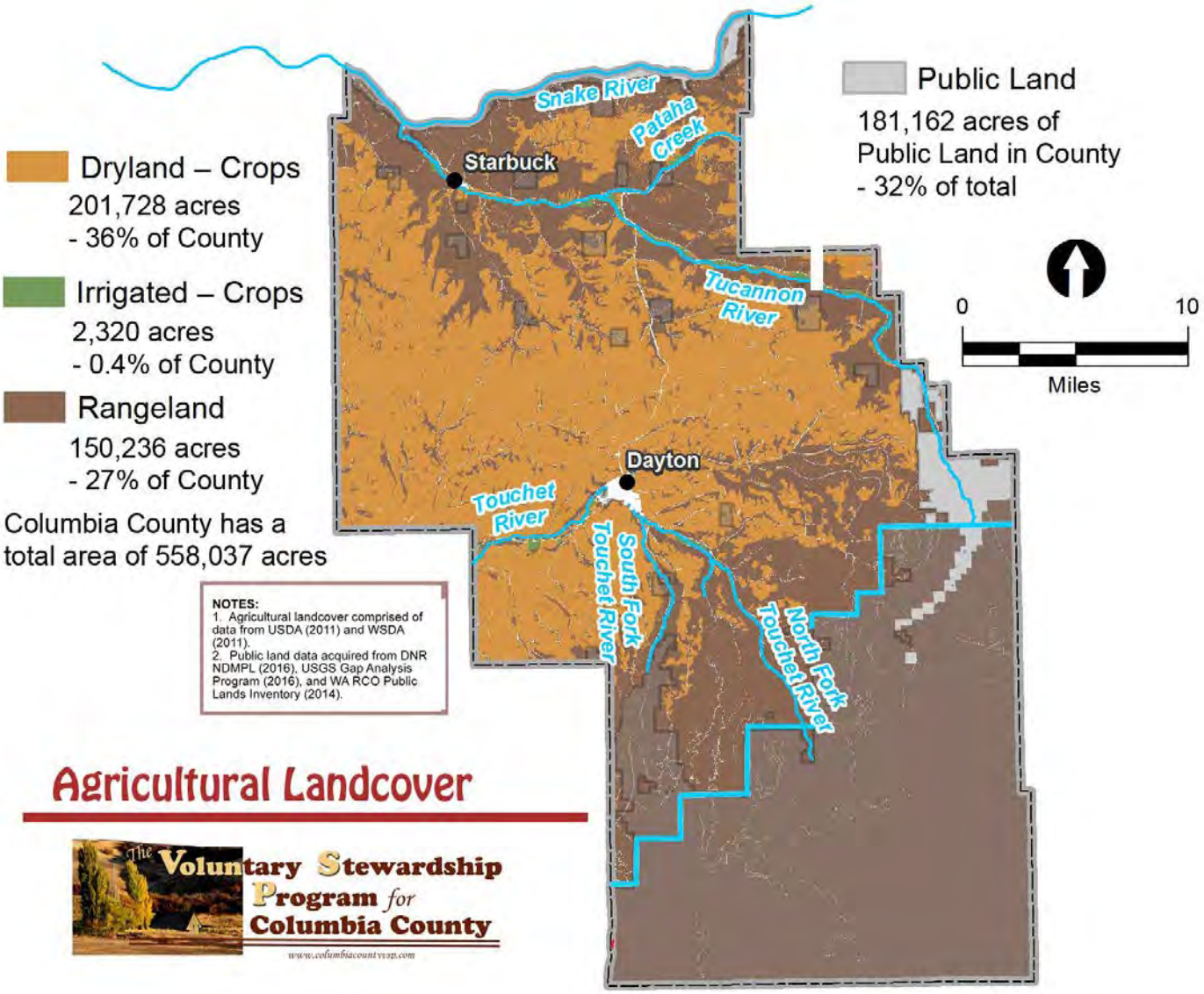
The VSP is provided as an alternative to protecting critical areas used for agricultural activities through development regulations under the GMA. Despite its voluntary nature, it is still the intent of the VSP to improve, and not limit, "compliance with other laws designed to protect water quality and fish habitat," per RCW 36.70A.700 and 36.70A.702. Existing federal rules and regulations continue to apply to agricultural activities that have the potential to affect the environment, including the federal Clean Air Act, Clean Water Act, and Endangered Species Act. State and local environmental regulations may also apply to agricultural activities with the potential to affect the environment (see Appendix D).

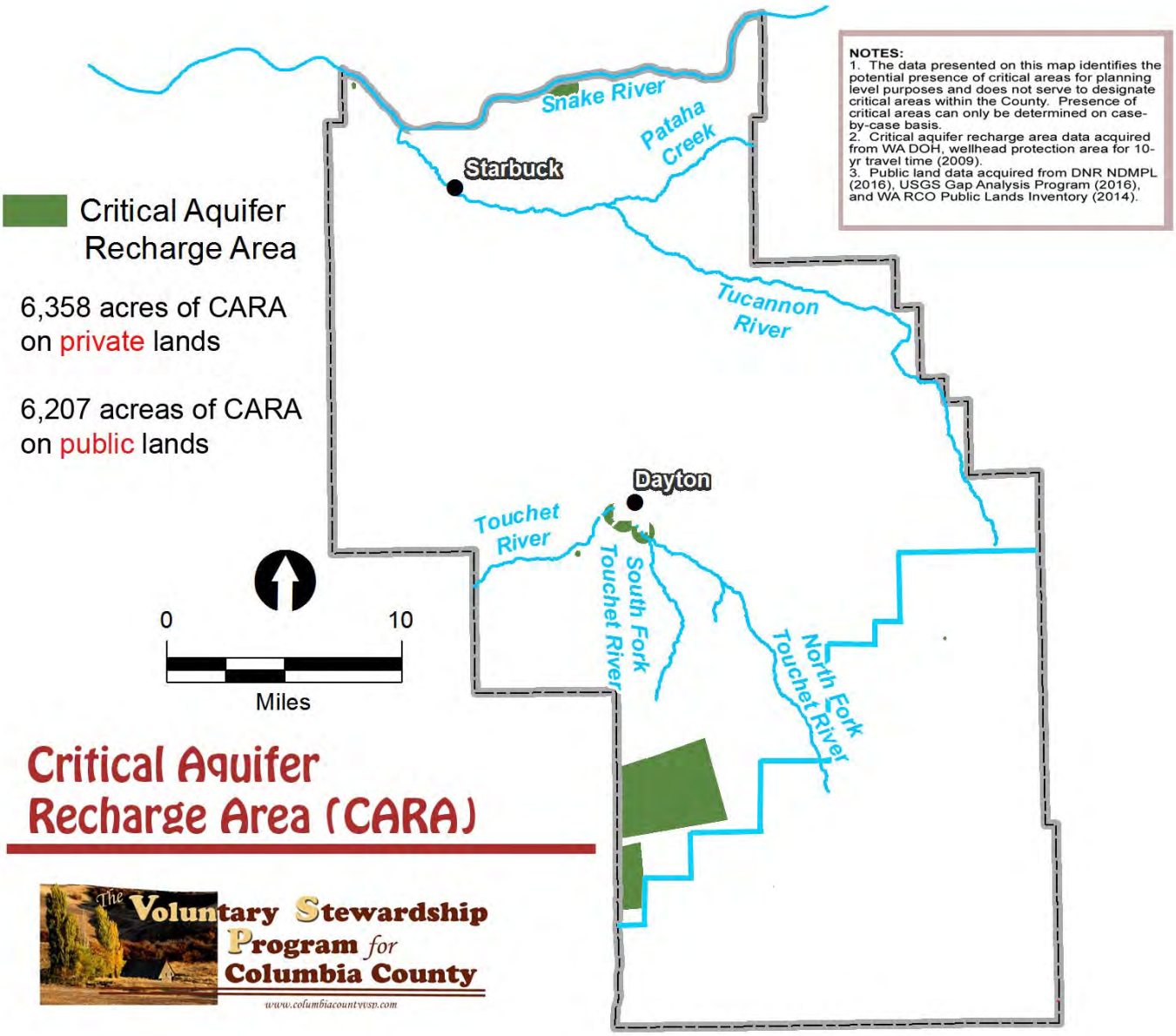
Appendix A
Map Folio

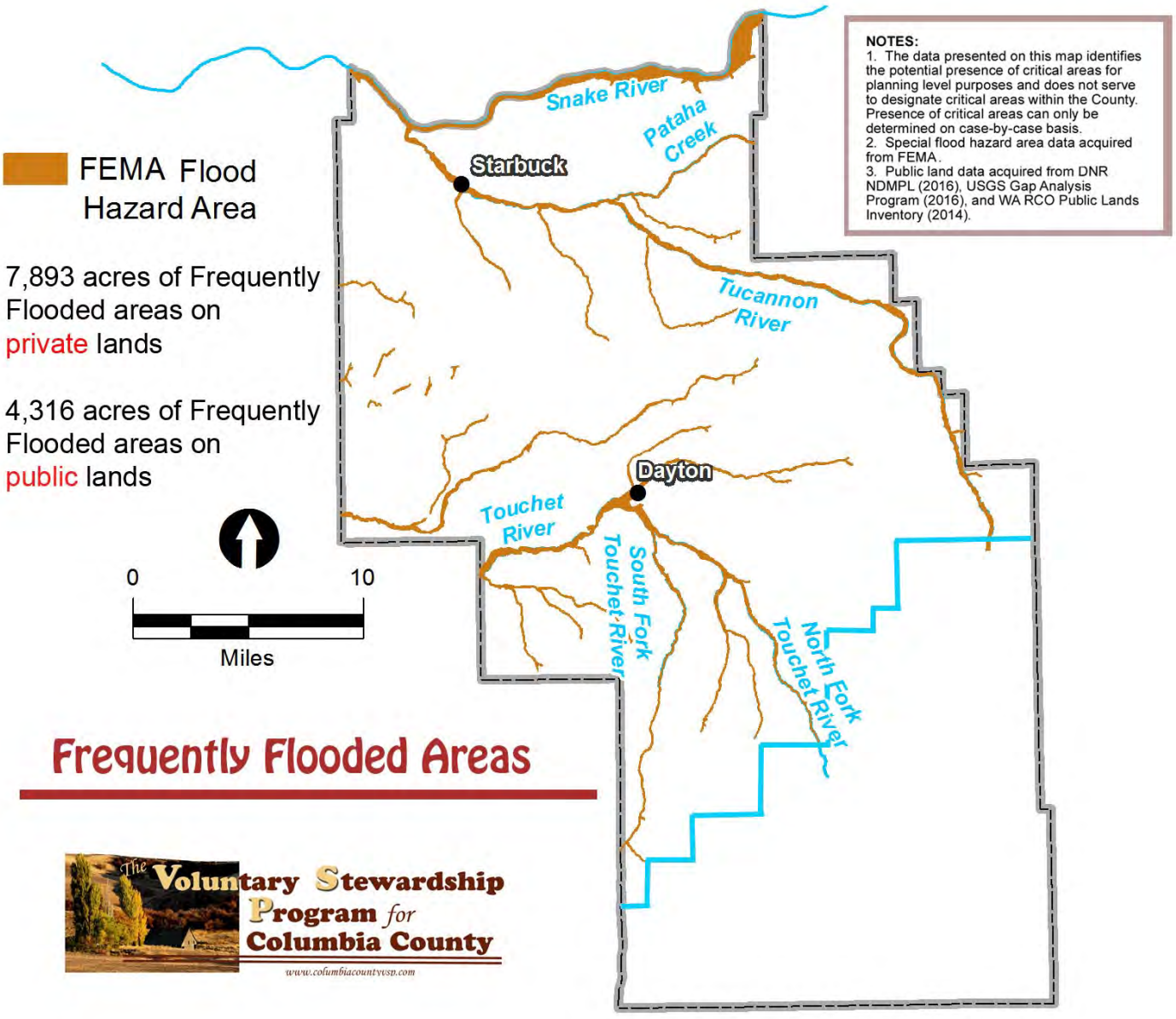

Analysis Unit
Lower Snake (WRIA 33)
Touchet (WRIA 32)
Tucannon (WRIA 35)
Snake River
Pataha Creek
Starbuck
Lower Snake
Tucannon
Tucannon River
0
10
Miles
Dayton
Touchet
Touchet River
South Fork Touchet River
North Fork Touchet River
Water Resource Inventory Areas
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com

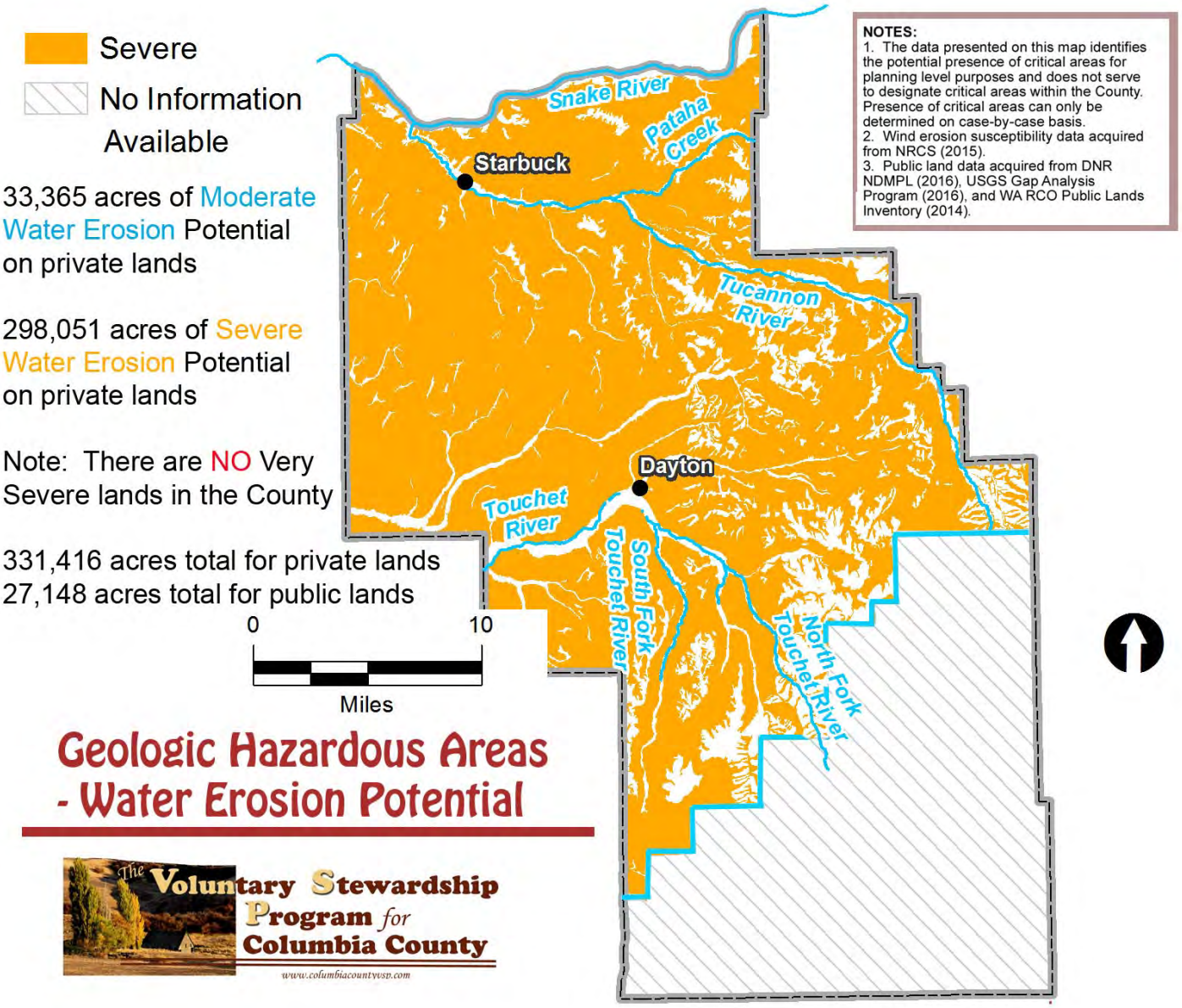

30-yr Normal Annual Precipitation (inches)
10 - 12
12 - 14
14 - 16
16 - 18
18 - 20
20 - 30
30 - 40
40 - 50
50 - 60
60 - 70
Snake River
Pataha Creek
Starbuck
WRIA 33
WRIA 35
Tucannon River
Dayton
WRIA 32
Touchet River
South Fork Touchet River
North Fork Touchet River
0
10
Miles
NOTES:
1. Precipitation data acquired from PRISM Climate Group, Oregon State University (2012).
2. Public land data acquired from USGS Gap Analysis Program (2016) and WA RCO Public Lands Inventory (2014).
Precipitation Map
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com

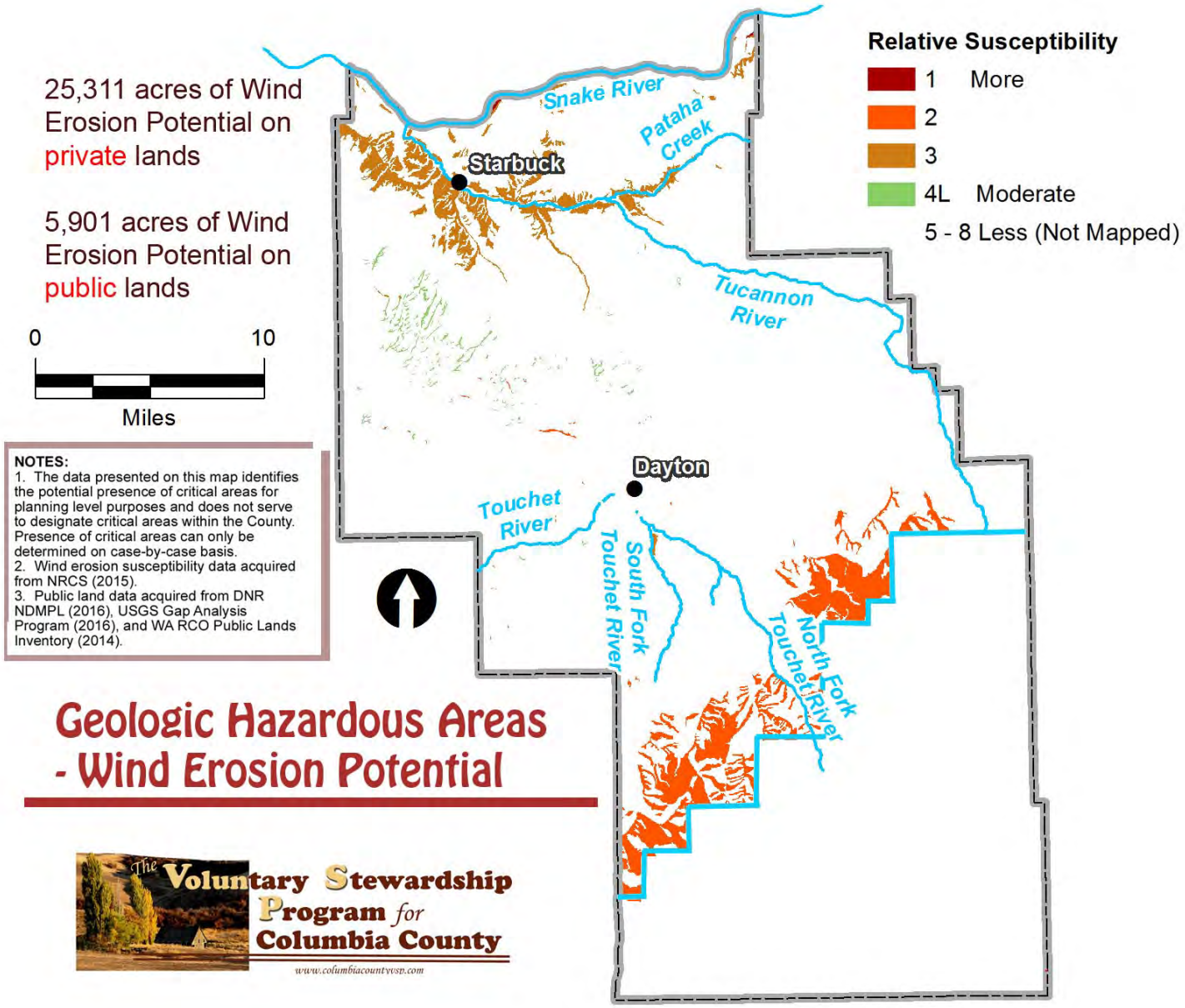

0
10
Miles
Starbuck
Dayton
WHITMAN
COUNTY
GARFIELD
COUNTY
WALLA WALLA
COUNTY
UMATILLA
NATIONAL FOREST
West Butte
Table Rock
ROBINETTE MOUNTAIN
Eckler Mountain
Huntsville
Turner
NOTES:
1. Soils data acquired from USDA Soil Conservation Service. 1972
SOIL ASSOCIATIONS
1 Ritzville association: Dominantly rolling to hilly, well-drained, medium-textured soils that formed in wind-laid silts; 10 to 12 inches annual precipitation
2 Kuhl-Farrell-Roloff association: Dominantly strongly sloping to steep, well-drained, medium-textured and moderately coarse textured soils that formed in wind-laid silts and glacial outwash; many of these soils are rocky and are underlain by bedrock; 10 to 16 inches annual precipitation
3 Walla Walla-Asotin-Chard association: Dominantly strongly sloping to steep, well-drained, medium-textured soils that formed in wind-laid silts; some of these soils are underlain by bedrock; 12 to 16 inches annual precipitation
4 Walla Walla association: Dominantly strongly sloping to steep, well-drained, medium-textured soils that formed in wind-laid silts; 12 to 16 inches annual precipitation
5 Patit Creek-Hermiston-Onyx association: Nearly level, well-drained, medium-textured soils that formed in alluvium; some of these soils are gravelly or cobbly; 14 to 20 inches annual precipitation
SOIL ASSOCIATIONS
6 Athena-Palouse association: Dominantly strongly sloping to moderately steep, well-drained, medium-textured soils that formed in wind-laid silts; 16 to 23 inches annual precipitation
7 Couse-Larkin association: Dominantly gently sloping to steep, well drained and moderately well drained, medium-textured and moderately fine textured soils that formed in wind-laid silts, volcanic ash, and weathered basalt; 23 to 40 inches annual precipitation
8 Tolo-Gwin association: Dominantly strongly sloping to very steep, medium-textured soils and extremely rocky soils that formed in wind-laid silts and volcanic ash; some of these soils are underlain by bedrock; 25 to 40 inches annual precipitation
Soil Type Map - USDA
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com

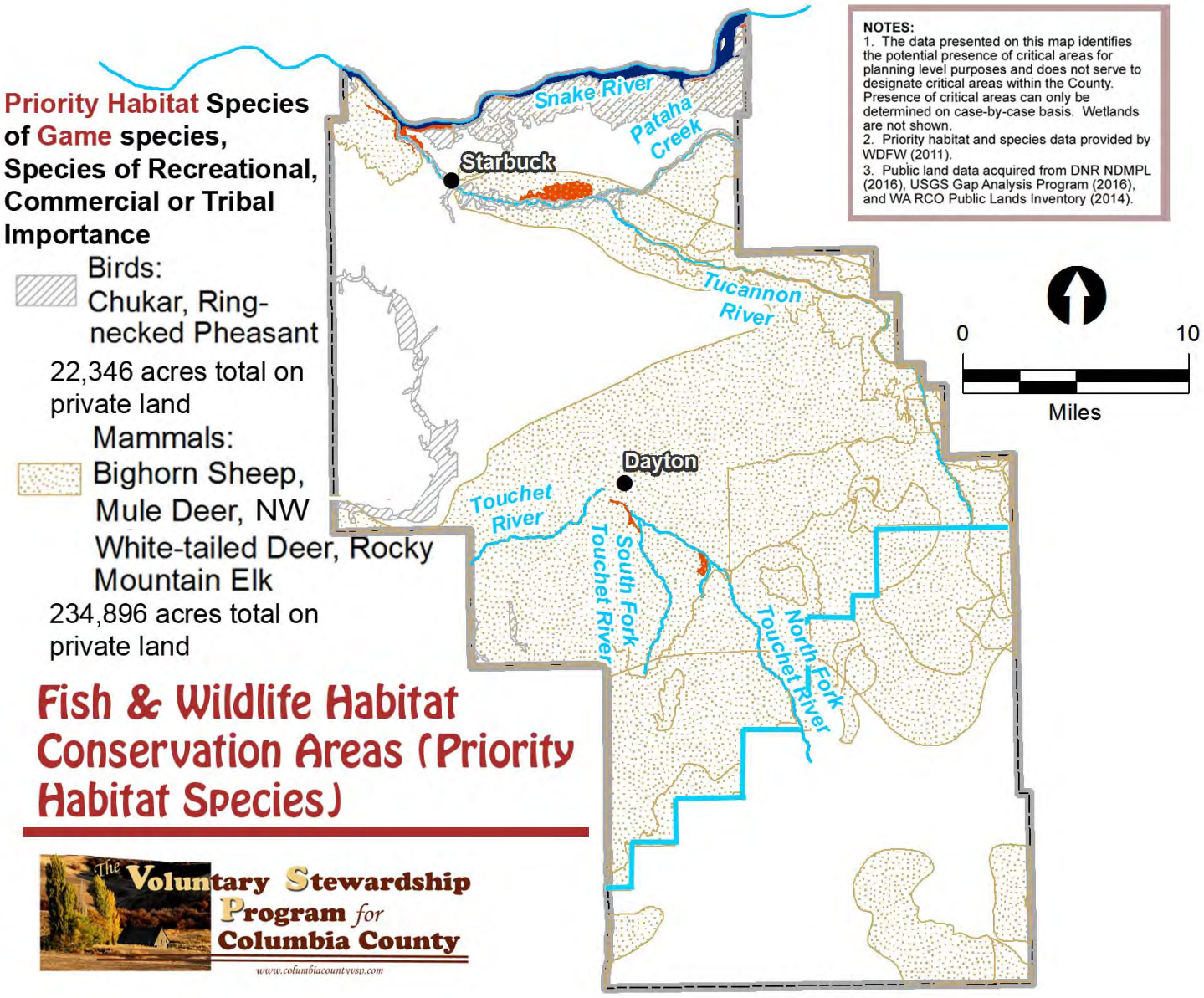

Dryland – Crops
201,728 acres
- 36% of County
Irrigated – Crops
2,320 acres
- 0.4% of County
Rangeland
150,236 acres
- 27% of County
Columbia County has a total area of 558,037 acres
Public Land
181,162 acres of Public Land in County
- 32% of total
0
10
Miles
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
NOTES:
1. Agricultural landcover comprised of data from USDA (2011) and WSDA (2011).
2. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Agricultural Landcover
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com

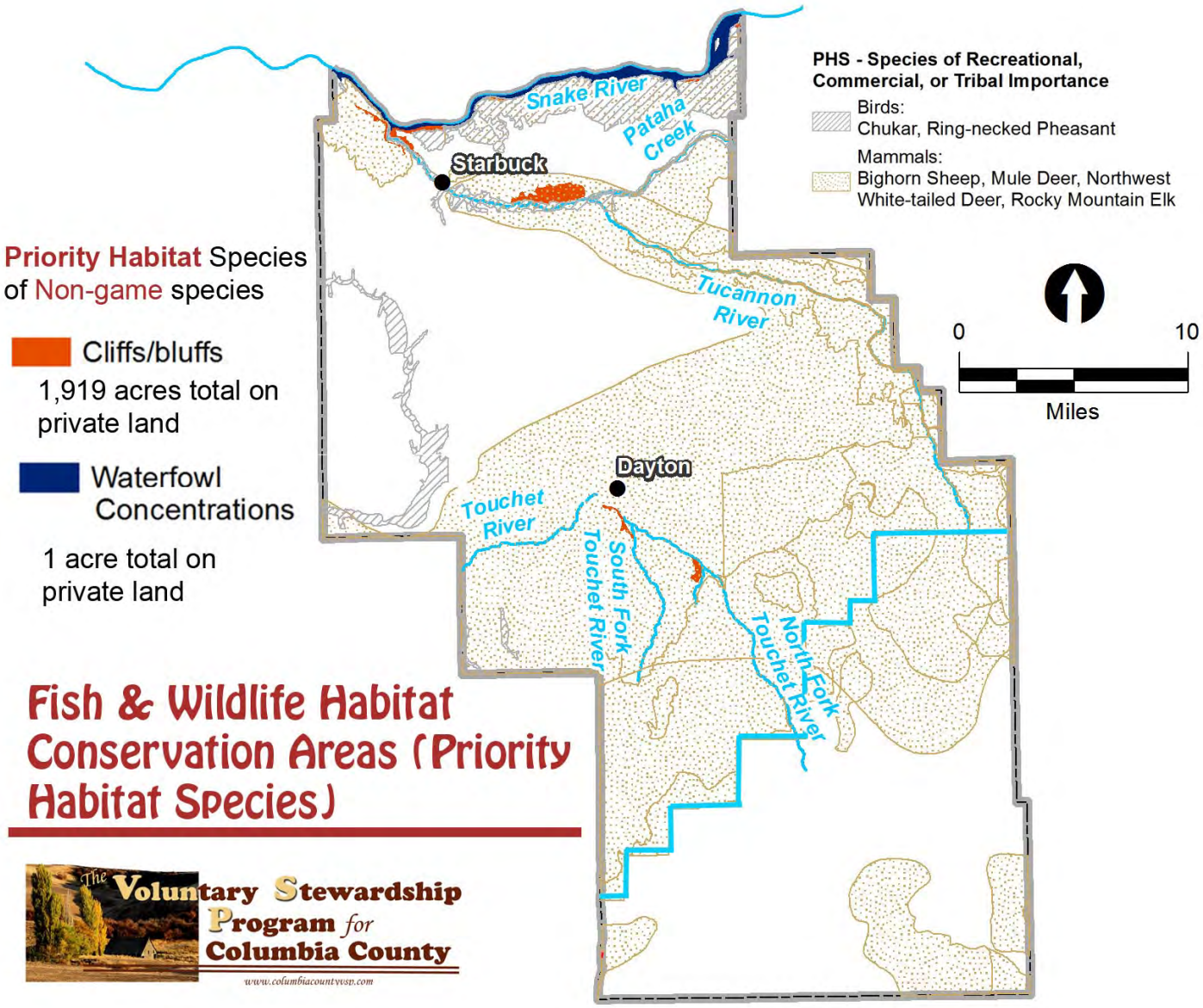

NOTES:
1. The data presented on this map identifies the potential presence of critical areas for planning level purposes and does not serve to designate critical areas within the County. Presence of critical areas can only be determined on case-by-case basis.
2. Critical aquifer recharge area data acquired from WA DOH, wellhead protection area for 10-yr travel time (2009).
3. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Critical Aquifer Recharge Area
6,358 acres of CARA on private lands
6,207 acreas of CARA on public lands
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
0
10
Miles
Critical Aquifer Recharge Area (CARA)
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com

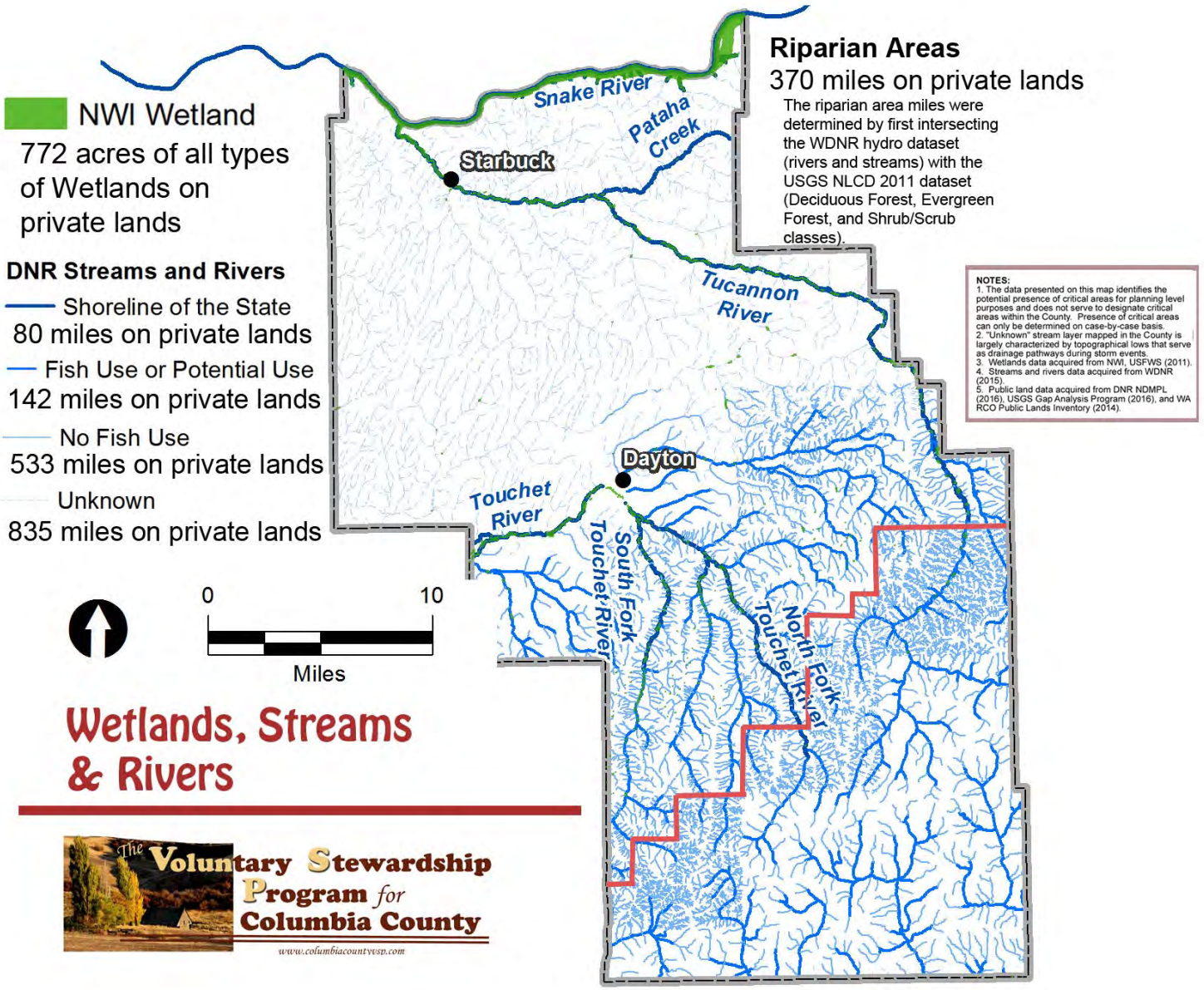

FEMA Flood Hazard Area
7,893 acres of Frequently Flooded areas on private lands
4,316 acres of Frequently Flooded areas on public lands
0
10
Miles
NOTES:
1. The data presented on this map identifies the potential presence of critical areas for planning level purposes and does not serve to designate critical areas within the County. Presence of critical areas can only be determined on case-by-case basis.
2. Special flood hazard area data acquired from FEMA.
3. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
Frequently Flooded Areas
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com


Severe
No Information Available
33,365 acres of Moderate Water Erosion Potential on private lands
298,051 acres of Severe Water Erosion Potential on private lands
Note: There are NO Very Severe lands in the County
331,416 acres total for private lands
27,148 acres total for public lands
0
10
Miles
NOTES:
1. The data presented on this map identifies the potential presence of critical areas for planning level purposes and does not serve to designate critical areas within the County. Presence of critical areas can only be determined on case-by-case basis.
2. Wind erosion susceptibility data acquired from NRCS (2015).
3. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
Geologic Hazardous Areas - Water Erosion Potential
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com


25,311 acres of Wind Erosion Potential on private lands
5,901 acres of Wind Erosion Potential on public lands
0
10
Miles
NOTES:
1. The data presented on this map identifies the potential presence of critical areas for planning level purposes and does not serve to designate critical areas within the County. Presence of critical areas can only be determined on case-by-case basis.
2. Wind erosion susceptibility data acquired from NRCS (2015).
3. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Relative Susceptibility
1 More
2
3
4L Moderate
5 - 8 Less (Not Mapped)
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
Geologic Hazardous Areas - Wind Erosion Potential
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com


Priority Habitat Species of Game species, Species of Recreational, Commercial or Tribal Importance
Birds: Chukar, Ring-necked Pheasant
22,346 acres total on private land
Mammals: Bighorn Sheep, Mule Deer, NW White-tailed Deer, Rocky Mountain Elk
234,896 acres total on private land
NOTES:
1. The data presented on this map identifies the potential presence of critical areas for planning level purposes and does not serve to designate critical areas within the County. Presence of critical areas can only be determined on case-by-case basis. Wetlands are not shown.
2. Priority habitat and species data provided by WDFW (2011).
3. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
0
10
Miles
Fish & Wildlife Habitat Conservation Areas (Priority Habitat Species)
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com


Priority Habitat Species of Non-game species
Cliffs/bluffs
1,919 acres total on private land
Waterfowl Concentrations
1 acre total on private land
PHS - Species of Recreational, Commercial, or Tribal Importance
Birds:
Chukar, Ring-necked Pheasant
Mammals:
Bighorn Sheep, Mule Deer, Northwest White-tailed Deer, Rocky Mountain Elk
0
10
Miles
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
Fish & Wildlife Habitat Conservation Areas (Priority Habitat Species)
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com


NWI Wetland
772 acres of all types of Wetlands on private lands
DNR Streams and Rivers
Shoreline of the State
80 miles on private lands
Fish Use or Potential Use
142 miles on private lands
No Fish Use
533 miles on private lands
Unknown
835 miles on private lands
Riparian Areas
370 miles on private lands
The riparian area miles were determined by first intersecting the WDNR hydro dataset (rivers and streams) with the USGS NLCD 2011 dataset (Deciduous Forest, Evergreen Forest, and Shrub/Scrub classes).
NOTES:
1. The data presented on this map identifies the potential presence of critical areas for planning level purposes and does not serve to designate critical areas within the County. Presence of critical areas can only be determined on case-by-case basis.
2. "Unknown" stream layer mapped in the County is largely characterized by topographical lows that serve as drainage pathways during storm events.
3. Wetlands data acquired from NWI, USFWS (2011).
4. Streams and rivers data acquired from WDNR (2015).
5. Public land data acquired from DNR NDMPL (2016), USGS Gap Analysis Program (2016), and WA RCO Public Lands Inventory (2014).
Snake River
Pataha Creek
Starbuck
Tucannon River
Dayton
Touchet River
South Fork Touchet River
North Fork Touchet River
0
10
Miles
Wetlands, Streams & Rivers
The Voluntary Stewardship Program for Columbia County
www.columbiacountyvsp.com

Appendix B-1
Baseline Conditions Summary Method and Data Sources

Appendix B-1: Baseline Conditions Summary Method and Data Sources

Overview

The effective date of the VSP legislation is July 22, 2011. This is also the date chosen by the legislature as the applicable baseline for accomplishing the following items (RCW 36.70A.703):

- Protecting critical areas functions and values.
- Providing incentive-based voluntary enhancements to critical areas functions and values.
- Maintaining and enhancing the viability of agriculture in the County.

The 2011 baseline sets the conditions from which the County will measure progress in implementing the Work Plan and meeting measurable benchmarks. Measurable benchmarks are a required Work Plan element under VSP (RCW 36.70A.720 (1)(E)) and provided in the Columbia County VSP Work Plan, Section 5: Goals, Benchmarks, and Adaptive Management.

The methods and data sources relied on to establish 2011 baseline conditions for the County's five critical areas and agricultural activities are described in the following sections.

Methods for Establishing Baseline Conditions

The 2011 baseline conditions summary prepared for Appendix B, and the VSP Map Folio (Appendix A) includes an inventory of agriculture land cover and critical area resources. The following methods were applied in the baseline conditions inventory (see Table 1 for a complete list of data sources):

- **Agricultural landcover assessment**. This was based primarily on Washington State Department of Agriculture (WSDA) 2011 agricultural landcover data for croplands (irrigated and dryland agriculture). U.S. Department of Agriculture (USDA) 2011 agricultural landcover data was primarily relied on for additional data on rangelands. Three major agricultural land categories were characterized within the County: 1) irrigated; 2) dryland; and 3) rangeland. These categories are associated with different crops, agricultural activities, stewardship practices, and intersections with critical areas.
- **Critical areas assessment.** This was based on the following elements
    - Critical areas designations included in the County's Critical Areas Ordinance (CAO; see Appendix B-3 for CAO summary).
    - Data sources for planning-level critical areas mapping (Appendix A: Map Folio) and critical area/agricultural intersections summaries (Appendix B-4: Baseline Conditions Critical Areas Data Summary Tables) ranged from 2007 to 2016 and included data relied on for the County's recent Shoreline Master Program update (2016). See Table 1 for a complete list of data sources.

- **Privately owned lands**. These were used when assessing critical area intersections with agricultural lands. The VSP does not apply to agricultural activities occurring on public lands through leases or other agreements.
- **Use of maps**. Data sources and the VSP Map Folio (Appendix A) were used to assess the potential presence of critical areas within the County, and intersections with agricultural lands were used for planning-level purposes only. Actual critical areas presence is determined on a case-by-case basis through farm stewardship planning.

Data Sources

The data sources listed in Table 1 were used in the baseline conditions inventory to assess the conditions as close to the 2011 baseline as data availability allowed.

Title	Date	Author(s)
GIS Data		
PRISM Climate Group Precipitation Data	2012	Oregon State University
USDA Agricultural Landcover	2011	US Dept of Agriculture
WSDA Agricultural Landcover	2011	US Dept of Agriculture
National Wetland Inventory Data	2010	US Fish & Wildlife Service
Streams and Rivers Data	2015	WA Dept of Natural Resources
Priority Habitat and Species Data	2010	WA Dept of Fish & Wildlife
Critical Aquifer Recharge Area	2015	WA Dept of Health
Water Erosion Potential	2014	Natural Resources Conservation Service
Wind Erosion Susceptibility	2014	Natural Resources Conservation Service
Special Flood Hazard Areas	2010	Federal Emergency Mgt Agency
Hydraulic Unit Code (HUC) 10 data	2013	Bureau of Land Mgt
Watershed Resource Inventory Area (WRIA)	2000	WA Dept of Ecology
Public Lands (Gap Analysis Program)	2016	US Geologic Survey
Public Lands (Public Lands Inventory)	2014	WA Recreation & Conservation Office
Public Lands (Non-DNR Major Public Lands)	2016	WA Dept of Natural Resources

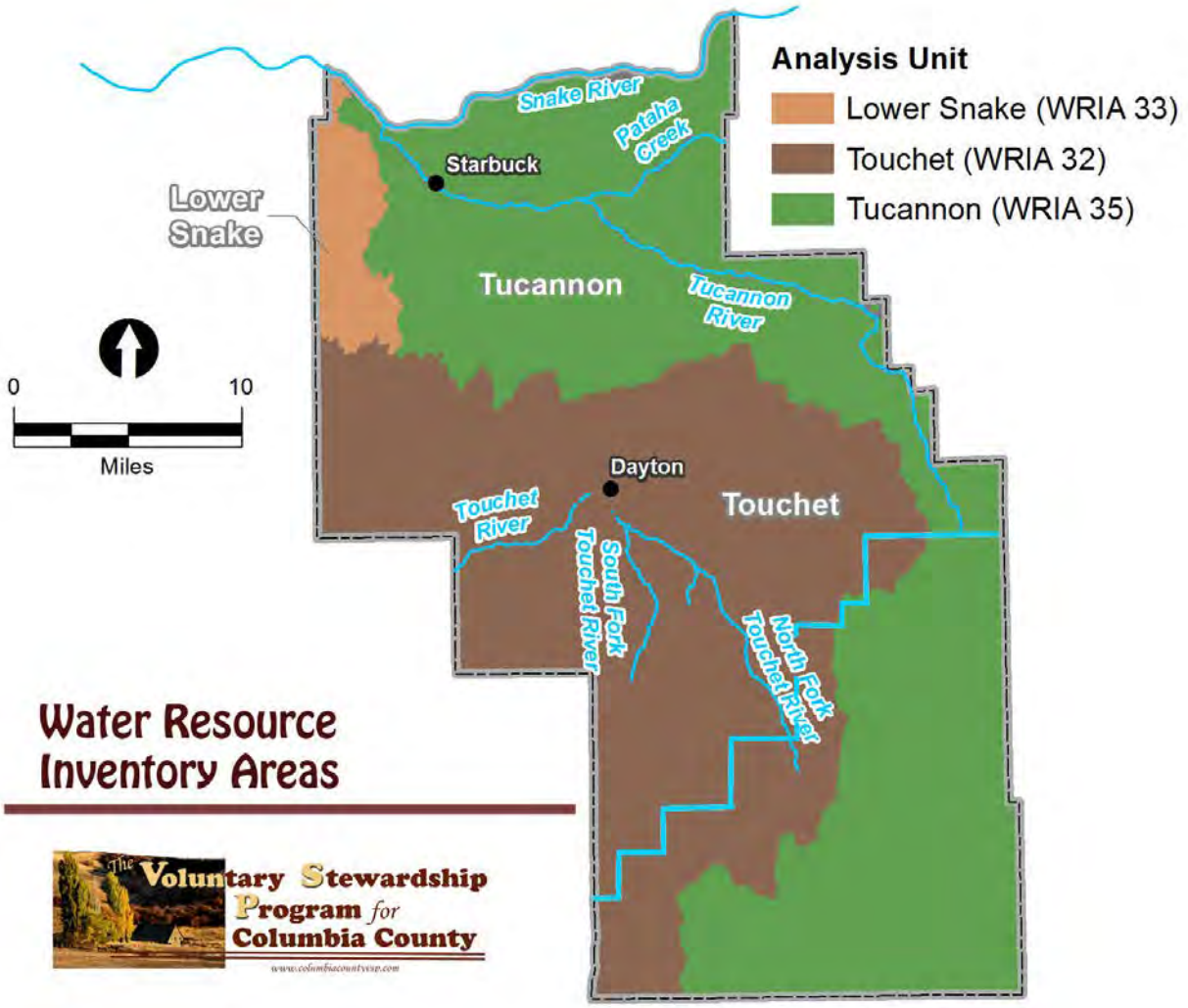
Appendix B-2:
Watershed Analysis Units

Appendix B-2: Water Resource Inventory Areas

For the purposed of the Columbia County Voluntary Stewardship (VSP) Work Plan (Work Plan) three Water Resource Inventory Areas (WRIAs) were identified to develop a more localized planning approach during implementation of the Work Plan (see Figure 1). Although the Work Plan and the goals and benchmarks discussed in the Work Plan (Section 5) apply County-wide, the following WRIAs will help realize more localized watershed objectives during implementation. These WRIAs are defined by the following WRIA boundaries:

- Lower Snake (WRIA 33)
- Touchet (WRIA 32)
- Tucannon (WRIA 35)

Figure 1
Watershed Analysis Units Map



Sources

Title	Date	Author(s)
GIS Data		
PRISM Climate Group Precipitation Data	2012	Oregon State University
USDA Agricultural Landcover	2011	US Dept of Agriculture
WSDA Agricultural Landcover	2011	US Dept of Agriculture
National Wetland Inventory Data	2010	US Fish & Wildlife Service
Streams and Rivers Data	2015	WA Dept of Natural Resources
Priority Habitat and Species Data	2010	WA Dept of Fish & Wildlife
Critical Aquifer Recharge Area	2015	WA Dept of Health
Water Erosion Potential	2014	Natural Resources Conservation Service
Wind Erosion Susceptibility	2014	Natural Resources Conservation Service
Special Flood Hazard Areas	2010	Federal Emergency Mgt Agency
Hydraulic Unit Code (HUC) 10 data	2013	Bureau of Land Mgt
Watershed Resource Inventory Area (WRIA)	2000	WA Dept of Ecology
Public Lands (Gap Analysis Program)	2016	US Geologic Survey
Public Lands (Public Lands Inventory)	2014	WA Recreation & Conservation Office
Public Lands (Non-DNR Major Public Lands)	2016	WA Dept of Natural Resources

Lower Snake Water Resource Inventory Areas

The Lower Snake WRIA comprises a small portion in the northwest corner County and is bordered on the north edge by the Snake River (WRIA 33). There are 19,505 acres in this unit, 18,580 (95.3%) of which are privately-owned. Of that private land, the landcover types include 13,914 acres (71.3%) of dryland crops and 4,666 acres (23.9%) in rangeland. There is no irrigated ag land in this unit.

Profile

Precipitation in the unit ranges from 10 to 20 inches in the Lower Snake unit. Groundwater is generally located in basalt aquifers. The soils here are dominantly from the loess soil group, well-drained, medium-textured and underlain by bedrock.

Critical Areas

There are 18,273 acres of ag land intersecting with critical areas in the Lower Snake unit, which is nearly 94% of the ag land.

Fish and Wildlife Habitat Areas (FWHAs) are mapped as Priority Habitat and Species (PHS) within the Lower Snake unit. 4,345 acres of private agricultural lands include mapped PHS areas. The two primary species here are mule deer and ring-necked pheasant.

There are no wetlands within this unit. There are 74 miles of streams which includes 112 acres of frequently flooded areas. In addition, there are no critical aquifer recharge areas in this unit. A large portion of the private ag lands in this unit, 18,173 acres, have a water erosion potential. There are 2,297 acres which have a wind erosion potential.

Critical Area Functions

Critical area functions, including water quality, habitat, soil, and hydrology, are discussed below. This discussion focuses on existing functions and potential stressors on functions from agricultural activities on private lands.

Water Quality Function

- Riparian vegetation, where it occurs, includes a mix of native and introduced trees and shrub. These areas provide stream cover, which reduces temperatures and helps to filter surface and groundwater inputs.

Habitat Function

- Upland and riparian habitat: Upland and riparian habitat in agricultural areas primarily occurs in the margins between fields. These areas and the cultivated fields provide habitat opportunities for pollinators, shelter and migration corridors for terrestrial species, and forage and breeding opportunities, particularly for a variety of avian and terrestrial species. The shrub-steppe uplands are primarily used as rangeland.
- Aquatic habitat: The Snake River is the prominent feature in the Lower Snake unit, providing a variety of riparian habitats. As noted above, there are no designated wetlands in this unit. Riparian vegetation provides cover and food inputs for aquatic species.
- Wildlife and habitat: Priority species occurrences in the Lower Snake unit include ring-necked pheasant and mule deer.

Soil and Hydrology Functions

- The primary surface water movement is centered on the Snake River. All drainages lead to this significant water body.
- The soils are characterized as loess soils with moderate water erosion susceptibility.

Indirect Effects of Agriculture on Critical Area Functions

Indirect effects occur within areas that are not adjacent to or within critical areas. Within the Lower Snake unit, agricultural activities can have indirect effects on surface and groundwater quality function and quantity (hydrology function) where the community's loess soils have moderate water infiltration properties. Moderate water erosion susceptibility areas are designated across the Lower Snake unit, which can affect soil health and agricultural viability, and have been identified as a management concern for this area. Water erosion is a concern in steeper slope areas or can be exacerbated by intensive crop management practices or wildfire (NRCS 2006).

Other major resource concerns include loss of shrub-steppe habitat, nutrient contribution to receiving waters and water quality impacts, floodplain development, wetland and riparian habitat degradation, and inefficient water supply.

Critical Area Functions by Agricultural Type

The table below provides a breakdown of critical areas for the Lower Snake WRIA separated into dryland, irrigated crops and rangelands.

Lower Snake Unit Critical Areas by Agricultural Type (Private)

	Dryland Crops		Irrigated Crops		Rangelands	
Streams and Riparian Areas	Miles	% of Stream Miles	Miles	% of Stream Miles	Miles	% of Stream Miles
Streams Total	39	53	**0**	0.0	35	47
Riparian Areas Total	**0**	0.0	**0**	0.0	**0**	0.0
	Dryland Crops		Irrigated Crops		Rangelands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland
Wetlands	0	0.0	0	0.0	0	0.0
PHS (Game Species)	1,832	13	0	0.0	2,513	54
Birds	1,072	7	0	0.00	440	9
Chukar	0	0.00	0	0.00	2	0.37
Ring-necked Pheasant	1,072	7	0	0.00	436	9
Mammals	2,847	20	0	0.00	2,076	44
Bighorn Sheep	0	0.00	0	0.00	0	0.00
Mule Deer	761	5	0	0.00	2,076	44
Northwest White-tailed Deer	0	0.00	0	0.00	0	0.00
Rocky Mountain Elk	0	0.00	0	0.00	0	0.00
Frequently Flooded Areas	18	0.1	0	0.0	94	2
Critical Aquifer Recharge Areas	0	0.0	0	0.0	0	0.0
Water Erosion Potential	13,744	98	0	0.0	4,429	94
Moderate	391	3	0	0.0	27	0.05
Severe to Very Severe	13,353	96	0	0.0	4,402	94
Wind Erosion Potential (1 to 4)	1,447	10	0	0.0	850	18

Indirect Effects of Agriculture on Critical Area Functions

Indirect effects occur within areas that are not adjacent to or within critical areas. Within the Lower Snake unit, agricultural activities can have indirect effects on surface and groundwater quality function and quantity (hydrology function) where the community's loess soils have moderate water infiltration properties. Moderate water erosion susceptibility areas are designated across the Lower Snake unit, which can affect soil health and agricultural viability, and have been identified as a management concern for this area. Water erosion is a concern in steeper

slope areas or can be exacerbated by intensive crop management practices or wildfire (NRCS 2006).

Other major resource concerns include loss of shrub-steppe habitat, nutrient contribution to receiving waters and water quality impacts, floodplain development, wetland and riparian habitat degradation, and inefficient water supply.

Protection/Enhancement Objectives for the Lower Snake WRIA unit:

- Protect and restore riparian, wetland, grassland, prairie, shrub-steppe, and other habitats within the Lower Snake unit
- Address soil compaction, accelerated erosion, and reduction in water infiltration and soil holding capacity from agricultural activities, particularly in moderately to severe water erosion potential areas located throughout the unit
- Encourage and implement vegetated buffer strips, and reduced-till/direct seed operations
- Discourage commercial fertilizer over-application and resulting excess nutrient contribution to receiving waters
- Manage livestock grazing and winter-feeding operations, which can result in excess sediment, and bacteria and nutrient contributions to receiving waters
- Restore and enhance natural floodplain, riparian, and wetland capacities to increase aquifer recharge, improve water quality, provide aquatic and riparian habitat, and reduce the duration and severity of flood events within the Lower Snake unit.
- Protect aquatic life and water quality in streams within the unit
- Implement water resources conservation efforts for multiple uses, including agriculture

Key Stewardship Practices for the Lower Snake WRIA unit:

- Critical area planting
- Upland and wetland wildlife habitat management
- Direct seed and/or reduced till
- Conservation cover
- Riparian herbaceous cover/filter strips
- Tree/shrub establishment
- Nutrient management
- Prescribed grazing
- Fencing
- Stream habitat improvement and management

Touchet Water Resource Inventory Area

The Touchet water resource inventory area (WRIA 32) comprises a large portion of the west and central part of the County and is bordered on the west edge by Walla Walla County. There are 256,538 acres in this unit, 196,306 (76.5%) of which are privately-owned. Of that private land, the landcover types include 121,890 acres (47.5%) of dryland crops, 600 acres (0.2%) of irrigated land and 73,509 acres (28.8%) in rangeland.

Profile

Precipitation in the unit ranges from 14 in the northern portion of the watershed unit to over 40 inches of moisture per year in the higher elevations of the southern part of the Touchet watershed unit. Groundwater is generally located in basalt aquifers. The soils in the northwestern and central parts (around Dayton) of this unit are dominantly from the loess soil group, well-drained, medium-textured and underlain by bedrock. Along the Touchet and its tributaries, the soils are well-drained, medium-textured with some gravelly and cobbly types mixed in and were formed in alluvium. The soils in the southern portion of this unit can include all of the above as well as soils formed from volcanic ash and weathered basalt.

Critical Areas

There are 181,800 acres of ag land intersecting with critical areas in the Lower Snake unit, which is nearly 71% of the ag land.

Fish and Wildlife Habitat Areas (FWHAs) are mapped as Priority Habitat and Species (PHS) within the Touchet WRIA. 166,360 acres of private agricultural lands include mapped PHS areas. The dominant species here are mule deer, white-tailed deer, Rocky Mountain elk and ring-necked pheasant.

There are 367 acres of wetlands identified within this unit. There are 1,007 miles of stream which includes 355 miles of riparian habitat. 4,451 acres are classified as frequently flooded areas. In addition, there are 6,091 acres of critical aquifer recharge areas in this unit. A large portion of the private ag lands in this unit, 179,835 acres, have a water erosion potential. There are 14,385 acres which have a wind erosion potential.

Critical Area Functions

Critical area functions, including water quality, habitat, soil, and hydrology, are discussed below. This discussion focuses on existing functions and potential stressors on functions from agricultural activities on private lands.

Water Quality Function

- Riparian vegetation, where it occurs, includes a mix of native and introduced trees and shrub. These areas provide stream cover, which reduces temperatures and helps to filter surface and groundwater inputs.

Habitat Function

- Upland and riparian habitat: Upland and riparian habitat in agricultural areas primarily occurs in the margins between fields. These areas and the cultivated fields provide habitat opportunities for pollinators, shelter and migration corridors for terrestrial species, and forage and breeding opportunities, particularly for a variety of avian and terrestrial species. The shrub-steppe uplands are primarily used as rangeland.
- Aquatic habitat: The Touchet River is the prominent feature in the Touchet unit, providing a variety of riparian habitats. As noted above, there are 367 acres of designated wetlands in this unit. Riparian vegetation provides cover and food inputs for aquatic species.
- Wildlife and habitat: Priority species occurrences in the Touchet unit include ring-necked pheasant, Rocky Mountain elk, white-tailed deer and mule deer.

Soil and Hydrology Functions

- The primary surface water movement is centered on the Touchet River. All drainages lead to this water body.
- The soils are characterized as predominately loess soils with moderate water erosion susceptibility.

Indirect Effects of Agriculture on Critical Area Functions

Indirect effects occur within areas that are not adjacent to or within critical areas. Within the Touchet unit, agricultural activities can have indirect effects on surface and groundwater quality function and quantity (hydrology function) where the community's loess soils have moderate water infiltration properties. Moderate water erosion susceptibility areas are designated across the Touchet unit, which can affect soil health and agricultural viability, and have been identified as a management concern for this area. Water erosion is a concern in steeper slope areas or can be exacerbated by intensive crop management practices or wildfire (NRCS 2006).

Other major resource concerns include loss of shrub-steppe habitat, nutrient contribution to receiving waters and water quality impacts, floodplain development, wetland and riparian habitat degradation, and inefficient water supply.

Critical Area Functions by Agricultural Type

The table below provides a breakdown of critical areas for the Touchet WRIA separated into dryland, irrigated crops and rangelands.

Touchet Unit Critical Areas by Agricultural Type (Private)

	Dryland Crops		Irrigated Crops		Rangelands	
Streams and Riparian Areas	Miles	% of Stream Miles	Miles	% of Stream Miles	Miles	% of Stream Miles
Streams Total	347	36	**2**	0.0	616	64
Riparian Areas Total	**3**	0.0	**0**	0.0	**345**	99
	Dryland Crops		Irrigated Crops		Rangelands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland
Wetlands	49	0.000	1	0.000	298	0.000
PHS (Game Species)	91,452	75	601	100	71,094	96
Birds	3,874	3	0	0.00	608	0.00
Chukar	0	0.00	0	0.00	0	0.0
Ring-necked Pheasant	3,874	3	0	0.00	608	0.00
Mammals	88,226	72	600	100	70,610	96
Bighorn Sheep	0	0.00	0	0.00	0	0.00
Mule Deer	9,514	8	0	0.00	42,205	57
Northwest White-tailed Deer	87,361	72	600	100	47,485	64
Rocky Mountain Elk	4,995	4	0	0.00	41,260	56
Frequently Flooded Areas	1,978	2	189	32	2,031	3
Critical Aquifer Recharge Areas	360	0.0	6	0.0	5,394	7
Water Erosion Potential	115,940	95	85	14	61,416	83
Moderate	10,257	8	29	5	9,464	13
Severe to Very Severe	105,682	87	56	9	51,952	70
Wind Erosion Potential (1 to 4)	604	0.00	0	0.0	13,472	18

Indirect Effects of Agriculture on Critical Area Functions

Indirect effects occur within areas that are not adjacent to or within critical areas. Within the Touchet unit, agricultural activities can have indirect effects on surface and groundwater quality function and quantity (hydrology function) where the community's loess soils have moderate water infiltration properties. Moderate water erosion susceptibility areas are designated across the Touchet unit, which can affect soil health and agricultural viability, and have been identified as a management concern for this area. Water erosion is a concern in steeper slope

areas or can be exacerbated by intensive crop management practices or wildfire (NRCS 2006).

Other major resource concerns include loss of habitat, nutrient contribution to receiving waters and water quality impacts, floodplain development, wetland and riparian habitat degradation, and inefficient water supply.

Protection/Enhancement Objectives for the Touchet WRIA unit:

- Protect and restore riparian, wetland, grassland, prairie, shrub-steppe, and other habitats within the Touchet unit
- Address soil compaction, accelerated erosion, and reduction in water infiltration and soil holding capacity from agricultural activities, particularly in moderately to severe water erosion potential areas located throughout the unit
- Encourage and implement vegetated buffer strips, and reduced-till/direct seed operations
- Discourage commercial fertilizer over-application and resulting excess nutrient contribution to receiving waters
- Manage livestock grazing and winter-feeding operations, which can result in excess sediment, and bacteria and nutrient contributions to receiving waters
- Restore and enhance natural floodplain, riparian, and wetland capacities to increase aquifer recharge, improve water quality, provide aquatic and riparian habitat, and reduce the duration and severity of flood events within the Touchet unit.
- Protect aquatic life and water quality in streams within the unit
- Implement water resources conservation efforts for multiple uses, including agriculture

Key Stewardship Practices for the Touchet WRIA unit:

- Critical area planting
- Upland and wetland wildlife habitat management
- Direct seed and/or reduced till
- Conservation cover
- Riparian herbaceous cover/filter strips
- Tree/shrub establishment
- Nutrient management
- Prescribed grazing
- Fencing
- Stream habitat improvement and management

Tucannon Water Resource Inventory Area

The Tucannon water resource inventory area (WRIA 35) comprises a large portion of the eastern side of the County and is bordered on the north side by the Snake River and on the east edge by Garfield County. There are 283,018 acres in this unit, 139,398 (49.3%) of which are privately-owned ag land. Of that private land, the landcover types include 65,917 acres (23.3%) of dryland crops, 1,720 acres (0.6%) of irrigated land and 71,761 acres (25.4%) in rangeland.

Profile

Precipitation in the unit ranges from 12 in the northern portion of the watershed unit to over 40 inches of moisture per year in the higher elevations of the southern part of the Tucannon watershed unit. The soils in the northeastern and eastern parts of this unit are dominantly from the loess soil group, well-drained, medium-textured and underlain by bedrock. Along the Tucannon and its tributaries, the soils are well-drained, medium-textured with some gravelly and cobbly types mixed in and were formed in alluvium. The soils in the southern portion of this unit can include all of the above as well as soils formed from volcanic ash.

Critical Areas

There are 135,069 acres of ag land intersecting with critical areas in the Tucannon unit, which is nearly 48% of the ag land.

Fish and Wildlife Habitat Areas (FWHAs) are mapped as Priority Habitat and Species (PHS) within the Tucannon watershed unit. 71,070 acres of private agricultural lands include mapped PHS areas. The dominant species here are mule deer, white-tailed deer, Rocky Mountain elk, chukar and ring-necked pheasant.

There are 405 acres of wetlands identified within this unit. There are 510 miles of stream which includes 15 miles of riparian habitat. 3,330 acres are classified as frequently flooded areas. In addition, there are 267 acres of critical aquifer recharge areas in this unit. A large portion of the private ag lands in this unit, 133,408 acres, have a water erosion potential. There are 8,630 acres which have a wind erosion potential.

Critical Area Functions by Agricultural Type

The table on the next page provides a breakdown of critical areas for the Tucannon WRIA separated into dryland, irrigated crops and rangelands.

Tucannon Unit Critical Areas by Agricultural Type (Private)

	Dryland Crops		Irrigated Crops		Rangelands	
Streams and Riparian Areas	Miles	% of Stream Miles	Miles	% of Stream Miles	Miles	% of Stream Miles
Streams Total	128	27	**3**	0.0	351	73
Riparian Areas Total	**0**	0.0	**0**	0.0	**14**	100
	Dryland Crops		Irrigated Crops		Rangelands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland
Wetlands	28	8	13	4	325	88
PHS (Game Species)	21,563	33	1,572	91	46,505	65
Birds	3,171	5	592	34	11,964	17
Chukar	2,140	3	0	0.00	10,247	14
Ring-necked Pheasant	1,030	2	592	34	11,964	17
Mammals	21,120	32	1,445	84	45,510	63
Bighorn Sheep	0	0.00	0	0.00	0	0.00
Mule Deer	5,707	9	567	33	32,448	45
Northwest White-tailed Deer	17,293	26	1,445	84	29,106	41
Rocky Mountain Elk	60	0.00	0	0.00	388	1
Frequently Flooded Areas	456	1	575	33	1,982	3
Critical Aquifer Recharge Areas	14	0.0	0	0.0	245	1
Water Erosion Potential	68,814	98	549	32	66,388	94
Moderate	10,497	16	99	6	2,042	3
Severe to Very Severe	54,317	82	451	26	64,345	90
Wind Erosion Potential (1 to 4)	2,183	3	320	19	5,081	

Appendix B-3:
Columbia County CAO Designations, Definitions and PHS List

Appendix B-3: Columbia County CAO Designations, Definitions

"Columbia County Critical Areas and Resource Lands Ordinance".

General Provisions

Critical areas in Columbia County are categorized as follows:

1. Wetlands
2. Fish and Wildlife Habitat Conservation Areas
3. Critical Aquifer Recharge Areas
4. Geologically Hazardous Areas
5. Frequently Flooded Areas

1. WETLANDS **Section 01: Designation. rating. and mapping**

A. Designation: "Wetlands" are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas created to mitigate conversion of wetlands.

B. Ratings: Wetlands shall be rated according to the Department of Ecology wetland rating system found in the Washington State Wetland Rating System documents or as revised by Ecology. These documents contain the methods for determining the following rating criteria:

1. Wetland rating categories

a. Category I: Category I wetlands shall meet the following criteria:

i. Documented habitat for federal or state listed endangered or threatened fish, animal, or plant species;

ii. High quality native wetland communities, including documented category I or II quality Natural Heritage wetland sites and sites which qualify as a category I or II quality Natural Heritage wetland as defined in the rating system documents;

iii. High quality, regionally rare wetland communities with irreplaceable ecological functions, including sphagnum bogs and fens, estuarine, wetlands, or mature forested swamps as defined in the rating system documents; or,

iv. Wetlands of exceptional local significance.

b. Category II: Category II wetlands shall meet the following criteria:

Documented habitats for state listed sensitive plant, fish, or animal species;

Wetlands that contain plant, fish, or animal species listed as priority species by the state Department of Fish and Wildlife;

iii. Wetland types with significant functions that may not be adequately replicated through creation or restoration;

iv. Wetlands possessing significant habitat value based on a score of 22 or more points in the habitat rating system; or,

v. Documented wetlands of local significance.

c. Category Ill: Category Ill wetlands are those that do not satisfy category I, II or IV criteria, and with a habitat value rating of 21 points or less.

d. Category IV: Category IV wetlands shall meet the following criteria:

Hydrologically isolated wetlands that are less than or equal to 1 acre in size, have only one wetland class, and are dominated (greater than 80% aerial cover) by a single non-native plant species (monotypic vegetation) or,

Hydrologically isolated wetlands that are less than or equal to 2 acres in size, and have only one wetland class and greater than 90% aerial cover of non-native plant species.

Date of wetland rating: Wetland rating categories shall be applied as the wetland exists on the date of adoption of the rating system by the County, as the wetland naturally changes thereafter, or as the wetland changes in accordance with permitted activities. Wetland rating categories shall not change due to illegal modifications.

Mapping: The National Wetlands Inventory and United States Department of Agriculture National Resources Conservation Service soil maps are hereby adopted to be used for determining the approximate location and extent of County wetlands. These maps shall be used as a guide and do not provide a final critical area designation. The exact location of a wetland's boundary shall be determined through the performance of a field investigation by a qualified professional applying the Washington State Wetland's Identification and Delineation Manual as required pursuant to R.C.W. 36.70A.175.

2. FISH AND WILDLIFE HABITAT CONSERVATION AREAS

Section 01: Designation

A. All areas within Columbia County meeting one or more of the following criteria, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this ordinance. Fish and wildlife habitat conservation areas shall include:

1. Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association.
2. State priority habitats and areas associated with state priority species.
3. Habitats and species of local importance.
4. Naturally occurring ponds under 20 acres.
5 . Waters of the state. Includes lakes, rivers, ponds, streams, inland waters, and all other surface waters and watercourses within the state of Washington as classified in WAC 222-16-031. Lakes, ponds, rivers, and streams planted with game fish by a government or tribal entity.
7. State natural area preserves and natural resource conservation areas.
8. Land essential for preserving connections between habitat blocks and open spaces.

B. The following critical area maps are hereby adopted by the County and shall be used to give an approximate location and extent of habitat conservation areas. These maps are subject to continuous updating as new critical areas are identified; therefore, they are a reference source and are not intended to provide a final critical area designation. They are as follows:

1. Department of Fish and Wildlife Priority Habitat and Species Maps.
2. Department of Natural Resources Official Water Type Reference Maps, as amended.
3. Department of Natural Resources Shorezone Inventory.
4. Department of Health Annual Inventory of Shellfish Harvest Areas.

Anadromous and resident salmonid distribution maps contained in the Habitat Limiting Factors Reports published by the Washington Conservation Commission. Department of Natural Resources State Natural Area Preserves and Natural Resource Conservation Area Maps.

7. Columbia county habitat maps.

Detailed information regarding the location, type, and extent of fish and wildlife habitat conservation areas may be obtained by consulting with the County or with a relevant agency such as the U.S. Fish and Wildlife Service, the state Fish and Wildlife Department, the Department of Natural Resources, the Snake River Salmon Recovery Board, and the National Marine Fisheries Service.

3. CRITICAL AQUIFER RECHARGE AREAS

Section 01: Designation

A. Critical aquifer recharge areas are those areas with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). Critical aquifer recharge areas have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of ground water resources or contribute significantly to the replenishment of ground water. These areas include the following:

1. Wellhead protection areas: Wellhead protection areas may be defined by the boundaries of the ten year time of ground water travel or boundaries established using alternate criteria approved by the Department of Health in those settings where ground water time of travel is not a reasonable delineation criterion, in accordance with WAC 246-290-135.

2. Sole source aquifers: Sole source aquifers are areas designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act.

3. Susceptible ground water management areas: Susceptible ground water management areas are areas that have been designated as moderately, or highly vulnerable or susceptible in an adopted ground water management program developed pursuant to Chapters 173-100 WAC.

4. Special protection areas: Defined pursuant to WAC 173-200-090. Moderately. highly vulnerable or highly susceptible aquifer recharge areas: Aquifer recharge areas that are moderately, highly vulnerable or highly susceptible to degradation or depletion due to hydro-geologic characteristics are those areas delineated by a hydro-geologic study prepared in accordance with the state Department of Ecology guidelines or meeting the criteria established by the Department of Ecology.

B. Aquifer recharge area susceptibility ratings: Aquifer recharge areas shall be rated as having high, moderate, or low susceptibility based on soil permeability, geologic matrix, infiltration, and depth to water as determined by the criteria established by the state Department of Ecology.

C. Maps: Maps showing the approximate location and extent of critical aquifer recharge areas may be obtained or viewed at County offices. These maps are subject to continuous updating as new critical areas are identified; therefore, they are a reference source and are not intended to provide a formal critical area designation.

4. GEOLOGICALLY HAZARDOUS AREAS

Section 01: Designation Areas susceptible to one or more of the following types of hazards shall be designated as a geologically hazardous area:

1. Erosion hazard area: Erosion hazard areas are at least those areas identified by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "moderate to severe", "severe" or "very severe" rill and inter-rill erosion hazard.
2. Landslide hazard area: Landslide hazard areas include areas susceptible because of any combination of bedrock, soil, slope, slope aspect, structure, hydrology, or other factors and may include, but not be limited to the following:
   a. Areas delineated by the U..S. Department of Agriculture's Natural Resources Conservation Service as having a "severe" limitation for building and development.
   b. Areas mapped by the Department of Natural Resources "u" or class 3, "UOS" or class 4, and "URS" or class 5.
   c. Areas designated as quaternary slumps, earthflows, mudflows, or landslides on maps published by the U.S. Geological Surveyor Department of Natural Resources.
3. Areas with all three of the following characteristics:
   a. Slopes steeper than 15%.
   b. Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock.
   c. Springs or ground water seepage.
4. Areas that have shown movement during the Holocene epoch 10,000 years ago to the present or are underlain or covered by mass wastage debris from that epoch.
5. Slopes that are parallel or sub-parallel to planes of weakness in sub-surface material such as bedding planes, joint systems, and fault planes.
6. Slopes having gradients steeper than 80% subject to rock fall during seismic shaking.
7. Areas potentially unstable because of rapid stream incision, stream bank erosion, and undercutting by wave action.
8. Areas that show evidence of risk from snow avalanches.
9. Areas located in a canyon or on an active alluvial fan presently or potentially subject to inundation by debris flows or catastrophic flooding.
10. Areas with a 40% or steeper slope with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope shall be delineated by establishing its toe and its top and measured by averaging the inclination over 10 feet or more of vertical relief.
11. Seismic hazard areas: Areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement,

soil liquefaction, lateral spreading, or surface faulting.

12. Other hazard areas: Areas determined by the administrative official to be susceptible to other geological events including mass wasting, debris flows, rock falls, and differential settlement.

Section 02: Maps

The approximate location and extent of geologically hazardous areas are shown on the following critical area maps hereby adopted for reference. These maps are subject to continuous updating as new critical areas are identified; therefore, they are a reference source and are not intended to provide a final critical area designation. They are as follows:

1. U.S. Geological Survey landslide and seismic hazard maps.
2. Department of Natural Resources slope stability maps.
3. Federal Emergency Management Administration flood insurance maps.
4. Applicable maps adopted by Columbia county and local jurisdictions.

5. FREQUENTLY FLOODED AREAS

Section 01: Designation

Frequently flooded areas shall include the following:

1. Areas of special flood hazard: Areas identified by the Federal Insurance Administration Flood Insurance Study for Columbia County and Incorporated Areas dated July 19, 2000 (revised) and accompanying maps, including Federal Emergency Management Agency Flood Insurance Rate Maps.
2. Areas identified by the administrative official: Areas of special flood hazard identified by the administrative official based on review of base flood elevation and floodway data available from federal, state, local agency, or other valid sources when base flood elevation data has not been provided by the Federal Insurance Administration.

Section 02: Critical area report - additional requirements

In addition to the basic critical area report requirements, the following information shall be included in critical area reports for frequently flooded areas:

1. All areas of a special flood hazard area as indicated on the flood insurance maps within 200 feet of the project area.
2. All other flood areas indicated on the flood insurance maps within 200 feet of the project area.
3. Site plan details illustrating the following:
    a. Floodplain, 10, 50, and 100 year flood elevations, floodway, other critical areas, buffers, and shoreline areas.
    b. Proposed development including the location of existing and

proposed structures, fill, storage of materials, and drainage facilities, with dimensions indicating distances from the floodplain.

c. Clearing limits.
d. Elevation of the lowest floor of all structures and the level to which any nonresidential structure has been flood-proofed.
e. Extent of watercourse alteration for any proposed alterations. The alteration description shall include a maintenance program. that provides maintenance practices for the altered or relocated portion of the watercourse to ensure that the flood carrying capacity is not diminished. Information describing and documenting how the proposed watercourse alteration complies with requirements of Fish and Wildlife Habitat Conservation Areas, the County shoreline management program, and any other applicable state, federal, and local permit requirements.

Attachment 1.Columbia County List of Priority Habitats and Species

The following listing is provided by the Washington State Department of Fish and Wildlife from the Priority Habitat and Species for Columbia County.

Habitats: Aspen Stands
Biodiversity Areas & Corridors
Juniper Savannah
Old-Growth/Mature Forest
Eastside Steppe
Riparian
Freshwater Wetlands & Fresh Deepwater
In-stream
Caves
Cliffs
Snags and Logs
Talus

Species:

AMPHIBIAN & REPTILE SPECIES	STATE STATUS	FEDERAL STATUS
Columbia Spotted Frog	Candidate	
Rocky Mountain Tailed Frog	Candidate	
Western Toad	Candidate	
Sagebrush Lizard	Candidate	

FISH SPECIES	STATE STATUS	FEDERAL STATUS
Pacific Lamprey		
River Lamprey	Candidate	Species of Concern
White Sturgeon		
Leopard Dace	Candidate	
Mountain Sucker	Candidate	
Bull Trout	Candidate	Threatened
Dolly Varden		
Chinook Salmon	Candidate	Threatened (Upper Columbia Spring run is Endangered)
Kokanee		
Steelhead	Candidate	Threatened
Rainbow Trout/ Inland Redband Trout		
Sockeye Salmon	Candidiate	Threatened – Ozette Lake Endangered – Snake River
Westslope Cutthroat		
Margined Sculpin	Sensitive	

INVERTEBRATE SPECIES	STATE STATUS	FEDERAL STATUS
Juniper Hairstreak	Candidate	

MAMMAL SPECIES	STATE STATUS	FEDERAL STATUS
Merriam's Shrew	Candidate	
Preble's Shrew	Candidate	
Roosting Concentrations of: Big-brown Bat, Myotis bats, Pallid Bat		
Townsend's Big-eared Bat	Candidate	
Black-tailed Jackrabbit	Candidate	
White-tailed Jackrabbit	Candidate	
Washington Ground Squirrel	Candidate	Threatened
Gray Wolf	Endangered	Endangered
Marten		
Wolverine	Candidate	Candidate
Bighorn Sheep		
Northwest White-tailed Deer		
Elk		
Rocky Mountain Mule Deer		

BIRD SPECIES	STATE STATUS	FEDERAL STATUS
Great Blue Heron		
Waterfowl Concentrations		
Ferruginous Hawk	Threatened	
Golden Eagle	Candidate	
Northern Goshawk	Candidate	
Prairie Falcon		
Chukar		
Dusky Grouse		
Mountain Quail		
Ring-necked Pheasant		
Wild Turkey		
Upland Sandpiper	Endangered	
E WA breeding occurrences of: Phalaropes, Stilts and Avocets		
Burrowing Owl	Candidate	
Flammulated Owl	Candidate	
Vaux's Swift	Candidate	
Black-backed Woodpecker	Candidate	
Lewis' Woodpecker	Candidate	
Pileated Woodpecker	Candidate	

Appendix B-4: GIS Data Summary Tables

Totals for Columbia County

GIS summary numbers			
County Acreage Total:	558,037		
CAO County Acreage Total:	372,269	67%	
PHS County Acreage Total:	5,884	*excludes game species	
Ag Landcover	**Private**	**Public**	**Total**
Ag Acreage Total:	354,284	181,162	535,446
% Ag in County:	63.5	32.5	
CAO	**Private**	**Public**	
Ag acreage intesecting with CA:	335,142	21,550	
% of Ag intersecting with CA:	60.1	3.9	
PHS	**Private**	**Public**	*merged polys
Ag acreage intesecting with CA:	1,893.55	638.65	no overlap
% of Ag intersecting with CA:	0.3	0.1	
Ag Lands within County	**Private**		
Agriculture Landcover Type	Acres	% of Total County	
Dryland - Crops	201,728	36.1	
Irrigated - Crops	2,320	0.4	
Rangelands	150,236	26.9	
Total	354,284	63.5	
	Public		
Dryland - Crops	2,765	0.5	
Irrigated - Crops	33	0.0	
Rangelands	178,364	32.0	
Total	181,162	32.5	

	Data provided by GIS
	Provided flattened PHS data
	Calculated Numbers

Notes:
1. Overlay all critical area datasets (including PHS) and then determine what percentage of region is a critical area (or PHS area). Include the following: streams/rivers (lengths); NWI wetlands; PHS data; NRCS Water Erosion potential: 1) moderate, 2) severe to very severe, and 3) total; 2-4 score within NRCS Wind Erodibility Group; FEMA Special Flood Hazard Area
2. Ag areas included in VSP are limited to privately-owned lands. Publicly-owned land is not managed under VSP,
3. Incorporated city limits are excluded from private land calculations.

Critical Areas within County	Private		Public		
Streams and Riparian Areas	Miles	% of Total County	Miles	% of Total County	Total Stream
Streams Total	1,591	NA	1,319	NA	2,910
Shorelines of the State	80	5.1	36	2.7	117
Fish Use or Potential Fish Use	142	8.9	212	16.1	354
No Fish Use	533	33.5	953	72.2	1,486
Unknown	835	52.5	118	9.0	953
Riparian Areas Total	370	23.2	1,099	83.3	1,468
Deciduous	0.2	0.0	0.0	0.0	0.2
Evergreen	306.7	19.3	918.7	69.7	1,225.5
Shrub	63	3.9	180	13.6	242.8
Other Critical Area Types	Acres	% of Total County	Acres	% of Total County	Total Acres in County
Wetlands (all types)	772	0.14	3,444	0.62	4,216
Freshwater Emergent Wetland	190	24.56	51	1.47	240
Freshwater Forested/Shrub Wetland	364	47.16	79	2.30	443
Lake/Pond	43	5.58	3,266	94.83	3,309
Riverine	144	18.61	38	1.12	182
Other	32	4.10	10	0.29	42
PHS	1,919.31	0.34	3,964.42	0.71	5,884
Birds	1	0.03	3,590	90.55	3,590
Waterfowl Concentrations	1	100.00	3,590	100.00	3,590
Cliffs/bluffs	1,919	99.97	393	9.90	2,311
PHS (Game Species)	241,776.08	43.33	90,208.60	16.17	331,985
Birds	22,346	9.24	2,203	2.44	24,549
Chukar	12,565	56.23	1,908	86.60	14,473
Ring-necked Pheasant	9,781	43.77	295	13.40	10,076
Mammals	234,896	97.15	89,880	99.64	324,776
Bighorn Sheep	0	0.00	12,062	13.42	12,062
Mule Deer	95,062	40.47	37,815	42.07	132,877
Northwest White-tailed Deer	186,876	79.56	52,572	58.49	239,449
Rocky Mountain Elk	47,661	20.29	58,877	65.51	106,538
Frequently Flooded Areas	7,893	1.41	4,316	0.77	12,209
Critical Aquifer Recharge Areas	6,358	1.14	6,207	1.11	12,564
Water Erosion Potential	331,416	59.4	27,148	4.9	358,564
Moderate	33,365	10.1	2,550	9.4	35,916
Severe to Very Severe	298,051	89.9	24,598	90.6	322,649
Wind Erosion Potential (1 to 4)	25,311	4.54	5,901	1.06	31,213

Critical Areas by Agricultural Type (Private)								
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Streams and Riparian Areas	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	513	17.6	5	0.2	999	34.3	1,517	52.1
Shorelines of the State	4.4	0.9	0.1	2.1	70.0	7.0	74.5	4.9
Fish Use or Potential Fish Use	20.1	3.9	0.0	0.6	109.9	11.0	130.1	8.6
No Fish Use	106.4	20.7	2.1	41.9	409.3	41.0	517.8	34.1
Unknown	382.3	74.5	2.8	55.3	410.0	41.0	795.1	52.4
Riparian Areas Total	3	0.5	0	0.0	360	36.0	362	24
Deciduous	0.0	0.0	0.0	0.0	0.2	0.0	0	0.0
Evergreen	0.5	0.1	0.0	0.0	301.2	30.1	302	19.9
Shrub	2.3	0.4	0.0	0.0	58.2	5.8	61	4.0
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	76	0.0	14	0.6	623	0.4	714	0.2
Freshwater Emergent	39	50.6	2	12.6	130	20.9	170	23.9
Freshwater Forested/Shrub	29	37.7	11	78.5	296	47.5	336	47.1
Lake/Pond	4	5.0	1	6.4	34	5.5	39	5.5
Riverine	4	5.1	0	2.4	134	21.5	138	19.3
Other	1	1.6	0	0.0	29	4.7	30	4.2
PHS	206	0.1	10	0.4	1,678	1.12	1,894	0.5
Birds	0	0.00	0	0.00	1	0.04	1	0.03
Waterfowl Concentrations	0	0.00	0	0.00	1	100.00	1	100.00
Cliffs/bluffs	206	100.00	10	100.00	1,677	99.96	1,893	99.97
PHS (Game Species)	114,847.70	56.9	2,172	93.6	120,034	79.90	237,054	66.9
Birds	8,117	7.07	592	27.27	12,988	10.82	21,697	9.15
Chukar	2,140	26.37	0	0.00	10,249	78.91	12,389	57.10
Ring-necked Pheasant	5,976	73.63	592	100.00	2,739	21.09	9,308	42.90
Mammals	110,106	95.87	2,046	94.19	118,141	98.42	230,293	97.15
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	0.00
Mule Deer	15,981	14.51	567	27.74	76,673	64.90	93,222	40.48
Northwest White-tailed Deer	104,654	95.05	2,046	100.00	76,591	64.83	183,291	79.59
Rocky Mountain Elk	5,055	4.59	0	0.00	41,647	35.25	46,703	20.28
Frequently Flooded Areas	2,451	1.2	764	32.9	4,099	2.7	7,314	2.1
Critical Aquifer Recharge Areas	373	0.2	6	0.3	5,639	3.8	6,019	1.7
Water Erosion Potential	194,497	96.4	634	27.3	132,104	87.9	327,236	92.4
Moderate	21,145	10.9	127	20.1	11,531	8.7	32,804	10.0
Severe to Very Severe	173,352	89.1	507	79.9	120,573	91.3	294,432	90.0
Wind Erosion Potential (1 to 4)	4,234	2.1	320	13.8	20,089	13.4	24,643	7

	Precent of Total Ag lands (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	32.3	0.3	62.8	95.4
Streams	17.3	0.3	78.0	95.6
Unknown Streams	45.8	0.3	49.1	95.2
Riparian Areas Total	0.5	0.0	36.0	23.9
Wetlands	0.0	0.6	0.4	0.2
PHS	0.1	0.4	1.1	0.5
Frequently Flooded Areas	1.2	32.9	2.7	2.1
Critical Aquifer Recharge Areas	0.2	0.3	3.8	1.7
Water Erosion Potential	96.4	27.3	87.9	92.4
Severe	10	5	8	9
Wind Erosion Potential (1 to 4)	2.1	13.8	13.4	7

Critical Areas by Agricultural Type (Public)								
Streams and Riparian Areas	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	3	0.1	0	0.0	1,181	40.6	1,184	40.7
Shorelines of the State	0.4	10.2	0.0	0.0	3.4	0.3	3.7	0.2
Fish Use or Potential Fish Use	0.2	5.6	0.0	0.0	191.2	16.2	191.4	12.6
No Fish Use	0.9	25.9	0.0	0.0	887.9	75.2	888.8	58.6
Unknown	2.0	58.4	0.0	0.0	98.3	8.3	100.4	6.6
Riparian Areas Total								
Deciduous	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Evergreen	0.3	0.1	0.0	0.0	879.8	88.1	880	58.0
Shrub	0.1	0.0	0.0	0.0	154.3	15.4	154	10.2
Other Critical Area Types	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	10	0.4	0	0.3	206	0.1	216	7.8
Freshwater Emergent	2	23.3	0	0.0	25	12.3	28	12.8
Freshwater Forested/Shrub	3	33.3	0	100.0	52	25.2	55	25.6
Lake/Pond	4	43.4	0	0.0	91	44.2	95	44.1
Riverine	0	0.0	0	0.0	32	15.6	32	14.9
Other	0	0.0	0	0.0	6	2.7	6	2.6
PHS	10	0.4	0	0.0	629	0.4	639	0.4
Birds	8	81.9	0	0.0	295	46.9	303	47.4
Waterfowl Concentrations	8	100.0	0	0.0	295	100.0	303	100.0
Cliffs/bluffs	2	18.10	0	0.00	341	54.25	343	53.69
PHS (Game Species)	1,792.72	64.8	33	100.0	75,689	42.4	77,515	42.8
Birds	70	3.91	0	0.00	1,924	2.54	1,994	0.00
Chukar	53	75.59	0	0.00	1,719	89.35	1,772	0.00
Ring-necked Pheasant	17	24.41	0	0.00	205	10.65	222	0.00
Mammals	1,781	99.36	33	100.00	75,437	99.67	77,251	0.00
Bighorn Sheep	2	0.09	0	0.00	9,132	12.11	9,134	1551339.75
Mule Deer	370	20.78	0	0.00	26,411	35.01	26,782	4548788.95
Northwest White-tailed Deer	1,460	81.94	33	100.00	39,015	51.72	40,507	6880082.41
Rocky Mountain Elk	236	13.28	0	0.00	48,842	64.75	49,079	8335950.55
Frequently Flooded Areas	37	1.3	1	1.8	564	0.3	602	0.3
Critical Aquifer Recharge Areas	88	3.2	33	99.2	5,619	3.2	5,740	3.2
Water Erosion Potential	2,545	92.1	0	0.0	17,834	10.0	20,380	11.2
Moderate	582	0.3	0	0.0	1,772	1.3	2,354	0.7
Severe to Very Severe	1,964	1.0	0	0.0	16,063	12.2	18,026	5.5
Wind Erosion Potential (1 to 4)	175	6.3	0	0.0	5,372	3.0	5,547	3.1

Summary Tables

	Precent of Total CA (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	32.3	0.3	62.8	95.4
Streams	17.3	0.3	78.0	95.6
Unknown Streams	45.8	0.3	49.1	95.2
Riparian Areas Total	0.8	0.0	97.3	98.0
Wetlands	9.9	1.9	80.7	92.5
PHS	10.7	0.5	87.4	98.7
Frequently Flooded Areas	31.06	9.67	51.9	92.7
Critical Aquifer Recharge Areas	5.9	0.1	88.7	94.7
Water Erosion Potential	58.7	0.2	39.9	98.7
Wind Erosion Potential (1 to 4)	16.7	1.3	79.4	97.4

Analysis Unit: Touchet

County Acreage Total:	558,037	
CAO County Acreage Total:	372,269	
PHS County Acreage Total:	5,884	
Unit Acreage Total:	256,538	
CAO Unit Acreage Total:	197,475	*excludes game species
PHS Unit Acreage Total:	347	*excludes game species

Ag Landcover	Private	Public	Total
Ag Acreage Total:	196,306	54,614	250,920
% Ag in Unit:	76.5	21.3	
CAO	**Private**	**Public**	
Ag acreage intesecting with CA:	181,800	12,199	
% of Ag intersecting with CA:	70.9	4.8	
PHS	**Private**	**Public**	*merged polys
Ag acreage intesecting with CA:	343.81	0.11	no overlap
% of Ag intersecting with CA:	0.1	0.0	

Ag Lands within Unit **Private**

Agriculture Landcover Type	Acres	% of Total Unit
Dryland - Crops	121,896	47.5
Irrigated - Crops	600	0.2
Rangelands	73,809	28.8
Total	196,306	76.5
	Public	
Dryland - Crops	889	0.3
Irrigated - Crops	33	0.0
Rangelands	53,691	20.9
Total	54,614	21.3

Data provided by GIS

Provided flattened PHS data

Calculated Numbers

Critical Areas within Unit	Private		Public		
Streams and Riparian Areas	**Miles**	**% of Total Unit**	**Miles**	**% of Total Unit**	**Total Stream**
Streams Total	1,007	NA	478	NA	1,485
Shorelines of the State	36	3.5	1	0.3	37
Fish Use or Potential Fish Use	140	13.9	53	11.1	193
No Fish Use	514	51.1	397	83.0	911
Unknown	317	31.5	27	5.6	344
Riparian Areas Total	355	35.2	427	89.3	781
Deciduous	0.0	0.0	0.0	0.0	0.0
Evergreen	297.6	29.6	397.1	83.1	694.6
Shrub	57	5.7	30	6.2	86.8
Other Critical Area Types	**Acres**	**% of Total Unit**	**Acres**	**% of Total Unit**	**Total Acres in Unit**
Wetlands (all types)	367	0.14	58	0.02	425
Freshwater Emergent Wetland	72	19.57	8	13.75	80
Freshwater Forested/Shrub Wetland	129	35.05	8	14.42	137
Lake/Pond	35	9.44	1	1.63	36
Riverine	106	28.88	34	58.17	140
Other	26	7.06	7	12.04	33
PHS	346.41	0.14	0.11	0.00	347
Birds	0	0.00	0	0.00	0
Waterfowl Concentrations	0	0.00	0	0.00	0
Cliffs/bluffs	346	100.00	0	100.00	347
PHS (Game Species)	166,360.47	64.85	21,951.30	8.56	188,312
Birds	4,581	2.75	0	0.00	4,581
Chukar	0	0.00	0	0.00	0
Ring-necked Pheasant	4,581	100.00	0	0.00	4,581
Mammals	162,603	97.74	21,951	100.00	184,555
Bighorn Sheep	0	0.00	0	0.00	0
Mule Deer	52,733	32.43	9,158	41.72	61,891
Northwest White-tailed Deer	138,036	84.89	7,095	32.32	145,131
Rocky Mountain Elk	47,201	29.03	17,127	78.02	64,328
Frequently Flooded Areas	4,451	1.74	215	0.08	4,667
Critical Aquifer Recharge Areas	6,091	2.37	5,733	2.23	11,824
Water Erosion Potential	179,835	70.1	12,356	4.8	192,191
Moderate	20,150	11.2	1,581	12.8	21,731
Severe to Very Severe	159,685	88.8	10,775	87.2	170,460
Wind Erosion Potential (1 to 4)	14,385	5.61	4,152	1.62	18,536

Critical Areas by Agricultural Type (Private)								
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Streams and Riparian Areas	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	347	23.4	2	0.2	616	41.5	965	65.0
Shorelines of the State	2.3	0.7	0.0	0.0	31.7	5.2	34.0	3.5
Fish Use or Potential Fish Use	20.1	5.8	0.0	1.3	107.4	17.4	127.5	13.2
No Fish Use	101.4	29.2	2.1	89.5	396.0	64.3	499.5	51.8
Unknown	223.0	64.3	0.2	9.1	80.7	13.1	304.0	31.5
Riparian Areas Total	3	0.8	0	0.0	345	56.1	348	36
Deciduous	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Evergreen	0.5	0.1	0.0	0.0	292.6	47.5	293	30.4
Shrub	2.2	0.6	0.0	0.0	52.8	8.6	55	5.7
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	49	0.0	1	0.2	298	0.4	348	0.2
Freshwater Emergent	25	51.2	0	0.0	42	14.2	67	19.3
Freshwater Forested/Shrub	17	34.3	0	44.5	103	34.7	121	34.7
Lake/Pond	3	6.9	1	55.5	27	9.2	31	9.0
Riverine	3	5.2	0	0.0	100	33.7	103	29.6
Other	1	2.4	0	0.0	24	8.2	26	7.4
PHS	47	0.0	0	0.0	297	0.40	344	0.2
Birds	0	0.00	0	0.00	0	0.00	0	0.00
Waterfowl Concentrations	0	0.00	0	0.00	0	0.00	0	0.00
Cliffs/bluffs	47	100.00	0	0.00	297	100.00	344	100.00
PHS (Game Species)	91,451.83	75.0	600	100.0	71,094	96.32	163,147	83.1
Birds	3,874	4.24	0	0.00	608	0.85	4,482	2.75
Chukar	0	0.00	0	0.00	0	0.00	0	0.00
Ring-necked Pheasant	3,874	100.00	0	0.00	608	100.00	4,482	100.00
Mammals	88,226	96.47	600	100.00	70,610	99.32	159,436	97.73
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	0.00
Mule Deer	9,514	10.78	0	0.00	42,205	59.77	51,719	32.44
Northwest White-tailed Deer	87,361	99.02	600	100.00	47,485	67.25	135,447	84.95
Rocky Mountain Elk	4,995	5.66	0	0.00	41,260	58.43	46,255	29.01
Frequently Flooded Areas	1,978	1.6	189	31.4	2,031	2.8	4,197	2.1
Critical Aquifer Recharge Areas	360	0.3	6	1.0	5,394	7.3	5,760	2.9
Water Erosion Potential	115,940	95.1	85	14.1	61,416	83.2	177,441	90.4
Moderate	10,257	8.8	29	33.7	9,464	15.4	19,750	11.1
Severe to Very Severe	105,682	91.2	56	66.3	51,952	84.6	157,690	88.9
Wind Erosion Potential (1 to 4)	604	0.5	0	0.0	13,472	18.3	14,075	7

Summary Tables

	Precent of Total CA (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	34.4	0.2	61.2	95.8
Streams	17.9	0.3	77.6	95.9
Unknown Streams	70.3	0.1	25.4	95.8
Riparian Areas Total	0.8	0.0	97.4	98.1
Wetlands	13.2	0.3	81.3	94.8
PHS	13.6	0.0	85.6	99.3
Frequently Flooded Areas	44.43	4.24	45.6	94.3
Critical Aquifer Recharge Areas	5.9	0.1	88.6	94.6
Water Erosion Potential	64.5	0.0	34.2	98.7
Wind Erosion Potential (1 to 4)	4.2	0.0	93.7	97.8

Critical Areas by Agricultural Type (Public)								
Streams and Riparian Areas	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	1	0.1	0	0.0	470	31.6	471	31.7
Shorelines of the State	0.0	4.1	0.0	0.0	0.9	0.2	0.9	0.1
Fish Use or Potential Fish Use	0.1	8.4	0.0	0.0	51.2	10.9	51.3	5.3
No Fish Use	0.9	87.5	0.0	0.0	391.4	83.3	392.3	40.6
Unknown	0.0	0.0	0.0	0.0	26.3	5.6	26.3	2.7
Riparian Areas Total								
Deciduous	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Evergreen	0.1	0.0	0.0	0.0	392.7	63.8	393	40.7
Shrub	0.1	0.0	0.0	0.0	29.5	4.8	30	3.1
Other Critical Area Types	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	0	0.1	0	0.3	46	0.1	47	5.3
Freshwater Emergent	0	50.0	0	0.0	2	5.2	3	5.6
Freshwater Forested/Shrub	0	50.0	0	100.0	6	13.7	7	14.3
Lake/Pond	0	0.0	0	0.0	1	1.9	1	1.9
Riverine	0	0.0	0	0.0	31	67.2	31	66.4
Other	0	0.0	0	0.0	6	11.9	6	11.8
PHS	0	0.0	0	0.0	0	0.0	0	0.0
Birds	0	0.0	0	0.0	0	0.0	0	0.0
Waterfowl Concentrations	0	0.0	0	0.0	0	0.0	0	0.0
Cliffs/bluffs	0	0.00	0	0.00	0	100.00	0	100.00
PHS (Game Species)	831.26	93.5	33	100.0	20,127	37.5	20,991	38.4
Birds	0	0.00	0	0.00	0	0.00	0	0.00
Chukar	0	0.00	0	0.00	0	0.00	0	0.00
Ring-necked Pheasant	0	0.00	0	0.00	0	0.00	0	0.00
Mammals	831	100.00	33	100.00	20,127	100.00	20,991	0.00
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	0.00
Mule Deer	229	27.56	0	0.00	8,606	42.76	8,835	0.00
Northwest White-tailed Deer	633	76.09	33	100.00	5,749	28.56	6,414	0.00
Rocky Mountain Elk	225	27.12	0	0.00	16,149	80.24	16,374	0.00
Frequently Flooded Areas	3	0.3	1	1.8	175	0.3	179	0.3
Critical Aquifer Recharge Areas	87	9.8	33	99.2	5,394	10.0	5,514	10.1
Water Erosion Potential	810	91.0	0	0.0	10,919	20.3	11,729	21.5
Moderate	121	0.1	0	0.0	1,368	2.2	1,489	0.8
Severe to Very Severe	689	0.6	0	0.0	9,551	15.6	10,240	5.8
Wind Erosion Potential (1 to 4)	1	0.2	0	0.0	3,904	7.3	3,905	7.2

	Precent of Total Ag lands (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	34.4	0.2	61.2	95.8
Streams	17.9	0.3	77.6	95.9
Unknown Streams	70.3	0.1	25.4	95.8
Riparian Areas Total	0.8	0.0	56.1	36.1
Wetlands	0.0	0.2	0.4	0.2
PHS	0.0	0.0	0.4	0.2
Frequently Flooded Areas	1.6	31.4	2.8	2.1
Critical Aquifer Recharge Areas	0.3	1.0	7.3	2.9
Water Erosion Potential	95.1	14.1	83.2	90.4
Severe	8	5	13	10
Wind Erosion Potential (1 to 4)	0.5	0.0	18.3	7

Touche Unit Critical Areas by Agricultural Type (Private)

Streams and Riparian Areas	Dryland Crops Miles	Dryland Crops % of Dryland Stream Miles	Irrigated Crops Miles	Irrigated Crops % of Irrigated Stream Miles	Rangelands Miles	Rangelands % of Rangeland Stream Miles
Streams Total	347	23.4	2	0.1	616	41.5
Riparian Areas Total	3	0.9	0	0.0	345	56.0
					0.0	0.0
Other Critical Area Types	Dryland Crops Acres	Dryland Crops % of Dryland	Irrigated Crops Acres	Irrigated Crops % of Irrigated	Rangelands Acres	Rangelands % of Rangeland
Wetlands	49	0.0	1	0.2	298	0.4
Freshwater Emergent	25	51.2	0	0.0	42	14.2
Freshwater Forested/Shrub	17	34.3	0	44.5	103	34.7
Lake/Pond	3	6.9	1	55.5	27	9.2
Riverine	3	5.2	0	0.0	100	33.7
Other	1	2.4	0	0.0	24	8.2
PHS	47	0.0	0	0.0	297	0.40
Birds	0	0.00	0	0.00	0	0.00
Waterfowl Concentrations	0	0.00	0	0.00	0	0.00
Cliffs/bluffs	47	100.00	0	0.00	297	100.00
PHS (Game Species)	91,451.83	75.0	600	100.0	71,094	96.32
Birds	3,874	4.24	0	0.00	608	0.85
Chukar	0	0.00	0	0.00	0	0.00
Ring-necked Pheasant	3,874	100.00	0	0.00	608	100.00
Mammals	88,226	96.47	600	100.00	70,610	99.32
Bighorn Sheep	0	0.00	0	0.00	0	0.00
Mule Deer	9,514	10.78	0	0.00	42,205	59.77
Northwest White-tailed Deer	87,361	99.02	600	100.00	47,485	67.25
Rocky Mountain Elk	4,995	5.66	0	0.00	41,260	58.43
Frequently Flooded Areas	1,978	1.6	189	31.4	2,031	2.8
Critical Aquifer Recharge Areas	360	0.3	6	1.0	5,394	7.3
Water Erosion Potential	115,940	95.1	85	14.1	61,416	83.2
Moderate	10,257	8.8	29	33.7	9,464	15.4
Severe to Very Severe	105,682	91.2	56	66.3	51,952	84.6
Wind Erosion Potential (1 to 4)	604	0.5	0	0.0	13,472	18.3

Analysis Unit: Tucannon

County Acreage Total:	558,037	
CAO County Acreage Total:	372,269	
PHS County Acreage Total:	5,884	
Unit Acreage Total:	283,018	
CAO Unit Acreage Total:	155,620	*excludes game species
PHS Unit Acreage Total:	5,449	*excludes game species

Ag Landcover	Private	Public	Total
Ag Acreage Total:	139,398	125,895	265,293
% Ag in Unit:	49.3	44.5	
CAO	**Private**	**Public**	
Ag acreage intesecting with CA:	135,069	8,723	
% of Ag intersecting with CA:	47.7	3.1	
PHS	**Private**	**Public**	*merged polys
Ag acreage intesecting with CA:	1,549.74	630.78	no overlap
% of Ag intersecting with CA:	0.5	0.2	

Ag Lands within Unit **Private**

Agriculture Landcover Type	Acres	% of Total Unit
Dryland - Crops	65,917	23.3
Irrigated - Crops	1,720	0.6
Rangelands	71,761	25.4
Total	139,398	49.3
	Public	
Dryland - Crops	1,711	0.6
Irrigated - Crops	0	0.0
Rangelands	124,184	43.9
Total	125,895	44.5

Data provided by GIS

Provided flattened PHS data

Calculated Numbers

Critical Areas within Unit	Private		Public		
Streams and Riparian Areas	**Miles**	**% of Total Unit**	**Miles**	**% of Total Unit**	**Total Stream**
Streams Total	**510**	**NA**	**837**	**NA**	**1,348**
Shorelines of the State	45	8.8	34	4.0	79
Fish Use or Potential Fish Use	3	0.5	159	18.9	161
No Fish Use	19	3.7	556	66.4	575
Unknown	444	87.0	89	10.7	533
Riparian Areas Total	**15**	**3.0**	**672**	**80.2**	**687**
Deciduous	0.2	0.0	0.0	0.0	0.2
Evergreen	9.1	1.8	521.6	62.3	530.8
Shrub	6	1.1	150	17.9	155.9
Other Critical Area Types	**Acres**	**% of Total Unit**	**Acres**	**% of Total Unit**	**Total Acres in Unit**
Wetlands (all types)	405	0.14	3,298	1.17	3,703
Freshwater Emergent Wetland	118	29.08	43	1.29	160
Freshwater Forested/Shrub Wetland	235	58.12	69	2.08	304
Lake/Pond	8	2.09	3,180	96.40	3,188
Riverine	38	9.30	5	0.14	42
Other	6	1.42	3	0.09	9
PHS	1,572.90	0.56	3,876.01	1.37	5,449
Birds	1	0.04	3,502	90.34	3,502
Waterfowl Concentrations	1	100.00	3,502	100.00	3,502
Cliffs/bluffs	1,572	99.96	392	10.13	1,965
PHS (Game Species)	71,070.09	25.11	67,860.50	23.98	138,931
Birds	16,255	22.87	2,165	3.19	18,419
Chukar	12,563	77.29	1,897	87.64	14,460
Ring-necked Pheasant	3,692	22.71	267	12.36	3,959
Mammals	69,456	97.73	67,560	99.56	137,015
Bighorn Sheep	0	0.00	12,062	17.85	12,062
Mule Deer	39,492	56.86	28,288	41.87	67,780
Northwest White-tailed Deer	48,840	70.32	45,478	67.31	94,318
Rocky Mountain Elk	460	0.66	41,750	61.80	42,210
Frequently Flooded Areas	3,330	1.18	4,016	1.42	7,346
Critical Aquifer Recharge Areas	267	0.09	446	0.16	712
Water Erosion Potential	133,408	47.1	14,159	5.0	147,567
Moderate	12,798	9.6	970	6.8	13,767
Severe to Very Severe	120,611	90.4	13,189	93.2	133,800
Wind Erosion Potential (1 to 4)	8,630	3.05	1,405	0.50	10,035

Critical Areas by Agricultural Type (Private)								
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Streams and Riparian Areas	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	128	9.5	3	0.2	351	26.0	481	35.7
Shorelines of the State	2.1	1.7	0.1	3.9	38.2	10.9	40.5	8.4
Fish Use or Potential Fish Use	0.0	0.0	0.0	0.0	2.5	0.7	2.5	0.5
No Fish Use	5.0	3.9	0.0	0.0	13.3	3.8	18.3	3.8
Unknown	120.5	94.4	2.6	96.1	296.5	84.6	419.5	87.3
Riparian Areas Total	0	0.1	0	0.0	14	4.1	14	3
Deciduous	0.0	0.0	0.0	0.0	0.2	0.1	0	0.0
Evergreen	0.0	0.0	0.0	0.0	8.6	2.5	9	1.8
Shrub	0.1	0.1	0.0	0.0	5.5	1.6	6	1.2
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	28	0.0	13	0.8	325	0.5	366	0.3
Freshwater Emergent	14	49.6	2	13.6	88	27.0	103	28.2
Freshwater Forested/Shrub	12	43.7	11	81.2	193	59.3	215	58.9
Lake/Pond	0	1.7	0	2.6	7	2.1	8	2.1
Riverine	1	5.0	0	2.6	33	10.2	35	9.5
Other	0	0.0	0	0.0	5	1.4	5	1.2
PHS	159	0.2	10	0.6	1,381	1.92	1,550	1.1
Birds	0	0.00	0	0.00	1	0.04	1	0.04
Waterfowl Concentrations	0	0.00	0	0.00	1	100.00	1	100.00
Cliffs/bluffs	159	100.00	10	100.00	1,381	99.96	1,549	99.96
PHS (Game Species)	21,563.40	32.7	1,572	91.4	46,505	64.81	69,640	50.0
Birds	3,171	14.70	592	37.70	11,964	25.73	15,727	22.58
Chukar	2,140	67.50	0	0.00	10,247	85.65	12,387	78.77
Ring-necked Pheasant	1,030	32.50	592	100.00	1,717	14.35	3,339	21.23
Mammals	21,120	97.94	1,445	91.97	45,510	97.86	68,076	97.75
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	0.00
Mule Deer	5,707	27.02	567	39.26	32,448	71.30	38,722	56.88
Northwest White-tailed Deer	17,293	81.88	1,445	99.99	29,106	63.95	47,844	70.28
Rocky Mountain Elk	60	0.28	0	0.00	388	0.85	448	0.66
Frequently Flooded Areas	456	0.7	575	33.4	1,982	2.8	3,012	2.2
Critical Aquifer Recharge Areas	14	0.0	0	0.0	245	0.3	259	0.2
Water Erosion Potential	64,814	98.3	549	31.9	66,388	92.5	131,751	94.5
Moderate	10,497	16.2	99	18.0	2,042	3.1	12,638	9.6
Severe to Very Severe	54,317	83.8	451	82.0	64,345	96.9	119,113	90.4
Wind Erosion Potential (1 to 4)	2,183	3.3	320	18.6	5,801	8.1	8,303	6

Summary Tables

	Precent of Total CA (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	25.0	0.5	68.7	94.2
Streams	10.8	0.2	81.7	92.6
Unknown Streams	27.1	0.6	66.7	94.4
Riparian Areas Total	0.5	0.0	94.7	95.2
Wetlands	6.8	3.3	80.2	90.3
PHS	10.1	0.6	87.8	98.5
Frequently Flooded Areas	13.69	17.26	59.5	90.5
Critical Aquifer Recharge Areas	5.1	0.0	92.1	97.1
Water Erosion Potential	48.6	0.4	49.8	98.8
Wind Erosion Potential (1 to 4)	25.3	3.7	67.2	96.2

Critical Areas by Agricultural Type (Public)

Streams and Riparian Areas	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	2	0.1	0	0.0	709	52.6	711	52.8
Shorelines of the State	0.3	15.5	0.0	0.0	2.5	0.4	2.8	0.6
Fish Use or Potential Fish Use	0.1	5.5	0.0	0.0	139.9	19.7	140.0	29.1
No Fish Use	0.0	1.9	0.0	0.0	496.5	70.0	496.5	103.3
Unknown	1.6	77.0	0.0	0.0	70.4	9.9	71.9	15.0
Riparian Areas Total	0		0		612			
Deciduous	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Evergreen	0.1	0.1	0.0	0.0	487.1	139.0	487	101.3
Shrub	0.0	0.0	0.0	0.0	124.7	35.6	125	26.0
Other Critical Area Types	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	10	0.6	0	0.0	152	0.1	162	9.5
Freshwater Emergent	2	22.1	0	0.0	23	15.0	25	15.4
Freshwater Forested/Shrub	3	32.6	0	0.0	44	28.6	47	28.9
Lake/Pond	4	45.3	0	0.0	85	55.8	89	55.2
Riverine	0	0.0	0	0.0	1	0.6	1	0.6
Other	0	0.0	0	0.0	0	0.0	0	0.0
PHS	10	0.6	0	0.0	621	0.5	631	0.5
Birds	8	81.9	0	0.0	287	46.2	295	46.8
Waterfowl Concentrations	8	100.0	0	0.0	287	100.0	295	100.0
Cliffs/bluffs	2	18.10	0	0.00	341	54.91	343	54.34
PHS (Game Species)	906.81	53.0	0	0.0	55,248	44.5	56,155	44.6
Birds	70	7.73	0	0.00	1,890	3.42	1,960	1.6
Chukar	53	75.59	0	0.00	1,709	90.45	1,762	1.4
Ring-necked Pheasant	17	24.41	0	0.00	180	9.55	198	0.2
Mammals	895	98.73	0	0.00	55,021	99.59	55,916	44.4
Bighorn Sheep	2	0.18	0	0.00	9,132	16.60	9,134	1551339.75
Mule Deer	86	9.64	0	0.00	17,517	31.84	17,603	2989840.76
Northwest White-tailed Deer	827	92.38	0	0.00	33,266	60.46	34,093	5790619.15
Rocky Mountain Elk	11	1.24	0	0.00	32,693	59.42	32,704	5554778.03
Frequently Flooded Areas	34	2.0	0	0.0	380	0.3	414	0.3
Critical Aquifer Recharge Areas	1	0.0	0	0.0	201	0.2	202	0.2
Water Erosion Potential	1,571	91.8	0	0.0	6,483	5.2	8,054	6.4
Moderate	461	0.7	0	0.0	404	0.6	865	0.7
Severe to Very Severe	1,110	1.7	0	0.0	6,079	9.2	7,189	5.5
Wind Erosion Potential (1 to 4)	49	2.9	0	0.0	1,259	1.0	1,308	1.0

	Precent of Total Ag lands (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	25.0	0.5	68.7	94.2
Streams	10.8	0.2	81.7	92.6
Unknown Streams	27.1	0.6	66.7	94.4
Riparian Areas Total	0.1	0.0	4.1	3.0
Wetlands	0.0	0.8	0.5	0.3
PHS	0.2	0.6	1.9	1.1
Frequently Flooded Areas	0.7	33.4	2.8	2.2
Critical Aquifer Recharge Areas	0.0	0.0	0.3	0.2
Water Erosion Potential	98.3	31.9	92.5	94.5
Severe	16	6	3	9
Wind Erosion Potential (1 to 4)	3.3	18.6	8.1	6

Analysis Unit: Lower Snake

County Acreage Total:	558,037	
CAO County Acreage Total:	372,269	
PHS County Acreage Total:	5,884	
Unit Acreage Total:	19,505	
CAO Unit Acreage Total:	19,158	*excludes game species
PHS Unit Acreage Total:	88	*excludes game species

Ag Landcover	Private	Public	Total
Ag Acreage Total:	18,580	654	19,234
% Ag in Unit:	95.3	3.4	
CAO	**Private**	**Public**	
Ag acreage intesecting with CA:	18,273	628	
% of Ag intersecting with CA:	93.7	3.2	
PHS	**Private**	**Public**	*merged polys
Ag acreage intesecting with CA:	0.00	7.75	no overlap
% of Ag intersecting with CA:	0.0	0.0	

Ag Lands within Unit **Private**

Agriculture Landcover Type	Acres	% of Total Unit
Dryland - Crops	13,914	71.3
Irrigated - Crops	0	0.0
Rangelands	4,666	23.9
Total	18,580	95.3
	Public	
Dryland - Crops	165	0.8
Irrigated - Crops	0	0.0
Rangelands	489	2.5
Total	654	3.4

Data provided by GIS

Provided flattened PHS data

Calculated Numbers

Critical Areas within Unit	Private		Public		
Streams and Riparian Areas	**Miles**	**% of Total Unit**	**Miles**	**% of Total Unit**	**Total Stream**
Streams Total	74	NA	4	NA	77
Shorelines of the State	0	0.0	1	30.7	1
Fish Use or Potential Fish Use	0	0.0	0	5.0	0
No Fish Use	0	0.0	0	0.0	0
Unknown	74	100.0	2	64.3	76
Riparian Areas Total	0	0.0	0	2.4	0
Deciduous	0.0	0.0	0.0	0.0	0.0
Evergreen	0.0	0.0	0.1	1.8	0.1
Shrub	0	0.0	0	0.5	0.0
Other Critical Area Types	**Acres**	**% of Total Unit**	**Acres**	**% of Total Unit**	**Total Acres in Unit**
Wetlands (all types)	0	0.00	87	0.45	87
Freshwater Emergent Wetland	0	0.00	0	0.00	0
Freshwater Forested/Shrub Wetland	0	0.00	2	2.55	2
Lake/Pond	0	0.00	85	97.45	85
Riverine	0	0.00	0	0.00	0
Other	0	0.00	0	0.00	0
PHS	0.00	0.00	88.30	0.45	88
Birds	0	0.00	88	100.00	88
Waterfowl Concentrations	0	0.00	88	100.00	88
Cliffs/bluffs	0	0.00	0	0.00	0
PHS (Game Species)	4,345.52	22.28	396.80	2.03	4,742
Birds	1,510	34.75	39	9.76	1,549
Chukar	2	0.11	11	28.41	13
Ring-necked Pheasant	1,508	99.89	28	71.59	1,536
Mammals	2,837	65.29	369	93.01	3,206
Bighorn Sheep	0	0.00	0	0.00	0
Mule Deer	2,837	100.00	369	100.00	3,206
Northwest White-tailed Deer	0	0.00	0	0.00	0
Rocky Mountain Elk	0	0.00	0	0.00	0
Frequently Flooded Areas	112	0.57	85	0.43	197
Critical Aquifer Recharge Areas	0	0.00	28	0.14	28
Water Erosion Potential	18,173	93.2	634	3.2	18,806
Moderate	418	2.3	0	0.0	418
Severe to Very Severe	17,755	97.7	634	100.0	18,389
Wind Erosion Potential (1 to 4)	2,297	11.77	345	1.77	2,641

Critical Areas by Agricultural Type (Private)								
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Streams and Riparian Areas	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	39	50.1	0	0.0	33	42.4	72	92.5
Shorelines of the State	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fish Use or Potential Fish Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No Fish Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown	38.8	100.0	0.0	0.0	32.8	100.0	71.5	100.0
Riparian Areas Total	0	0.0	0	0.0	0	0.0	0	0
Deciduous	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Evergreen	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Shrub	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	0	0.0	0	0.0	0	0.0	0	0.0
Freshwater Emergent	0	0.0	0	0.0	0	0.0	0	0.0
Freshwater Forested/Shrub	0	0.0	0	0.0	0	0.0	0	0.0
Lake/Pond	0	0.0	0	0.0	0	0.0	0	0.0
Riverine	0	0.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	0	0.0	0	0.0	0	0.0
PHS	0	0.0	0	0.0	0	0.00	0	0.0
Birds	0	0.00	0	0.00	0	0.00	0	0.00
Waterfowl Concentrations	0	0.00	0	0.00	0	0.00	0	0.00
Cliffs/bluffs	0	0.00	0	0.00	0	0.00	0	0.00
PHS (Game Species)	1,832.48	13.2	0	0.0	2,435	52.18	4,267	23.0
Birds	1,072	58.49	0	0.00	416	17.09	1,488	34.87
Chukar	0	0.00	0	0.00	2	0.37	2	0.10
Ring-necked Pheasant	1,072	100.00	0	0.00	415	99.63	1,486	99.90
Mammals	761	41.51	0	0.00	2,020	82.97	2,781	65.17
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	0.00
Mule Deer	761	100.00	0	0.00	2,020	100.00	2,781	100.00
Northwest White-tailed Deer	0	0.00	0	0.00	0	0.00	0	0.00
Rocky Mountain Elk	0	0.00	0	0.00	0	0.00	0	0.00
Frequently Flooded Areas	18	0.1	0	0.0	87	1.9	105	0.6
Critical Aquifer Recharge Areas	0	0.0	0	0.0	0	0.0	0	0.0
Water Erosion Potential	13,744	98.8	0	0.0	4,300	92.2	18,044	97.1
Moderate	391	2.8	0	0.0	24	0.6	415	2.3
Severe to Very Severe	13,353	97.2	0	0.0	4,276	99.4	17,629	97.7
Wind Erosion Potential (1 to 4)	1,447	10.4	0	0.0	817	17.5	2,264	12

Summary Tables

	Precent of Total CA (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	52.6	0.0	44.5	97.0
Streams	0.0	0.0	0.0	0.0
Unknown Streams	52.6	0.0	44.5	97.0
Riparian Areas Total	0.0	0.0	0.0	0.0
Wetlands	0.0	0.0	0.0	0.0
PHS	0.0	0.0	0.0	0.0
Frequently Flooded Areas	15.93	0.00	77.6	93.5
Critical Aquifer Recharge Areas	0.0	0.0	0.0	0.0
Water Erosion Potential	75.6	0.0	23.7	99.3
Wind Erosion Potential (1 to 4)	63.0	0.0	35.6	98.6

Critical Areas by Agricultural Type (Public)								
Streams and Riparian Areas	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	0	0.6	0	0.0	2	2.3	2	2.9
Shorelines of the State	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Fish Use or Potential Fish Use	0.0	0.0	0.0	0.0	0.1	4.3	0.1	0.1
No Fish Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown	0.5	100.0	0.0	0.0	1.7	94.4	2.2	3.0
Riparian Areas Total								
Deciduous	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Evergreen	0.0	0.0	0.0	0.0	0.0	0.1	0	0.0
Shrub	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Other Critical Area Types	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	0	0.0	0	0.0	7	1.4	7	4.2
Freshwater Emergent	0	0.0	0	0.0	0	0.0	0	0.0
Freshwater Forested/Shrub	0	0.0	0	0.0	2	27.1	2	27.1
Lake/Pond	0	0.0	0	0.0	5	72.9	5	72.9
Riverine	0	0.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	0	0.0	0	0.0	0	0.0
PHS	0	0.0	0	0.0	8	1.6	8	1.2
Birds	0	0.0	0	0.0	8	100.0	8	100.0
Waterfowl Concentrations	0	0.0	0	0.0	8	100.0	8	100.0
Cliffs/bluffs	0	0.00	0	0.00	0	0.00	0	0.00
PHS (Game Species)	54.64	33.1	0	0.0	313	64.1	368	56.3
Birds	0	0.00	0	0.00	34	10.94	34	#REF!
Chukar	0	0.00	0	0.00	10	29.05	10	#REF!
Ring-necked Pheasant	0	0.00	0	0.00	24	70.95	24	#REF!
Mammals	55	100.00	0	0.00	289	92.24	344	#REF!
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	#DIV/0!
Mule Deer	55	100.00	0	0.00	289	100.00	344	#DIV/0!
Northwest White-tailed Deer	0	0.00	0	0.00	0	0.00	0	#DIV/0!
Rocky Mountain Elk	0	0.00	0	0.00	0	0.00	0	#DIV/0!
Frequently Flooded Areas	0	0.0	0	0.0	9	1.8	9	1.4
Critical Aquifer Recharge Areas	0	0.0	0	0.0	24	4.9	24	3.7
Water Erosion Potential	165	100.0	0	0.0	432	88.4	597	91.3
Moderate	0	0.0	0	0.0	0	0.0	0	0.0
Severe to Very Severe	165	1.2	0	0.0	432	10.1	597	3.3
Wind Erosion Potential (1 to 4)	124	75.5	0	0.0	209	42.8	334	51.0

	Precent of Total Ag lands (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	52.6	0.0	44.5	97.0
Streams	0.0	0.0	0.0	0.0
Unknown Streams	52.6	0.0	44.5	97.0
Riparian Areas Total	0.0	0.0	0.0	0.0
Wetlands	0.0	0.0	0.0	0.0
PHS	0.0	0.0	0.0	0.0
Frequently Flooded Areas	0.1	0.0	1.9	0.6
Critical Aquifer Recharge Areas	0.0	0.0	0.0	0.0
Water Erosion Potential	98.8	0.0	92.2	97.1
Severe	3	0	1	2
Wind Erosion Potential (1 to 4)	10.4	0.0	17.5	12

Critical Areas by Agricultural Type (Private)								
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Streams and Riparian Areas	Miles	% of Dryland Stream Miles	Miles	% of Irrigated Stream Miles	Miles	% of Rangeland Stream Miles	Miles	% of Total Stream Lengths
Streams Total	38.8	50.1	0	0.0	32.8	42.4	72	92.5
Riparian Areas Total	0	0.0	0	0.0	0	0.0	0	0
	Dryland Crops		Irrigated Crops		Rangelands		Total in Agricultural Lands	
Other Critical Area Types	Acres	% of Dryland	Acres	% of Irrigated	Acres	% of Rangeland	Acres	% of Total Ag Lands
Wetlands	0	0.0	0	0.0	0	0.0	0	0.0
PHS (Game Species)	1,832.48	13.2	0	0.0	2,435	52.18	4,267	23.0
Birds	1,072	58.49	0	0.00	416	17.09	1,488	34.87
Chukar	0	0.00	0	0.00	2	0.37	2	0.10
Ring-necked Pheasant	1,072	100.00	0	0.00	415	99.63	1,486	99.90
Mammals	761	41.51	0	0.00	2,020	82.97	2,781	65.17
Bighorn Sheep	0	0.00	0	0.00	0	0.00	0	0.00
Mule Deer	761	100.00	0	0.00	2,020	100.00	2,781	100.00
Northwest White-tailed Deer	0	0.00	0	0.00	0	0.00	0	0.00
Rocky Mountain Elk	0	0.00	0	0.00	0	0.00	0	0.00
Frequently Flooded Areas	18	0.1	0	0.0	87	1.9	105	0.6
Critical Aquifer Recharge Areas	0	0.0	0	0.0	0	0.0	0	0.0
Water Erosion Potential	13,744	98.8	0	0.0	4,300	92.2	18,044	97.1
Moderate	391	2.8	0	0.0	24	0.6	415	2.3
Severe to Very Severe	13,353	97.2	0	0.0	4,276	99.4	17,629	97.7
Wind Erosion Potential (1 to 4)	1,447	10.4	0	0.0	817	17.5	2,264	12

	Precentages of Total Critical Areas (Private)			
	Dryland	Irrigated	Rangeland	All Types
Streams Total	52.6	0.0	44.5	97.0
Riparian Areas Total	0.0	0.0	0.0	0.0
Wetlands	0.0	0.0	0.0	0.0
PHS	0.0	0.0	0.0	22.3
Frequently Flooded Areas	0.00	0.00	6.9	6.9
Critical Aquifer Recharge Areas	0.0	0.0	0.0	0.0
Water Erosion Potential	0.3	0.0	1.7	2.0
Wind Erosion Potential (1 to 4)	0.0	0.0	1.1	1.1

Data Sources:

Title	Date	Author(s)
GIS Data		
PRISM Climate Group Precipitation Data	2012	Oregon State University
USDA Agricultural Landcover	2011	US Dept of Agriculture
WSDA Agricultural Landcover	2011	US Dept of Agriculture
National Wetland Inventory Data	2010	US Fish & Wildlife Service
Streams and Rivers Data	2015	WA Dept of Natural Resources
Priority Habitat and Species Data	2010	WA Dept of Fish & Wildlife
Critical Aquifer Recharge Area	2015	WA Dept of Health
Water Erosion Potential	2014	Natural Resources Conservation Service
Wind Erosion Susceptibility	2014	Natural Resources Conservation Service
Special Flood Hazard Areas	2010	Federal Emergency Mgt Agency
Hydraulic Unit Code (HUC) 10 data	2013	Bureau of Land Mgt
Watershed Resource Inventory Area (WRIA)	2000	WA Dept of Ecology
Public Lands (Gap Analysis Program)	2016	US Geologic Survey
Public Lands (Public Lands Inventory)	2014	WA Recreation & Conservation Office
Public Lands (Non-DNR Major Public Lands)	2016	WA Dept of Natural Resources

Appendix C:
Critical Area Functions and Agricultural Activities

Appendix C – Critical Area Functions and Agricultural Activities

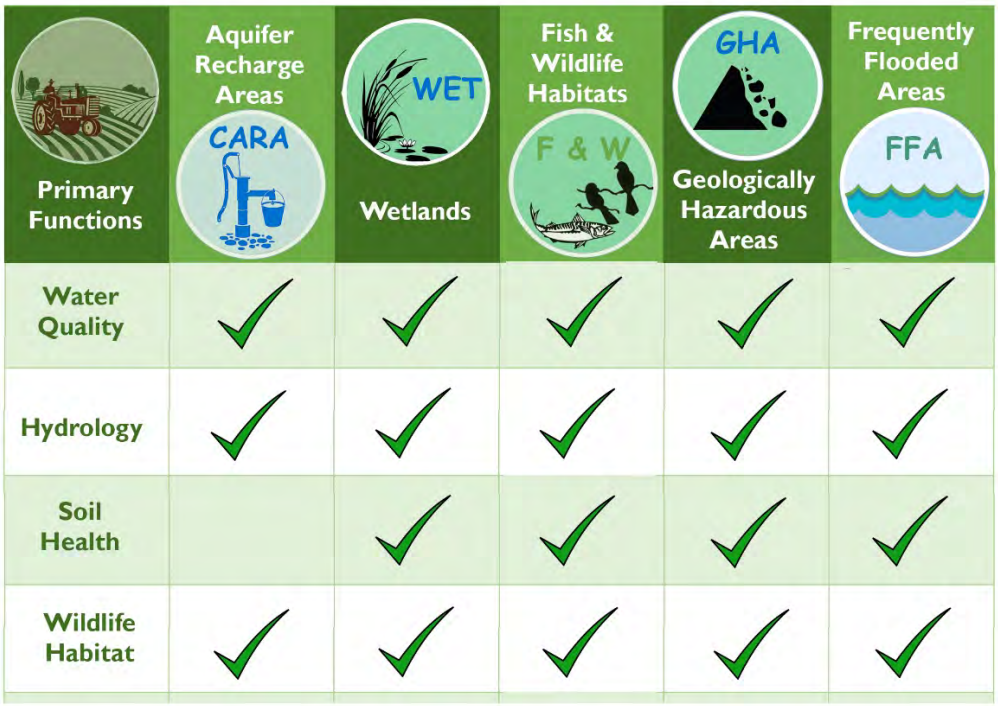
Critical Area Functions and Agricultural Activities

The following section outlines some of the complex relationships between primary functions and values of critical areas and potential effects (both positive and negative) from agricultural activities. The VSP statute requires the workgroup to "create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in (i) the protection of critical area functions and values and (ii) the enhancement of critical area functions and values through voluntary, incentive-based measures" (RCW 36.70A.720 (e)), as well as maintaining and improving the long-term viability of agricultural activities. In order to meet this requirement and the goals of VSP it is important to understand (i) what the primary functions and values of critical areas are, (ii) what the relationship to agricultural activities is, and (iii) what the effects of conservation practices on critical area functions and values are.

Summary of Critical Area Functions and Values

The following table provides a summary of the primary functions and values provided by each critical area. The primary functions and values identified for each critical area fall into four main categories: water quality, hydrology, soil health, and wildlife habitat. All five critical areas provide most of these key functions and values, however the functions and values provided by critical areas are not limited to these four main types.

Critical Areas Primary Functions



Critical Areas and Agricultural Activities – The Relationship

The relationship between critical areas and agriculture is complex and impacts can flow in both directions. Critical areas can affect agricultural activities and viability just as agricultural activities can impact the functions and values of critical areas. This relationship can be mutually beneficial. Agricultural activities and conservation practices may have positive impacts to critical areas and the protection and enhancement of critical areas may also support agricultural activities. For example, protecting aquifer recharge areas can assure clean water for agricultural operations and enhancing habitat areas for beneficial wildlife such as pollinators, which can in turn increase the productivity of crops. The tables on the following pages summarize the impacts and relationship between certain common agricultural activities and critical areas.

Summary of Agricultural Activities and Potential Critical Area Impacts

Agricultural Activity	Aquifer Recharge Areas (CARA)	Wetlands (WET)	Fish & Wildlife Habitats (F & W)	Geologically Hazardous Areas (GHA)	Frequently Flooded Areas (FFA)
Building access roads and other impervious surfaces	Can decrease water infiltration and recharge	Can change surface water - temp and chemicals	Can cause loss of habitat and connectivity, changes to surface water hydrology	Can increase erosion	Can create changes in water infiltration and fine sediment
Fencing	Can reduce potential contamination	Can reduce nutrient loads	Can inhibit movement	Can decrease erosion	
Irrigation	Can contribute to changes to groundwater flow and water table, transport of nutrients, pathogens, etc.	Can reduce water available, accumulation of salts and selenium in soil	Can contribute to a decrease in-stream flow/quantity available for wildlife	Can contribute to a decrease in-stream flow/quantity available for wildlife. Can contribute to an entrainment of fish in unscreened intakes	Can contribute to changes to stormflow volume, decreases in-stream flow
Clearing vegetation and harvesting crops	Can cause loss of filtration function	Can contribute to loss of filtration, temp control from shading	Can contribute to loss of habitat, food and cover	Can increase erosion, decreases slope stability	Can contribute to channel erosion, sedimentation
Pesticide and fertilizer use	Can contribute to excess nutrients and chemicals in groundwater, water quality degradation-short term and long term	Can contribute to excess nutrients and chemicals in surface water, water quality degradation	Can cause increases in mortality, absorption by amphibians, loss of beneficial insects, loss of native vegetation		
Flood control: dikes and armoring banks	Can be designed to clean and infiltrate into aquifer (i.e. LOTT recharge ponds)	Can either lose or potentially increase wetlands in floodplains	Can contribute to loss of habitat structure and complexity	Can cause channel and bank erosion, reduced bank stability. Changes in natural flow paths and sediments	Can cause changes to storm flow, channel erosion. Permanently change erosion/sedimentation

Summary of Agricultural Activities and Potential Critical Area Impacts

 Agricultural Activity	Aquifer Recharge Areas 	 Wetlands	Fish & Wildlife Habitats 	 Geologically Hazardous Areas	Frequently Flooded Areas 
Planting more land/replanting		Can cause changes in water use and level fluctuations	Can contribute to loss or simplification of habitat	Can cause soil erosion, alteration of steep slopes	Can cause sedimentation
Livestock and grazing	Can cause compaction of soil/less infiltration	Can contribute excess nutrients/waste and impact to wetland form and structure	Can cause loss of cover and forage, trampling burrows	Can cause increases in nutrient/pathogen and sediment rich flow volumes	Can cause sedimentation, reduce bank stability
Altering hydrology: ditches/ponds	Can cause changes in groundwater flow/quantity	Can contribute to changes in surface water flow/quantity	Can cause loss and degradation of habitat	Can change natural water course and increase/decrease natural sedimentation rates	Can increase flows at certain times
Change of agricultural use (i.e. from grazing to crops, etc.)	Can cause changes infiltration rates, groundwater flow, etc.	Can contribute to changes in surface water flow/quantity	Can contribute to changes in habitat, food, cover	Can cause changes in erosion and introduction of more or less sediments	Can cause changes in infiltration, fine sediment, storm flow, and channel erosion

Critical Aquifer Recharge Areas

Critical Aquifer Recharge Areas (CARAs) provide protection to areas with a critical recharging effect on aquifers used for drinking water supplies. CARAs affect groundwater quality, hydrology, and fish and wildlife habitat through groundwater infiltration and recharging lakes, wetlands, and streams.

Primary Functions and Values

Fish and Wildlife Habitat

- Many ecosystems and their functions depend on groundwater, including terrestrial vegetation, river base flow systems and aquatic habitats, wetlands and terrestrial fauna. Groundwater commonly is an important source of surface water and recharges in-stream flows at critical periods for fish and wildlife habitat.
- Recharge sufficient to maintain the normal water level elevations and soil moisture requirements of plants' root-zones, both for wetlands plants and for upland plants.

Water Quality

- Underground aquifers and wells are the primary source of drinking water in Columbia County.
- Infiltration through the soil column improves groundwater quality.

Hydrology

- Recharge sufficient to meet public supply and private supply well requirements, including both senior permitted water rights and permit-exempt uses.
- Recharge sufficient to meet the irrigation requirements of farmers.

Agricultural impacts

Water Quality

- Direct and indirect effects on rates and composition of groundwater.
- Water quality degradation from fertilizer leaching, dissolution and transportation of fertilizers and associated materials.
- Agricultural activities can affect the concentrations of inorganic chemicals (i.e. nitrate contamination) in aquifers. Increases in pesticides, fertilizers, and other organic compounds impact water quality and can have a wide variety of impacts on aquatic ecosystems.
- Changes in agricultural practices and the use of BMPs such as nutrient management and lined lagoons can reduce potential contamination to aquifer.

Hydrology

- Recharge sufficient to maintain the normal water level elevations and soil moisture requirements of plants' root-zones, for both irrigated and non-irrigated crops.
- Hydrological alterations related to irrigation and drainage: irrigation based on surface water has been shown to reduce streamflow and raise water tables. Groundwater-fed irrigation has lowered water tables and reduced streamflow.

Wetlands

"Wetlands" are areas that are inundated or saturated by surface water or by groundwater at an elevation, frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated or near-saturated soil conditions for at least a part of normal years. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate conversion of natural wetlands, if permitted by the county or city. Wetlands can help reduce erosion and sedimentation, provide filtration and produce cleaner water, retain water to reduce flooding, and provide fish and wildlife habitat.

Primary Functions and Values

Hydrology

- Water storage and retention reducing flooding and maintaining water regimes, groundwater discharge/recharge, maintaining and protecting water quality, and providing clean potable water.
- Soil moisture at the elevations needed for plant survival and growth.
- Underground aquifers and wells are the primary source of drinking water in Columbia County.
- Infiltration through the soil column improves groundwater quality.

Wildlife Habitat

- Biodiversity protection: freshwater ecosystems cover only 1% of the Earth's surface but they hold more than 40% of the world's species and 12% of all animal species. Wetlands are considered amongst the most productive ecosystems in the world.

- Habitat functions: wetlands provide food, water, and shelter for numerous species of birds, fish, mammals, reptiles, and amphibians and they serve as breeding/spawning grounds, nursery and rearing habitat, as well as cover and refuge. Migratory birds depend on wetlands, and many endangered and threatened animal species require wetlands for their survival.

Soil Health

- Sediment retention and erosion control: wetlands and their associated riparian zones contribute to healthy streams by suppressing the erosional processes that move sediment, mechanically filtering and/or storing upland sediments before they can enter stream channels, and dissipating energy (slows down the force of water), encouraging the deposition of sediments carried in the water.

Water Quality

- Retention of nutrients and other substances: wetlands provide biogeochemical functions that can improve water quality, including preventing eutrophication (high concentrations of nutrients) and removing toxic substances from human activities or preventing toxic substances from reaching groundwater supplies or other sources for drinking water, which can also reduce drinking water treatment costs.
- Wetlands reduce sedimentation of surface water, provide water filtration, and moderate water temperatures.

Climate change mitigation

- Wetlands can function as carbon sinks and play critical roles in mitigating the effects of climate change.

Ecosystem services/economic and social values

- Provide natural flood prevention infrastructure that has lower costs than building structures that serve the same functions. Other functions include cultural, aesthetic or recreational value.

<u>Agricultural impacts</u>

Water Quality

- Excess nutrients and pesticides transported to surface water, wetland soils and vegetation.
- Agricultural activities can contribute considerable quantities of (mostly fine) sediment to streams. Loss of permanent vegetation, regular tilling of the soil, and sloughing of ditch and channelized stream banks all contribute to sedimentation.
- Poorly placed and designed roads can also increase sediment loads.

Hydrology

- Direct impacts to the hydrologic function such as a change in flow from dredging or the partial filling of a wetland has a primary effect on flood storage and secondary effects on water quality. In turn, changes in both these functions alter vegetation, potentially changing a wetland's value to wildlife.
- Clearing of vegetation, including riparian and wetland conversion, or location of agriculture related structures in riparian and wetland critical areas can result in changes in storm flow volume, peak flow intensity and frequency, surface and channel erosion, reduced bank stability, and sedimentation, which impacts fish and their habitats in numerous ways including suffocation, as well as loss of habitat structure and complexity.

Wildlife Habitat

- Altering wetland hydrology also impacts vegetation and wildlife habitat. Loss of vegetation can result in decreased wildlife habitat availability and/or suitability of habitat for fauna, resulting in decreased species diversity and population size.

Frequently Flooded Areas

"Frequently flooded areas" (FFAs) are lands in the floodplain subject to at least a one percent or greater chance of flooding in any given year or areas within the highest known recorded flood elevation, or within areas subject to flooding due to high (shallow) ground water. This includes all areas within unincorporated Columbia County identified on flood insurance rate maps prepared by the Federal Insurance Administration. FFAs provide temporary flood water storage and conveyance, riparian habitat and other wildlife benefits, can improve or degrade soil health based on vegetative conditions, can improve water quality, and recharge groundwater and maintain stream flows.

Primary Functions and Values

Soil Health

- Floodplain connectivity is critical to a properly functioning riparian ecosystem. Flooding is an essential ecological interaction between the river channel and its associated floodplain. Floodwaters carry sediment, organic material, nutrients, and organisms that can replenish the soils in the floodplain. o Supports moisture content in soils, reduces rate of erosion, and supports plant growth that can increase organic inputs to soil.

Wildlife Habitat

- Floodplain connectivity with streams and rivers is recognized as a necessary habitat element for the survival of wild salmon populations.

- Flooding creates, maintains, and modifies important features of the stream channel and floodplain by creating and filling pools, oxbows, side channels, and backwater areas, and redistributing sediment and organic matter to create/erode islands, bars, and stream banks.
- Flooding can recruit large woody material into the stream channel and floodplain, which influences channel morphology. Trees falling into the channel and floodplain become large woody debris, influencing channel morphology and creating high quality, diverse habitat for fish rearing, spawning, migration and refuge. This material also provides habitat for benthic invertebrates, an important component of the aquatic food chain. Migration of species: flooding allows for foraging and reproduction outside of the river channel.
- High diversity of aquatic and terrestrial plants and animals result from regular flooding coupled with diverse habitat.
- Disturbance can cause abrupt changes in habitat conditions and alter hydrologic and nutrient cycling processes. Given time and without obstruction, a natural, unimpeded, meandering channel can swing and shift across its valley, resulting in a complete reworking of the floodplain
- Inundation of floodplains and wetlands provides important wildlife habitat and connects and increases available habitats (i.e. pools and bars).

Hydrology

- Stores and retains surface water in the floodplain, reducing velocities and modifying discharge rates. Floodwater retention and discharge can help to recharge groundwater and maintain stream base flows.
- Biologically important parameters that change following flooding and channel activities include water temperature, turbidity, flow velocity, variable water depths, hydrologic regime, a decrease or change in vegetation, changes in storage of organic matter and sediment, and changes in the size and stability of channel substrate.

Water Quality

- Riparian areas and vegetated floodplains filter pollutants, hold underlying soil in place, reduce erosion and provides a place for new sediment deposition to settle out. Regular flooding flushes and maintains healthy habitats in river pools and can reduce algal blooms.
- Moderates water temperature by shallow groundwater infiltration, cooler groundwater recharge from aquifers back to streams, and by vegetation that can provide shade.

<u>Agricultural impacts</u>

Hydrology

- Common agricultural activities that can degrade water flow processes include: impervious surfaces, forest clearing, filling and draining/diking

wetlands and floodplains, roads and associated storm drainage systems, and removal of riparian vegetation.

- Removal of vegetation, compaction of soils, and the installation of drainage networks associated with roads combine to increase surface water runoff during and immediately after storms, while reducing groundwater recharge and evapotranspiration. This results in quick water level rise to storms and decreased base flow during dry periods.
- As impervious surfaces and ditches increase the rate and magnitude of the in-stream storm response, channel-forming flows occur more frequently, which can promote downstream bank erosion, channel widening, and incision.
- Changes in water infiltration from tilling or compaction of soils and alteration of surface and groundwater flows can result in increased surface flows and issues with flooding and erosion as well as decreased groundwater flows and aquifer recharge rates.
- Altering hydrology can increase flows at critical times (i.e. peak storm flow season) and lead to overall changes in the in-stream habitat conditions. Channelization greatly limits the functions of a stream and its associated floodplain as well as any potential benefits of a functional riparian corridor, channel migration zone, and floodplain.
- Agricultural activities, particularly when implemented with conservation practices such as riparian forest zones and cover crops, can improve the functions of frequently flooded areas by reducing the volume of floodwaters and providing storage capacity at peak flows. Vegetation both in the riparian zone and along the floodplain slows water and removes energy from floodwaters, reducing impacts from flooding (i.e. scouring and stream bank erosion).

Water quality

- Loss of riparian vegetation reduces bank stability, and increases channel erosion and sedimentation. Loss of vegetation and harvesting crops in the floodplain can also increase soil erosion and sedimentation in nearby streams and lakes.
- Water flowing over impervious surfaces, fields, and agricultural use areas can pick up excess nutrients, pathogens and contaminants, which have a negative impact on the aquatic ecosystem biota and can also reduce the safety of water for drinking and recreational uses.

Wildlife Habitat

- Agricultural activities and development in riparian areas and floodplains can result in the reduction in diversity and complexity of habitat, which affects the amount and types of wildlife that can be sustained. Increased impervious surfaces and decreased vegetative cover increases the volume of water flow, scouring of channels, and reduction or loss of the functions associated with flooding and channel migration, including the

loss of wildlife habitat food and cover, vegetation, and woody debris recruitment.

- Activities in the floodplain can change stormwater flows and contribute pollutants to water bodies, which impacts our water quality and quantity as well as aquatic habitat. These impacts can degrade fish populations even at low levels of development.

Fish and Wildlife Habitat Conservation Areas

"Fish and wildlife habitat areas" (FWHCAs) are areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness. These also include locally important habitats and species. FWHCAs provide water quality, hydrology, soil health, and habitat functions. Streams provide a key habitat and riparian vegetation functions as a source of organic materials, habitat structures and cover, streambank stabilization, and shade to help regulate water temperatures. Habitats of local importance may support sensitive species throughout their lifecycles, or are areas that are of limited availability, or high vulnerability to alteration. FWHCAs, especially riparian areas, help to improve water quality, affect hydrology, contribute to soil health, and provide a variety of habitats.

Primary Functions and Values

Wildlife Habitat

- FWHCAs support sensitive and important species lifecycles, provide spawning, rearing, and migratory habitat for fish, and nesting and rearing habitat, food and cover for riparian and upland wildlife species. Riparian areas also supply organic inputs, such as leaf fall, insects and large wood to aquatic habitat.
- Browsing or grazing (i.e. herbivores such as deer and elk) can change plant communities and alter the functions of ecosystems.
- Seed-dispersing wildlife species can influence forest succession and regeneration.
- Carnivore predation can influence populations of ungulate prey species. Predators regulate the impacts of grazing animals, improve the overall fitness of prey populations by culling the weak, sick, and old animals, and foster biological diversity and ecological stability.
- Rodents can serve to disseminate beneficial mycorrhizal fungi.

- Ecological functions of organisms support the trophic structure of ecosystems (i.e. food webs and nutrient cycling). More biodiverse systems generally have wider arrays of ecological functions.
- Invertebrates play central functional roles, including as food sources, fostering wood decay, and creating snags and down wood.

Hydrology

- Wildlife species can act as "environmental engineers" by altering landscapes and ecosystem processes, such as the creation of wetlands from beaver dams.
- FWHCAs provide areas to store and retain water to reduce flooding and support stream base flows.

Soil and Crop Health

- Pollinators support plant diversity and agricultural production. The reproduction of many crops and wild plants is dependent on pollination, primarily through native pollinators such as wasps, bees and flies, managed honey bee colonies, as well as birds, bats, and others.
- More than one-third of the world's crops require pollination.
- Plants provide the foundation of net primary production, provide many kinds of physical habitat structures, and support soil structures and soil health, as well as fertile crops.
- Vegetative cover reduces the rate of soil erosion and provides wind breaks.

Water Quality

- Provides water filtration. Plants and invertebrates in FWHCAs help filter water and detoxify soils.
- Riparian vegetation reduces sedimentation, stabilizes streambanks, and moderates water temperature by providing shade.

<u>Agricultural impacts</u>

Water Quality

- Pesticides and nutrient loads related to agricultural uses can deteriorate surface and ground water quality, which directly or indirectly impacts many wildlife species including birds, fish, amphibians, and beneficial insects.
- Soil erosion from agricultural activities can cause sedimentation of surface waters, which can reduce the diversity and populations of stream invertebrates.
- Soil erosion and sedimentation deteriorates and reduces fish habitat and survival.
- Unlike the wildlife generalists that often thrive in agricultural habitats, salmonids are specialists and require relatively rigorous conditions to carry out their life cycle. Small, persistent changes in water quality, temperature,

habitat structure, or even distribution within a watershed can have severe consequences for salmon survival.

Wildlife Habitat

- Agriculture and fish and wildlife habitat areas have complex interactions that vary from negative impacts on fish and wildlife habitat and biodiversity to beneficial impacts for some habitats and species.
- Habitat loss due to conversion of native plant communities and rare habitat types to agricultural activities, loss of biodiversity due to habitat simplification, habitat degradation from introduction of non-native plant and animal species, and the hazing/killing of wildlife that may be considered nuisance by agricultural operators.
- Dissection, fragmentation, substitution, and loss of habitat from conversion to cropland or agricultural building structures, roads/tracks. Spatial processes have distinctive attributes, and each exerts significant effects on a range of ecological characteristics from habitat structure to biodiversity to erosion to water chemistry.
- Migration patterns, reproductive success, exposure to invading species and predators, are modified as populations are split and isolated. As habitats shrink, they are no longer capable of supporting and sustaining viable populations.
- Agricultural habitats support a high diversity of wildlife species in Oregon and Washington (over 300 species) as a result of the broad distribution of agricultural areas and the wide variety of land uses, crops, and habitat conditions.
- Many bird species depend on open habitat such as grasslands and pastures and over-wintering waterfowl populations rely on agricultural lands for habitat, food, and forage.
- Pesticides and herbicides commonly used in agriculture directly and indirectly impact populations of pollinators, which can threaten the availability of pollination for agriculture as well as wildlife flora.
- Effects of grazing vary among sites and are likely to depend on a suite of factors including but not limited to timing, intensity, duration, and how these factors interact with seasonal habitat use patterns.

Hydrology

- Out-of-stream water consumption/irrigation can reduce the quantity of water available in-stream for wildlife habitat.

Geologic Hazard Areas

"Geologic hazard areas" (GHAs) are those areas that are susceptible to erosion, landslides, earthquake, volcanic lahar, liquefaction or other geological events. In the VSP context, GHAs can primarily impact soil erosion risks from wind and water. The focus for GHAs is on reducing landslide risks and the rate of erosion for soil conservation and to reduce the risk of erosion effects on other functions such as surface water quality, water infiltration into soil to improve groundwater conditions, and to soil health.

Primary Functions and Values

Hydrology

- Landslides over time can be beneficial to the hydrology of streams and beaches, such as the addition of Large Woody Debris (LWD) that provide stream channel stability.
- Erosion and sedimentation can impact the rate of groundwater infiltration.

Wildlife habitat

- Deposits of LWD that can originate from landslides are important to the natural function and health of aquatic areas and provide nutrients, shelter from predators to fish and amphibians, some shade, and serves to stabilize stream channels and beach environments.
- Erosion and sediment deposition from material being carried downslope maintains the functions of riverine, riparian, and marine habitats.
- Erosion increases sediment inputs to streams and wetlands and impacts aquatic habitats.

Water Quality

- In the short term, landslides and erosion can have negative impacts by introducing excess sediments, nutrients, and contaminants into surface waterbodies.

Appendix D:
Existing and Related Plans, Programs and Regulations

Appendix D: Existing Plans

The Growth Management Act (GMA) was passed by the Washington State legislature in 1990 to help the state manage the growth of development and activities that have the potential to affect sensitive environments and species, including critical areas. The Voluntary Stewardship Program (VSP) is part of the GMA, but was also written to work with other existing programs, plans and applicable rules and regulations. This appendix sets forth an overview of the existing resources used in the Columbia County VSP Work Plan and describes how they relate to other applicable rules and regulations. This is referred to as the regulatory environment on the balancing graphic.

Existing Conservation Programs
As described in the Columbia County VSP Work Plan, the VSP provides a voluntary framework for critical areas protection and enhancement actions carried out by agricultural producers while maintaining and improving agricultural viability. Other similar programs are available to agricultural producers that are designed to incentivize protection and enhancement of critical areas through conservation practices. The availability of these programs is variable, as they are heavily influenced by federal and state program funding, the regulatory environment, industry standards and the agricultural market. Many of these programs have been in place since the 2011 baseline date and have contributed to conservation practices being implemented in Columbia County.

There are a variety of voluntary incentive programs for agricultural producers provided by federal, state and local entities. The VSP was written to be compatible with existing conservation programs to achieve protection and enhancement of critical areas. Table 1 includes a summary of federal programs and Table 2 includes a summary of state and local programs available. This is intended to provide a general representation, but is not intended to be an all-inclusive list.

Federal Conservation Programs

Natural Resources Conservation Service (NRCS)

NRCS provides technical and financial assistance to help agricultural producers make and maintain conservation improvements on their land. NRCS also offers conservation easement programs and partnerships to leverage existing conservation efforts on farm lands.

- **Environmental Quality Incentives Program (EQIP)**

Voluntary program providing financial and technical assistance for agricultural producers to plan and implement conservation practices improving soil, water, plant, animal, air, and related natural resources

- **Conservation Stewardship Program (CSP)**

Voluntary program providing technical assistance for agricultural and forest landowners to develop plans for conservation, management, and enhancement activities.

- **Agricultural Conservation Easement Program (ACEP)**

Provides conservation partners with financial and technical assistance through agricultural land easements to restore, protect, and enhance wetlands

- **Agricultural Water Enhancement Program (AWEP)**

Voluntary program providing financial and technical assistance to agricultural producers for implementing agricultural water-enhancement activities

- **Wildlife Habitat Incentive Program (WHIP)**

Voluntary program for wildlife habitat conservation and enhancement on agricultural land, non-industrial private forest land, and Native American land

- **Regional Conservation Partnership Program (RCPP)**

Provides conservation partners with financial assistance to support high-impact conservation projects.

Farm Service Agency (FSA)

FSA oversees several voluntary, conservation-related programs that work to address several agriculture-related conservation measures.

- **Conservation Reserve Program (CRP)**

Voluntary reserve program to conserve environmentally sensitive land through agricultural protections and plant species to improve environmental health.

- **Conservation Reserve Enhancement Program (CREP)**

Similar to the CRP, this voluntary program targets high-priority conservation issues. The contract period is typically 10 to 15 years.

State and Local Conservation Programs

Washington State Conservation Commission (WSCC)

WSCC works with conservation districts (CDs) to provide voluntary, incentive-based programs for implementation of conservation practices. WSCC supports the CDs through financial and technical assistance; administrative and operational oversight; program coordination; and promotion of CDs activities and services.

- **Coordinated Resource Management (CRM) Program**

Voluntary and locally led program for landowners seeking to resolve land-use and natural resource issues through local coalitions and consensus building

- **Irrigation Efficiencies Grant Program (IEGP)**

Provides financial incentives to landowners willing to install irrigation systems that save water.

- **Natural Resource Investments (non-shellfish) Grants**

Grant program for landowners to complete natural resource enhancement. Projects necessary to improve water quality in non-shellfish growing areas.

- **Office of Farmland Preservation (OFP)**

The OFP identifies and addresses farmland loss through agriculture conservation easement programs, providing technical assistance, developing farm transition programs, and providing data and analysis on trends.

- **Washington State Department of Fish and Wildlife (WDFW)**

WDFW provides financial assistance for habitat projects that restore and/or preserve fish and wildlife habitat through funding opportunities such as the ALEA Volunteer Cooperative Grant Program

- **Aquatic Lands Enhancement Account (ALEA)**

Grant program for qualifying landowners who undertake projects that benefit Washington state's fish and wildlife resources.

- **Washington State Recreation and Conservation Office**

The Washington State Recreation and Conservation Office provides funding to protect aquatic lands and for projects aimed at achieving overall salmon recovery, including habitat projects and other activities that result in sustainable and measurable benefits for salmon and other fish species. Funding is provided through programs such as ALEA and the Salmon Recovery Funding Board Grant Program.

- **Aquatic Lands Enhancement Account (ALEA)**

Local and state agencies and Native American Tribes can apply for grants to fund aquatic habitat-enhancement projects.

- **Salmon Recovery Funding Board Salmon Recovery Grants**

Grant program for eligible parties seeking to improve important habitat conditions or watershed processes to benefit salmon and bull trout.

- **Farmland Preservation Grants**

Grant program for local agencies and non-profits to buy development rights on farmlands to ensure the lands remain available for farming in the future.

- **Washington State Department of Ecology (Ecology)**

Ecology provides funding for water-quality improvement and protection projects, including programs such as the Water Quality Financial Assistance program and voluntary partnership programs such as the Farmed Smart Partnership.

- **Water Quality Financial Assistance Program**

Grant and loan program for high-priority projects to protect and improve the health of Washington State waters.

- **Farmed Smart Partnership**

Regional voluntary program overseen by the Pacific Northwest Direct Seed Association, in coordination with Ecology, that certifies agricultural producers for environmentally friendly and sustainable dryland agriculture practices.

- **Columbia Conservation District (CCD)**

CCD provides technical, financial, and educational resources to meet the needs of local land users for conservation of soil, water, and related resources.

- **Cost-share Program**

Program for projects within WCD boundaries that implement best management practices for improving water quality.

- **Water Quality Program**

Program providing technical assistance for livestock and non-livestock issues relating to water quality.

- **Riparian and Wildlife Habitat Program**

Program offering education, technical, and financial assistance for improving, enhancing, and restoring habitat.

- **Conservation Agriculture and Farmed Smart**

Program offered through the Conservation Agricultural Department at CCD offering a variety of grant options to help landowners and producers.

- **Washington State University (WSU) Extension**

The WSU Extension program connects agricultural and natural resource Stakeholders and industries, as well as the public, to extend research-based information and conduct locally relevant applied research in the fields of agriculture and natural resource sciences.

- **Agriculture and Natural Resources Program**

Program providing technical assistance, research, and education to producers.

Related Plans and Programs

As required by RCW 36.70A.720(1)(a), the VSP Work Plan must incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans. Below is a summary of the planning documents and programs that were referenced for the VSP Work Plan and appendices. This includes watershed management and wildlife management programs prepared specific to Columbia County.

Water Resource Inventory Areas

The County includes portions of three major watersheds, which are known as Water Resource Inventory Areas (WRIAs). Most of the County is in the Middle Snake WRIA (WRIA 35). The western portion of the County is in the Walla Walla WRIA (WRIA 32), and a relatively small area in the northwestern portion of the County is in the Lower Snake WRIA (WRIA 33). Watershed planning under RCW 90.82 has previously been undertaken which focuses on issues relating to water quality, water quantity and habitat.

The purpose of watershed planning under the Washington Watershed Management Act (WMA) is to provide a method to help achieve a balance among competing water resource demands. Water demands for commercial, industrial, residential and agricultural activities (e.g. out of stream uses) have to be balanced with Tribal Cultural and instream fish habitat needs. Demands such as irrigated agriculture provide a significant economic base for the Water Resource Inventory Area (WRIA). Critical habitat for fish species listed under the federal Endangered Species Act (ESA) as well as a diversity of non-listed fish and wildlife are also dependent upon water resources. The WRIA's surface water resources also offer recreational opportunities and natural beauty for residents and visitors.

A summary of WRIA goals includes:

- Protect existing water rights, private property rights and tribal treaty rights
- Emphasize voluntary and incentive-based management solutions
- Maintain and enhance the regional economy and provide future economic opportunities associated with the watershed hydrology, including but not limited to potable water, agriculture, industry, recreation and tourism
- Establish and maintain ongoing education and public involvement program
- Establish a detailed funding plan for implementation, including: projects, programs, long-term monitoring and evaluation of watershed plan implementation
- Ensure fairness in distributing costs and burdens of water resource management actions
- Obtain local, state and federal agencies (regulatory and management) and tribal buy-in and cooperation for recommended management strategies
- Provide long-term reliable and predictable water supplies for human uses
- Identify minimum and target stream flows, and manage stream flows to enhance habitat conditions for salmonids, with emphasis on steelhead, Chinook and bull trout
- Protect surface and ground water quality needed for public drinking water supplies, agriculture, recreation, fish and other uses
- Improve certainty, timeliness and efficiency in water right decisions
- Improve scientific basis for understanding baseline conditions
- Identify and implement water conservation and efficiency strategies
- Maintain productive riparian habitat and enhance degraded habitat for salmonids in all life stages

Salmon Recovery Plans

There exist a number of salmon recovery plans dating back to 2004. In 2011, the Snake River Salmon Recovery Board put forth the Snake River Salmon Recovery Plan for SE Washington. This plan provides strategies for restoring salmon populations in the Snake River Basin. The plan represents a coordinated effort with other planning processes to provide recovery strategies and general actions to restore habitat and fish passage within the basin.

The National Oceanic and Atmospheric Administration (NOAA Fisheries), in 2015, put forth the Proposed ESA Recovery Plan for Snake River Fall Chinook Salmon. This plan provides recovery goals and strategies, including site-specific actions for restoring fall Chinook salmon populations in the Snake River basin. This includes strategies to improve habitat and water quality critical to the recovery of the species.

A similar plan was also put forth in 2015 for the Snake River Sockeye Salmon by NOAA Fisheries.

In 2016, NOAA Fisheries put for the Proposed ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon and Snake River Steelhead. The goals and strategies are similar to the plans for the other species.

Columbia County Shoreline Master Program (SMP)
The SMP sets forth shoreline goals and policies for management and protection of shorelines of the state located within the County. Existing agricultural activities are exempt from the SMP.

Priority Habitats and Species List (PHS)
The Washington State Department of Fish and Wildlife manages the PHS list to track and document state-listed habitats and species located throughout the state.

Federal, State and Local Regulations that Apply to Agriculture

The VSP is provided as an alternative to protecting critical areas used for agricultural activities through development regulations under the Growth Management Act. Despite its voluntary nature, it is still the intent of the VSP to improve, and not limit, " compliance with other laws designed to protect water quality and fish habitat," per Revised Code of Washington (RCW) 36.70A.700 and 36.70A.702. Per RCW 36.70A.720, the development regulations used to achieve the goals and measurable benchmarks for protection of critical areas must be incorporated into the VSP Work Plan. Because no regulations are enforced via the VSP, regulatory enforcement in the County provides a "regulatory backstop." For example, the Washington State Department of Ecology will continue to regulate wetland conversions on agricultural lands through the local Water Pollution Control Act. In addition, other regulations would also continue to apply on the state level such as hydraulic project approvals RCW 77.55, the shoreline management act RCW 90.58 and the local shoreline master program, and various state agricultural regulations

Continued compliance with these regulations provides additional assurance the functions and values of critical areas are protected. As illustrated in the figure below, the VSP is intended to balance critical areas protection and agricultural viability at the County level through voluntary actions by agricultural producers. VSP is not a replacement for compliance with other laws and regulations, but participation in the program can often help agricultural producers comply with these requirements.

Other Programs

The following list includes international organizations that offer a variety of voluntary conservation and certification programs to agricultural producers:

- GLOBALG.A.P.: GLOBALG.A.P. is an international non-profit organization that provides a voluntary GLOBALG.A.P. certification for eligible crops and livestock that meet or exceed 16 standards for safe and environmentally sound agricultural practices.
- Safe Quality Food Institute (SQFI): SQFI offers certifications recognized by the Global Food Safety Initiative for best agricultural and livestock practices.
- PrimusLabs: PrimusLabs, located in North and South America, is a food safety company that provides a Good Agricultural Practices (GAP) auditing program that certifies agricultural producers who comply with standard operating procedures for food safety.
- Farmed Smart: The Pacific Far Northwest Direct Seed Association oversees the Farmed Smart Program, which is designed to certify producers who use sustainable practices. The program defines conservation standards and provides educational tools to producers regarding the environmental benefits of direct seeding.

Appendix E:
Community Outreach and Participation

Appendix E: Community Outreach and Participation

One of the main purposes of the VSP process is to allow members of the public to participate and provide information – to have an active role in protecting critical areas and maintaining agricultural viability. The Columbia County VSP Work Group was appointed by the Columbia County Board of County Commissioners to serve as a conduit between the VSP Work Group and the citizens of the county. This appendix outlines the Work Group's efforts to communicate with and obtain input from the general public and from relevant agencies regarding the development of a Work Plan.

VSP Work Group Membership

NAME	REPRESENTING
Glenn Warren	Columbia/Blue Mtn Counties Farm Bureau
D.J. Frame	American Energy - Contractor
Connie Spray	Columbia Co. Public Health
Scott Magill	Landowner
Roland Schirman	Retired Educator
Bill Warren	Warren Farms/Orchards
Paul Carter	WSU Extension
Marty Hall	Livestock & Irrigated Farm
Skip Mead	Conservation Dryland Farmer
Justin Pearson	Columbia Conservation District
Valerie Turner	Livestock
Rick Turner	Dryland Farmer
Bryan Martin	Planning Commission
Jim Bob Bloomfield	Columbia County Cattlemans
Dick Rubenser	Livestock/Forestry
Tom Schirm	Fish & Wildlife
Terry Bruegman	Columbia Conservation District
Eric Thorn	Ag Producer
Don Jackson	Dryland Farmer
Kelly McLain	WA State Agriculture
Steve Martin	Snake River Board
Ed Teel	NRCS District Conservationist
Don and Janet Howard	Ag Producers
Larry Fairchild	Landowner
Randy Mann	Landowner
Bill Turner	Landowner
Lester Literal	Landowner
Dave Frame	Landowner/Irrigated/Livestock
Dan Franiz	Landowner

Gerald Magill	Landowner
John Foltz	Snake R. Salmon Recovery Bd
Non-Voting Members & Staff	
Kim Lyonnais	Planning Dept
Meagan Bailey	Planning Dept
Clint Atteberry	Planning Dept
Greg Abramson	Planning Dept
Dwight L. Robanske (retired and replaced by Norm Passmore	Board of County Commissioners
Don Brigham, Jr.	Project Coordinator/Facilitator

VSP Work Group Meetings

Work Group meetings were held on roughly a monthly schedule from early spring of 2016 through the summer of 2018. The public was invited to attend any Work Group meeting and notices were always available on the Columbia County VSP web site. Shown below is a schedule of the meetings that were held along with the main agenda items for each meeting.

AGENDA for April 13th, 2016

- Introductions
- Ground rules and election of chairperson
- VSP process
- Review of Critical Areas and their interaction with VSP
- Discussion of goals and benchmarks
- Work Plan & Future Steps

AGENDA for June 8th, 2016

- Our Web site
- Timeline of tasks for Work Plan
- Agricultural viability in Columbia County
- Discussion of Threats/Roadblocks to Ag Viability

AGENDA for July 13th, 2016

- Our Web site
- Update on Timeline of tasks for Work Plan
- HOMEWORK ASSIGNMENT: Discussion of Threats/Roadblocks to Ag Viability
- Agricultural viability in Columbia County
- Develop Goals and Targets

AGENDA for October 12th, 2016

- Summary of Mapping Sub-Committee
- Agricultural viability in Columbia County
- Develop Goals and Targets

AGENDA for December 14th, 2016

- Agricultural viability in Columbia County
- Review draft chapter
- Setting Benchmarks for Critical Area Protection

AGENDA for January 26th, 2017

- Our Tool-kit - Getting credit from our Conservation Programs
- Critical Areas Functions/Values
- Measurable Benchmarks Process

AGENDA for February 8th, 2017

- Outreach & Communication Plan
- Measurable Benchmarks Process in light of things we learned at Moses Lake seminar
- Our Tool-kit - Conservation Programs & Critical Areas Functions/Values

AGENDA for March 8th, 2017

- Outreach & Communication Plan
- Farm Stewardship Plan
- Ag Viability Definition
- Measurable Benchmarks Process
- Our Tool-kit - Conservation Programs & Critical Areas Functions/Values
- Open Meetings Act compliance video

AGENDA for April 12th, 2017

- Clarification on Critical Areas impact – official language definitions are on our web site
- Drafts of Table of Contents and Chapter One for our Work Plan
- Measurable Benchmarks Process

AGENDA for May 10th, 2017

- Updates from State VSP – Adoption of Work Plans from Thurston and Chelan Counties
- Drafts of Table of Contents and Chapter One for our Work Plan
- Measurable Benchmarks Process
- A compilation of examples from the two pilot projects that have been adopted

AGENDA for June 14th, 2017

- Presentation and discussion of Critical Area Appendix
- Presentation and discussion of Critical Area Maps and Intersection with Aglands
- Drafts of Table of Contents and Chapter One for our Work Plan

AGENDA for September 27th, 2017

- Review and discussion of draft Chapter 1 of Work Plan – already reviewed last Spring
- Review and discussion of drafts of Chapters 2 & 3 of Work Plan

AGENDA for October 11th, 2017

- Review of draft Chapter 2 comments from September Meeting
- Review and discussion of draft Chapter 3 of Work Plan
- Review and discussion of Critical Area maps and Benchmarks, Goals and related topics

AGENDA for November 8th, 2017

- Review of draft Chapter 3 comments from October meeting
- Review and discussion of draft Chapter 4 of Work Plan

- Review and discussion of Critical Area maps and Benchmarks, Goals and related topics

AGENDA for December 14th, 2017

- Review of draft Chapter 4 comments from November meeting
- Review and discussion of draft Chapter 5 of Work Plan
- Review and discussion of Critical Area maps

AGENDA for January 10th, 2018

- Note on Outreach to Conservation District 1/18
- Update of Work Group roster classifications
- Review of draft Chapter 4 comments from the December meeting
- Review and discussion of draft Chapter 5 of Work Plan
- Easements, Salmon Recovery and other practices
- Review of draft Chapter 4 revisions

AGENDA for January 10th meeting

- Discussion of Individual Stewardship Plans
- Discussion of preferred language on Fish & Wildlife Habitat Conservation Areas
- Review and discussion of draft Chapter 5 of Work Plan
- Easements, Salmon Recovery and other practices?

AGENDA for February 14th meeting

- Review of draft Chapter 4 revisions from the January 24th meeting
- Review of draft Chapter 5 revisions from the January 24th meeting
- Discussion of Individual Stewardship Plans

AGENDA for March 14th meeting

- Updates from State VSP on State Tech Panel informal review, info on incentives and confidentiality
- Public Open House on March 22nd at 7 p.m.
- Review of Benchmarks – Tables 5-4 and 5-4
- Review of Chapter 6
- Discussion of Individual Stewardship Plans

AGENDA for March 28th meeting

- Public Open House on March 22nd – comments?
- Review of Benchmarks – Tables 5-4 and 5-5
- Review of revisions made to Chapters 5 & 6
- Discussion of Individual Stewardship Plans

AGENDA for May 9th meeting

- Updates from State VSP on State Tech Panel informal review, submission of Work Plan this month and Formal presentation in mid-June
- Brian Cochrane – State Conservation Commission
- Monitoring and Implementation discussion

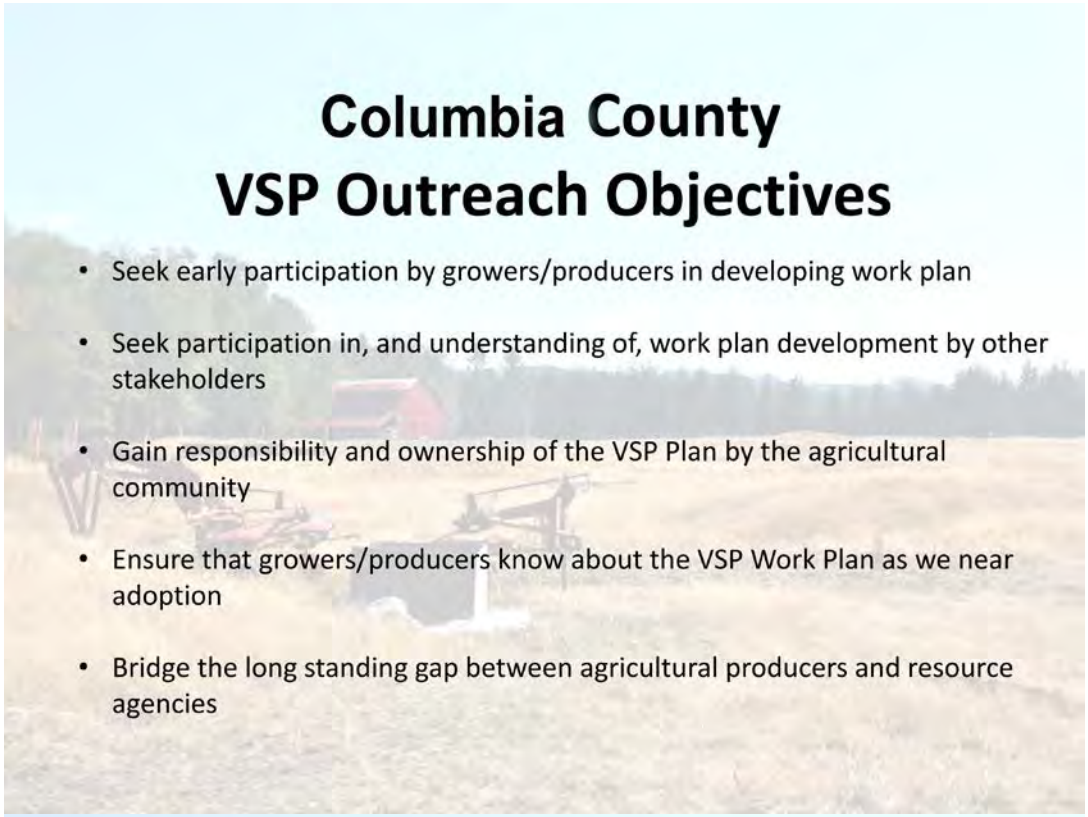
Outreach Methods

Several avenues were utilized to share the VSP process and inform the general public including the creation of a web site and newspaper articles. These outreach materials and announcements listed the dates and major topics of the VSP meetings, opportunities to be involved locally and contact information. Shown below are elements of the outreach plan developed and implemented by the Work Group.

COLUMBIA COUNTY VOLUNTARY STEWARDSHIP PROGRAM
OUTREACH & COMMUNICATION PLAN

OBJECTIVE:	Ensure outreach and communication is provided to the agricultural community and all interested parties that are interested in or impacted by the Voluntary Stewardship Program.

Your Goal	Tool or Resource	Who?	When?	What?
Develop VSP Communications Methods	Work Group meeting notices/minutes	Facilitator & Planning Staff (PS)	1 week prior to each Work Group meeting	
	FSA e-newsletter	Facilitator & PS	By Sept 2018	
	Newspaper articles	Planning Staff	As needed	
	Paid advertisements in newspapers	Facilitator & PS	For community mtgs	
	WSU Extension office	Facilitator & PS	By Sept 2018	Can they target Columbia County?
	Postcard mailers	Planning Staff	By Sept 2018	
	Link VSP to County Planning website	Planning Staff	ASAP	
	Others?			
Develop Outreach Materials	County VSP Web site: includes VSP overview, FAQs, presentations and	Facilitator	Constantly updated	
	Develop VSP Fact Sheet	Facilitator	After adoption of Work Plan	
	Power Pt presentation for community mtgs	Facilitator	By Feb 2018	
	Others?			
	Others?			
Develop Contact Lists	Producers: Farmers & Ranchers Others?	Planning Staff	ASAP and then On-going	Weed tax list & from Assessor's parcels


Columbia County
VSP Outreach Objectives
• Seek early participation by growers/producers in developing work plan
• Seek participation in, and understanding of, work plan development by other stakeholders
• Gain responsibility and ownership of the VSP Plan by the agricultural community
• Ensure that growers/producers know about the VSP Work Plan as we near adoption
• Bridge the long standing gap between agricultural producers and resource agencies

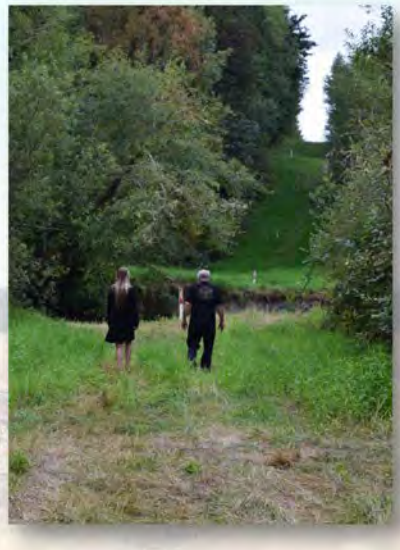

Early Outreach to Producers
• Contact with members of the ag community, including supporting agencies, in developing the stakeholder work group
• The County hosted an informal meeting with those ag producers that agreed to serve on work group
• Held an Ag Producer Listening Session early in planning process
• Production of a VSP information fact sheet
• Dedicated VSP website
District websites

The Future of VSP Outreach

- Direct outreach to growers/producers to inform them of the VSP
- Direct outreach to technical assistance providers
- Outreach between the CD and growers/producers to develop stewardship plans

The Future of VSP Outreach

- Educating producers through educational workshops, tours and events
- Direct mailings and newsletter articles
- Repository of print, electronic and website information to increase landowner access



Ongoing Outreach

All stakeholders continue to engage with elected officials, community partners, the ag community and others

Ongoing Outreach

Beta testing the Stewardship Plan on two ag operations

Public Meetings

Public meetings were scheduled periodically to share information on VSP and on the development of the VSP Work Plan. Press releases and the web site were used to inform the citizens of these meetings.

Columbia County to Implement Voluntary Stewardship Program

Public Meeting was held March 22 to present plans and gather feedback

March 15, 2018

By Ken Graham
The Times

DAYTON – A group, including farmers, wildlife officials and local planning officials, has been meeting for two years to develop a new plan to meet state requirements for a Voluntary Stewardship Program in Columbia County. The program would supplant the current requirements for agricultural land in the county to follow the Washington State Growth Management Act.

Don Brigham, a consultant in Clarkston, is the project coordinator and facilitator for the program. He said the new VSP will allow farmers and agricultural landowners to continue the practices they've been following to mitigate negative impacts to critical areas such as wetlands wildlife habitats.

"It's the difference between the carrot and the stick," he said. "The GMA is the stick. The VSP is the carrot approach. The VSP allows farmers to continue good practices they've been following for the last couple of generations."

Brigham says the GMA mandates buffer areas between ag land and critical areas, while the VSP will offer incentives to farmers to continue their own best practices to farm in an environmentally friendly way. The VSP is allowed under the GMA as an alternative to traditional approaches to critical areas protection.

According to Brigham, most counties in eastern Washington are either in the process of developing VSP programs or have already implemented them. Walla Walla County implemented its VSP program last year.

The Columbia County VSP committee will hold a public meeting to present its draft Work Plan to the public on Thursday, March 22 at 7 p.m. in the Delany Room at Dayton Memorial Library, located at 111 S. 3rd St.

The goal of the meeting is to garner public input and feedback prior to submitting the Work Plan to the state tech panel in May. A copy of the draft plan is available for review online at columbiacountyvsp.com under the "documents" tab.

Brigham said the group hopes to have the new VSP program approved and implemented by this summer

Documented Review Process

The opportunity to review and comment upon the Work Plan has been provided to the Work Group members and to members of the general public through a number of avenues. During the regularly scheduled meetings, the Work Group and other attendees discussed findings, reviewed mapping and analysis and provided comments on draft sections of the Work Plan.

Drafts of chapters and appendices of the Work Plan were presented to the Work Group on a monthly basis beginning in September of 2017. After review by the Work Group, these documents were posted on the web site for review by the public.

The final draft of the Work Plan was released in May, 2018. The Work Group and the public was given three weeks to provide comments.

Public Comment Period

A public comment period was conducted from May 7 to 31, 2018 to allow the general public an opportunity to view a draft of the Columbia County VSP Work Plan and to submit comments or other input to the Work Group for consideration. A press release was submitted to the local newspapers on May 7 announcing the comment period, the locations of the plan for review and instructions on how to submit comments. Hard copy drafts were printed and made available at the Columbia County Courthouse, the Columbia County Planning Department and at the local library. A digital copy was available at the web site: www.columbiacountyvsp.com

Comments were received from **one** individual during the public comment period. The Work Group took the comments under consideration and adjusted the Work Plan to incorporate the comments. These comments are included in this appendix.

Continued Public Involvement

Columbia County is dedicated to involving the public directly in review and updates of the VSP Work Plan. The Work Group is responsible for periodic reviews and updates and will keep the citizens informed of their meetings and actions.

A public meeting will be held as part of each evaluation, or when considered necessary by the Work Group. The meetings will provide the public with a forum at which they can express concerns and opinions about the plan. The Work Group will be responsible for publicizing the public meetings and maintaining public involvement through the web site and the news media.

The Columbia County Conservation District is designated as the lead for VSP technical assistance. There are other local organizations that can also provide technical assistance to producers. Washington State University (WSU) Extension and the area growers associations are engaged in new technologies and are sources of information.

Summary

Several attempts were made to reach out and obtain local public involvement in the development of this Work Plan. While the public input was limited, that may be due in part to members of the Work Group reaching out to their friends and neighbors to keep them informed of VSP and the Work Plan.

Consideration on how to use other educational opportunities within the community may prove valuable. This could provide interaction between both ag producers and local community members in a joint effort to meet the VSP goals. Stakeholders must be responsible for supporting communication, informing and joining in the formal and informal communication networks across organizations.

Individual Stewardship Plans

Many producers are already implementing stewardship strategies and practices that are protecting or enhancing critical areas and supporting agricultural viability throughout the County, as described in Section 4. Two participation objectives have been established for Columbia County VSP implementation:

- Better identify and document the existing measures that have been put in place since 2011 through private-sector activity and outside of government programs.
- Increase the level of participation among agricultural producers in implementing stewardship strategies and practices.

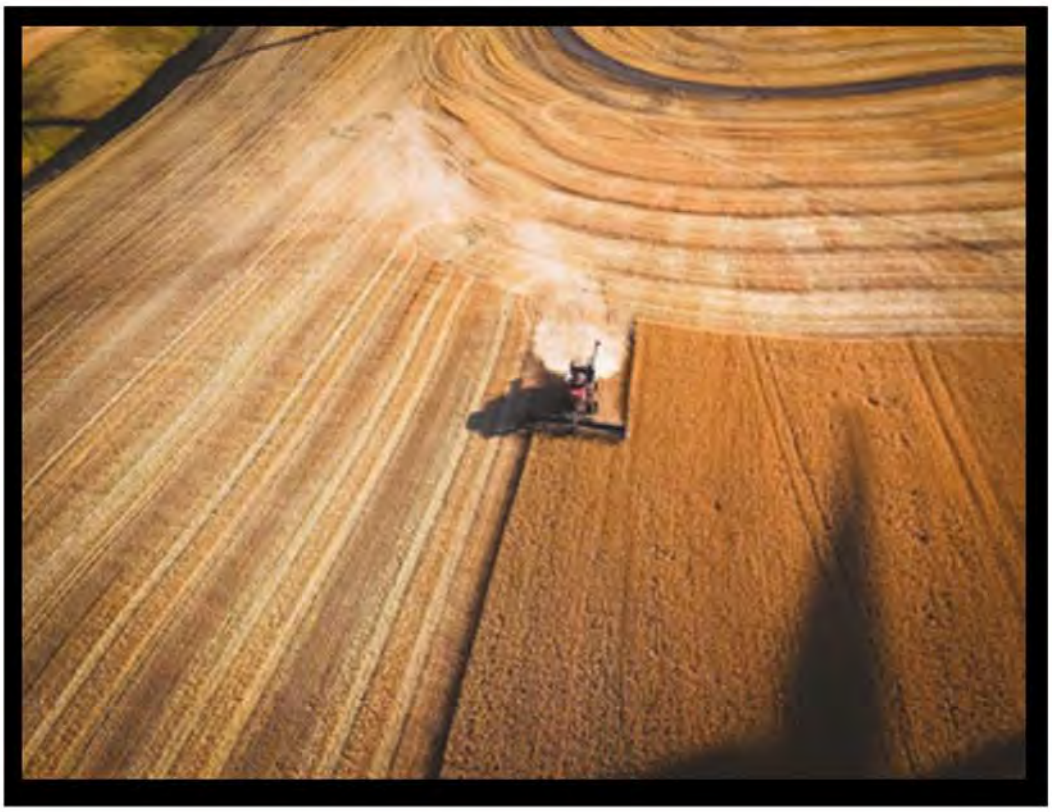
Regarding the first objective, it is expected the measures summarized in Section 4 represent only a portion of the total measures implemented during this period. Outreach to individual landowners, as well as to private industry groups, is planned in Years 0 to 2 to better document existing practices and identify future practices that might be implemented outside of government programs. Additional outreach and coordination with the private sector, resulting from the initial outreach activities, is expected to continue through the remaining eight years of the initial 10-year performance-tracking period.

The second participation objective is focused on increasing the number of stewardship strategies and practices implemented by agricultural producers, helping to meet protection and, where possible, enhancement performance goals outlined in Section 5. Achieving this objective includes offering technical assistance to producers with the development of individual stewardship plans, and making them aware of available private- and public-sector financial incentives and programs. Towards that end, the Work Group developed a survey questionnaire that will be distributed to every producer in the County. (The survey is shown below) The results of this survey will be utilized to ascertain the level of interest producers have in volunteering to implement conservation practices and strategies.

This technical assistance would also include helping to estimate the expected benefits that can be realized from implementing the measures identified in individual stewardship plans, including agriculture viability benefits at the farm level.

Voluntary Stewardship Program
for Columbia County

Individual Stewardship Plan Survey
www.columbiacountyvsp.com



Columbia County, Washington

Introduction

The Voluntary Stewardship Program (VSP) is the result of legislative amendments to the Growth Management Act to establish and develop a non-regulatory approach to Critical Area protection within agricultural lands (RCW 36.70A.725). Its goal is to provide agricultural producers more flexibility than the traditional Critical Area protection measures can offer. The legislative intent is to encourage producers to use the flexibility of VSP, allowing all involved producers to create a plan that works for them and their land—this is a not a "one shoe fits all" approach. The flexibility, individuality, and voluntary design of a VSP ensure success in protecting Critical Areas, while promoting agricultural viability and success.

Instructions

In a combined effort between Columbia County and Columbia Conservation District, we have formatted this Land Use Survey. The VSP Work Group that helped develop the VSP maintained that many of the guidelines are already being met; yet producers would find it beneficial to develop an Individual Stewardship Plan (ISP) as provided in this program. The ISP will greatly help in securing the resources needed to fully implement the VSP. The information contained within the ISP is held as confidential through the Columbia Conservation District.

Thank you for your interest in the VSP. Your involvement will allow us to work together to promote your Agricultural Viability and protect our County-Wide Critical Areas.

Thank you,

Columbia County
Columbia Conservation District

Current Land Use

1. Do you currently farm or raise animals within Columbia County?
   - ○ Yes
   - ○ No (If selected, please discontinue survey)
2. How many acres of land do you own/lease and actively farm or ranch on? (Choose one)
   - ○ 0-50 acres
   - ○ 50-100 acres
   - ○ 101-1,000 acres
   - ○ 1,001 + acres
   - ○ Prefer not to answer
3. What crops are you currently growing, or have you previously (between 2011—now) grown on your land? Choose all that apply.

○ Barley	○ Beans
○ Spring Peas	○ Oilseed Crops
○ Lentils	○ N/A
○ Spring Wheat	○ Other: Please Explain
○ Winter Wheat	_____
○ Alfalfa/Hay	_____

4. What livestock do you currently, or have you previously (between 2011—now) raised on your land? Choose all that apply.

- ○ Dairy Cattle
- ○ Beef Cattle
- ○ Goats
- ○ Chickens
- ○ N/A
- ○ Other: Please Explain

_____

_____

5. How many years have you been farming or ranching this land? (Please write in a numerical value)

_____

Intentionally left blank, please continue to the next page.

Your Crop Practices (If you do not farm your land, proceed to the next section)

6. Do you participate in any Conservation Cover practices? (Definition—establishing and maintaining long-term, permanent vegetative cover)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

7. Do you participate in Integrated Pest Management practices? (Definition—a site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

8. Do you participate in any Cover Crop practices? (Definition—grasses, legumes, and leafy ground cover plants for seasonal vegetative cover)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

9. Do you participate in having a Riparian Forest Buffer? (Definition—an area predominantly of suitable trees and/or shrubs planted along a stream, river, lake, or other water body)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

10. Do you participate in Residue and Tillage Management/Reduced Till? (Definition—managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round)

Yes, I do:

- ○ Implemented before 07/2011
- ○ Implemented after 07/2011

No, I do not:

- ○ I am interested in learning more
- ○ I am not interested in learning more

11. Do you participate in Nutrient Management? (Definition—managing the amount, source, placement, and timing of plant nutrients and soil amendments)

Yes, I do:

- ○ Implemented before 07/2011
- ○ Implemented after 07/2011

No, I do not:

- ○ I am interested in learning more
- ○ I am not interested in learning more

12. Do you participate in Fencing? (Definition—a constructed barrier to protect animals or people)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

Intentionally left blank, please continue to the next page.

Your Livestock Practices (If you do not ranch your land, proceed to the next section)

13. Do you participate in having a Riparian Forest Buffer? (Definition—an area predominantly of suitable trees and/or shrubs planted along a stream, river, lake, or other water body)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

14. Do you participate in Fencing? (Definition—a constructed barrier to protect animals or people)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

15. Do you participate in Stream Habitat Improvement and Management? (Definition—maintain, improve, or restore physical, chemical and biological functions of a stream and its associated riparian zone)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

16. Do you participate in Livestock Grazing? (Definition—managing the harvest of vegetation with grazing and/or browsing animals and soil amendments)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

17. Do you participate in having a Watering Facility? (Definition—a means of providing a controlled water source to livestock or wildlife)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

Intentionally left blank, please continue to the next page.

17. Do you participate in having a Watering Facility? (Definition—a means of providing a controlled water source to livestock or wildlife)

Yes, I do:	No, I do not:
○ Implemented before 07/2011	○ I am interested in learning more
○ Implemented after 07/2011	○ I am not interested in learning more

Intentionally left blank, please continue to the next page.

21. For the Conservation Practices you currently participate in, what are your funding sources?

- ○ Federal Funding Sources
- ○ State Funding Sources
- ○ Private Funding Sources
- ○ Mixed Funding Sources

22. What WRIA is your land located within? *Check all that apply.*

- ○ Tucannon—WRIA 35
- ○ Touchet—WRIA 32
- ○ Lower Snake—WRIA 33
- ○ Unsure; may require technical assistance in identifying

23. Through this survey, what would you like to gain? Are you interested in learning about funding options, available technical assistance, or other Conservation Practices available to you? *Please be as detailed as possible. Use the following space to answer the question.*

Contact Information

Please complete the following page with requested contact information. Once your survey is processed, County and Conservation District staff will review your responses and contact you as follow up. From this survey, an ISP can be developed for you at your discretion.

Name:

_____

Mailing Address:

_____

Contact Number:

_____

Email Address:

_____

Location of Farmed/Ranched Lands:

_____

Thank you for taking the time to complete this survey, the first step in identifying and documenting the resource management efforts being applied by our local producers.
While we review this information, we may reach out with additional questions regarding your submittal. Once we have completed review, we will follow up with you to discuss your interest in pursuing the development of an ISP for your operation.

If you would like to schedule an on-site inspection for any technical assistance (Critical Area identification, WRIA identification, etc.) please contact us below.

Columbia County Planning and Building
Meagan Bailey
Planning Director
509-382-4676
Meagan_bailey@co.columbia.wa.us

Columbia Conservation District
Terry Bruegman
District Manager
509-382-4776
Tb-ccd@daytonwa.net

This survey and the Voluntary Stewardship Program have been endorsed by the Work Group Committee, made up of local farmers, ranchers, and public officials. For more information, please contact us or visit www.columbiacountyvsp.com.

Appendix F:
VSP Submittal Checklist

VSP Submittal Checklist

Columbia County VSP Work Plan

May 2018

Substantive Required Elements for the VSP Work Plan RCW 36.70A.720 (1) (a through l)

RCW 36.70A.720 (1): Work Plan Contents

RCW 36.70A 720 (1)	Code Language	Response/Location in Work Plan
(a)	Review and incorporate applicable water quality, watershed management, farmland protection and species recovery data and plans.	▪ **Work Plan Chapter 2**: Includes description of County profile ▪ **Work Plan Chapter 3:** Includes baseline conditions description which rely upon applicable data and plans ▪ **Work Plan Chapter 5.1**: References applicable data and plans in relation to Work Plan goals and objectives in Tables 5-1 through 5-5 ▪ Applicable data and plans were also relied upon to develop: o **Appendix A**: Map Folio o **Appendix B:** Baseline Conditions Description o **Appendix D:** Existing & Related Plans, Programs & Regulations
(b)	Seek input from tribes, agencies and stakeholders	▪ **Work Group Formation:** The County Work Group participants were recruited through the following outreach efforts: o Invitation letter and email sent to agencies, stakeholders and environmental groups including Nez Perce and Umatilla tribes o News media articles in regional newspapers ▪ **VSP Website:** The following information is included on the County's VSP website www.columbiacountyvsp.com o Work Group members list o Work Group meeting dates and minutes o Draft Work Plan documents ▪ **VSP Outreach:** Meeting agenda and materials were also emailed to interested parties (including the Tribes and environmental interests) for all Work Group meetings ▪ **Work Plan Chapter 1.2 & 1.6**: Includes discussion on Work Group roles and responsibilities

RCW 36.70A 720 (1)	Code Language	Response/Location in Work Plan
(c)	Develop goals for participation by agricultural operators conducting commercial and non-commercial agricultural activities in the watershed necessary to meet the protection and enhancement benchmarks of the Work Plan.	▪ **Work Plan Chapter 5.1**: Includes goals and objectives for protection and enhancement; as well as producer participation in key stewardship practices ▪ **Work Plan Chapter 5.2:** Includes measurable protection and/or enhancement benchmarks based on producer participation: o Measured in acres enrolled or reported in key stewardship strategies and practices o Accounts for estimated disenrollment in participation or discontinuation of acres managed under key stewardship strategies and practices ▪ **Work Plan Chapter 5.4**: Includes producer participation goals, objectives and adaptive management measures
(d)	Ensure outreach and technical assistance is provided to agricultural operators in the watershed.	▪ **Work Plan Chapter 6.2:** o Describes the organization leads that provide technical assistance in the County and who will continue to provide technical assistance in coordination with the VSP Coordinator during Work Plan implementation o Identifies outreach opportunities to be implemented by the VSP Coordinator and organization leads during Work Plan implementation o Identifies a summary list of conservation programs available to agricultural operators in the County ▪ **Appendix D:** Identifies existing conservation programs available to agricultural operators in the County ▪ **Appendix E:** Identifies outreach and communication plan ▪ **VSP Overview & Checklist:** Developed as an outreach tool to assist the VSP Coordinator and technical assistance providers in outreach and education and reporting stewardship strategies and practices implemented within the County towards the Work Plan's goals and benchmarks

RCW 36.70A 720 (1)	Code Language	Response/Location in Work Plan
(e)	Create measu-rable benchmarks that, within ten years after the receipt of funding, are designed to result in: (i) the **protection** of critical area functions and values and (ii) the **enchancement** of critical area functions and values through voluntary, incentive-based measures.	▪ **Work Plan Chapter 5.2:** See response to (c) above. Benchmarks are based on participation in key stewardship strategies and practices that protect key critical area functions and promote agricultural viability o See the following sections for crosswalk connecting functional efforts of key stewardship strategies on critical area functions and values: **Chapter 4.1; Chapter 5.1** and **Appendix C** ▪ **Work Plan Chapter 5.3**: Identifies indicators that can be tracked over time to help evaluate if anticipated protection of critical area functions and values are occurring ▪ **Work Plan Chapter 5.4**: Includes an adaptive manage-ment plan to achieve protection of critical area functions and values within ten years of the receipt of funding
(f)	Designate the entity that will provide tech-nical assistance.	▪ See response to (d) above
(g)	Work with the entity providing technical assistance to ensure that individual stewardship plans contribute to the goals and benchmarks of the Work Plan.	▪ **Work Plan Chapter 5.2:** Includes measurable protection and enhancement benchmarks based on producer participation and implementation of key stewardship strategies and practices. o Performance objectives provided for acres enrolled or reported in key stewardship strategies and practices o Accounts for estimated disenrollment in participation or discontinuation of acres managed under key stewardship strategies and practices ▪ **Work Plan Chapter 6.1 & 6.2:** Includes framework for implementation, including roles of the VSP Coordinator and organization leads to ensure implemented steward-ship strategies are reported towards the Work Plan's goals and measurable benchmarks ▪ **Appendix D:** Existing and Related Plans, Programs and Regulations ▪ **VSP Overview & Checklist:** Developed as an outreach tool to assist the VSP Coordinator and technical assist-ance providers in reporting stewardship strategies and practices implemented within the County towards the Work Plan's goals and benchmarks

RCW 36.70A 720 (1)	Code Language	Response/Location in Work Plan
(h)	Incorporate into the Work Plan any existing development regulations relied upon to achieve the goals and benchmarks for protection.	▪ **Work Plan Chapter 2.5:** Identifies the connection between the County's Critical Areas Ordinance (CAO) and VSP Work Plan elements ▪ **Appendix B-3**: County CAO designations and definitions ▪ **Appendix D**: Existing and related plans, programs and regulations
(i)	Establish base-line monitoring for: (i) Participation activities and implementation of the voluntary stewardship plans and projects; (ii) stewardship activities; and (iii) the effects on critical areas and agriculture relevant to the protection and enhancement benchmarks developed for the watershed.	▪ **Work Plan Chapter 5.1:** Includes goals and objectives for: o Protection and enhancement of critical area functions o Goals for agricultural viability o Goals for producer participation in key stewardship strategies and practices ▪ **Work Plan Chapter 5.2:** Includes measurable protection and enhancement benchmarks based on producer participation in key stewardship strategies and practices: o Performance objectives provided for acres enrolled or reported in key stewardship strategies and practices o See response to (e) establishing relationship of key stewardship practices with protection of key critical area functions ▪ **Work Plan Chapter 5.3:** Identifies indicators that can be tracked over time to evaluate if anticipated protection of critical area functions and values are occurring ▪ **Work Plan Chapter 5.4:** Includes an adaptive manage-ment plan to help evaluate if anticipated protections of functions and values are occurring (Table 5-10) and adaptive management procedures, as applicable, to achieve protection of critical area functions and values within ten years of receipt of funding
(j)	Conduct peri-odic evalua-tions, institute adaptive mgt and provide a written report of the status of plans and ac-complishments	▪ **Work Plan Chapter 5.4:** Includes an adaptive manage-ment plan to achieve protection of critical area functions within ten years of receipt of funding ▪ **Work Plan Chapter 6.3:** Includes description of required reporting components of the Work Plan for two-year status reports, five-year performance reports, monitoring and adaptive management

RCW 36.70A 720 (1)	Code Language	Response/Location in Work Plan
(k)	Assist state agencies in their monitoring programs, and…	▪ **Work Plan Chapter 5.3:** Identifies indicators that can be measured and monitored over time to identify if anticipated protection and enhancements of critical area functions are occurring, in coordination with state agencies
(l)	Satisfy any other reporting requirements of the program.	▪ **Work Plan Chapter 6.3:** Includes description of required reporting components of the Work Plan for 2-year status reports, 5-year performance reports, monitoring and adaptive management