Whitman County
Voluntary Stewardship Program
Work Plan
June 2017

Funded by the
Washington State Conservation Commission

VSP Submittal Checklist
Whitman County VSP Work Plan
(June 2017)

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 Section 2:** includes description of County profile • **Work Plan Section 3:** includes baseline conditions description which relied on applicable data and plans • **Work Plan Section 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 and Related Plans, Programs, and Regulations
(b)	**Seek input from tribes, agencies, and stakeholders.**	• **Work Group Formation:** County convened the group based on responses received through the following outreach efforts: o Invitation letter and email sent to agencies, stakeholders and environmental groups, WRIA 34 planning group members, and tribes (Coeur D'Alene Tribe, Colville, Nez Perce and Yakama) o Legal ad posted October 15, 2015 in the Whitman County Gazette requesting volunteers to participate in the Work Group • **VSP Webpage:** The following information is included on the County's VSP webpage: http://www.whitmancounty.org/Page.aspx?pn=Planning+Division o Work Group members list o Interested Parties/Contact list o Work Group meeting agendas and meeting minutes o Draft Work Plan documents • **VSP outreach:** Meeting agenda and materials were also emailed to the VSP interested parties/contact list for all Work Group meetings, including agencies, stakeholders, and the Coeur D'Alene Tribe and Nez Perce tribes • **Work Plan Section 1.2 and 1.3:** 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 noncommercial agricultural activities in the watershed **necessary to meet the protection and enhancement benchmarks** of the work plan.	• **Work Plan Section 5.1:** Includes goals and objectives for protection and enhancement; and producer participation in key stewardship practices • **Work Plan Section 5.2:** Includes measurable protection and/or enhancement benchmarks based on producer participation: o Measured in acres enrolled/reported in key stewardship strategies and practices o Accounts for estimated disenrollment in participation/discontinuation of acres managed under key stewardship strategies and practices • **Work Plan Section 5.4: Table 5-9** 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 Section 6.2:** o Describes 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 • **VSP Overview and 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
(e)	**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.**	• **Work Plan Section 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 effects of key stewardship strategies and practices on critical area functions and values: ▪ **Section 4.1** ▪ **Section 5.1** ▪ **Appendix C** • **Work Plan Section 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 Section 5.4:** includes an adaptive management plan to achieve protection of critical area functions and values within ten years of the receipt of funding (2026)

RCW 36.70A. 720 (1)	Code Language	Response/Location in Work Plan
(f)	**Designate the entity or entities that will provide technical 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 Section 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/reported in key stewardship strategies and practices o Accounts for estimated disenrollment in participation/discontinuation of acres managed under key stewardship strategies and practices • **Work Plan Section 6.1 and 6.2:** includes framework for implementation, including roles of the VSP Coordinator and organization leads to ensure implemented stewardship strategies are reported towards the Work Plan's goals and measurable benchmarks • **Appendix D:** Existing and Related Plans, Programs, and Regulations • **VSP Overview and Checklist:** developed as an outreach tool to assist the VSP Coordinator and technical assistance providers in reporting stewardship strategies and practices implemented within the County towards the Work Plan's goals and benchmarks
(h)	**Incorporate** into the work plan **any existing development regulations relied upon to achieve the goals and benchmarks for protection.**	• **Work Plan Section 2.3.1:** identifies types of activities in geologically hazardous areas and structures that will continue permitted through the County's CAO. • **Appendix B-3:** County Critical Areas Ordinance Designations and Definitions • **Appendix D:** Existing and Related Plans, Programs, and Regulations

RCW 36.70A. 720 (1)	Code Language	Response/Location in Work Plan
(i)	**Establish baseline 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 Section 5.1:** Includes goals and objectives for: o Protection and/or enhancement of critical area functions; o Goals for agricultural viability; and o Goals for producer participation in key stewardship strategies and practices • **Work Plan Section 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/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 Section 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 Section 5.4:** includes an adaptive management 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 the receipt of funding (2026)
(j)	**Conduct periodic evaluations, institute adaptive management, and provide a written report** of the status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium.	• **Work Plan Section 5.4:** includes an adaptive management plan to achieve protection of critical area functions within ten years of the receipt of funding (2026) • **Work Plan Section 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
(k)	**Assist state agencies in their monitoring programs, and**	• **Work Plan Section 5.3:** identifies indicators that can be measured/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 Section 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

June 2017
Whitman County Voluntary Stewardship Program

Work Plan

Prepared for
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ABBREVIATIONS

AWEP	Agricultural Water Enhancement Program
CAO	Critical Areas Ordinance
CARA	critical aquifer recharge area
CD	conservation district
County	Board of County Commissioners of Whitman County
CPPE	Conservation Practice Physical Effect
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSP	Conservation Stewardship Program
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Agency
FFA	frequently flooded area
FSA	Farm Service Agency
FWHCA	fish and wildlife habitat conservation area
GHA	geologically hazardous area
GMA	Growth Management Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
PBAC	Palouse Basin Aquifer Committee
PHS	Priority Habitats and Species
RCPP	Regional Conservation Partnership Program
RCW	Revised Code of Washington
TMDL	Total Maximum Daily Load
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VSP	Voluntary Stewardship Program
WDFW	Washington Department of Fish and Wildlife
WHIP	Wildlife Habitat Improvement Program
Work Group	Whitman County VSP Work Group
Work Plan	Whitman County VSP Work Plan
WRIA	Water Resource Inventory Area
WCC	Whitman County Code
WSCC	Washington State Conservation Commission

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Funded by:
Washington State Conservation Commission
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1 Introduction

1.1 Voluntary Stewardship Program Overview

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.

Critical Areas per RCW 36.70A.020(5) include:

- Wetlands
- Fish and wildlife habitat conservation areas
- Critical aquifer recharge areas
- Geologically hazardous areas
- Frequently flooded areas

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.

In 2011, the Legislature amended the GMA with the intent **to protect and voluntarily enhance critical areas in areas where agricultural activities are conducted, while maintaining and enhancing 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, as an alternative to managing agricultural activities in the County under the Critical Areas Ordinance (CAO). VSP is not a replacement for compliance with other local, state, or federal laws and regulations, but participation in VSP will help to show how much effort the County's agricultural producers are investing in meeting these requirements and to document the benefits of these efforts in protecting and enhancing critical area functions and values (Figure 1-1).

Figure 1-1
Balanced Approach of Critical Areas Protection and 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 critical areas on agricultural lands while keeping agriculture economically viable (Schultz and Vancil 2016).

What are considered "agricultural activities" under VSP?

VSP applies to lands where agricultural activities are conducted, as defined in RCW 90.58.065.

Agricultural activities mean agricultural uses and practices including, but not limited to:

- Producing, breeding, or increasing agricultural products, including livestock
- Rotating and changing agricultural crops
- Allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left unseeded
- Allowing land used for agricultural activities to lie dormant due to adverse agricultural market conditions
- Allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement
- Conducting agricultural operations
- Maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities, provided the replacement facility is no closer to the shoreline than the original facility
- Maintaining agricultural lands under production or cultivation.

In 2012 the Board of County Commissioners of Whitman County (County) passed a resolution to "opt-into" the VSP as an alternative to the traditional regulatory approaches to protecting critical areas on lands where agricultural activities are conducted. The commission came to the following conclusions:

- Farming and ranching are vital to the economy of the County.
- The County watersheds provide critical and economically important functions.
- Biological diversity within the County watersheds is important to water and habitat quality and viability.

1.2 Work Plan Elements

The guiding document for the VSP is this Whitman County VSP Work Plan (Work Plan), the goal of which is to protect critical areas while maintaining the viability of agriculture. The Work Plan was developed by the Whitman County VSP Work Group (Work Group), convened by the County and comprising agricultural producers, local government elected officials and staff, agency representatives, and interest groups.

Core VSP Work Plan Approval Tests

The Work Plan has been developed to meet the following VSP statutory tests required for State approval:

- **Protect critical areas while maintaining and enhancing the viability of agriculture** at the end of 10 years after receipt of funding. RCW 36.70A0725
- **Create measurable benchmarks that are designed to protect and enhance** (through voluntary, incentive-based measures), **critical areas functions and values.** RCW 36.70A.720 (1)(e)

1.2.1 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 protection goals will trigger a regulatory approach to protecting critical areas under the GMA, 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.

Stewardship Strategies and Practices:
Examples of practices that protect critical area functions and values and promoting agricultural viability include:

- Crop rotations
- No- and reduced till
- Direct seed
- Managed grazing

See the **VSP Checklist** for additional examples of voluntary stewardship strategies and practices, and resources for additional information and potential incentive funding.

Dryland agriculture in Whitman County

The Work Group developed a *Whitman County VSP Overview and Checklist* to provide a summary overview of VSP and the Work Plan, including frequently asked questions and a VSP Checklist, as an outreach and implementation tool to help assess how the VSP could apply to individual agricultural producer's lands. The VSP Checklist includes additional examples of stewardship strategies and practices that protect and enhance critical areas and promote agricultural viability.

1.2.2 Work Plan Organization

This Work Plan, including its appendices, includes 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 include critical area protection and enhancement goals with measurable benchmarks, and an implementation, reporting, and tracking framework. See below for description of the Work Plan Organization.

Whitman VSP Work Plan Organization

- **Section 1 – Introduction:** Background on VSP legislation and how it applies to the County.
- **Section 2 – Whitman County Regional Setting:** Overview of County conditions, including description of critical areas.
- **Section 3 – Baseline and Existing Conditions:** Description of county-wide critical areas presence and functions and values as of 2011.
- **Section 4 – Protection and Enhancement Strategies:** Description of currently implemented stewardship practices that protect and enhance critical areas functions and values.
- **Section 5 – Goals, Benchmarks, and Adaptive Management:** Description of VSP goals for critical area protection and enhancements, measurable benchmarks, and indicators and methods for adaptive management.
- **Section 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.

1.3 Work Plan Development – Roles and Responsibilities

RCW 36.70A.705 identifies roles and responsibilities for state agencies, counties, and VSP work groups. Table 1-1 provides a summary of these roles and responsibilities, adapted to the Work Plan development process, including participation by producers, conservation districts (CDs), local and state agencies, and others. The Work Group, convened by the County, developed the Work Plan. Implementation roles and responsibilities are further described in Section 6.

Table 1-1

VSP Roles and Responsibilities for Plan Development

State – Approval and Administration	
WSCC	Administers VSP statewide; approves/rejects locally developed work plans
VSP Technical Panel [1]	Provide technical guidance and assistance, reviews draft work plans, makes recommendations on whether to approve or reject the work plan
VSP Statewide Advisory Committee [2]	Works with the WSCC to revise rejected draft work plans
Local – Administration and Work Plan Development	
Whitman County	Administers VSP funding and grant for work plan development
Whitman VSP Work Group	Develops and proposes a work plan for approval by WSCC
Conservation Districts [3]	Provides technical information to support work plan development
Other Technical Providers	Other technical providers, such as the Whitman County Cattlemen's Association, the Whitman County Farm Bureau, and the Whitman County Association of Wheat Growers Association, provide technical input during work plan development
Agricultural Producers – Outreach Focus	
Landowners/Operators/Others	Provide input to the draft work plan

Notes:

1. The VSP Technical Panel members include representatives from Washington State Department of Ecology, Washington Department of Fish and Wildlife, Washington State Department of Agriculture, and the WSCC.
2. Committee includes two representatives each from environmental interests, agriculture, and counties; two tribal representatives are also invited to participate.
3. The County includes four Conservation Districts: Palouse, Whitman, Palouse-Rock Lake, and Pine Creek.

WSCC: Washington State Conservation Commission

2 Whitman County Regional Setting

2.1 Whitman County Profile

The County is located in southeast Washington and bound by the Idaho border to the east and the Snake River to the south. This section provides a County profile description for the following items (see Appendix A: VSP Map Folio for associated maps):

- Water resources and precipitation
- Soils and terrain
- Land use and landcover

2.1.1 Water Resources and Precipitation

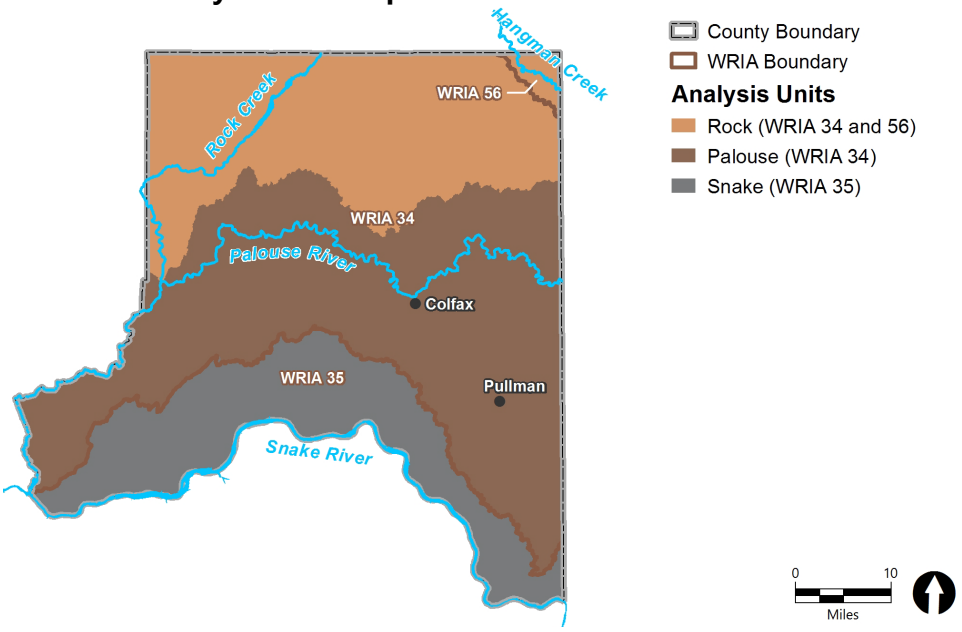
The County includes portions of three major watersheds, which are known as Water Resource Inventory Areas (WRIAs). Most of the County is in the Palouse WRIA (WRIA 34). The southern portion of the County is in the Middle Snake WRIA (WRIA 35), and a relatively small area in the northeastern portion of the County is in the Hangman (Latah) Creek WRIA (WRIA 56). Precipitation ranges from 8 to 14 inches of annual precipitation in the southwest corner of the County (near Hooper) to greater than 22 inches along the eastern boundary of the County (Appendix A, Figure 2).

For the purposes of the Work Plan, the Work Group identified the following three watershed analysis units to develop a more localized planning approach during implementation of the Work Plan (Figure 2-1). Although the Work Plan and the goals and benchmarks discussed in Section 5 apply

County-wide, the following watershed analysis units will help realize and track progress on more localized watershed objectives during implementation (see Appendix B-2):

- Palouse River (includes WRIA 34)
- Rock Creek (includes WRIAs 34 and 56)
- Snake River (includes WRIA 35)

Figure 2-1
Watershed Analysis Units Map



2.1.2 Soils and Terrain

Most of the County is characterized by rolling to hilly topography of the Palouse Hills and deep soils that formed in wind-blown sediments known as loess. The soils in these hills are mostly used for dryland farming, with a variation of dryland farming, range, and wildlife habitat use in the valleys. Channeled scablands along the western part of the County consist of broad basalt plateaus stripped of soil by episodic glacial floods during the previous ice age. The southern part of the County comprises basalt canyons consisting of a narrow band of very steep hills with shallow soils along the Snake River Canyon that drain directly into the Snake River. The soils in the channeled scablands and basalt canyons are used for range and wildlife habitat (USDA 1980) (Appendix A, Figure 3).

Palouse Hills
Photo Credit: hip_shooter

Palouse River near confluence with the Snake River
Photo Credit: Coastal Atlas

2.1.3 Land Use and Landcover

The County is predominantly rural and dominated by agriculture uses outside of cities and towns. The two largest cities in the County are Pullman and Colfax, where most housing, commercial, and industrial activities are centered (Whitman County 2010). Agriculture on privately owned lands comprises approximately 93% of the County's landcover, which is generally associated with three categories: 1) dryland crops; 2) irrigated crops; and 3) rangelands (Appendix A, Figure 4).

Major Resource Concern

Water-induced soil erosion is a major management concern within the County, where 80% of the County is classified under moderate (67%) to very severe water erosion potential (NRCS 2015). Erosion risk can be higher in lower precipitation areas where fallow lands are a part of the traditional crop rotations. The existing erosion risk throughout the County due to natural conditions (i.e., highly erodible loess soils and weather) can sometimes be reduced by the application of stewardship strategies and practices on agricultural lands.

Section 3 includes further discussion on where these areas intersect with agricultural lands.

Water-induced erosion on crop lands

2.2 Agricultural Activities

Agriculture is the dominant 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 unincorporated areas of the County, which comprise approximately 93% of the County's lands.

The County's dryland agriculture comprises most of the agricultural landcover within the County (61%) and produces some of the highest yields per acre in the United States (Whitman County 2010). Additionally, rangelands account for 33% of County lands, and irrigated lands account for a very small amount (less than 1%) of agricultural activity within the County. See Appendix A, Figure 4 for the County's agricultural landcover map.

Nationally, the County has been one of the nation's top wheat-producing counties since 1978 and also leads the nation in the production of garbanzos (WSDA 2015). The U.S. Department of Agriculture's (USDA) 2012 Census of Agriculture reports that relative to other Washington counties, Whitman County:

- Is the top wheat producer (sales value) in Washington
- Is the top producer (sales value) of hogs and pigs[1] in Washington
- Has the highest acreages of barley grain and dry edible beans (excluding lima) in Washington
- Has an economic value (net cash income) from agricultural products of $172 million
- Has a market value from agricultural products of $370 million

Dryland Agricultural Practices

Moisture management is a key concern within the County's dryland agricultural lands (primarily wheat) where the annual precipitation of 8 to 22 inches a year is relied on to support cropping systems. Lack of moisture in soils not only affects the lands ability to support wheat crops, but also results in loss of the region's highly erodible soils. In recent years, producers within the County have adopted practices to manage soil moisture-retention and reduce water-borne soil erosion, by implementing practices such as crop rotations, no- and reduced-till, and direct seed (photo above) methods.

See Section 4 for additional protection and enhancement strategies.

The market value is dominated by crop production, mainly wheat, barley, dry peas, and lentils, with 5% of market value in livestock, representing approximately 28,000 animals (USDA 2012). See Table 2-1 for summary of agricultural landcover and major agricultural products within the County.

[1] The commercial difference between hogs and pigs is that hogs are generally ready to be sold in the market while pigs are considered younger and smaller stock not yet ready for the market.

Table 2-1
Agricultural Activity and Products (Private Lands)

Agricultural Type	Acres	% of County	Primary Crops/Livestock
Dryland	839,601	61%	• Wheat (spring/fall) • Spring grains (barley) • Legumes (dry beans and lentils) • Brassicas (canola/mustard) • Hay
Rangeland	441,557	33%	• Cattle • Sheep • Hogs and pigs
Irrigated	5,201	<1%	• Cereal grains • Hay • Alfalfa
Total	**1,286,359**	**94%**	

Sources:
WSDA Agricultural Landcover Data 2011
USDA 2012

The 1,195 farms in the County vary in size, ranging from relatively small, with agricultural product sales of less than $10,000, to large, with agricultural product sales of greater than $500,000 (Table 2-2, USDA 2012). It is estimated that:

- Approximately 400 to 600 operators account for the 1,195 farms in the County (Lange 2017)
- Approximately 375 of the farms are on lands with greater than 1,000 acres (USDA 2012)
- Approximately 711 farms were identified with farming as the primary occupation (USDA 2012)

Table 2-2
Size of Farms in Whitman County based on Agricultural Product Sales

Farm Agricultural Product Sales (Dollars)	# of Farms	% of Farms
Less than 10,000	591	50%
10,000 to 100,000	121	10%
100,000 to 250,000	133	11%
250,000 to 500,000	106	9%
Greater than 500,000	244	20%
Total	**1,195**	**100%**

Source: USDA 2012

2.3 Critical Areas

2.3.1 Critical Areas Definitions

The five critical areas that are specifically defined under the GMA (RCW 36.70A.030) include: 1) wetlands; 2) fish and wildlife habitat conservation areas (FWHCAs); 3) critical aquifer recharge areas (CARAs); 4) geologically hazardous areas (GHAs); and 5) frequently flooded areas (FFAs). Critical areas perform key environmental functions (e.g., water quality and fish and wildlife habitat) and provide protections from hazards (e.g., flood, erosion, or landslide hazards).

The County has identified five critical areas that will be managed under the VSP—wetlands, FWHCAs, CARAs, GHAs for erosion hazards, and FFAs for agricultural activities. Any structures (as defined in Whitman County Code [WCC] 19.03.500) that are proposed within agricultural lands for any of the five critical areas, whether they support agricultural activities or not, will continue to be regulated through the County's CAO (WCC Chapter 9.05), as applicable. Additionally, other critical area provisions that are incorporated into this Work Plan and that will continue to be reviewed under the County's CAO include GHAs for landslide or seismic hazards.

GHAs for landslide or seismic hazards:
Structures in agricultural lands will continue to be permitted and regulated through the County's CAO for landslide and seismic hazard areas. Geologically hazardous areas for erosion hazards have primary applicability in the VSP context, and agricultural activities related to erosion hazards will be managed under VSP.

Related to existing Whitman County critical areas regulations in place for agricultural activities, the County has a provision for allowing agricultural ditching through a critical areas exemption. This exemption applies to areas where drainage has been identified by Natural Resources Conservation Service (NRCS) as a Farmed Wetland or a Prior Converted Cropland. A landowner can improve the drainage by ditching it without any permitting from the County. This is often done to prevent cropland from being flooded. If the drainage is also an FFA (FEMA 100-year floodplain), then the landowner will need to apply for a County floodplain development permit which requires an engineer to evaluate the ditching, tiling, or other alteration to ensure there will be no negative impacts to flood elevations. Ongoing maintenance of these existing drainage ditches is accounted for as part of the 2011 baseline conditions.

The County's CAO (WCC Chapter 9.05), includes identification and designation criteria for the County's five critical areas, which are summarized below and in which are further defined in Appendix B-3.

Wetlands 	Wetlands are areas inundated or saturated by surface water or groundwater for at least part of the growing season and support vegetation adapted for life in saturated soil conditions. **Functions:** Water quality, hydrology, and habitat
Fish and Wildlife Habitat Conservation Areas (FWHCAs) 	FWHCAs are lands and waters that provide habitat to support fish and wildlife species throughout their life stages. These include ranges and habitat elements where endangered, threatened, and sensitive species may be found, and 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 **Functions:** Water quality, hydrology, soil, and habitat
Critical Aquifer Recharge Areas (CARAs) 	CARAs are areas that have a critical recharging effect on aquifers used for drinking water, including aquifers vulnerable to contamination or that could reduce supply by reducing recharge rates and water availability. **Functions:** Water quality and hydrology
Geologically Hazardous Areas (GHAs) 	GHAs are areas susceptible to erosion, sliding, and other geological events. In Whitman County, designated GHAs, related to agricultural activities, are primarily associated with erosion hazard areas, which include moderate to very severe water erosion potential areas. Wind can also be another source of soil erosion in the County. **Functions:** Water quality, hydrology, soil, and habitat
Frequently Flooded Areas (FFAs) 	FFAs includes 100-year floodplains and floodways, and often include the low-lying areas adjacent to rivers and lakes that are prone to inundation during heavy rains and snowmelt. These can include streams, rivers, lakes, wetlands, and areas where high groundwater forms ponds. **Functions:** Water quality, hydrology, soil, and habitat

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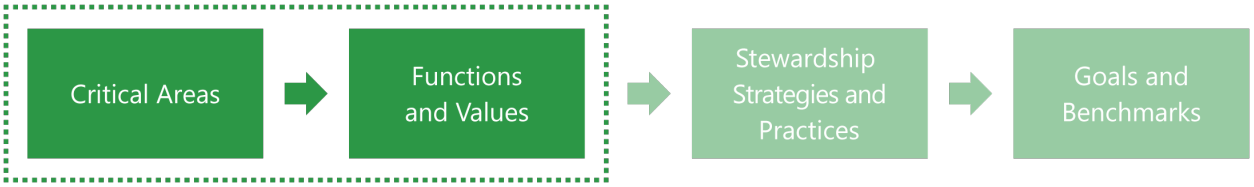
2.3.2 *Critical Areas Functions and Values*

VSP legislation requires that work plans develop 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 the County can be summarized into four major functions, which include: 1) water quality; 2) hydrology; 3) soil; and 4) fish and wildlife habitat (Figure 2-2). The goals and benchmarks developed for this Work Plan, included in Section 5, are based on protection and enhancement for these four key functions.

Figure 2-2
VSP Crosswalk – Critical Areas Connection with Functions and Values



Each critical area provides one or more of these key functions and values, which are summarized in Table 2-3. 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 critical areas within the County's agricultural lands. See Section 4 for stewardship strategies and practices that provide functional benefits to these key functions.

Table 2-3
Critical Areas Functions

Critical Areas	Key Functions			
	Water Quality	Hydrology	Soil	Habitat
Wetlands	●	●		●
Fish and Wildlife Habitat Conservation Areas	●	●	●	●
Critical Aquifer Recharge Areas	●	●		
Geologically Hazardous Areas (Erosion)	●	●	●	●
Frequently Flooded Areas	●	●	●	●

Water Quality

Critical areas, such as stream channels, riparian areas, and wetlands, are a 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.

In Whitman County, some systems (including the Snake and Palouse rivers) exceed state standards for pollutants such as dissolved oxygen, fecal coliforms, and temperature (Ecology 2016; temperature may exceed state standards; however, the majority of fish species that occur in the Palouse River within the County are warm water fish [Golder and Associates 2006]). Although non-agricultural related activities, such as small municipal wastewater treatment facilities; failed sceptic systems or lack of septic systems; paved, gravel, and turfed areas; and natural conditions (e.g., wildlife and climate conditions), are associated with these pollutants, agriculture can also affect surface and groundwater quality through excess nutrients from fertilizers, bacteria from livestock, rodents, and wildlife, toxins from chemical inputs, and sediment from soil erosion. Agriculture also preserves lands from more intensive development.

All five of the County's critical areas provide water quality functions, as summarized Table 2-4.

Table 2-4
Critical Areas Providing Water Quality Functions

Critical Area	Water Quality Functions
Wetland	• Reduces siltation and erosion • Provides water filtration • Moderates water temperature by providing shade
FWHCA	• Reduces siltation by stabilization of streambanks from riparian vegetation • Provides water filtration • Moderates water temperature by providing shade
CARA	• Infiltration through soil column and underlying geology improves groundwater quality and protects public drinking water supplies
GHA	• Affects rate of soil erosion and associated movement of sediment deposited in surface waterbodies
FFA	• 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 landform, 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 groundwater. Stream channels, riparian areas, and wetlands are also a part

of the aquatic ecosystem that stores and transports water and sediment, maintains base flows, and can support vegetation and microorganism communities.

In Whitman County, agricultural practices can affect the amount of moisture retained within soils and the amount of storage during rain events. Farming practices can also protect the land from loss of soil due to erosion associated with hydrology and topographic conditions. Water retention is equally important for maximizing dryland crop yields. Hydrology in the Palouse River Basin is mainly characterized by high flows in spring and early summer, followed by low flows in the late summer and early fall (Golder Associates 2006).

All five of the County's critical areas provide hydrology functions, as summarized in Table 2-5.

Table 2-5
Critical Areas Providing Hydrology Functions

Critical Area	Hydrology Functions
Wetland	• Stores water to reduce flooding and contributes to base flows
FWHCA	• Stores and retains water to reduce flooding and support base flows in streams
CARA	• Recharges groundwater resources
GHA	• Affects rate of groundwater infiltration and rate of surface water runoff
FFA	• Stores and retains surface water in floodplain, reducing velocities and modifying discharge rates • Recharges groundwater that can later be returned to the stream to help maintain base flow

Soil

Soil provides an underground living ecosystem, which is essential for preserving plants, animals, and human life. Soil conservation is essential in the County to support healthy soils that have the following characteristics:

- Reduce susceptibility to erosion
- Hold and slowly release water (see hydrology function section for more detail)
- Filter pollutants and, in many cases, detoxify them
- Store, transform, and cycle nutrients
- Physically support plants

In Whitman County, agriculture preserves lands from more intensive development, and 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 erosion and soil loss, and intensifies loss of soil organic matter. High concentrations of

fertilizers can inhibit nitrogen fixation in some plant species and stimulate nitrification, and improperly applied pesticides (crop protectants) can impact beneficial soil organisms.

Food Quality Protection:

Before a crop protection product can be sold or used in Washington, it must be registered by the Environmental Protection Agency (EPA) and the Washington State Department of Agriculture. The label EPA issues for each product is a legal document. Failure to follow label directions is a violation of law. The Washington State Department of Agriculture has an enforcement division to ensure users follow the label. More than 120 tests are required on each product to ensure safety for people and the environment.

Environmental tests determine how the product breaks down in soil, water, air, and plants to ensure protection of wildlife, birds, aquatic life, and plants. Toxicology tests determine acute and chronic effects, effects on reproduction, and carcinogenic effects to ensure protection of human health. When Congress passed the Food Quality Protection Act in 1996, additional safety testing requirements were added to protect infants and children. EPA approves only label directions that meet the Food Quality Protection Act's "reasonable certainty of no harm" standard.

Three of the County's critical areas provide soil functions, as summarized in Table 2-6.

Table 2-6
Critical Areas Providing Soil Functions

Critical Area	Soil Functions
FWHCA	• Reduces rate of erosion by providing vegetative cover
GHA	• Improves structure of soil to minimize some types of erosion
FFA	• Supports moisture content in soils, reduces rate of erosion, and supports plant growth that can increase organic inputs to soil

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 unique for different life stages of a species. Habitat loss is the primary threat to the survival of native species.

In Whitman County, agriculture has impacted habitats by replacing a historically diverse landscape with an intensely-managed agricultural landscape. Although agriculture lands can provide vast tracts of semi-natural habitat, species biodiversity is higher in the remnant natural areas in the County. Farmers that provide greater landscape variability, and high perimeter-to-area habitats on their land, can provide meaningful benefit to many different species (Weibull et al 2002).

Upland habitats include cliffs and talus that support communal roosts, shrub-steppe areas that house species found nowhere else in the state, and ponderosa pine forests where trees and snags provide unique habitat structure for many species within the County. There is a great deal of high-quality

deer and bird habitat on land that is actively farmed. Farming practices provide a variety of habitat functions, including providing cover. Crops provide a food source for herbivores such as deer, and birds help control insect and rodent populations.

Fish species use wetlands and streams in the County. The Palouse Falls, approximately 6 miles upstream from the Palouse-Snake rivers' confluence, pose a natural 185-foot fish-passage barrier, which prevents anadromous fish passage to the upstream portions of the Palouse River. See Appendix A, Figure 6, and Appendix B-4, Tables 5 and 6 for a summary of priority habitats and species data mapped or documented in the County.

Four types of critical areas provide habitat functions, as summarized in Table 2-7.

In the County, habitats include wetlands, rivers and streams that support aquatic and terrestrial species.

Common fish and wildlife species in Whitman County:

- Mule Deer
- Pheasants and quail
- Coyote
- Bald eagle
- Chinook salmon
- Steelhead
- Trout
- Bass
- Dace
- Chiselmouth
- Redside shiner
- Northern pikeminnow

Table 2-7
Critical Areas Providing Habitat Functions

Critical Area	Habitat Functions
Wetland	• Provides aquatic and woody vegetated habitat for fish and wildlife
FWHCA	• Provides in-stream spawning, rearing and migratory habitat for fish • Provides upland and riparian migration corridors, refuge, forage, nesting, and rearing areas for wildlife • Provides aquatic habitat by supplying organic inputs (e.g., leaf fall, insects, and large wood) • Supports sensitive species lifecycles
GHA	• Affects rate of erosion as it relates to sediment inputs to stream and wetland aquatic habitat
FFA	• Provides aquatic and riparian habitats for wildlife, plants, and fish


Palouse River

3 Baseline and Existing Conditions

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 (see Section 5).

Stewardship strategies and practices have been implemented before and since 2011 to improve agricultural productivity, reduce erosion, conserve water, and improve soil quality, water quality, and habitat; these and other stewardship strategies and practices will be accounted toward 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, conversions, forest practices activities), or other changes outside of the scope and jurisdiction of the VSP or the control of producers (including mapping errors and changes in federal program eligibility conditions). Additional changes to baseline may occur in the 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 Sections 5 and 6.

3.1 Baseline (as of July 22, 2011) Intersection of Critical Areas and Agricultural Land Uses

This section provides a baseline conditions summary 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: Baseline Conditions Summary (includes methods, data sources, and critical areas data summary tables)

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 only a small percentage of the total agricultural land in the County (Table 3-1). Most agricultural lands do not contain critical areas other than water erosion potential areas. However, most of the wetlands, CARAs, FFAs, and FWHCAs 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 include many areas of high functioning habitats, which provide important ecological functions.

Tables 3-1 and 3-2 summarize the potential presence of critical areas within the County that intersect with agricultural activities on private lands. Because the predominant landcover in the County is agriculture (93%), critical areas presence within the County, largely mimic these percentages.

Table 3-1
Critical Areas Within Whitman County Agricultural Lands

Critical Area Type		Acres Within Agricultural Lands[1]	% of Total Agricultural Lands[1]
Wetlands (all types)		5,950	<1%
Fish and Wildlife Habitat Conservation Areas *(Also includes about 2,000 stream miles)*		25,062[2]	2%[2]
Critical Aquifer Recharge Area		8,072	<1%
Geologically Hazardous Areas[3]	Water erosion potential	1,051,225	82%[3]
	Wind erosion potential	33,336	3%
Frequently Flooded Areas		32,881	3%

Notes:

1. Agricultural areas included in this summary are limited to privately owned lands. Publicly owned land is not managed under VSPs.
2. These areas include sensitive, candidate, and threatened species and habitats mapped in Washington Department of Fish and Wildlife's Priority Habitat and Species (PHS) data and maps, consistent with the County's Critical Areas Ordinance (CAO) definition of Fish and Wildlife Habitat Conservation Areas and PHS listed in the County's CAO Appendix 1 (included in Appendix B-3). See Appendix A, Figure 6 and Appendix B-4 for additional details on PHS species, including recreation and game species.
3. 85% of these areas are designated as "moderate" and 15% are designated as "severe to very severe" water erosion potential.
4. Data collected on agricultural activities and effects on designated critical area conditions will be compared to the baseline of designations, controls, conditions, policies, ranges, habitats, and lists as they existed on July 22, 2011.

Game species in Priority Habitat and Species (PHS):

PHS data and mapping are maintained by Washington Department of Fish and Wildlife in part to provide a reference to the potential existence of FWHCAs. Game species habitat are mapped in PHS within approximately 600,000 acres of the County's private agricultural lands, comprising primarily of mule deer, pheasant, and chukar 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, Palouse Prairies, riparian areas, and shrub-steppe. 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 (Section 5.1) for these habitats are also expected 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 (e.g., Conservation Reserve Program or field fringe habitat). These enhancement efforts will be counted towards meeting the Work Plan's enhancements goals and benchmarks.

See Appendix A, Figure 6, and Appendix B-4 for additional details on PHS species, including recreation and gaming species.

The deep rich soils of the Palouse are generally wind deposits or loess. In the majority of the County, soils remain at risk of wind or water erosion and mobilization under certain conditions. This is a concern in terms of soil loss from farming areas and sedimentation in streams and lakes. The wetlands are generally associated with the 2,000 miles or so of streams in the County. These range in size from the Snake River to intermittent streams adjacent to agricultural lands. Some streams only flow once or twice in a decade, and then for only short periods of time.

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

Stream Type	Miles in County	Miles Within Agricultural Lands	% Within Agricultural Lands
Streams Total	**1,835**[1]	**1,613**	**88%**
Shorelines of the State	323	209	
Potential Fish Use	467	413	
No Fish Use	1,045	991	

Note:

1. There are an additional 3,403 miles of streams which have been mapped as "Unknown" in Washington Department of Natural Resources' stream mapping on private agricultural lands. These stream types would need to be verified on the ground as part of farm stewardship planning to identify appropriate protections for potential stream and riparian functions and associated fish or habitat use, as applicable.

3.1.1 *Wetlands*

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.

Intersections on agricultural lands: Per mapped resources, wetlands are found within 0.5% of the County's total agricultural lands (Appendix A, Figure 5), but this represents the majority of wetlands (approximately 85%) found within the County.

Wetlands on Agricultural Lands	
General locations/ distribution	• Most are present around the Rock Creek and North Fork Palouse subbasins (Watershed Company 2014). • Primarily occur within small lowland areas on the impermeable surface of basalt bedrock.
Intersections with agricultural lands	• Most are within rangelands, with some on dryland agricultural lands.
Characteristics	• Most are freshwater emergent wetlands and only inundated for brief periods in the spring.

3.1.2 *Fish and Wildlife Habitat Conservation Areas*

Characteristics and functions overview: FWHCAs include streams, riparian vegetation, and upland habitats (e.g., Palouse Prairies and shrub-steppe; see section 3.1.3) that provide water quality, hydrology, soil health, and habitat functions. FWHCAs provide migration corridors; breeding/reproduction area; 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 streambank stabilization, and shade to help regulate water temperatures. Large habitat areas provide for species that require large 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. FWHCAs help improve water quality, affect hydrology, contribute to soil health, and provide a variety of habitats

3.1.2.1 Streams and Riparian Vegetation

Intersections on agricultural lands: About 88% of the total stream miles mapped within the County are within agricultural lands (Appendix A, Figure 5). This doesn't include streams associated with Washington State's Department of Natural Resources' (DNR's) "Unknown" stream type. Field reconnaissance has confirmed that most of these unknown type streams lack the characteristics of a stream and do not constitute FWHCAs. These stream types would need to be verified on the ground to identify appropriate protections for potential fish life or habitat use, if any. Satellite-based landcover classification indicates that 20% of the County's streams with streambed and bank characteristics and riparian vegetation are within agricultural lands.[2]

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 Whitman County, riparian vegetation typically consists of grasses, shrublands, and some trees. Riparian vegetation provides for habitat for fish and wildlife, reduces siltation by trapping sediments, provides slope and bank stability, and helps moderates in-water temperatures by providing vegetative shade.

Streams and Riparian Areas on Agricultural Lands	
General locations/ distribution	• Streams: See Section 2 for discussion of water resources within the County. • Riparian vegetation: Located along water sources and mostly within a relatively narrow (e.g., 20 to 30-foot "ribbon of green" from ordinary high water, which can also be wider where wetlands or low-lying floodplain also occur).
Intersections with agricultural lands	• Streams: Primarily occur within rangelands and dryland agricultural lands adjacent to rangelands. • Riparian vegetation: Primarily occur within rangelands. Riparian vegetation within dryland agricultural areas typically include reed canary grass and cat tails.

[2] The estimates of riparian vegetation cover were determined using the DNR stream mapping (Appendix A, Figure 5) and National Landcover Data Set (USGS 2016). The comparison is coarse (30 meters) in resolution but accurately distinguishes the low woody riparian vegetation type from the herbaceous crops and sparse, dry, shrub-steppe land covers.

Streams and Riparian Areas on Agricultural Lands	
Characteristics	Streams: • Most intersections with agriculture are with Washington State Department of Natural Resources' "Unknown" stream type, which in the County, is largely characterized by topographical lows that serve as drainage pathways during storm events. • There are no Endangered Species Act-listed salmonids or other listed aquatic species upstream of Palouse Falls on the Palouse River. Resident fish species upstream of the Palouse Falls include rainbow trout, brown trout, and smallmouth bass, which are introduced species. The majority of fish species that occur in the Palouse River are warm water fish[3] which include sculpin, large-scale sucker, northern pikeminnow, redside shiner, and speckled dace (HDR and EES 2007). • The Middle Snake River primarily serves as a migratory corridor for spring-run and fall-run Chinook salmon, coho salmon, sockeye salmon, and steelhead. Snake River spring-run and fall-run Chinook salmon and steelhead are listed as federally threatened. Snake River sockeye salmon are Endangered Species Act-listed (Watershed Company 2014). • Snake River tributaries also provide spawning and rearing and rearing habitat for summer steelhead. Riparian Vegetation: • Primarily comprises grass, shrublands, channeled scablands, and some trees (many riparian areas within the County are characterized by only grasses and shrubs).

3.1.2.2 Priority Habitats and Species

Intersections on agricultural lands: Priority Habitats and Species (PHS) mapped areas are mapped within approximately 2% of the County's agricultural lands for species and habitat that are state-listed or candidate species or associated with vulnerable aggregations. PHS for game and recreation species are found within 46% of agricultural lands, primarily associated with mule deer, Northwest whitetail deer, and chukar and these areas largely overlap with other mapped PHS areas (Appendix A, Figure 6). Priority game species habitat is highly prevalent throughout the County, particularly on and around agricultural lands and adjacent riparian and upland habitats. See Appendix A, Figure 6 and Appendix B-4 for a comprehensive list of PHS, including game species habitat, Washington Department of Fish and Wildlife (WDFW) has identified in the County.

[3] WRIA 34 Final Instream Flow Needs Assessment (Golder and Associates 2006) notes on page 10 that "the majority of fish species that occur in the Palouse River watershed are warm water fish."

Game species in Priority Habitat and Species maps:
PHS maps maintained by WDFW provide a reference to the potential existence of FWHCAs. Game species habitat mapped in PHS, primarily mule deer and chukar habitat, almost entirely overlap existing cultivated and range agriculture land. Agriculture is expected to continue providing a positive benefit to deer and other game species habitat. Accordingly, it is not a protection focus of this Work Plan, except where there is overlap with other FWHCAs, such as riparian, ponderosa pine, or Palouse Prairie and shrub-steppe habitat. Protection of these habitats is also expected to benefit game species. VSP enhancement goals can help improve habitat conditions for game and other species.

Priority Habitats and Species on Agricultural Lands	
General locations/ distribution	• Consists of mostly mammal habitat (largely game species such as mule deer) within the channeled scablands, along the western portion of the County, and Snake River canyons, along the southern portion of the County. • Bald eagle habitat occurs largely around the Rock Lake and Rock Creek areas. • Chukar habitat (game species) occurs largely around the Rock Lake area and Snake River canyons. • Priority habitats include shrub-steppe remnants (such as sage brush and Palouse Prairie) and are found throughout the County.
Intersections with agricultural lands	• Primarily occurs within rangelands and dryland agricultural lands.
Characteristics:	• Incudes ponds, riparian habitats, and upland habitats, such as Ponderosa pine and other woody habitat in draws and canyons in the central and eastern parts of the County, and shrub-steppe and Palouse Prairie remnants, primarily further west and in the southern part of the County. • Excluding game species habitats that cover large areas of the County, the most prevalent FWHCAs are streams and associated riparian areas.

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.

Intersections on agricultural lands: CARAs are found within 0.6% of the County's total agricultural lands, and these are primarily associated with wellhead protection areas mapped for the public drinking water supply (Appendix A, Figure 7). CARAs for the rest of the County are not well documented or understood. The Palouse Basin Aquifer Committee is studying this topic through ongoing efforts consistent with its mission to ensure a long-term, quality water supply for the Palouse Basin region, and associated goals (University of Idaho 2006). As new information becomes available on CARAs in the County, this part of the Work Plan can be updated through the adaptive management activities described in Section 6.

Critical Aquifer Recharge Areas on Agricultural Lands	
General locations/ distribution	• Most are within dryland agricultural lands close to municipal water supplies; these are concentrated around cities and towns.
Intersections with agricultural lands	• Those within incorporated cities and towns are not generally subject to VSP, but any portions extending into agricultural lands of unincorporated Whitman County are included.
Risks associated with Agriculture	• Most 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.

3.1.4 Geologically Hazardous Areas (Erosion)

Characteristics and functions overview: This Work Plan addresses only a narrow focus for geologic hazards related to potential wind and water erosion areas, for maintaining agricultural viability by keeping productive soils in fields used to produce crops, improving water quality, and maintaining habitat. This is different from protecting inherent functions and values of other types of critical areas. Rill and inter-rill erosion potential areas are designated within the County's critical areas code (moderate to very severe water erosion potential areas). 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. In the developed areas (outside of VSP), GHAs can affect areas where constructing 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 within 82% of the County's total agricultural lands (Appendix A, Figure 8). 70% are within moderate risk areas, and 12% are within severe to very severe risk areas. High wind erosion potential areas are only found within 3% of the County's agricultural lands (Appendix A, Figure 9). Although wind erosion potential areas are not officially designated as erosion hazard areas within the County's critical areas code, they are still considered within this Work Plan because they pertain to agricultural viability.

Erosion Hazard Areas on Agricultural Lands	
General locations/ distribution	• Severe to very severe erosion potential areas are predominantly located along the Snake River canyons (within rangelands) and within dryland agricultural areas along Palouse buttes. Within the rangeland areas along steep slopes on the cropped hills and canyons, much of the soils have been stripped away by geologic events. Range activity may not necessarily exacerbate erosion risks in these areas. • There is little water erosion potential mapped within the channeled scablands where the soils have largely been stripped by glacial floodwaters; however, the more severe wind erosion potential areas occur within these areas. • Moderate water erosion potential areas are prevalent throughout the County.
Intersections with agricultural lands	• The majority of moderate water erosion areas are within dryland agricultural areas. • The majority of severe to very severe water erosion areas are within rangelands, with some on dryland agricultural lands. • Soil health is a key contributor to agricultural viability in the County.
Characteristics	• County soils are generally characterized as loess, which are very deep, fertile and highly erodible soils deposited by wind from the post glacial outwash of the Cascades.

Geologically Hazardous Areas for Seismic and Landslide Hazards

Geologically hazardous areas for landslide and seismic hazard areas are of limited concern because these hazards are traditionally considered under GMA as areas to avoid building structures or to include additional requirements to protect structures from earthquake, landslide, or other geologic hazards. Under the Work Plan, structures in agricultural lands will continue to be permitted and regulated through the County's critical areas code.

3.1.5 Frequently Flooded Areas

Characteristics and functions overview: 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 recharge groundwater. FFAs can affect surface and groundwater quality and hydrology (timing and magnitude of flows, and alluvial aquifer recharge), improve or degrade soil health based on vegetative conditions, and contribute to riparian habitat diversity.

Intersections on agricultural lands: FFAs are found within only 3% of the County's total agricultural lands (Appendix A, Figure 10). FFAs typically overlap or are adjacent to wetlands and some FWHCAs. The County is in the process of working with the Federal Emergency Management Agency (FEMA) to update County floodplain mapping. The Work Plan is based on 2016 draft FEMA map updates.

Frequently Flooded Areas on Agricultural Lands	
General locations/ distribution	• FFAs occur along waterways and drainages mainly on the Palouse River, Rock Creek, Pine Creek, Rebel Creek, and Union Flat Creek. • There are levee systems within the County to alleviate river flooding such as the levee system through the City of Colfax along the North Fork, South Fork, and mainstem of the Palouse River, and other levees.
Intersections with agricultural lands	• The majority occur within rangelands and dryland agricultural lands.
Characteristics	• Flooding throughout the County is mainly caused by heavy rainfall combined with snowmelt over a frozen ground (rain-on-snow) during the winter or early spring months. • Floods in the County are typically short duration (less than 1 day), with rapid rise and fall of water levels. • Flooding can be worsened due to ice jams against low-clearance railroad bridges (FEMA 1979).

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3.2 Agricultural Viability Baseline Conditions

Agriculture is widely recognized as a pillar of the Washington State and Whitman 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 Figure 1-1.

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.

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. Tables 3-3 and 3-4 identify agricultural viability concepts for the regional and individual farm perspectives within the County.

Table 3-3
Agricultural Viability – Regional Elements

Regional Elements	
Concept	**Detail**
Stable and Secure agricultural land base	Land conversion
	Stable water rights
Infrastructure and services	Utilities/irrigation
	Market access/transportation
Support for best farm management practices	Economically viable solutions
	Balanced approach
Education, training, and succession planning	Apprenticeships/training
	Interconnectivity with end users
Welcoming business environment	Stable regulatory environment
	Partnership-based environmental protection
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 (Table 3-4). In the 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 while enhancing land production capacity. Additionally, reduction of input costs (e.g., fuel and fertilizer) can also result from these practices, and technology improvements can also help enhance production capacity.

Table 3-4
Agricultural Viability – Farm Elements

Farm Elements	
Concept	**Detail**
Reduce inputs	Energy (power, fuels)
	Chemicals
	Labor
Maintain/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 breaks
Managed farmland conversion	Urban development (primarily in Pullman)
	Maintain resource lands
"No surprises" regulatory environment	CWA, CAA, ESA, and others.
	County permitting (drainage and other requirements)
Protect Private Property Rights	Recognize and respect rights
Environmental Variation	Rainfall, temperature, etc. affects activities

Notes:
CAA: Clean Air Act
CWA: Clean Water Act
ESA: Endangered Species Act

To obtain a firsthand agricultural viability perspective, several producers in the County were interviewed. Figure 3-1 includes a summary of agricultural viability strengths, weaknesses, opportunities, and threats based on responses obtained from these interviews (Eriksen 2016;

Kile 2016; Kinzer 2016; Lange 2016; Pearson 2016; and Suess 2016). See Appendix B-5 for a summary of these interviews.

Figure 3-1
Agricultural Viability Strengths, Weaknesses, Opportunities, and Threats

Strengths	Weaknesses
• Strong infrastructure • Good services • Effective marketing companies • Loyal customer base • High-quality product	• Limited flexibility for type of crops that can be produced • Market price of high-quality product • Incentivizing younger generations to farm • Dependence on dams • High soil erosion
Opportunities	**Threats**
• International markets (e.g., Central America) • Other crops like industrial hemp, quinoa, and mustards • Hummus market • Agri-tourism	• Competition • Foreign producers • Big crops/over-production • Detrimental changes in government policy • Interest rates • Degraded soil health through water and wind erosion

Maintaining Drainage Ditches

Per Whitman County's Critical Areas Ordinance, if a drainage has been identified by NRCS as a Farmed Wetland or a Prior Converted Cropland, then it is exempt from the Critical Areas Ordinance. A landowner can then maintain or improve the drainage by ditching it without County permitting. This prevents cropland from being flooded and protects existing agricultural lands from flooding, maintaining agricultural viability in these areas.

Overall, the Whitman VSP Work Plan has been designed to support and promote the regional and individual farm agricultural viability elements listed in Tables 3-3 and 3-4. The program places emphasis on practices, flexibility, incentives, and other opportunities mutually beneficial to agricultural viability and critical areas protections, supporting continued agricultural viability in the County. Agricultural viability is a component of conservation activities described in Section 4 and in each of the goals provided in Section 5. Protecting and enhancing agricultural viability will continue to be a key performance measure that must be met during plan implementation.

4 Protection and Enhancement Strategies

Agricultural producers play a major role in the stewardship and management of private lands and resources within Washington State and Whitman County. Agricultural producers are continually improving agricultural practices, applying new science and technology, and implementing stewardship strategies and practices that generally reduce agricultural impacts on critical areas, as well as maintain or increase the viability of the agricultural economy. In the County, 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 (WSDA 2015).

This section introduces the connection between stewardship strategies and practices and critical area functions and values (Figure 4-1). Additionally, this section discusses stewardship strategies and practices that have been implemented since 2011, highlighting protections to critical areas and associated functions and values these practices are already providing.

Figure 4-1
VSP Crosswalk – Functions and Values Connection with Stewardship Practices

4.1 Examples of Stewardship Strategies and Practices that Protect Critical Areas

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

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 also Appendix C for a more comprehensive "toolbox" of example practices that have been or could be implemented by agricultural producers within the County.

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.

Residue and Tillage Management
A beneficial and cost-effective method of reducing soil erosion is through crop residue and tillage management practices such as mulch till, no-till/strip till/direct seed, and ridge till. Monitoring conducted as part of the Farmed Smart Partnership indicated the application of these practices can dramatically reduce erosion when compared to conventional practices (Pacific Northwest Direct Seed Association 2017).

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 Section 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.**

559 **Table 4-1**

560 **Examples of Critical Areas Stewardship Strategies and Practices in Whitman County (Implemented under NRCS)**

Example Stewardship Strategies and Practices	Applicability	Description	Critical Area Functions		Agricultural Viability
Residue and Tillage Management	Dryland Rangeland Irrigated	Managing crop and plant residue and limiting soil disturbance (e.g., no-till or reduced-till)	Water Quality	• Reduces runoff and erosion • Reduces transport of nutrients and sediment	• Soil quality and conservation • Weed management • Yield and fertility
			Hydrology	• Increases infiltration and decreases evapotranspiration to increase water availability	
			Soil	• Reduces soil disturbance and increases cover to reduce wind and water erosion	
			Habitat	• Provides food and cover for wildlife • Increases water availability	
Pest Management	Dryland Rangeland Irrigated	Managing pesticide use to reduce runoff	Water Quality	• Residual pesticides decrease in surface and groundwater	• Soil quality • Weed management • Pollinator/beneficial organisms
			Soil	• Decreases wind and water erosion due to changes in pest management	
			Habitat	• Reduces the negative effects of pests on food quantity and quality	
Nutrient Management	Dryland Irrigated	Managing application of nutrients to minimize loss to runoff	Water Quality	• Reduces nutrients in surface and groundwater due to matching plant needs to the amount, timing, and placement of nutrients	• Soil quality • Yield and fertility • Reduced inputs
			Habitat	• Optimizes health and vigor of desired plant species • Increases food and cover for wildlife	

Example Stewardship Strategies and Practices	Applicability	Description	Critical Area Functions		Agricultural Viability
Managed Grazing	Rangeland	Managing grazing and vegetation harvest to improve plant communities and manage weeds	Water Quality	• Reduces runoff and erosion • Reduces transport of nutrients and sediment	• Soil quality and conservation • Weed management • Yield and fertility
			Hydrology	• Increases infiltration and water availability	
			Soil	• Decreases water and wind erosion due to increased vegetation cover • Reduces stream erosion through enhanced riparian vegetation	
			Habitat	• Improves and maintains health and vigor of desired plant species • Restores desired habitats, such as shrub-steppe • Helps maintain adequate water availability	
Cover Crop	Dryland	Planting grasses, legumes, and forbs for seasonal cover	Water Quality	• Reduces runoff and erosion • Reduces transport of nutrients and sediment	• Soil quality and conservation • Weed management • Pollinator/beneficial organisms • Yield and fertility
			Hydrology	• Increases infiltration and decreases evapotranspiration to increase water availability	
			Soil	• Reduces soil disturbance and increases cover to reduce wind and water erosion • Maintains or increases soil health and organic matter content	
			Habitat	• Improves and maintains health and vigor of desired plant species • Provides food and cover for wildlife • Increases water availability	

561

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 federal, state, and local governments. 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 (RCW 36.70A.700(2)(d)).

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

These documented practices likely represent only a subset of all the stewardship strategies and practices that have been implemented since 2011, because many agricultural producers in the County implement practices independent of government programs. Accounting for these improvements would require extensive self-reporting and documentation processes that are not yet in place. Additionally, it should be acknowledged, that during this same time, there are likely some practices that have been discontinued. For example, the re-establishment of agriculture on lands managed in conservation (in 2011) can impact habitat and other functions.

It is expected that stewardship strategies and practices, such as stock watering facilities and fencing, will see very little discontinuation, or relapse back to old practices. Less than 3% per year of these types of practices are anticipated to be removed or discontinued each year. There are other stewardship strategies and practices (such as pest and nutrient management, residue management, direct seed, and managed grazing) where a higher rate of discontinuation (6%) is anticipated to be removed or discontinued; or more variability year to year in implementation is anticipated. See Table 4-2 for assumptions related to varying estimated disenrollment rates. See Section 5.2 for discussion on how these anticipated disenrollment rates are considered in the 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), that temporarily enhance wildlife habitat but this will occur on agricultural lands historically cultivated and not part of designated critical areas. Measures and systems are typically put in place when lands are returned to production to conserve resources and protect potentially affected critical areas adjacent to lands no longer enrolled in CRP (see Section 4.2.3 for additional CRP information).

Table 4-2
Calculating Disenrollment for Stewardship Strategies and Practices

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

4.2.1 NRCS Conservation Practices

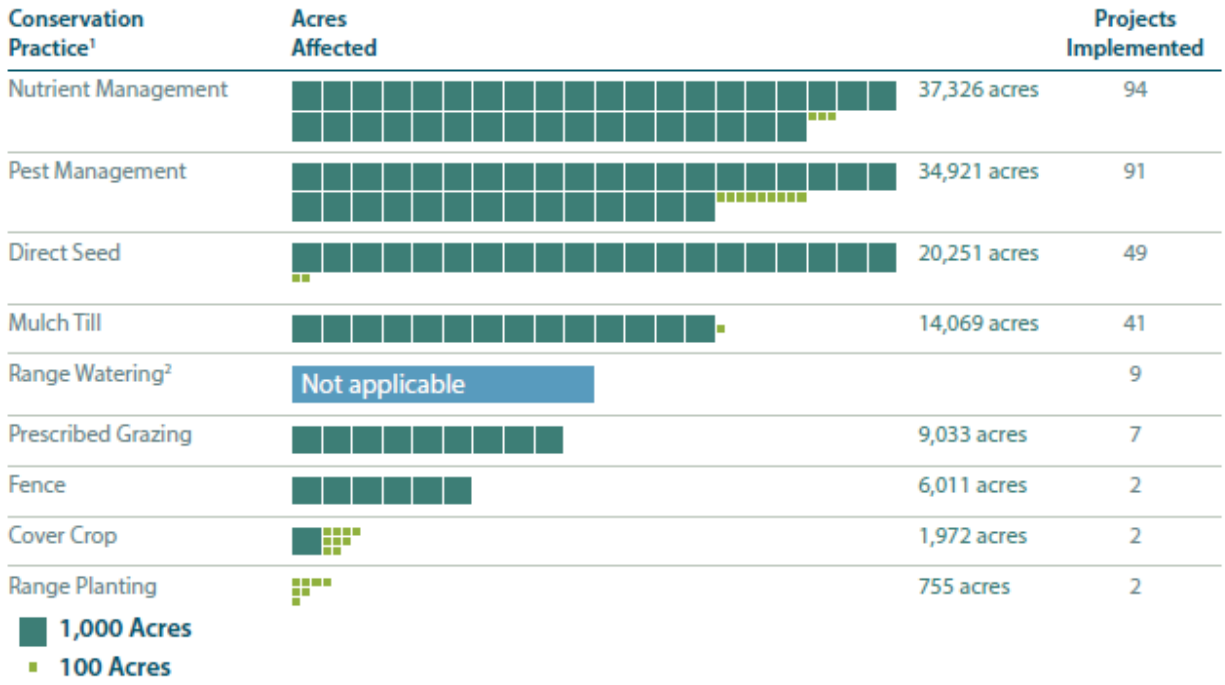
Conservation projects have been implemented on close to 180,000 acres since 2011 through the NRCS-funded programs on agricultural lands. The top practices that have been implemented include projects that protect water quality, reduce soil erosion, and enhance soil quality, such as managing nutrients and pesticides to reduce runoff and reduced- or no-till practices. As summarized in Table 4-1, these practices also promote agricultural viability.

Figure 4-2 provides a summary of top NRCS 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—a total of approximately 125,000 acres. In addition, the Palouse Watershed Regional Conservation Partnership Program (RCPP) provides additional opportunity within WRIA 34 for increased stewardship strategies and practices incentives but the number of acres address through the RCPP is not included in Figure 4-2.

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 (RCW 36.70A.703). Because most conservation practices or projects installed since 2011 were designed to improve functions, they should generally be counted as enhancements. See Section 5.2 for further discussion on how these practices implemented since 2011 are counted toward protection and enhancement benchmarks.

Figure 4-2
Top NRCS Conservation Practices Implemented from 2011 to 2016



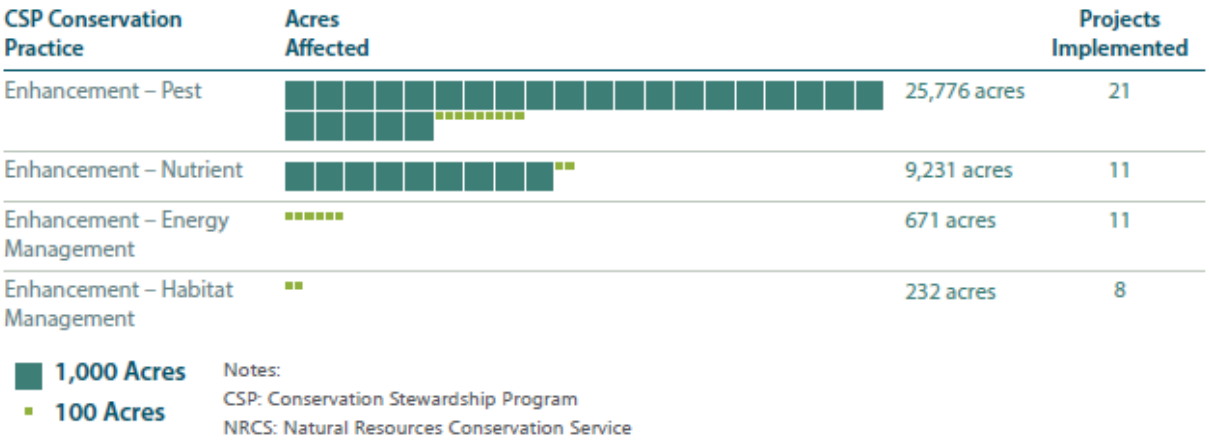
Notes:

1. Includes projects implemented under the Environmental Quality Incentives Program, Wildlife Habitat Improvement Program, and Agricultural Water Enhancement Program.
2. Includes practices associated with providing an off-site water source to livestock, such as livestock pipelines, pumping plants, watering facilities, and water wells.

NA: Not applicable
NRCS: Natural Resources Conservation Service
Source: NRCS data provided by Harold Crose with the Grant County Conservation District

Figure 4-3 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 approximately 45,000 acres, primarily enhancing pest- and nutrient-management practices, 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 accounted toward the Work Plan's goals and benchmarks.

Figure 4-3
NRCS Practices Implemented under CSP from 2011 to 2016



4.2.2 Conservation District-led Projects

Numerous other projects have also been implemented through local CDs and are often funded directly by the CD or through programs administered by other agencies. Major stewardship strategies and practices implemented by the CDs include direct seeding, fencing, nutrient management, and riparian forest habitat restoration (Table 4-3). These projects provide further protection and enhancement of critical area functions and values.

Table 4-3
Conservation Practices Implemented by Local CDs from 2011 to 2016

Conservation Practice	Amount
Direct Seed	33,419 acres
Fencing	22,895 feet
Nutrient Management	27,860 acres
Riparian Forest Restoration	3,644 acres

In addition to implementing stewardship strategies and practices, the Palouse CD also maintains monitoring of watershed through the RCPP. This includes two paired watershed studies, which monitor the effects of tillage on nutrient and sediment levels in streams and the effects of riparian buffers on stream temperatures, nutrients, and sediment levels. Additionally, water quality monitoring occurs on 12 streams, measuring dissolved oxygen, water temperature, pH, conductivity, turbidity, air temperature, and precipitation. Efforts are also underway to inventory and survey the Palouse Prairie remnants throughout the County.

Historic Conditions and Palouse Prairie

Photo Credit: Allison Meyer

It is not the intent of VSP to restore natural resources to pre-development conditions but to protect ecological functions and values that existed in 2011. Prior to cultivation of the deep fertile soils of the region, the typical vegetation throughout the rolling hills of the Palouse consisted of perennial bunchgrasses, short shrubs, and wildflowers, collectively known as Palouse Prairie, which also provided habitat to support abundant wildlife. Less than 1% of the Palouse Prairie remains today.

The remnants of Palouse Prairies in Whitman County are located in the eastern part of the County, between the cities of Pullman and Colfax. Palouse Prairie remnants inventory and survey efforts are currently underway.

One of the biggest threats to the Palouse Prairie is the continued fragmentation into small remnants which allows for the easy invasion and replacement by introduced species, such as cheatgrass and Canada thistle.

4.2.3 Conservation Reserve Program

Congress created the CRP in the 1985 Farm Bill as a land conservation program to address concerns over soil erosion and as a cropland retirement mechanism to help a struggling farm economy due to the large surplus of crops. The CRP is managed by the Farm Service Agency (FSA), and is a federally funded program that pays a yearly rental payment in exchange for farmers removing cropland from agricultural production and establishing native plant species. Acres enrolled in CRP vary year to year, depending on the availability of federal funding.

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

approximately 42,000 acres between 2011 (193,000 acres) to 2015 (151,000 acres) (USDA 2016). Much of the land coming out of CRP in the County is transitioned into other stewardship strategies and practices (e.g., direct seeding and reduced tillage). Additionally, 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, or the land is subject to a conservation easement" is also an agricultural activity.

Accordingly, CRP lands with temporary habitat improvements have been determined through the VSP process to not be designated as critical areas in Whitman County. Habitat benefits from CRP lands are included in VSP as enhancements and, the level of CRP-based 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 enhancement benefits, and not as a critical area that would need to be protected or offset by other stewardship strategies and practices s to meet protection benchmarks. CRP will be accounted for in the enhancement benchmark as a reported value for each year CRP acreage is enrolled, on an aggregated watershed and 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 by reducing the amount of land in agricultural production and the economic viability of local businesses which support agricultural operations. Encouragement in CRP participation will need to be balanced with protection 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 Section 6.4. Technical assistance is available to producers from the Whitman County Cattlemen's Association, the Whitman County Farm Bureau, the Whitman County Association of Wheat Growers, and the Washington State University Extension. Additional technical assistance and stewardship programs and incentives are also provided through Washington State Department of Ecology (Ecology), WDFW, and Washington State Conservation Commission (WSCC) through private lands programs and assistance, such as the Farmed Smart Partnership and Aquatic Land Enhancement Account.

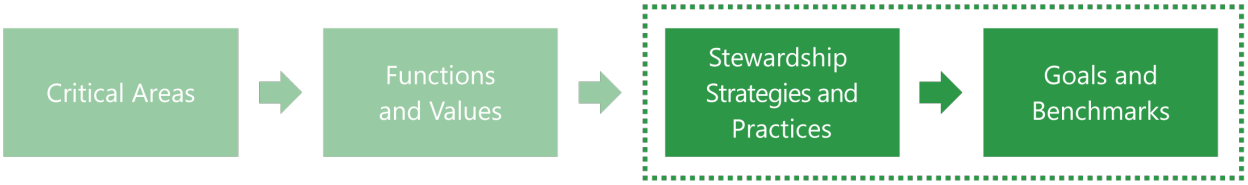
5 Goals, Benchmarks, and Adaptive Management

RCW 36.70A.720(1) requires this Work Plan include goals and benchmarks for the protection and enhancement of critical areas. The benchmarks must be measurable and designed to result in the protection of critical area functions and values and the enhancement of critical areas functions and values through voluntary and incentive based measures.

This section of the Work Plan identifies:

- **Goals** for protecting and enhancing the County's critical areas, and the four associated major critical areas functions and values: 1) water quality; 2) hydrology; 3) soil; and 4) fish and wildlife habitat. See Section 2.3 for additional discussion on these four major functions and their relationship to the five types of critical areas.
- **Measurable benchmarks** for protection and enhancement of critical areas based on participation in key stewardship strategies and practices. See Section 4 for additional discussion on the connection between stewardship strategies and critical areas functions. Section 5.2 further discusses the methods used to identify functional effects of stewardship strategies and practices.
- **Indicators** for measurable metrics that can be analyzed over time to help assess whether anticipated protection and enhancement of critical are functions are occurring, and focus technical assistance efforts where needed.
- **Monitoring and adaptive management plan** to adjust the Work Plan's benchmarks and activities based on performance results and review of indicators analyzed through monitoring efforts.

Figure 5-1
VSP Crosswalk – Stewardship Practices Connection with Goals and Benchmarks



5.1 Goals

The VSP law requires Work Plans 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. Additionally, Work Plans are required to incorporate applicable data and plans into development of Work Plan goals and benchmarks (RCW 36.70A.720 (1)(a)).

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

- **Goals:** Participation goals are defined for the protection and enhancement of the County's critical areas and key functions.
- **Agricultural viability:** The ancillary benefits to agricultural production, profitability, and sustainability are also noted for each goal, 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 or other costs.
- **Objectives:** Objectives are identified for each goal to help define specific applications that further 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 area functions.
- **Key stewardship strategies and practices:** Example stewardship strategies and practices are tied to each objective; however, it is acknowledged 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 Conservation Practice Physical Effect (CPPE) scores for each practice (Appendix C).
- **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.

751 **Table 5-1**
752 **Wetland Protection and Enhancement Goals**

Goal #1: Protect and/or enhance wetland functions.

Protection and enhancement: Special emphasis on key functions provided by wetlands

Key Functions	Wetland
Water Quality	• Reduces siltation and erosion • Provides water filtration • Moderates water temperature
Hydrology	• Stores water to reduce flooding and contributes to base flows
Habitat	• Provides aquatic and woody vegetated habitat for fish and wildlife

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Ancillary benefits from implemented stewardship strategies and practices (improved soil health/soil preservation, weed management, increased pollinators/beneficial organisms, and increased fertility).
- Reducing regulation surprises associated with priority habitat degradation and species decline.
- Reducing costs associated with lost ecosystem services (e.g., flood control and water filtration).
- Reducing input costs associated with nutrient, pest and water management.
- Financial incentives to offset startup costs for new practices and infrastructure.

Objectives	Key Stewardship Strategies and Practices	Existing Plans
Protect and enhance acres managed using strategies that provide direct protections to wetlands and wetland buffers.	• Conservation Cover • Critical Area Planting • Grassed Waterway • Upland and Wetland Wildlife Habitat Management • Tree/Shrub Establishment • Herbaceous Weed Control • Hedgerow Planting • Fencing	• WDFW Management Recommendations for Washington's Priority Habitats: Riparian (1997 or as updated)
Protect and enhance acres managed using strategies that promote water quality and hydrology functions by reducing erosion and improving water storage and filtration.	• Conservation Crop Rotation • Cover Crop • Mulch Tillage • Direct Seed • Range Planting • Managed Grazing	• Existing water quality data, such as the Ecology 303(d) List (2016) • Watershed Management Plans: ○ Palouse Watershed Plan (HDR and EES 2007)

Goal #1: Protect and/or enhance wetland functions.		
Protect and voluntarily enhance acres managed using strategies that promote water quality and aquatic habitat functions by reducing inputs from runoff.	• Nutrient Management • Pest Management • Riparian Herbaceous Cover/Filter Strips • Grassed Waterways	○ WRIA 35 Watershed Detailed Implementation Plan (Middle Snake WPU 2011) ○ Detailed Implementation Plan: Hangman (Latah) Creek Watershed WRIA 56 (WRIA 56 WIT 2008) • Palouse Basin Aquifer Committee (PBAC) resources: ○ PBAC Webpage (2017) ○ Palouse Basin Ground Water Management Plan: 2015 Information Update to 1992 Plan (2015)

753 **Table 5-2**
754 **FWHCA Protection and Enhancement Goals**

Goal #2: Protect and/or enhance FWHCA functions.

Protection and enhancement: Special emphasis on key functions provided by FWHCAs

Key Functions	FWHCA
Water Quality	• Reduces siltation by stabilization streambanks from riparian vegetation • Provides water filtration. • Moderates water temperature by providing shade.
Hydrology	• Stores and retains water to reduce flooding and support base flows in streams.
Soil	• Reduces rate of erosion by providing vegetative cover.
Habitat	• Provides spawning, rearing and migratory habitat for fish, and riparian also provides refuge, nesting, and rearing areas for wildlife. • Provides aquatic habitat by supplying organic inputs (e.g., leaf fall, insects, and large wood). • Supports sensitive species lifecycles.

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Reducing regulation surprises associated with priority habitat degradation and species decline.
- Ancillary agriculture benefits from implemented practices (soil conservation, weed management, and pollinator/beneficial organisms).
- Reducing costs associated with lost ecosystem services (e.g., flood control and water filtration).
- Financial incentives to offset start-up costs for new practices and infrastructure.

Goal #2: Protect and/or enhance FWHCA functions.		
Objectives	**Key Stewardship Strategies and Practices**	**Existing Plans**
Protect and enhance acres managed using strategies that promote habitat functions by restoring or creating new habitat structures.	• Conservation Cover • Critical Area Planting • Grassed Waterway • Upland and Wetland Wildlife Habitat Management • Tree/Shrub Establishment • Herbaceous Weed Control • Hedgerow Planting • Range Planting	• Existing habitat data, such as WDFW Priority Habitats and Species data • WDFW Management Recommendations for Washington's Priority Habitats and Species ○ Greater Sage-grouse (2004) ○ Shrub-steppe (2011) ○ Riparian (1997 or as updated) • Watershed Management Plans: ○ Palouse Watershed Plan (HDR and EES 2007) ○ WRIA 35 Watershed Detailed Implementation Plan (Middle Snake WPU 2011) ○ Detailed Implementation Plan: Hangman (Latah) Creek Watershed WRIA 56 (WRIA 56 WIT 2008) • Total Maximum Daily Load (TMDL) implementation recommendations for water quality improvement[4]
Protect and enhance acres managed using strategies that promote habitat functions by limiting trampling of habitat.	• Managed Grazing • Watering Facilities • Fencing • Access Control	
Protect and enhance acres managed using strategies to promote habitat functions by preventing unintentional conversion of shrub-steppe habitat.	• Fencing • Managed Grazing • Watering Facilities	
Protect and enhance acres managed using strategies that promote water quality, hydrology, and soil health functions by reducing erosion and improving water storage and filtration.	• Conservation Crop Rotation • Cover Crop • Mulch Tillage • Direct Seed • Range Planting • Managed Grazing • Fencing	

[4] http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyCounty/whitman.html

Goal #2: Protect and/or enhance FWHCA functions.		

Protect and enhance acres managed using strategies that promote water quality and aquatic habitat functions by reducing inputs from runoff (surface water quality).	• Nutrient Management
	• Pest Management
	• Riparian Herbaceous Cover/Filter Strips
	• Grassed Waterways
		• Existing water quality data, such as the Ecology 303(d) List (2016)
		• TMDL implementation recommendations for water quality improvement[5]
		• Watershed Management Plans:
		  ○ Palouse Watershed Plan (HDR and EES 2007)
		  ○ WRIA 35 Watershed Detailed Implementation Plan (Middle Snake WPU 2011)
		  ○ Detailed Implementation Plan: Hangman (Latah) Creek Watershed WRIA 56 (WRIA 56 WIT 2008)

Protect and enhance acres managed using strategies to protect fish-bearing streams and limit shoreline and watercourse degradation and enhance shoreline areas and watercourses.	• Watering Facilities • Conservation Cover • Critical Area Planting • Grassed Waterway • Upland and Wetland Wildlife Habitat Management • Tree/Shrub Establishment • Herbaceous Weed Control • Hedgerow Planting • Open Channel • Fencing	• National Oceanic and Atmospheric Administration (NOAA) Fisheries Salmon Recovery Plans (2015a; 2015b; 2016) • WDFW Management Recommendations for Washington's Priority Habitats: Riparian (1997 or as updated)

[5] http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyCounty/whitman.html

Table 5-3
CARA Protection and Enhancement Goals

Goal #3: Protect and/or enhance CARAs functions.

Protection and enhancement: Special emphasis on key functions provided by CARAs

Key Functions	CARA
Water Quality	• Improves groundwater quality via infiltration through the soil column and underlying geology
Hydrology	• Recharges groundwater resources

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Ancillary agriculture benefits from implemented practices (increased soil health, increased soil moisture, weed management, pollinator/beneficial organisms, and increased fertility).
- Reducing input costs associated with chemicals.
- Reducing costs associated with irrigation and livestock watering.
- Financial incentives to offset start-up costs for new practices and infrastructure.
- Hazardous materials spill containment and cleanup.

Objectives	Key Stewardship Strategies and Practices	Existing Plans
Protect and enhance acres managed to protect shallow groundwater wells by managing chemical and nutrient input controls.	• Nutrient Management • Pest Management	• Existing municipal and public water systems well monitoring data • PBAC resources: ○ PBAC Webpage (2017) ○ Palouse Basin Ground Water Management Plan: 2015 Information Update to 1992 Plan (2015)
Protect and enhance acres managed to promote natural groundwater filtration functions.	• Conservation Cover • Cover Crop • Mulch Tillage • Direct Seed • Range Planting • Managed Grazing	
Protect and enhance acres managed to promote hydrology functions by improving water conservation.	• Conservation Cover • Cover Crop • Mulch Tillage • Direct Seed • Irrigation Water Management	

757 **Table 5-4**
758 **GHA Protection and Enhancement Goals**

Goal #4: Protect and/or enhance GHA (erosion hazard) functions.

Protection and enhancement: Special emphasis on key functions provided by GHAs for erosion hazards

Key Functions	GHA
Water Quality	• Affects rate of soil erosion and associated movement of sediment deposited in surface waterbodies
Hydrology	• Affects rate of groundwater infiltration and rate of surface water runoff
Soil Health	• Affects rate of erosion as it relates to depth
Habitat	• Affects rate of erosion as it relates to sediment inputs to stream and wetland aquatic habitat

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Preserving land available for agriculture.
- Ancillary agriculture benefits from implemented practices (increased soil moisture, weed management, and pollinator/beneficial organism).
- Reducing costs associated with soil replenishment and flood cleanup.
- Financial incentives to offset start-up costs for new practices and infrastructure.

Objectives	Key Stewardship Strategies and Practices	Existing Plans

Protect and enhance acres managed using strategies that promote water quality, hydrology, soil health and functions by reducing erosion and improving water storage and filtration.	• Conservation Crop Rotation
	• Cover Crop
	• Mulch Tillage
	• Direct Seed
	• Range Planting
	• Managed Grazing
		• Existing water quality data, such as the Ecology 303(d) List (2016)
		• TMDL implementation recommendations for water quality improvement[6]
		• Watershed Management Plans:
		  ○ Palouse Watershed Plan (HDR and EES 2007)
		  ○ WRIA 35 Watershed Detailed Implementation Plan (Middle Snake WPU 2011)
		  ○ Detailed Implementation Plan: Hangman (Latah) Creek Watershed WRIA 56 (WRIA 56 WIT 2008)
		• Palouse Basin Aquifer Committee (PBAC) resources:
		  ○ PBAC Webpage (2017)
		  ○ Palouse Basin Ground Water Management Plan: 2015 Information Update to 1992 Plan (2015)

[6] http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyCounty/whitman.html

Table 5-5
FFA Protection and Enhancement Goals

Goal #5: Protect and/or enhance FFA functions.	
Protection and enhancement: Special emphasis on key functions provided by FFAs for erosion hazards	
Key Functions	**FFA**
Water Quality	• 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	• Stores and retains surface water surface in floodplain, reducing velocities and modifying discharge rates • Recharges groundwater that can later be returned to the stream to help maintain base flow
Soil Health	• Supports moisture content in soils, reduces rate of erosion, and supports plant growth that can increase organic inputs to soil
Habitat	• Provides aquatic and riparian habitats for wildlife, plants, and fish

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Ancillary agriculture benefits from implemented practices (maximize availability of surface withdrawals for irrigation, flood control benefits/soil preservation, increased soil moisture, weed management, and pollinator/beneficial organisms).
- Reducing costs associated with flood management and flood cleanup.
- Financial incentives to offset start-up costs for new practices and infrastructure.

Objectives	**Key Stewardship Strategies and Practices**	**Existing Plans**

Protect and enhance frequently flooded areas directly	• Grassed Waterways
	• Conservation Cover
	• Fencing
	• Access Control
		• Watershed Management Plans:
		  ○ Palouse Watershed Plan (HDR and EES 2007)
		  ○ WRIA 35 Watershed Detailed Implementation Plan (Middle Snake WPU 2011)
		  ○ Detailed Implementation Plan: Hangman (Latah) Creek Watershed WRIA 56 (WRIA 56 WIT 2008)
		• NOAA Fisheries Salmon Recovery Plans (2015a; 2015b; 2016)

Goal #5: Protect and/or enhance FFA functions.		
Protect and enhance acres managed using techniques that limit soil compaction or trampling of habitat	• Managed Grazing • Watering Facilities • Fencing • Access Control	• WDFW Management Recommendations for Washington's Priority Habitats: Riparian (1997 or as updated)
Protect and enhance acres managed using strategies that promote water quality, hydrology, soil health and functions by reducing erosion and improving water storage and filtration.	• Conservation Crop Rotation • Cover Crop • Mulch Tillage • Direct Seed • Range Planting • Managed Grazing	• Existing water quality data, such as the Ecology 303(d) List (2016) • TMDL implementation recommendations for water quality improvement[7] • Watershed Management Plans: o Palouse Watershed Plan (HDR and EES 2007) o WRIA 35 Watershed Detailed Implementation Plan (Middle Snake WPU 2011) o Detailed Implementation Plan: Hangman (Latah) Creek Watershed WRIA 56 (WRIA 56 WIT 2008)

5.2 Measurable Benchmarks

5.2.1 Methods

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

[7] http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyCounty/whitman.html

benchmarks. See Appendix C for initial results based on 2011 to 2016 participation data in key stewardship strategies and practices.

The Work Plan includes two measurable benchmarks per RCW 36.70A.720 (1)(e):

- **Protection Benchmarks** (preventing the degradation of baseline functions existing July 22, 2011) – The protection benchmark must be met to continue the voluntary, non-regulatory approach under VSP. For each protection goal, participation benchmarks are also identified and are designed to provide quantifiable measures that will ensure protection of the County's critical area functions and values is being achieved.
- **Enhancement Benchmarks** (enhancements improve baseline critical area functions and values through voluntary and incentive based measures) –Meeting enhancement goals is encouraged, but not required, to continue the voluntary, non-regulatory program under VSP for protecting critical areas. At each 5-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 the County and indicate voluntary measures are leading to desired improvements in critical area 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 area function(s) and/or value(s) occurs.

Benchmark quantities for stewardship strategies and practice implementation are provided in 5-year reporting increments (2021 and 2026). The methods used to establish protection and enhancement benchmark values for stewardship strategies and practices participation included:

- **Connecting stewardship strategies and practices with specific benchmark goals** based on the CPPE scores for each practice developed by U.S. Department of Agriculture (NRCS 2017). CPPE scores range between +5 and -5, with positive scores denoting a beneficial effect, and negative scores having an adverse effect (Table 5-6). USDA CPPE scores were averaged for the four key functions, adjusted to include scoring criteria applicable to Whitman County and remove others that are not. See Appendix C for details on how CPPE scores were developed for Whitman County. The CPPE scoring is an interim step in determining whether protection and/or enhancement has occurred compared to the VSP 2011 baseline. Under VSP, the relative changes in functions affected from a given stewardship strategy or practice will be tracked, e.g., a +4 increase moving from a -2 to +2, rather than the CPPE score of +2.
- **Measuring historical participation** in key stewardship strategies and practices to develop an average annual implementation quantity for each practice (Table 5-7). Historical participation data include NRCS and CD-led practices that were reported between 2011 and 2016.
- **Setting anticipated reduction rate** of agriculture lands that may not continue to maintain the stewardship strategies and practice past the required lifespan or following the end of a

contract, or for other disenrollment reasons (Table 5-7). Discontinuation or abandonment of practices can be monitored to reduce this rate further based on actual data.

- **Setting protection benchmarks and performance objectives** (Table 5-7) by summing the practice participation goal to maintain baseline practices for protection of critical area function by replacing all lost functions associated with discontinuation or abandonment of practices (acres calculated by anticipated reduction rates; see Table 4-2).

2011 Baseline Condition Change	=	**(New Implemented Acres x Physical Effects Score)**	-	**(Discontinued Acres x Physical Effect Score)**	

What is Conservation Practice Physical Effect?

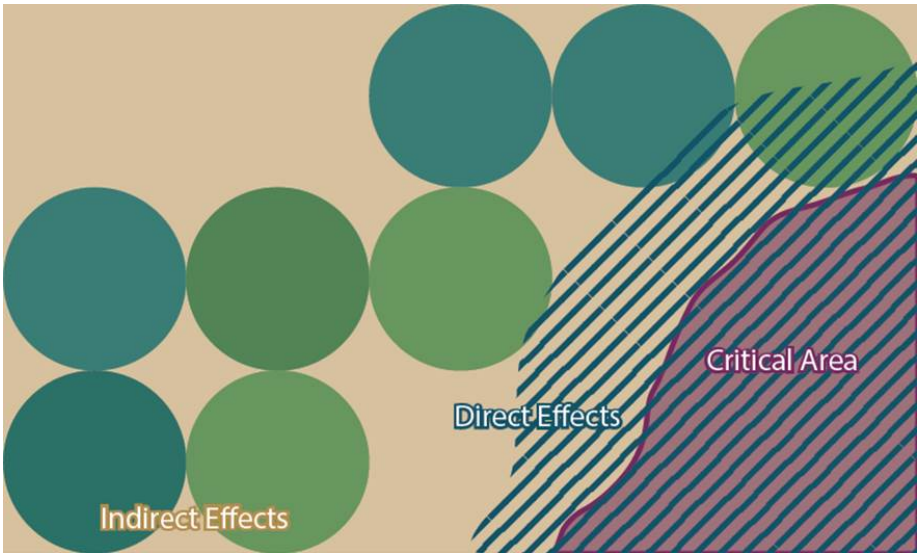
The CPPE describes how Natural Resources Conservation Service practices affect human-economic environment (e.g., Agricultural Viability) and natural resources (e.g., Critical Functions). This planning tool provides a quantitative score detailing the magnitude of the practice's effect on the resource. Technical reports for each practice also include a qualitative statement on the impact of each practice on soil, water, air, plants, animals, energy and labor, capital, and risk. A summary of the practices with CPPE scores are provided in Appendix C. The implementation team will use discretion in determining which CPPE best represents the physical effects of stewardship strategies and practices on critical areas in the County based on local conditions and practices.

- **Setting enhancement benchmarks and performance objectives** by summing additional project acres implemented in key stewardship strategies and practices between 2011 and 2016. Enhancement benchmarks are in addition to the protection benchmarks; therefore, estimated discontinued acres (protection benchmark value) have been incorporated into the enhancement benchmark value (Table 5-7).

Enhancement Performance Objective	=	**(Implemented Acres x Physical Effect Score)** *based on 2011 to 2016 enrollment data*	-	**Protection Performance Objective**

Stewardship strategies and practices can be implemented within or directly adjacent to a critical area (see Figure 5-2 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 5-2
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 area functions and values.

Table 5-6 provides a crosswalk of key stewardship strategies and practices, their link to critical areas, critical area function based on the CPPE function effects scores, and agricultural viability aims. Interpretation of the CPPE scoring shown in Table 5-6 indicates the most beneficial effects (enhancements) to functions up to+5, no effect (0), and the most detrimental effects to functions as -5. As previously discussed, it's important to note that the relative changes in functions affected from a given stewardship strategy and practice will be tracked in relation to baseline conditions, e.g., a +2 CPPE score for a practice will be captured as a +4 if practices are moving from a -2 to +2. See Appendix C for additional information on methods applied for linking stewardship strategies and practices to function protections using CPPE function effects and a more comprehensive list of stewardship strategies and practices and their functional effects.

Additional Key Stewardship Strategies Currently Implemented (Self-funded)
Additional stewardship strategies implemented by producers throughout the County that do not necessarily follow the NRCS practice prescriptions but provide functional benefits include:

- Weed management
- Black summer fallow
- Residue management (40% or greater)
- Managed rotational grazing

Table 5-7 provides a summary of protection and enhancement measurable benchmarks and performance objectives for the 5-year reporting increments (2021 and 2026). Acres for performance objectives is used to represent 1-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. A complete description of the scoring and function and value calculation is included in Appendix C. 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 Area functions and values.

As indicated in Table 5-7 (last column), total participation acres in 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 5-6
Key Stewardship Strategies and Practices Crosswalk to Function Scores, Critical Areas, and Agricultural Viability

Key Stewardship Strategies				Critical Area Functions Protection Metrics (averaged National CPPE Function Effects Score)[2]				Critical Area Protections					Agricultural Viability Aims
Type		NRCS Code	Key Practices[1]	Soil	Hydrology	Water Quality	Habitat	WET	FW HCA	CARA	GHA	FFA	
Indirect Intersects	Residue and Till Management	345	Residue Management - Mulch Till	2.75	1.33	2.20	1.67	●	●		●		- Protect against erosion risk - Protect soil function - Reduce invasive and nuisance species - Promote yield and fertility
		329	Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed	3.00	0.80	2.00	1.67						
	Pest Management	595	Pest Management	2.00	0.00	4.00	2.00	●	●	●	●		- Protect soil function - Reduce invasive and nuisance species - Provide pollinator species/beneficial organisms habitat
	Nutrient Management	590	Nutrient Management	0.83	0.00	3.50	0.00	●	●	●			- Protect soil function - Reduce invasive and nuisance species - Reduce inputs
	Range Management[3]	528	Managed Grazing	2.83	1.50	1.30	2.67	●	●		●	●	- Protect against erosion risk - Protect soil function - Reduce invasive and nuisance species - Promote yield and fertility
		550	Range Planting	3.10	0.75	1.33	2.67						
		614	Watering Facility	1.10	0.00	1.71	4.00						
		642	Water Well	1.50	2.00	-1.00	2.00						
	Soil Management	328	Conservation Crop Rotate	3.17	1.60	1.75	2.00	●	●		●		- Protect against erosion risk - Protect soil function - Reduce invasive and nuisance species - Provide pollinator species/beneficial organisms habitat - Promote yield and fertility
		340	Cover Crop	2.46	1.40	1.75	2.00						
		484	Mulching	2.50	0.60	0.83	1.00						
Direct Intersects	Habitat Management	327	Conservation Cover	2.77	1.25	2.89	3.33	●	●		●	●	- Protect against erosion risk - Protect soil function - Reduce invasive and nuisance species - Provide pollinator species/beneficial organisms habitat
		342	Critical Area Planting	3.63	0.00	2.33	2.00						
		412	Grassed Waterway	2.17	2.50	1.33	1.00						
		315	Herbaceous Weed Control	1.60	2.00	-0.25	1.67						
		612	Tree/Shrub Establishment	3.00	1.20	1.17	2.33						
		644	Wetland Wildlife Habitat Management	0.00	2.00	2.00	4.00						
		645	Upland Wildlife Habitat Management	1.20	-0.50	2.00	5.00						
		422	Hedgerow Planting	1.25	2.00	1.33	4.00						
		582	Open Channel	1.00	2.67	-0.67	-0.50						
		382	Fence	1.00	0.00	2.00	0.00						

Notes:

1. Key practices include those practices that address resource concerns and critical areas function protections and are widely implemented, anticipated for continued application, or identified as major practice trends anticipated in the future.
2. The NRCS CPPE matrix was relied upon to develop average function effects scores for the key practices. See Attachment 1 and 2 of Appendix C for full suite of stewardship strategies and practices CPPE scores.
3. Range management stewardship focuses on key stewardship strategies and practices that address on-field resource concerns and management. Conveyance infrastructure, such as livestock pipelines, are not considered in the group of key stewardship strategies and practices.

CPPE: Conservation Practice Physical Effects
NRCS: Natural Resources Conservation Service

Table 5-7
Protection and Enhancement Benchmarks

Stewardship Strategies[1]		NRCS and CD-led Practices Historic Participation Data (2011 – 2016)		Protection Benchmarks[2, 3]			Enhancement Benchmarks[2, 3]			2011 – 2016 Enrollment Data
		Average Annual Participation in Key Practices	Estimated Yearly Reduction of Stewardship Strategies and Practices	Benchmark	2021 Performance Objective[4]	2026 Performance Objective[4]	Benchmark	2021 Performance Objective[4]	2026 Performance Objective[4]	Total Acres in NRCS and CD-led Programs
Indirect Intersects	Residue and Tillage Management	11,674 acres	700 acres (6%)	No net loss of acres managed under stewardship strategies and practices No net loss of feet or units managed for protection	7,004 acres	10,507 acres	Enrolled enhancement units (e.g., acres and feet) are sufficient to offset identified agricultural degradations and maintain baseline conditions, based on: • Implemented projects from 2011 – 2016 • Excluded protection benchmarks (estimated annual reduction or discontinuation of stewardship strategies and practices since 2011 at time of reporting	28,018 acres	59,537 acres	70,044 acres
	Pest Management	5,820 acres	349 acres (6%)		3,492 acres	5,238 acres		13,968 acres	29,683 acres	34,921 acres
	Nutrient Management	10,865 acres	652 (6%)		6,519 acres	9,778 acres		26,075 acres	55,409 acres	65,187 acres
	Range Management	1,506 acres and 3 stock watering facilities	90 acres (6%) and 0.1 watering facilities (3%)		903 acres and 1 watering facilities	1,355 acres and 2 watering facilities		3,613 acres and 9 watering facilities	7,678 acres and 18 watering facilities	9,033 acres and 19 watering facilities
	Soil Management	340 acres	20 acres (6%)		204 acres	306 acres		815 acres	1,732 acres	2,038 acres
Direct Intersects	Habitat Management[5]	744 acres and 5,648 feet	45 acres (6%) and 169 feet (3%)		447 acres and 1,694 feet	670 acres and 2,541 feet		1,786 acres and 15,249 feet	3,796 acres and 31,345 feet	4,466 acres and 33,887 feet

Notes:

1. See Table 5-6 for suite of stewardship strategies and practices considered under these strategies.
2. Key stewardship strategies and practices include those practices that address resource concerns and critical areas function protections and are widely implemented, anticipated for continued application, or identified as major practice trends anticipated in the future.
3. Measurable benchmarks are based upon the historic NRCS and reported CD-led participation data (2011-2016) in key stewardship strategies and practices (see Note 2). No net loss and enhancements will be measured based on estimated annual disenrollment rates from key stewardship strategies and practices from the 2011 baseline.
4. Benchmarks are anticipated to be adapted as new technologies and practices are applied by producers and unanticipated changes in environmental and market conditions which would be addressed through the adaptive management process. Protection benchmarks are based on estimated disenrollment rates. A more accurate estimate and understanding of which practices are discontinued can be used to modify these benchmarks.
5. Benchmarks for habitat management stewardship strategies include benchmarks for practices measured in acres (e.g., conservation cover) and practices measured in feet (i.e., hedgerow planting and fencing)

CD: conservation district
NRCS: Natural Resources Conservation Service

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

- **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 project. Appendix B-6 provides a listing of these parameters found in Whitman County in 2016, acknowledging these parameters may be updated in the future. 303(d) listings within the County can be monitored using Ecology Water Quality tools[8]. Additionally, the RCPP has set up two water quality stations that monitor continuously for dissolved oxygen, water temperature, pH, conductivity, turbidity, air temperature, and precipitation. Grab samples will be collected under the RCPP process monthly at eight additionally sites. These data can be viewed online[9]. Monitoring for fecal coliform in the Palouse River (12 sites) has been intermittently ongoing since 2001. Monitoring water and soil quality on the South Fork Palouse River will begin in 2017. The RCPP is also conducting a

[8] http://www.ecy.wa.gov/programs/wq/303d/index.html
[9] https://fortress.wa.gov/ecy/eap/flows/regions/state.asp?region=4

paired watershed study to understand the effects of tillage on nutrient and sediment loading in streams (Boylan 2016).

- **Hydrology indicators** will include tracking flow gauges through the U.S. Geological Survey (USGS), Ecology, or other agencies.
  - USGS Water data is available online: https://www2.usgs.gov/water/.
  - Ecology streamflow and water quality data is available online: https://fortress.wa.gov/ecy/eap/flows/regions/state.asp?region=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 viewers at the State level are available online[10].
- **Habitat indicators** will include evaluation of publicly available aerial imagery available at the 5 and 10-year performance review period, based upon adequate resources provided through the state for VSP program implementation to assess critical area resource protections (primarily FWHCA and wetlands). Imagery evaluation will include a random sampling of areas[11] with and without VSP participation within the watershed analysis areas in the County, and analysis results will be presented in reporting at the watershed and County scales. 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 Whitman County. Ground-truthing will be needed to ensure that change detection data made available 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 conducted during the implementation phase to better understand where "direct" effects may also be occurring. RCPP is also creating on a wildlife habitat protocol in coordination with WDFW and the Idaho Department of Fish and Wildlife (Boylan 2016).

[10] https://www.nrcs.usda.gov/wps/portal/nrcs/rca/national/technical/nra/rca/ida/. Additionally, the RCPP is conducting soil samples from seven locations to monitor soil health on a variety of sites including various tillage practices, crop rotations, cover crops, and CRP (Boylan 2016).

[11] Sample areas would include both areas where stewardship strategies and practices are documented and areas where they are not.

- **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 income
  - Market prices for agricultural product per unit
  - Assessed property valuation changes based on reported valuation calculations per County Assessor's Office (profitability indicator)

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 (Table 5-8) provide important information for evaluating the Whitman County VSP performance and adaptive management actions described in Section 5.4. Other indicators may emerge during implementation.

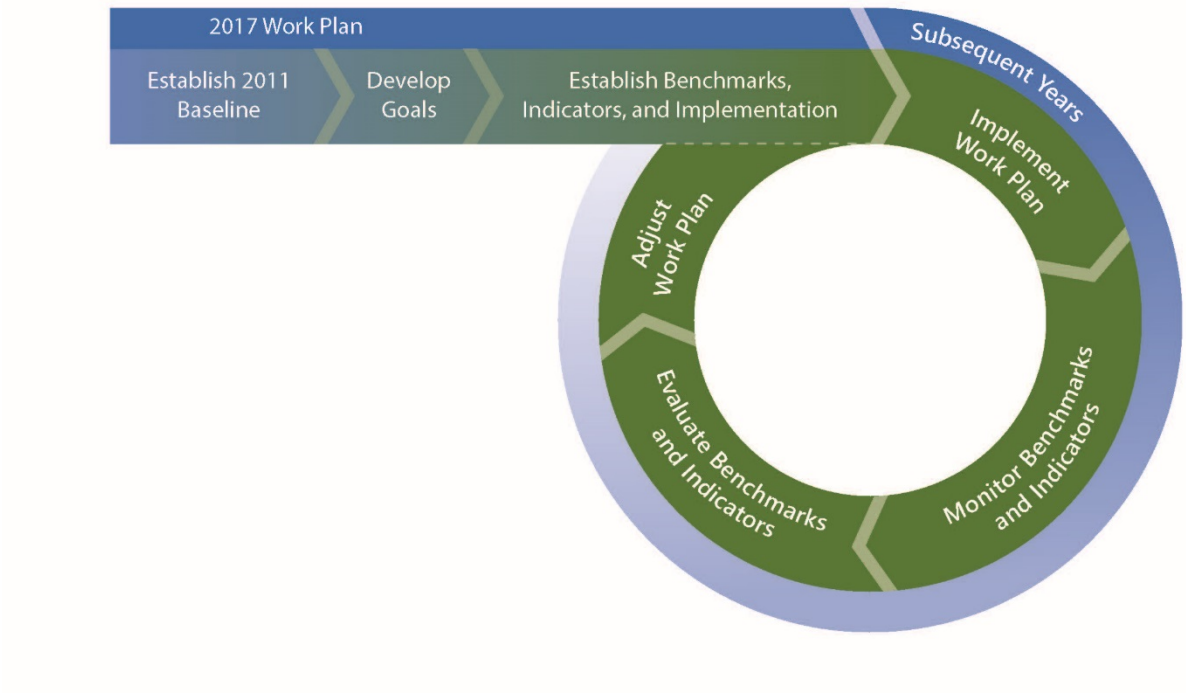
Table 5-8
Critical Area Functions Monitoring Indicators

Critical Area Function	Monitoring Indicators
Water Quality	• Track turbidity relative to baseline 2011 levels • Track agriculture-related toxins or nutrients relative to baseline 2011 levels • Track dissolved oxygen/temperature relative to baseline 2011 levels • Track agriculture-related contaminants relative to baseline 2011 levels • Review data as collected by public drinking water systems (Group A) or other well monitoring data
Hydrology	• Track summer low flows of key springs and tributaries – Further evaluation of agricultural activities and potential effects on flows may be needed where non-drought flows are dropping below baseline levels at U.S. Geological Society or other gauges • Track flood damage of existing infrastructure
Soil	• Track suitable agriculture soil loss trends overtime (using long-term [10- to 15-year] soils inventory) through U.S. Department of Agriculture Natural Resources Inventory monitoring results • Track soil conditions (e.g., soil organic matter, physical, chemical, and biological parameters) beyond 2011 levels
Habitat	• Track mapped Priority Habitats and Species area changes since 2011 • Track wetlands (using long-term [10 to 15 year] wetland inventory) through U.S. Department of Agriculture Natural Resources Inventory monitoring results and the National Wetland Inventory through U.S. Fish and Wildlife Service • Track habitat landcover based on publicly available aerial imagery, high resolution change detection mapping or other GIS approaches for habitat mapping that are made available to the County
Additional Monitoring Data	• Track climate data such as precipitation and temperature data through PRISM Spatial Climate Datasets

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 Whitman County VSP consists of the following five key sequential elements, as illustrated on Figure 5-3:

Figure 5-3
Adaptive Management System for Whitman 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 are 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.
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 5 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 WSCC. 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 5 years.

Monitoring and adaptive management is based on two strategies:

1. **Direct monitoring** of producer participation (Table 5-9 and 5-10):
    a. **Conservation acres monitoring**. Direct monitoring of stewardship participation in key stewardship strategies and practices implemented is integral to the outreach strategy. 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 Section 5.1 and 5.2.
    b. **Sample verification.** In addition to monitoring stewardship strategies and practices implemented, Whitman County CD will also monitor a randomly selected sample of 10% of the reported projects, including self-reported/funded, to verify the performance of the stewardship strategies and practices in terms of implementation/application and maintenance, relying on the CPPE framework.
    c. **Adaptive management trigger.** If at any point after the first year the participation rate drops below 120% 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 5-9. 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.

d. **Adaptive management process.** Table 5-10 includes a more detailed description of the adaptive management process for stewardship strategies and practices implemented, including specific thresholds for each of the key practices.

2. **Indirect monitoring** of indicators of critical areas and their functions and values (Table 5-11):
   a. **Indicators**. Indicators, identified in Section 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 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 climactic 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 5 years as part of the VSP reporting.
   c. **Process.** Table 5-11 includes a description of how environmental indicators discussed in Section 5.3 will be used to refine the goals and benchmarks of the VSP over time.

Table 5-9
Producer Participation Goal and Adaptive Management for Low Participation

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 Management Threshold**	**Adaptive Management Action**	**Who Monitors**	**When**
Sufficient active participation by commercial and non-commercial agricultural operators (farmers and ranchers) over 10 years that achieves the protection of critical area functions and values at a County-wide watershed level[1]	• 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	VSP Coordinator	Monitored every year Reported during the 2-year status reports and 5-year performance reports
		Incentives associated with key stewardship strategies and practice 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		
		Change 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 5-6 and Appendix C, Attachment 2)[2]	• Mapping and aerial photo evaluation and/or rapid watershed assessment of practices in place • Random sampling of farmers and ranchers in the field by technical assistance providers with willing landowners	Decline below the annual average stewardship strategies and practices rate identified in Table 5-10	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 baseline annual average stewardship strategies and practices rate identified in Table 5-10	Increase outreach to producers		

Notes:

1. 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.
2. Passive participation includes un-reported stewardship activities.

Table 5-10
Adaptive Management Process for Stewardship Strategies and Practices Participation

Type	Adaptive Management Objective	Protection Metric[1] (Annual)	Verification	Adaptive Management Trigger (120% of Protection Metric) (Annual)	Adaptive Management Action	Who Monitors	When
Residue and Tillage Management	Residue Management – Mulch Till	1,401 acres	10% verified through monitoring and visual recognition	1,681 acres	Outreach with producers/review approach	Conservation District	Every year
	Residue and Tillage Management – No-till/ Strip Till/ Direct Seed						
Nutrient Management	Nutrient Management	1,304 acres	10% verified through monitoring and visual recognition	1,564 acres	Outreach with producers/review approach	Conservation District	Every year
Pest Management	Pest Management	699 acres	10% verified through monitoring and visual recognition	838 acres	Outreach with producers/review approach	Conservation District	Every year
Range Management	Range Planting	181 acres	10% verified through monitoring and visual recognition	217 acres	Outreach with producers/review approach	Conservation District	Every year
	Managed Grazing						
	Stock Watering Facilities	0		0			
Soil Management	Conservation Crop Rotation	41 acres	10% verified through monitoring and visual recognition	49 acres	Outreach with producers/review approach	Conservation District	Every year
	Cover Crop						
	Mulching						
	Sprinkler System						
Habitat Management	Conservation Cover	89 acres	10% verified through monitoring and visual recognition	107 acres	Outreach with producers/review approach	Conservation District	Every year
	Critical Area Planting						
	Upland and Wetland Wildlife Habitat Management						
	Herbaceous Weed Control						
	Tree/Shrub Establishment						
	Hedgerow Planting	339 feet		407 feet			
	Fence						

Note:
1. Metric is calculated based on annual to meet benchmark values identified in Table 5-7.

Table 5-11
Adaptive Management Process for Critical Area Functions and Values Protection and Enhancement

Adaptive Management Objective	Indicator Data Source	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for Action
Ensure stewardship strategies and practices employed with the goal of protecting or improving water quality are effective	Ecology water quality stations	Change in Category 4 and 5 303(d) listings, focused on parameters that potentially have an agricultural source.	Tracking Category 4 and 5 listings through Ecology's 303(d) Water Quality tools	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 owners along affected watercourse, waterbody 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	Conservation Districts, VSP Coordinator or other	Every 5 years	Conservation Districts, VSP Coordinator and others; and participating land owners
Ensure stewardship strategies and practices employed with the goal of maintaining or improving storage capacity and groundwater recharge are effective	USGS flow gauges	Changes in flows that are attributable to agricultural practices (as opposed to regional drought)	Tracking water level gauges through USGS water data	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 and within CARA to determine percentage 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		Every 5 years	
Ensure stewardship strategies and practices employed with the goal of maintaining or improving soil functions are effective	USDA Natural Resources Inventory monitoring result	Changes in volume of soil and/or overall soil fertility relative to critical areas	Tracking soil data through USDA Natural Resources Inventory monitoring results, tracking sediment parameter within Ecology's 303(d) Water Quality tools	Significant trends indicating a decrease in baseline soil and/or soil fertility due to agriculture	• Determine whether soil issues are due to agriculture • Survey with outreach to agricultural producers to determine percentage 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		Every 5 years	
Ensure stewardship strategies and practices employed with the goal of protecting or improving habitat are effective	WDFW Priority Habitats and Species data or other aerial and GIS approaches for habitat mapping	Changes in amount of FWHCAs and wetlands	Tracking priority habitats and species data through the WDFW Evaluating random sample areas (including a representation of lands with conservation practices documented and lands where practices are not documented) using aerial imagery and associated GIS methods	Significant trends indicating a decrease in baseline terrestrial and/or aquatic habitat due to agriculture	• Determine whether habitat issues are due to agriculture • Survey with outreach to agricultural producers property owners to determine percentage 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		Every 5 years	

Notes:
CARA: critical aquifer recharge area
Ecology: Washington State Department of Ecology
USDA: U.S. Department of Agriculture
USGS: U.S. Geological Survey
WDFW: Washington Department of Fish and Wildlife

6 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 2011 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.

Whitman County will be responsible for designating a VSP Coordinator through a new hire or contractor to best to serve this role. 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, CDs, 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 $250,000 each biennium for the County.

Table 6-1
Implementation Budget

Task	Activities	Who	Biennium Budgets[1]
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	$165,000
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[2]
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	**$250,000**

Notes:
1. Assumes State funding for VSP is continued at a level of $250,000 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: 2019, 2021, and 2026.

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 Whitman County VSP implementation:

1. Better identify and document the existing measures that have been put in place since 2011 through private-sector activity and outside of government programs.

2. 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 8 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 farm 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.

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, and producer participation depends on effective protection of producers' confidential business information from disclosure. 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). 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 Palouse, Palouse-Rock Lake, Whitman, and Pine Creek CDs 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 Whitman County Cattlemen's Association, Whitman County Farm Bureau, and Whitman 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 farm stewardship or conservation 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 6-3 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 Whitman County Cattlemen's Association, the Whitman County Farm Bureau, and the Whitman County Association of Wheat Growers. Appendix D contains more detail for each program and links to the programs' webpages.

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

Venue	Description
Media	• Conservation District and private sector industry websites, newsletters, and social media sites • Whitman 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
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, 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.	•			
Conservation Districts	Works through voluntary, incentive-based programs to assist landowners and agricultural operators with the conservation of natural resources throughout the Conservation Districts, 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 on a January 2016 receipt of funding date, 2-year reports are due by end of September in 2018, 2020, 2022, 2024, and 2026.
- **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.

The timeline for this implementation process is shown in Table 6-4.

Table 6-4
Timelines for Implementation Process

Category	Schedule	Roles and Responsibilities
Periodic Evaluations (2-Year Status Reports)	Finalize Work Plan in 2017 (latest due date is January 19, 2019 per WSCC)	Work Group
	2018, 2020, et seq.	Work Group
Report on Goals and Benchmarks (5-Year Performance Reports)	Funding receipt date in 2016	Work Group oversees; VSP Coordinator prepares report
	2021,2026, et seq.	
Adaptive Management or Additional Voluntary Actions	Ongoing after 2021	Work Group oversees Work Plan adjustment recommendations to WSCC

Note:
WSCC: Washington State Conservation Commission

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.

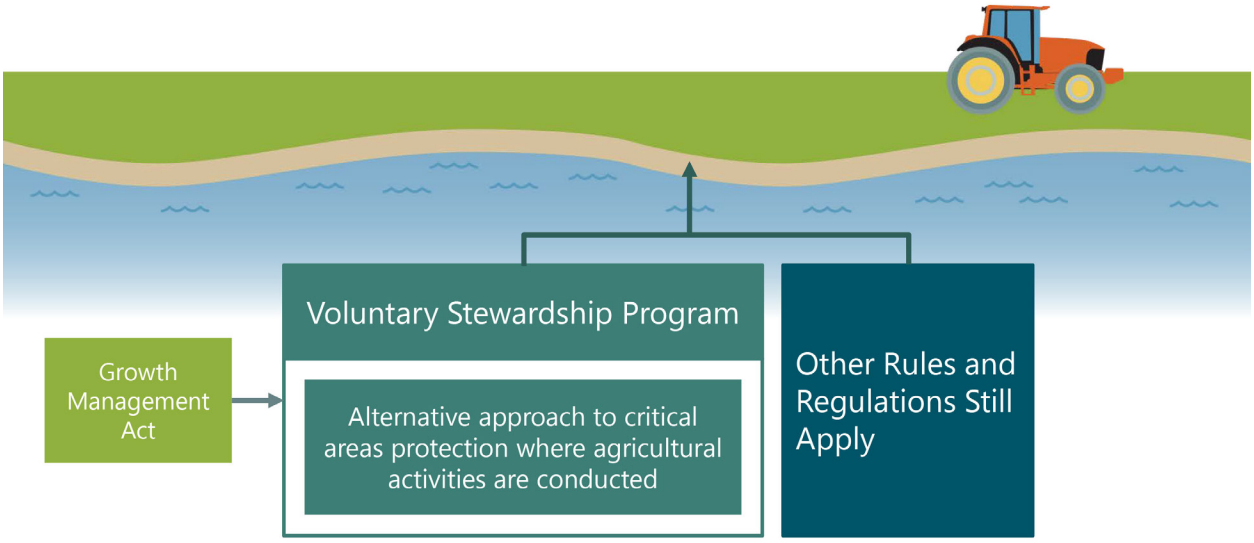
Work plans often need to adapt to changing conditions and observations of results that aren't consistent with established goals. Adaptive management is the process for "continually improving management policies and practices by learning from the outcomes of the operational programs" (Nyberg 1999). If 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). Figure 6-1 is intended to show how the VSP relates to other rules and regulations that apply separately from critical areas protection under the GMA.

Figure 6-1
Voluntary Stewardship Program Regulatory Underpinning



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Appendix A
VSP Map Folio

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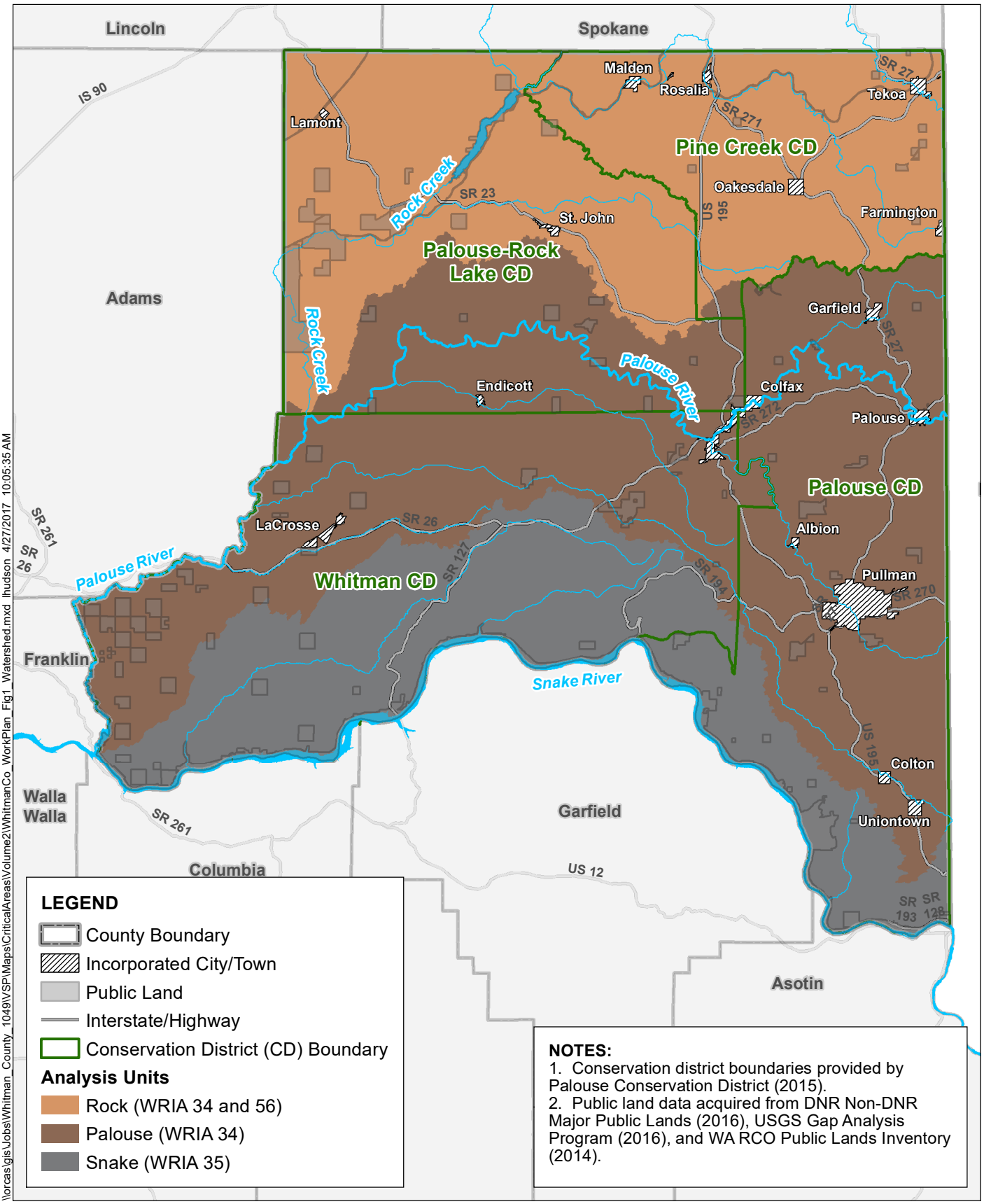

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Figure 1
Watershed Analysis Units
Voluntary Stewardship Program
Whitman County, WA

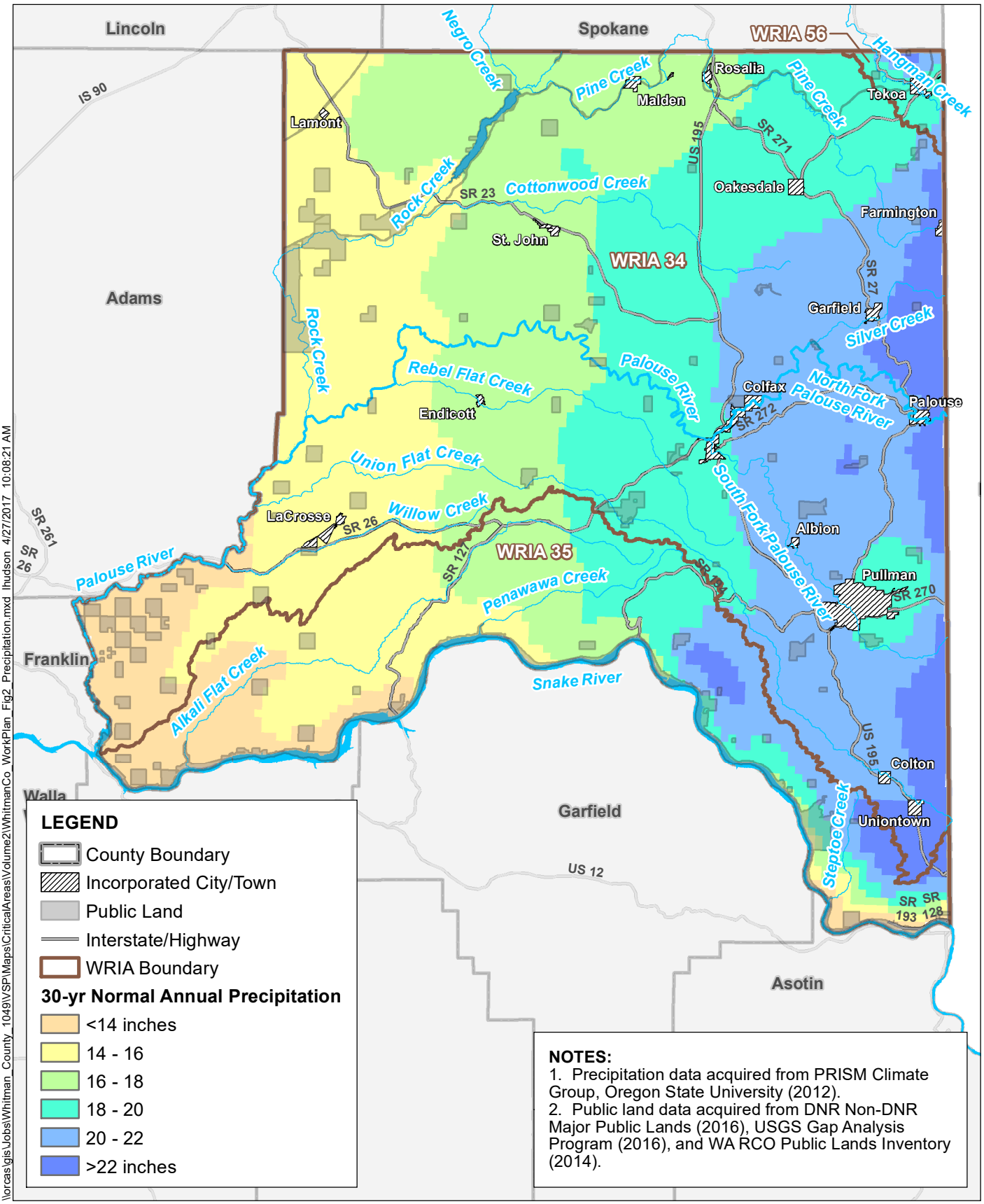

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Figure 2
Water Resources and Precipitation
Voluntary Stewardship Program
Whitman County, WA

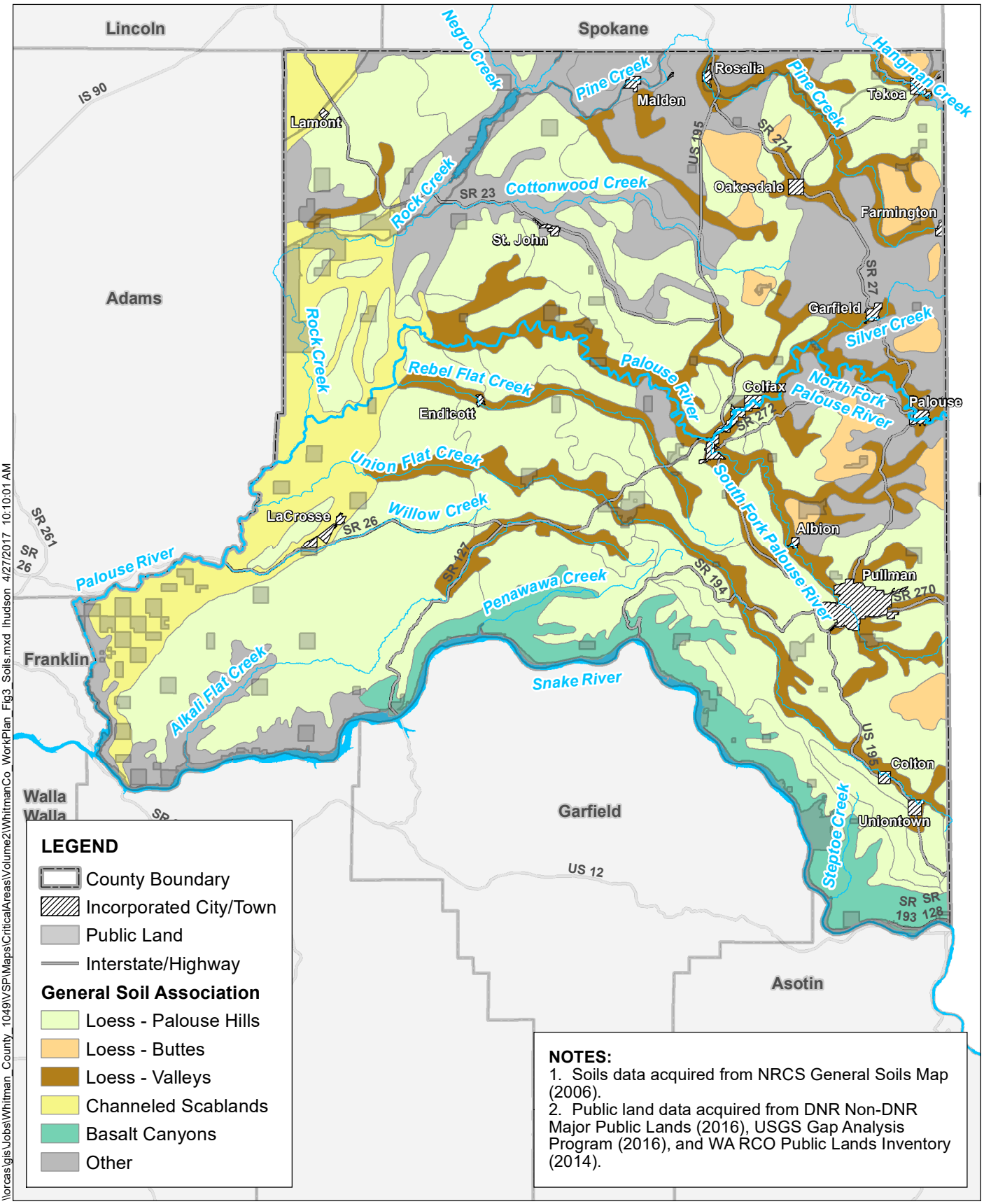

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Figure 3
NRCS GSM Soils
Voluntary Stewardship Program
Whitman County, WA

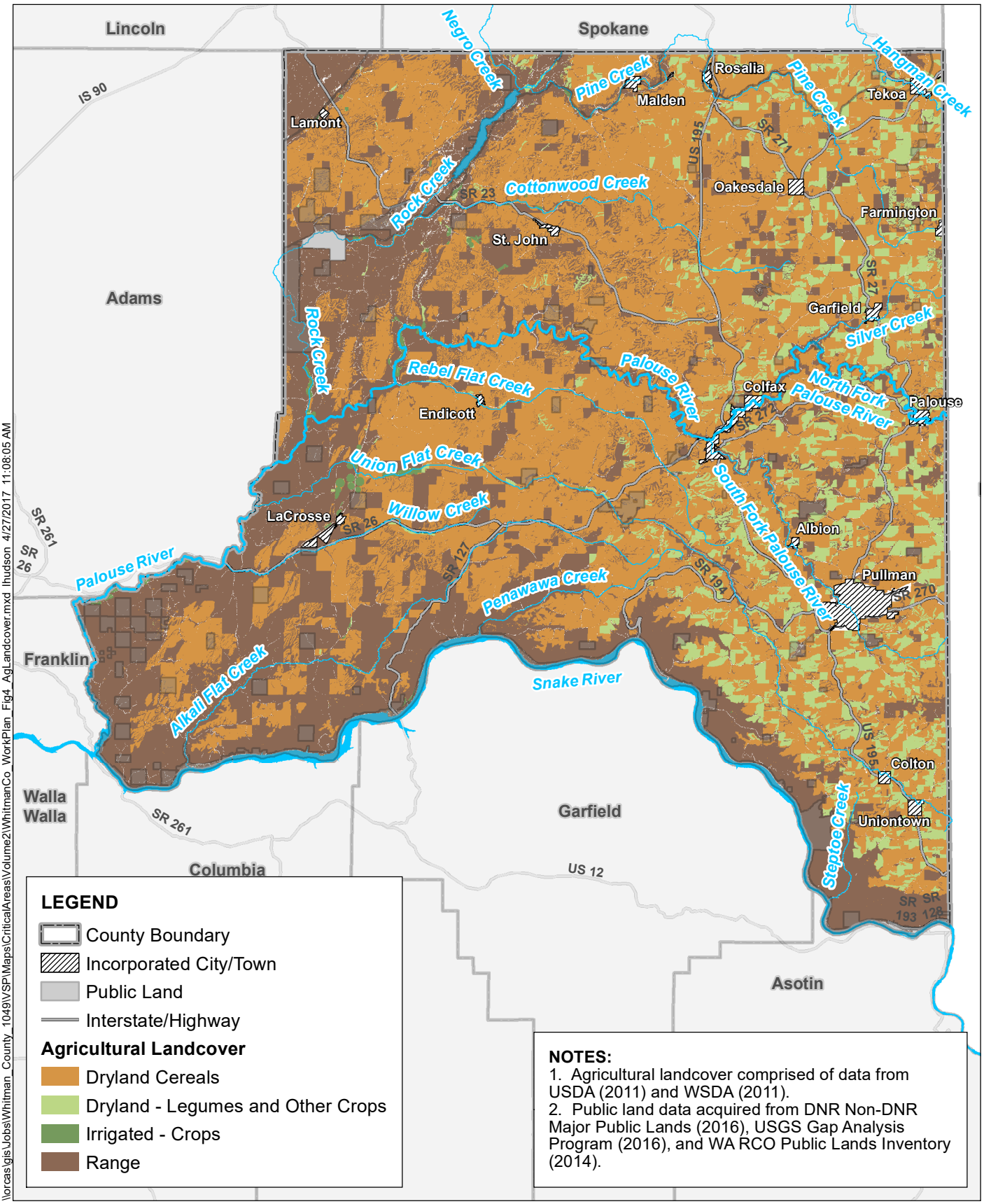

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Figure 4
Agricultural Landcover
Voluntary Stewardship Program
Whitman County, WA

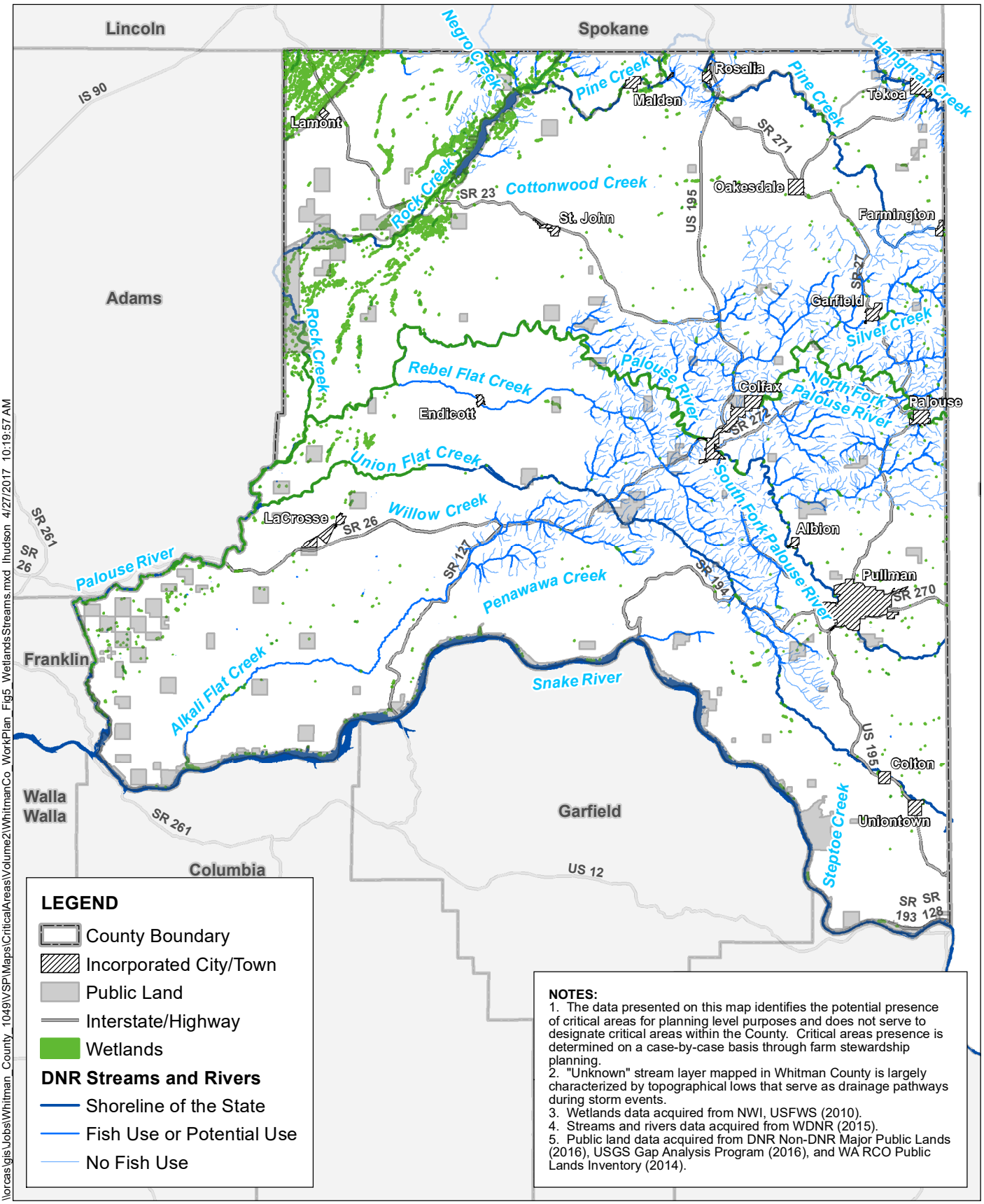

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Figure 5
Wetlands and Streams
Voluntary Stewardship Program
Whitman County, WA

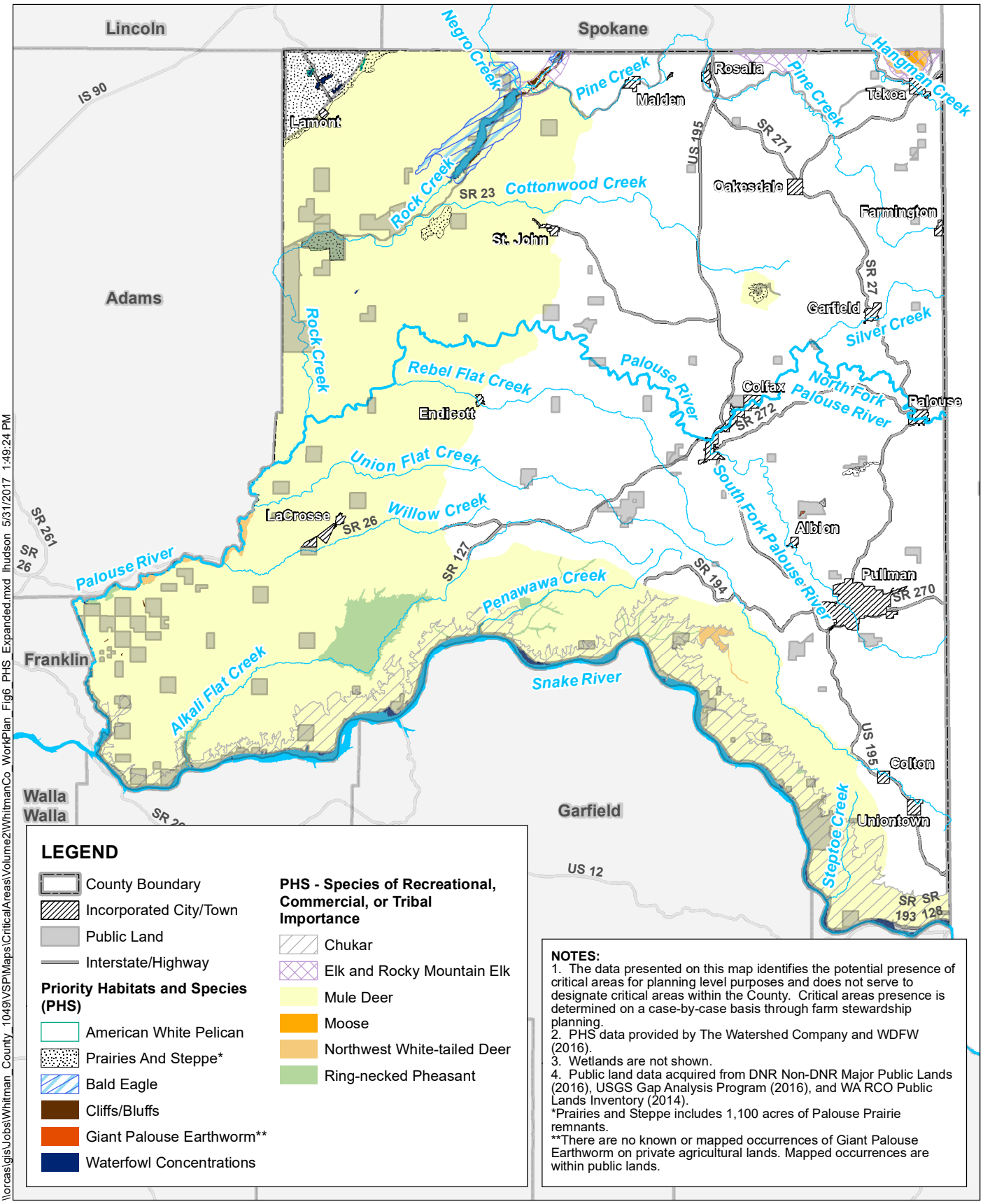

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Figure 6
Fish and Wildlife Habitat Conservation Areas (PHS)
Voluntary Stewardship Program
Whitman County, WA

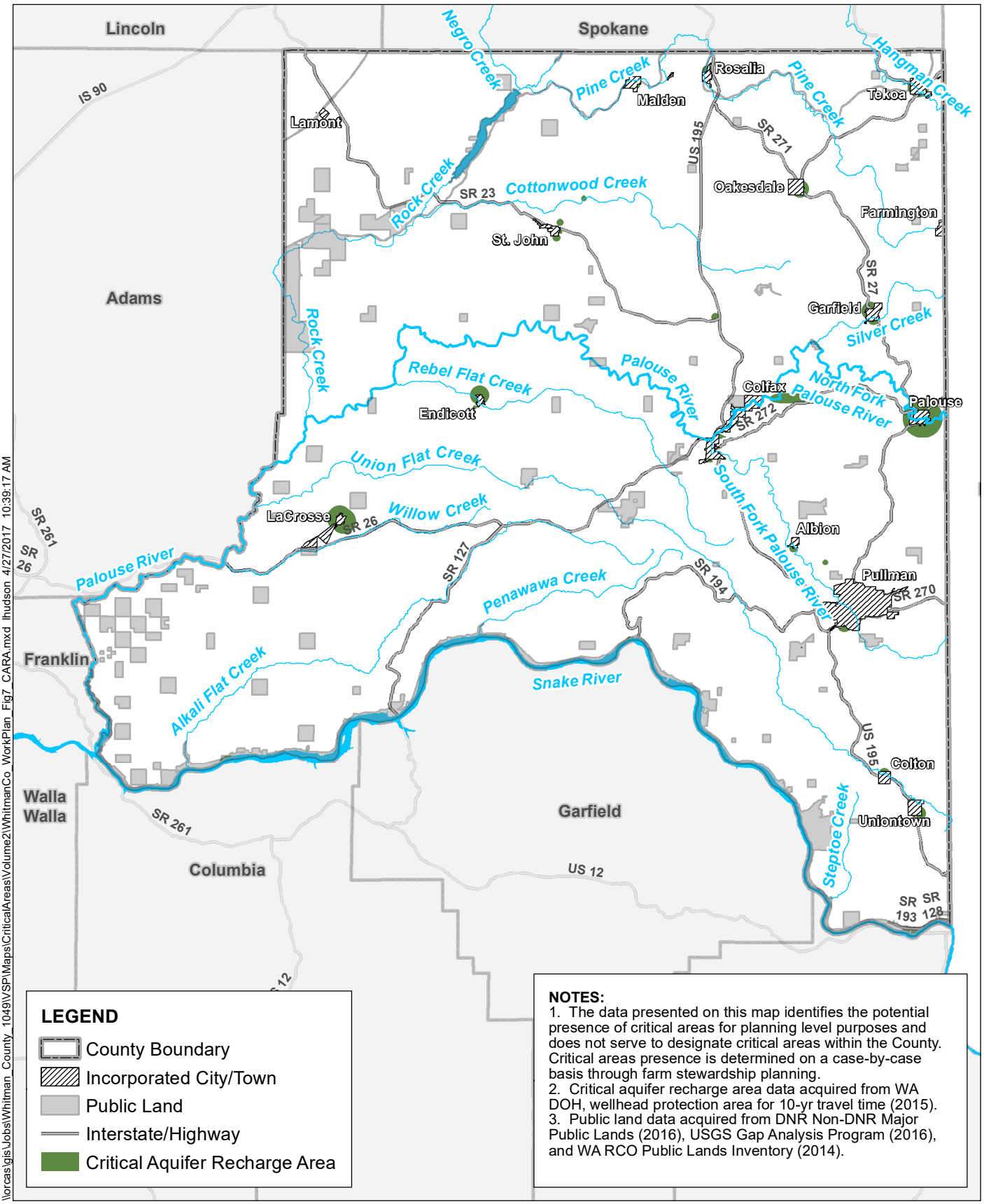

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Figure 7
Critical Aquifer Recharge Areas
Voluntary Stewardship Program
Whitman County, WA

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Figure 8
Geologic Hazard Areas - Water Erosion Potential
Voluntary Stewardship Program
Whitman County, WA

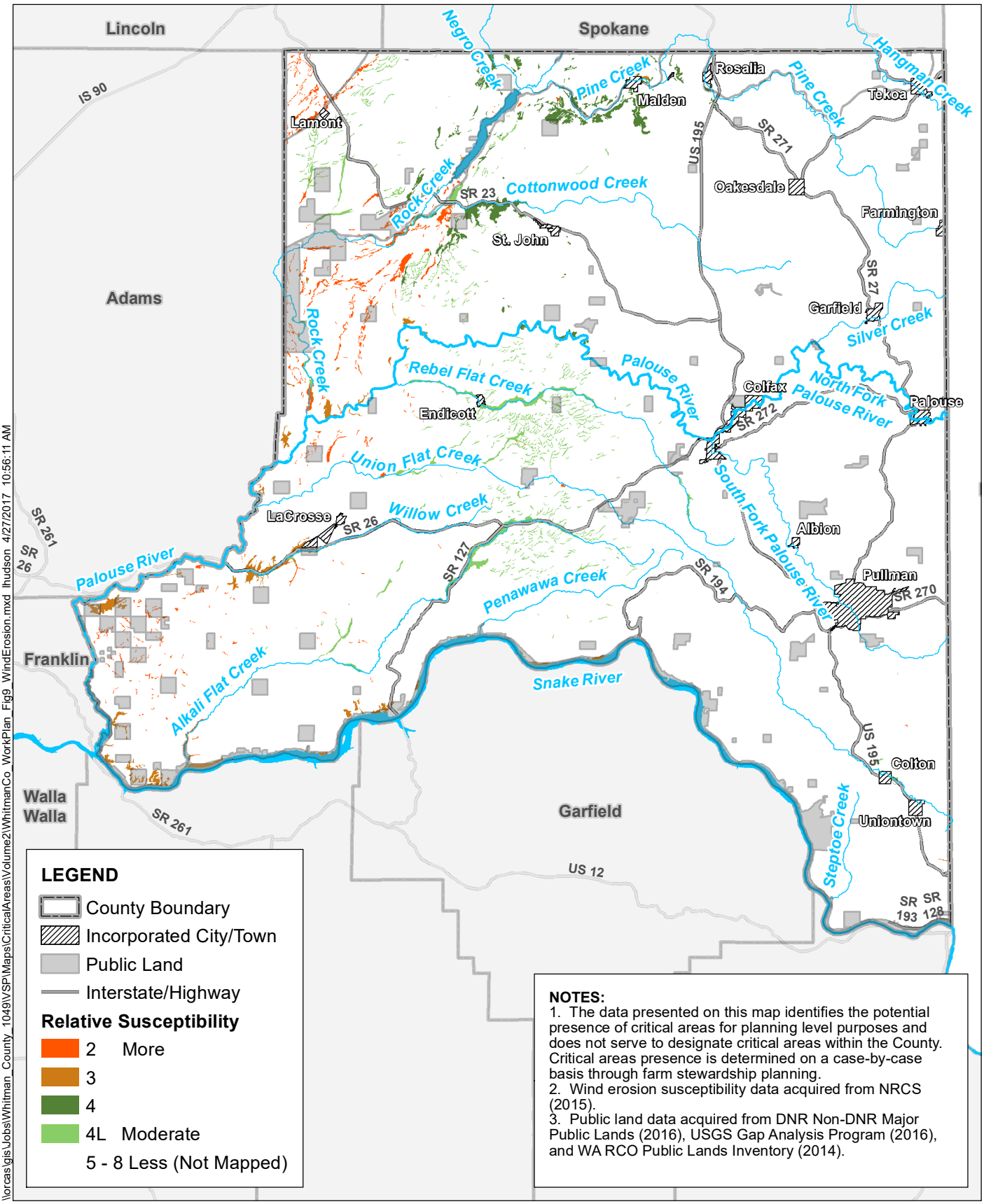

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Figure 9
Geologic Hazard Areas - Wind Erosion Susceptibility
Voluntary Stewardship Program
Whitman County, WA

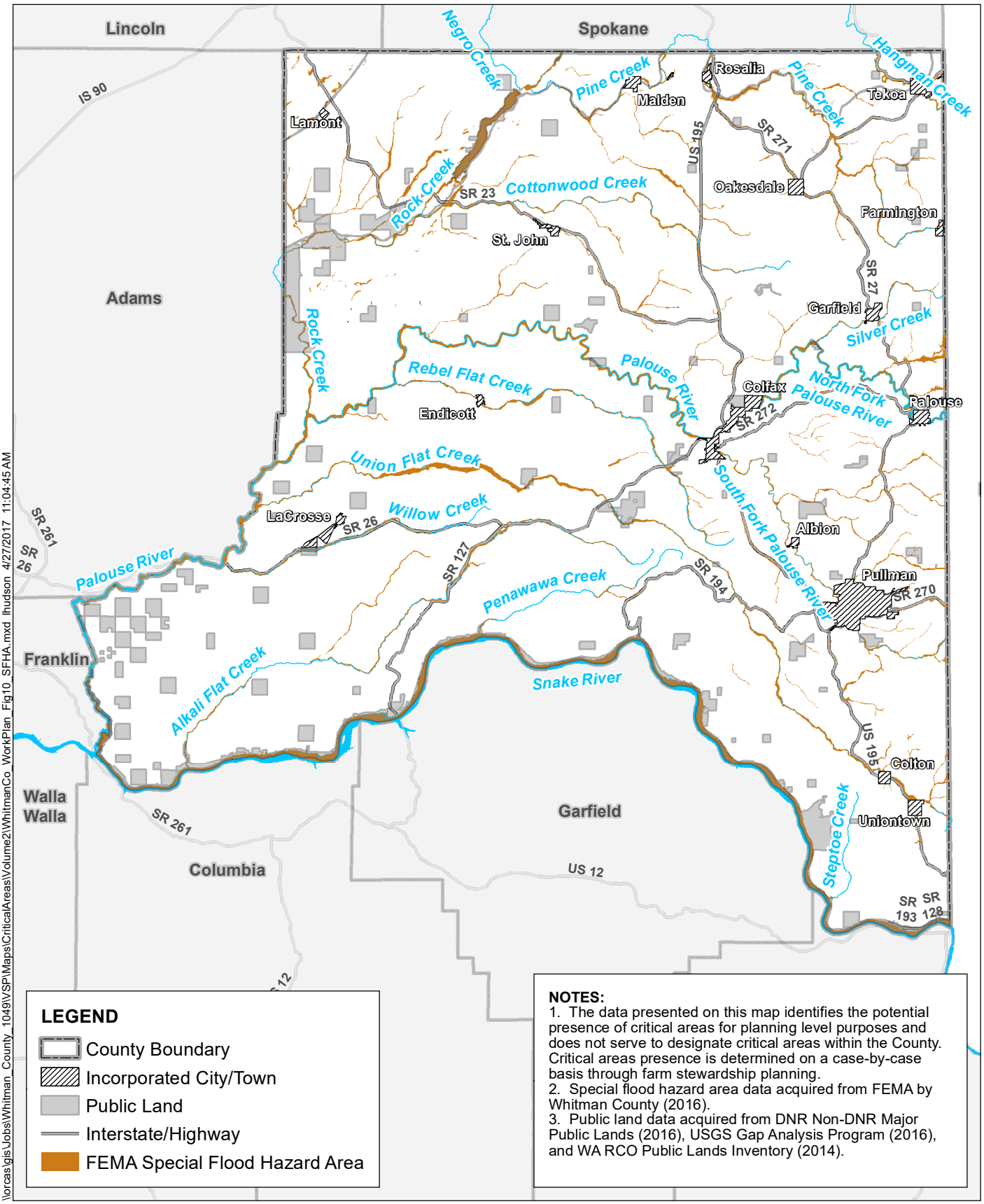

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Figure 10
Frequently Flooded Areas
Voluntary Stewardship Program
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Appendix B
Baseline Conditions Summary

- B-1: Baseline Conditions Summary Methods and Data Sources
- B-2: Watershed Analysis Units
- B-3: Whitman County Critical Areas Ordinance Designations and Definitions
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Appendix B-1
Baseline Conditions Summary Method and Data Sources

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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 Whitman 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.

Table 1
2011 Baseline Conditions Data Sources

Title	Year	Author
Watershed Resource Inventory Area (WRIA)	2000	Ecology
Liquefaction Data	2007	WDNR
National Wetland Inventory Data	2010	USFWS
USDA Agricultural Landcover	2011	USDA
WSDA Agricultural Landcover	2011	WSDA
PRISM Climate Group Precipitation Data	2012	OSU
Hydraulic Unit Code (HUC) 10 Data	2013	BLM
Public Lands (Public Lands Inventory)	2014	WRCO
Conservation District Boundaries	2015	Palouse CD
National Elevation Dataset	2015	USGS
Stream and River Data	2015	WDNR
Water Erosion Potential	2015	NRCS
Wellhead Protection Area	2015	WDOH
Wind Erosion Susceptibility	2015	NRCS
Priority Habitat and Species Data	2016	WDFW
Public Lands (Gap Analysis Program)	2016	USGS
Public Lands (Non-DNR Major Public Lands)	2016	DNR
Special Flood Hazard Areas	2016	FEMA

Appendix B-2
Watershed Analysis Units

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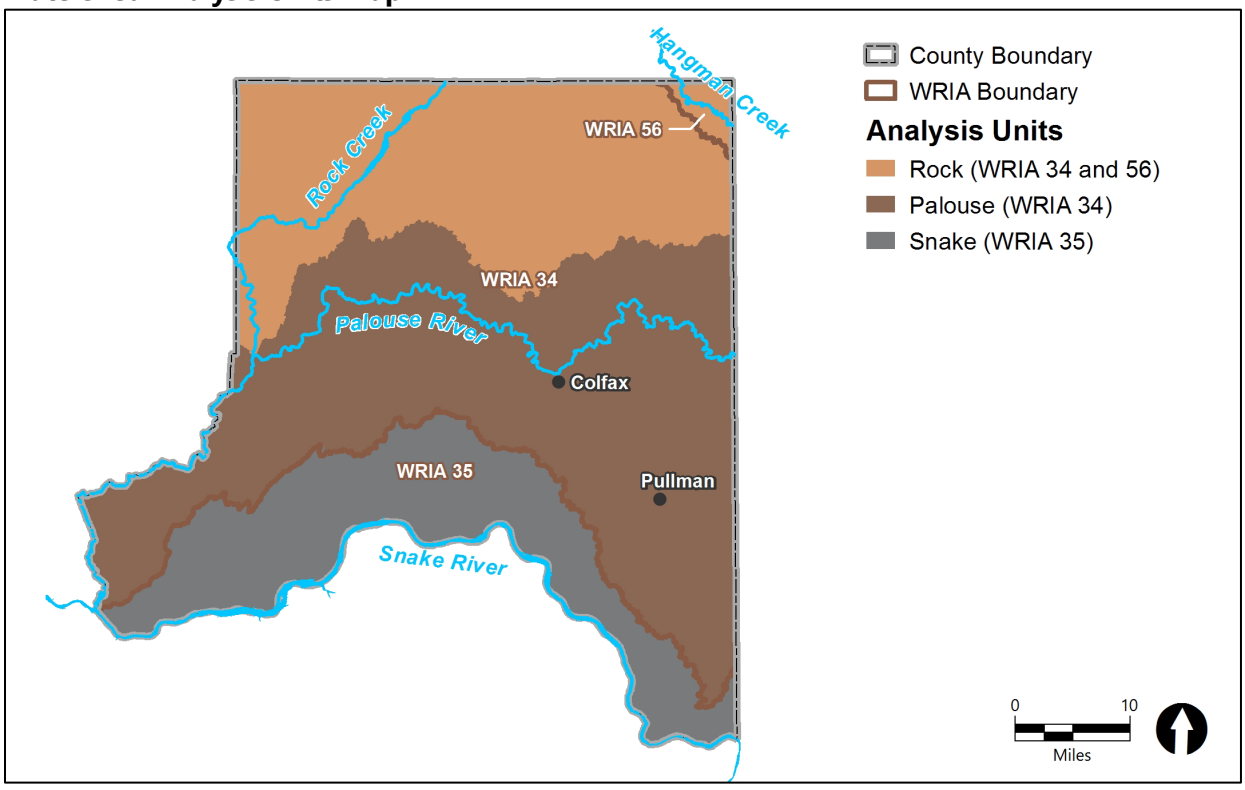
Appendix B-2: Watershed Analysis Units

For the purposed of the Whitman County Voluntary Stewardship (VSP) Work Plan (Work Plan) three watershed analysis units 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 watershed analysis units will help realize more localized watershed objectives during implementation.

These watershed analysis units are defined by the following Water Resource Inventory Area (WRIA) boundaries:

- Rock Creek (WRIAs 34 and 56)
- Palouse River (WRIA 34)
- Snake River (WRIA 35)

Figure 1
Watershed Analysis Units Map



Rock Creek Watershed Analysis Unit

The Rock Creek watershed analysis unit comprises the north third of the County and includes the Rock Creek mainstem and its tributaries prior to its confluence with the Palouse River (WRIA 34). This unit also includes the small area within Hangman Creek drainage in the northeast corner (WRIA 56). Hangman Creek and its tributaries within this area all drain northeast, away from the Rock Creek watershed.

Profile

Water Resources

The Rock Creek unit includes the Rock Creek mainstem. Major tributaries include Pine Creek, Cottonwood Creek, Negro Creek, and Hangman Creek; however, only a small portion of County lands drain into Negro and Hangman creeks (the majority of drainage is outside of the County). Several lakes are within this unit, including Rock Lake and other lakes, formed in natural basalt bottom depressions with no outlets. Precipitation in the unit ranges from 14 to 16 inches in the western region to greater than 22 inches in some parts of the eastern region. Groundwater is generally located in basalt aquifers. There is currently a resource management concern due to water being withdrawn from these aquifers faster than they can naturally recharge themselves, resulting in lowering of water tables throughout the Palouse basin (HDR/EES, Inc. 2007)

Soils and Terrain

The west side of the Rock Creek unit is characterized by channeled scablands that include a basalt plateau stripped of soil by historical glacial floodwaters (Donaldson 1980). The glacial activity in this area left remnants of pre-glacial soils, including well-drained and moderately permeable silt loams formed in loess over silty, sandy, or cobble flood sediments (Donaldson 1980; NRCS 2006). The remaining portion of the Rock Creek unit includes very deep soils from the loess soil group (Donaldson 1980). Most of the soils in this group are used for dryland farming.

Agricultural Landcover and Primary Crops/Products

Approximately 93% of the Rock Creek unit is within agricultural landcover (private lands), primarily comprising dryland and rangelands. In 2015, primary crops produced in the County included wheat, barley, peas, and lentils (WSDA 2015). Most of the unit is dominated by dryland practices; however, the presence of legumes and other crops increases with precipitation trends heading east. Predominant agricultural practices in the unit include cow-calf operations, hay and pasture (irrigated and dryland), and cereal grains (NRCS 2006).

Landcover	Acres	Percent
Total Community Area	**431,273**	**NA**
Agricultural Landcover	**402,565**	**93%**
Irrigated	1,326	<1%
Dryland	283,544	70%
Range	117,695	29%

Location of Critical Areas

Fish and Wildlife Habitat Conservation Areas (HCAs) are mapped as Priority Habitat and Species (PHS) within the Rock Creek unit. Approximately 43% of private agricultural lands include mapped PHS areas:

- Prairies and steppe PHS habitat occurs on 14,607 acres of agricultural lands
- Game species PHS habitat, primarily mule deer, occurs on 153,517 acres of agricultural lands
- Bald eagle habitat occurs on 8,597 acres of agricultural lands, mainly near Rock Creek and Rock Lake and associated tributaries and wetland habitat

Water Erosion Areas have a large intersect with agricultural lands within the Rock Creek unit (79%). The majority of land east of Lamont is listed as having moderate water erosion potential. This is likely due to the presence of very deep loess soils with moderate permeability throughout this part of the County.

Other Critical Areas such as wetlands, critical aquifer recharge areas, and frequently flooded areas have limited intersections with agriculture in the Rock Creek unit.

Critical Areas	Areas within Agricultural Lands[1]							
	Irrigated		Dryland		Rangeland		Total	
	Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands	69	<1%	1,138	<1%	2,966	1%	4,173	1%
HCAs – Non-game Species	68	<1%	1,123	<1%	7,590	2%	23,949	6%
HCAs – Game Species[2]	1,319	<1%	84,617	21%	74,519	19%	160,454	40%
CARAs	0	0%	797	<1%	205	<1%	1,002	<1%
Geologic Hazards[2]	386	<1%	247,082	61%	70,594	18%	318,062	79%
Frequently Flooded Areas	361	<1%	6,530	2%	4,345	1%	11,235	3%

1. Agricultural areas included in this summary are limited to privately owned lands.
2. Only displaying water erosion potential as a geologically hazardous area. In addition to water erosion potential, wind erosion potential covers approximately 4% of the agricultural area in this community.

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
• Much of the water quality functions in the Rock Creek unit are associated with Negro, Pine, and Hangman creeks and their tributaries. In this unit, Pine Creek near Rosalia is listed on the Washington State Department of Ecology 303(d) list as Category 5 for bacteria and dissolved oxygen; portions of Hangman Creek near Tekoa are also listed for dissolved oxygen (Ecology 2016). • Riparian vegetation, where it occurs, includes a mix of native and introduced trees and shrubs (WDFW 2006). 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 near Lamont are primarily used as rangeland. • **Aquatic habitat:** Streams are a prominent feature in the Rock Creek unit, providing a variety of riparian and wetland habitat. Wetlands are primarily present on the west side of the analysis unit along Rock Creek and northwest of Lamont in the topographical lows associated with the channeled scablands. Riparian and wetland vegetation provides cover and food inputs for aquatic species. • **Wildlife and habitat**: Priority species occurrences in the Rock Creek unit include bald eagle, American white pelican, and waterfowl concentrations. Game species include ring-necked pheasant, mule deer, Rocky Mountain elk, northwest white-tailed deer, elk, and moose.
Soil and Hydrology Functions
• Surface water moves significant amounts of flow through this area for irrigation supply, along with soil and other water quality parameters, and creates wetland and stream-like habitat as water moves through topographic lows. • Soils are characterized as very deep 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 Rock Creek 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 Rock Creek 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 Palouse Prairie and shrub-steppe habitat, nutrient contribution to receiving waters and water quality impacts, floodplain development, wetland and riparian habitat degradation, and inefficient water supply (Gilmore 2004; WRIA 56 Watershed Implementation Team 2008).

Objectives and Key Practices

Protection/Enhancement Objectives	Key Stewardship Practices
• Protect and restore riparian, wetland, grassland, prairie, shrub-steppe, old growth ponderosa pine, and mixed conifer habitat within the Palouse and Hangman Creek watersheds, including PHS-listed prairie and shrub-steppe habitat occurring in the northwest corner of the unit [1,2] • 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[1] • Encourage and implement living and constructed snow fencing, vegetated buffer strips, and no-till/direct seed tillage operations[2] • Discourage commercial fertilizer over-application and resulting excess nutrient contribution to receiving waters[1] • Manage livestock grazing and winter feeding operations, which can result in excess sediment, and bacteria and nutrient contributions to receiving waters[1] • 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 Palouse watershed[1] • Protect aquatic life and water quality in streams within the unit, including those listed on the Ecology 303(d) list such as Pine and Hangman creeks[1,2] • Implement water resources conservation efforts for multiple uses, including agriculture[2]	• Critical area planting • Upland and wetland wildlife habitat management • Direct seed • Till and residue management • Conservation cover • Riparian herbaceous cover/filter strips • Tree/shrub establishment • Nutrient management • Prescribed grazing • Fencing • Stream habitat improvement and management • Irrigation water management

Notes:

1. Watershed goal described in the *Palouse Subbasin Management Plan* (Gilmore 2004).
2. Watershed goal described in the Detailed Implementation Plan: Hangman (Latah) Creek Watershed Water Resource Inventory Area 56 (WRIA 56 Watershed Implementation Team 2008).

Palouse River Watershed Analysis Unit

The Palouse River watershed analysis unit is located between the Rock Creek and Snake River watershed analysis units. The Palouse River unit includes the mainstem of the Palouse River and most of the Palouse drainage areas, excluding Rock Creek drainage.

Profile

Water Resources

The Palouse River unit includes the Palouse River mainstem. The Palouse River flows westerly into the County, from Idaho, before joining the Snake River at the Whitman-Franklin county line. Major tributaries in this unit include the North and South Forks of the Palouse River; Silver Creek; Rebel Flat Creek; Union Flat Creek; and Willow Creek. Precipitation in the unit ranges from 14 to 16 inches in the western region to greater than 22 inches in some parts of the eastern region, east of Garfield. Groundwater is generally located in basalt aquifers. There is currently a resource management concern due to water being withdrawn from these aquifers faster than they can naturally recharge themselves, resulting in lowering of water tables throughout the basin (HDR/EES, Inc. 2007)

Soils and Terrain

The west side of the Palouse River unit is characterized by channeled scablands that include a basalt plateau stripped of soil by historical glacial floodwaters (Donaldson 1980). The glacial activity in this area left remnants of pre-glacial soils, including well-drained and moderately permeable silt loams (Donaldson 1980). The soils that make up the remainder of the Palouse River unit are characterized as deep, well-drained, cobble soils and loess soils (Donaldson 1980). Most of the soils in this group are used for dryland farming.

Agricultural Landcover and Primary Crops/Products

Approximately 95% of the Palouse River unit is within agricultural landcover (private lands), primarily comprising dryland and rangelands. In 2015, primary crops produced in the County included wheat, barley, peas, and lentils (WSDA 2015). Similar to the Rock Creek unit, most of the unit is dominated by dryland practices; however, the presence of legumes and other crops increases with precipitation trends heading east.

Landcover	Acres	Percent
Total Community Area	**658,637**	**NA**
Agricultural Landcover	**624,684**	**95%**
Irrigated	3,694	1%
Dryland	442,232	71%
Range	178,759	29%

Location of Critical Areas

Fish and Wildlife Habitat Conservation Areas (HCAs), mapped as PHS within the Palouse River unit, primarily consist of mule deer habitat located on the west side of the analysis unit. Approximately 34% of private agricultural lands include mapped PHS areas:

- Prairies and steppe PHS habitat occurs on 863 acres of agricultural lands
- Game species PHS habitat, primarily mule deer, occurs on 212,802 acres of agricultural lands
- Chukar and ring-necked pheasant occur on 839 and 724 acres of agricultural lands, respectively

Water Erosion Areas have a large intersect with agricultural lands within the Palouse River unit (79%). The majority of land is listed as moderate water erosion potential with some severe water erosion areas located in the central portion in the vicinity of the Palouse River. This is likely due to the presence of very deep, well-drained soils throughout this area of the County.

Other Critical Areas such as wetlands, critical aquifer recharge areas, and frequently flooded areas have limited intersections with agriculture in the Palouse River unit.

Critical Areas	Areas within Agricultural Lands[1]							
	Irrigated		Dryland		Rangeland		Total	
	Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands	17	<1%	206	<1%	1,569	<1%	1,791	<1%
HCAs – Non-game Species	1	<1%	59	<1%	1,027	<1%	1,086	<1%
HCAs – Game Species	3,589	<1%	97,971	16%	111,242	18%	212,802	34%
CARAs	70	<1%	4,969	1%	2,015	<1%	7,053	1%
Geologic Hazards[2]	250	<1%	380,553	61%	111,788	18%	492,590	79%
Frequently Flooded Areas	1,005	<1%	10,183	2%	6,238	1%	19,427	3%

1. Agricultural areas included in this summary are limited to privately owned lands.
2. Only displaying water erosion potential as a geologically hazardous area. In addition to water erosion potential, wind erosion potential covers approximately 2% of the agricultural area in this community.

Critical Area Functions

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

Water Quality Function

- Water quality functions in the Palouse River unit are primarily associated with the Palouse River and its tributaries. Wetlands and lakes between these features help filter surface and groundwater inputs. In this unit, the Palouse River in various locations is listed on the Washington State Department of Ecology 303(d) list as Category 5 for dissolved oxygen and pH (Ecology 2016). Listed tributaries include the Palouse River North Fork for dissolved oxygen and pH; the Palouse River South Fork for dissolved oxygen and pH; Willow Creek for dissolved oxygen; Union Flat Creek for pH; Silver Creek for dissolved oxygen; Cedar Creek for dissolved oxygen, Fourmile Creek for dissolved oxygen and temperature; Alkali Flat for bacteria, dissolved oxygen, pH, and temperature; Staley Creek for dissolved oxygen; Dry Fork Creek for dissolved oxygen, pH, and temperature; Missouri Flat Creek for dissolved oxygen and temperature; and, Paradise Creek for dissolved oxygen, pH, and temperature (Ecology 2016).
- Non-point sources impact water quality in the Palouse River basin and include erosion, livestock, fertilizers, and septic systems (HDR/EES, Inc. 2007). These sources contribute sediment, bacteria, and nutrients to surface water and groundwater.
- Riparian vegetation, where it occurs, includes a mix of native and introduced trees and shrubs (WDFW 2006). 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. Loss of upland and riparian habitat due to changes in land use is a resource concern in the Palouse River basin (HDR/EES, Inc. 2007).
- **Aquatic habitat:** Streams are a prominent feature in the Palouse River unit, providing a variety of riparian and wetland habitat. Wetland habitat is scattered throughout the topographic low points associated with channeled scablands on the west side of the Palouse River unit. Wetlands and riparian habitat associated with the Palouse River and North Fork Palouse River are also on the east side. Riparian and wetland vegetation provides cover and food inputs for aquatic species.
- **Wildlife and habitat**: Priority species occurrences in the Palouse River unit are limited to waterfowl concentrations. Game species include chukar, ring-necked pheasant, mule deer, and northwest white-tailed deer. Palouse Falls, approximately 6 miles upstream from the Palouse-Snake rivers confluence, pose a natural 185-foot fish-passage barrier, which prevents anadromous fish passage.

Soil and Hydrology Functions

- Surface water moves significant amounts of flow through this area for irrigation supply, along with soil and other water quality parameters, and creates wetland and stream-like habitat as water moves through topographic lows. Inadequate stream flows have been an issue in the Palouse River basin due to changes in the basin's land use and vegetative cover (HDR/EES, Inc. 2007). These changes have impacted groundwater infiltration and stream discharges.
- Soils are characterized as deep, well-drained cobble and loess soils with moderate to severe 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 Palouse River unit, agricultural activities can have indirect effects on surface and groundwater quality function and quantity (hydrology function) where the community's cobble and loess soils are well-drained.

Moderate to severe water erosion susceptibility areas are designated across the Palouse River 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 Palouse Prairie and shrub-steppe habitat, nutrient contribution to receiving waters and water quality impacts, floodplain development, and wetland and riparian habitat degradation (Gilmore 2004).

Objectives and Key Practices

Protection/Enhancement Objectives	Key Stewardship Practices
• Protect and enhance prairie, shrub-steppe, and grassland habitat throughout the unit[1] • 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[1] • Discourage commercial fertilizer over-application and resulting excess nutrient contribution to receiving waters[1] • Manage livestock grazing and winter feeding operations, which can result in excess sediment, and bacteria and nutrient contributions to receiving waters[1] • Protect aquatic life and water quality in streams within the unit, including those listed on the Ecology 303(d) list such as the Palouse and listed tributaries that are prevalent in the west side of the unit[1] • 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 Palouse watershed[1]	• Critical area planting • Upland and wetland wildlife habitat management • Direct seed • Till and residue management • Conservation cover • Nutrient management • Prescribed grazing • Fencing • Riparian herbaceous cover/filter strips • Stream habitat improvement and management

Note:

1. Watershed goal described in the *Palouse Subbasin Management Plan* (Gilmore 2004).

Snake River Watershed Analysis Unit

The Snake River watershed analysis unit comprises the southern portion of the County that drains to the Snake River prior to its confluence with the Palouse River.

Profile

Water Resources

The Snake River watershed analysis unit includes the Snake River mainstem and that portion of the watershed to the north. Major tributaries include Steptoe, Penawawa, and Alkali Flat creeks. Precipitation in the unit ranges from less than 14 inches in the western region to greater than 22 inches in some parts of the eastern region. Groundwater is generally located in basalt aquifers. There is currently a resource management concern due to water being withdrawn from these aquifers faster than they can naturally recharge themselves, resulting in lowering of water tables throughout the basin (HDR/EES, Inc. 2007)

Soils and Terrain

The soils that make up the Snake River unit are characterized as deep, well-drained, cobble soils and loess soils (Donaldson 1980). The south part of the unit includes a narrow band of very steep basalt canyon soils located along the Snake River Canyon. These soils drain directly into the Snake River (Donaldson 1980). Most of the soils in this group are used for rangeland and dryland farming.

Agricultural Landcover and Primary Crops/Products

Approximately 90% of the Snake River unit is within agricultural landcover (private lands), primarily comprising dryland and rangelands. In 2015, primary crops produced in the County included wheat, barley, peas, and lentils (WSDA 2015). Most of the unit is dominated by rangeland practices; however, the presence of legumes and other crops increases with precipitation trends heading east.

Landcover	Acres	Percent
Total Community Area	**288,245**	**NA**
Agricultural Landcover	**259,109**	**90%**
Irrigated	182	<1%
Dryland	113,824	44%
Range	145,103	56%

Location of Critical Areas

Fish and Wildlife Habitat Conservation Areas (HCAs) are mapped as Priority Habitat and Species (PHS) within the Snake River unit. Approximately 85% of private agricultural lands include mapped PHS areas, primarily consisting of game species:

- Waterfowl concentrations PHS habitat occurs on 27 acres of agricultural lands
- Game species PHS habitat, primarily mule deer, occurs on 220,820 acres of agricultural lands
- Palouse Prairie, shrub-steppe habitat and canyon grasslands occur in this unit

Water Erosion Areas have a large intersect with agricultural lands within the Snake River unit. The majority of land adjacent to the Snake River is listed as sever or very severe water erosion potential. This is likely due to the presence of very deep and steep basalt canyon soils in this area.

Other Critical Areas such as wetlands, critical aquifer recharge areas, and frequently flooded areas have limited intersections with agriculture in the Snake River unit.

Critical Areas	Areas within Agricultural Lands[1]							
	Irrigated		Dryland		Rangeland		Total	
	Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands	0	0%	25	<1%	47	<1%	71	<1%
HCAs – Non-game Species	0	0%	2	<1%	25	<1%	27	<1%
HCAs – Game Species	169	<1%	81,752	32%	138,889	54%	220,820	85%
CARAs	0	0%	0	0%	17	<1%	17	<1%
Geologic Hazards[2]	42	<1%	103,112	40%	137,419	53%	240,573	93%
Frequently Flooded Areas	35	<1%	835	<1%	1,350	1%	2,219	1%

1. Agricultural areas included in this summary are limited to privately owned lands.
2. Only displaying water erosion potential as a geologically hazardous area. In addition to water erosion potential, wind erosion potential covers approximately 2% of the agricultural area in this community.

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
• Water quality functions in the Snake River unit are primarily associated with the Snake River and its tributaries. Wetlands and lakes between these features help filter surface and groundwater inputs. In this unit, the Snake River in various locations is listed on the Washington State Department of Ecology 303(d) List as Category 5 for dissolved oxygen, pH, temperature, and various tissue parameters (Ecology 2016). Listed tributaries include Steptoe Creek for temperature and bacteria; Penawawa Creek for bacteria, pH, and temperature; Almota Creek for temperature; and, Little Almota Creek for bacteria and temperature (Ecology 2016). • Riparian vegetation, where it occurs, includes a mix of native and introduced trees and shrubs (WDFW 2006). 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:** Streams are a prominent feature in the Snake River unit, providing a variety of riparian and wetland habitat. Wetlands are located throughout the unit between and adjacent to streams and rivers. Riparian and wetland vegetation provides cover and food inputs for aquatic species. • **Wildlife and habitat**: Priority species occurrences in the Snake River unit are limited to waterfowl concentrations. Game species are more prevalent and include chukar, ring-necked pheasant, mule deer, and northwest white-tailed deer.
Soil and Hydrology Functions
• Surface water moves significant amounts of flow through this area for irrigation supply, along with soil and other water quality parameters, and creates wetland and stream-like habitat as water moves through topographic lows. • Soils are characterized as deep, well-drained cobble and loess soils with moderate to severe water erosion susceptibility. Soils adjacent to the Snake River are steeper and have greater 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 Snake River unit, agricultural activities can have indirect effects on surface and groundwater quality function and quantity (hydrology function) where the community's cobble and loess soils are well-drained.

Moderate to very severe water erosion susceptibility areas are designated across the Snake River 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 Palouse Prairie, shrub-steppe habitat, and canyon grasslands, impaired water quality in some locations, loss of riparian and aquatic habitat, inefficient water supply, and invasive and noxious weed species (HDR 2007).

Objectives and Key Practices

Protection/Enhancement Objectives	Key Stewardship Practices
• Protect and restore Palouse prairie, shrub-steppe habitat, and canyon grasslands • Restore and enhance game species habitat located along the south side of the unit, including PHS-listed chukar, mule deer, and ring-necked pheasant habitat • Work with individual landowners to review pesticide and fertilizer use; and to implement the following best management practices to limit water quality impacts within the Middle Snake River watershed[1] • Establish and promote the following best management practices for erosion control for pasture and rangeland, cropland, within the Middle Snake River watershed, particularly in severe and very severe water erosion potential areas located along the south side of the unit[1] • Restore and enhance natural floodplain, riparian and wetland capacities, where feasible increase aquifer recharge, improve water quality, provide aquatic and riparian habitat, and reduce the duration and severity of flood events[1] • Promote conservation and efficiency of water use for multiple uses within the Middle Snake River watershed, including agriculture[1] • Develop and implement noxious weed control programs[1]	• Upland and Wetland Wildlife Habitat Management • Nutrient management • Irrigation water management • Prescribed grazing • Till and Residue management • Direct seed • Conservation cover • Riparian Herbaceous Cover/Filter Strips • Stream habitat improvement and management • Critical area planting • Herbaceous Weed Control

Note:

1. Watershed goal described in the *WRIA 35 Middle Snake Watershed Plan* (HDR 2007).

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Attachment 1

- GIS Data Summary Tables

Appendix B-2: Attachment 1
GIS Data Summary Tables

Critical Areas Data Summary Tables, Rock Creek

Table 1

Agricultural Activity Landcover

Landcover	Acres	Percent
Total Area	**431,273**	N/A
Agricultural Landcover	**402,565**	**93%**
Irrigated	1,326	0%
Dryland	283,544	70%
Range	117,695	29%

Analysis Unit: Rock Creek

Global Notes: - Agricultural areas included in VSP are limited to privately-owned lands. Additionally, incorporated city/town limits are not included in VSP and are excluded from these calculations.
- See Appendix B-1 for GIS data sources and methods.
- Critical area percentages are based on the total private agricultural landcover stated in Table 1

Table 2

Critical Areas within Agricultural Lands

Critical Areas		Areas within Agricultural Lands							
		Irrigated		Dryland		Rangeland		Total	
		Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands		69	0%	1,138	0%	2,966	1%	4,173	1%
Fish and Wildlife Habitat Conservation Areas[1,2]		68	0%	1,668	0%	22,212	6%	23,949	6%
Critical Aquifer Recharge Areas		0	0%	797	0%	205	0%	1,002	0%
Geologic Hazards	Water Erosion	386	0%	247,082	61%	70,594	18%	318,062	79%
	Wind Erosion	544	0%	8,417	2%	6,853	2%	15,814	4%
Frequently Flooded Areas		361	0%	6,530	2%	4,345	1%	11,235	3%

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Table 3

Stream Summary[1]

Critical Areas	Areas within Agricultural Lands							
	Irrigated		Dryland		Rangeland		Total	
	Miles	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*
Streams Total	**5**	**0%**	**1,133**	**66%**	**435**	**25%**	**1,572**	**92%**
Shorelines of the State	0		8		37		45	
Fish Use or Potential Fish Use	0		25		27		52	
No Fish Use	0		152		65		217	
Unknown	4		948		307		1,259	

Notes:

1. Streams data excludes irrigation canals

Wetlands Data Summary, Rock Creek

Table 4

Wetland Summary

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Wetlands (all types)	**69**	**1,138**	**2,966**	**4,173**
Freshwater Emergent Wetland	64	1,045	2,303	3,411
Freshwater Forested/Shrub Wetland	0	61	263	323
Lake/Pond	1	23	339	363
Riverine	3	2	13	19
Other	0	8	48	56

Fish and Wildlife Habitat Conservation Areas - PHS Data Summary, Rock Creek

Table 5

Priority Habitats and Species (PHS) Summary - excluding game species[1,2]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Priority Habitats and Species	**68**	**1,668**	**22,212**	**23,949**
Birds	**20**	**1,123**	**7,690**	**8,833**
American White Pelican	0	11	74	86
Bald Eagle	20	1,110	7,467	8,597
Waterfowl Concentrations	0	14	252	266
Giant Palouse Earthworm[3]	0	0	0	0
Cliffs/bluffs	0	12	802	814
Prairies and Steppe	48	539	14,020	14,607

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted
3. There are no known or mapped occurrences of Giant Palouse Earthworm on private agricultural lands. Mapped occurrences are within public lands.

Table 6

PHS Summary (game species)[1]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
PHS (Game Species)	**1,319**	**84,617**	**74,519**	**160,454**
Birds	**0**	**2**	**100**	**102**
Chukar	0	0	0	0
Ring-necked Pheasant	0	2	100	102
Mammals	**1,319**	**84,617**	**74,519**	**160,454**
Elk	0	1,049	1,365	2,413
Moose	0	17	492	509
Mule Deer	1,319	80,302	71,895	153,517
Northwest White-tailed Deer	0	1,049	1,365	2,413
Rocky Mountain Elk	0	3,496	3,001	6,497

Notes:

1. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Geologic Hazard Areas - Water Erosion Potential, Rock Creek

Table 7

Water Erosion Potential

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Water Erosion Potential	**386**	**247,082**	**70,594**	**318,062**
Moderate	383	241,053	63,374	304,810
Severe to Very Severe	3	6,029	7,221	13,252

Critical Areas Data Summary Tables, Palouse River

Table 1

Agricultural Activity Landcover

Landcover	Acres	Percent
Total Area	**658,637**	N/A
Agricultural Landcover	**624,684**	**95%**
Irrigated	3,694	1%
Dryland	442,232	71%
Range	178,759	29%

Analysis Unit: Palouse River

Global Notes: - Agricultural areas included in VSP are limited to privately-owned lands. Additionally, incorporated city/town limits are not included in VSP and are excluded from these calculations.
- See Appendix B-1 for GIS data sources and methods.
- Critical area percentages are based on the total private agricultural landcover stated in Table 1

Table 2

Critical Areas within Agricultural Lands

Critical Areas		Areas within Agricultural Lands							
		Irrigated		Dryland		Rangeland		Total	
		Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands		17	0%	206	0%	1,569	0%	1,791	0%
Fish and Wildlife Habitat Conservation Areas[1,2]		1	0%	59	0%	1,027	0%	1,086	0%
Critical Aquifer Recharge Areas		70	0%	4,969	1%	2,015	0%	7,053	1%
Geologic Hazards	Water Erosion	250	0%	380,553	61%	111,788	18%	492,590	79%
	Wind Erosion	253	0%	5,451	1%	6,139	1%	11,844	2%
Frequently Flooded Areas		1,005	0%	10,183	2%	8,238	1%	19,427	3%

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Table 3

Stream Summary[1]

Critical Areas	Areas within Agricultural Lands							
	Irrigated		Dryland		Rangeland		Total	
	Miles	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*
Streams Total	**12**	**0%**	**1,584**	**60%**	**842**	**32%**	**2,438**	**93%**
Shorelines of the State	1		21		142		164	
Fish Use or Potential Fish Use	0		168		120		288	
No Fish Use	0		564		141		706	
Unknown	11		831		438		1,280	

Notes:

1. Streams data excludes irrigation canals

Wetlands Data Summary, Palouse River

Table 4

Wetland Summary

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Wetlands (all types)	**17**	**206**	**1,569**	**1,791**
Freshwater Emergent Wetland	1	112	480	593
Freshwater Forested/Shrub Wetland	0	21	183	204
Lake/Pond	0	25	113	138
Riverine	15	46	751	812
Other	0	2	42	44

Fish and Wildlife Habitat Conservation Areas - PHS Data Summary, Palouse River

Table 5

Priority Habitats and Species (PHS) Summary - excluding game species[1,2]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Priority Habitats and Species	**1**	**59**	**1,027**	**1,086**
Birds	**1**	**5**	**176**	**182**
American White Pelican	0	0	0	0
Bald Eagle	0	0	0	0
Waterfowl Concentrations	1	5	176	182
Giant Palouse Earthworm[3]	0	0	0	0
Cliffs/bluffs	0	0	41	41
Prairies and Steppe	0	53	810	863

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted
3. There are no known or mapped occurrences of Giant Palouse Earthworm on private agricultural lands. Mapped occurrences are within public lands.

Table 6

PHS Summary (game species)[1]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
PHS (Game Species)	**3,589**	**97,971**	**111,242**	**212,802**
Birds	**414**	**55**	**1,094**	**1,563**
Chukar	0	0	838	839
Ring-necked Pheasant	414	55	255	724
Mammals	**3,589**	**97,971**	**111,242**	**212,802**
Elk	0	0	0	0
Moose	0	0	0	0
Mule Deer	3,589	97,971	111,242	212,802
Northwest White-tailed Deer	328	81	1,169	1,578
Rocky Mountain Elk	0	0	0	0

Notes:

1. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Geologic Hazard Areas - Water Erosion Potential, Palouse River

Table 7

Water Erosion Potential

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Water Erosion Potential	**250**	**380,553**	**111,788**	**492,590**
Moderate	244	352,987	87,174	440,405
Severe to Very Severe	6	27,566	24,613	52,185

Critical Areas Data Summary Tables, Snake River

Table 1

Agricultural Activity Landcover

Landcover	Acres	Percent
Total Area	**288,245**	N/A
Agricultural Landcover	**259,109**	**90%**
Irrigated	182	0%
Dryland	113,824	44%
Range	145,103	56%

Analysis Unit: Snake River

Global Notes: - Agricultural areas included in VSP are limited to privately-owned lands. Additionally, incorporated city/town limits are not included in VSP and are excluded from these calculations.
- See Appendix B-1 for GIS data sources and methods.
- Critical area percentages are based on the total private agricultural landcover stated in Table 1

Table 2

Critical Areas within Agricultural Lands

Critical Areas		Areas within Agricultural Lands							
		Irrigated		Dryland		Rangeland		Total	
		Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands		0	0%	25	0%	47	0%	71	0%
Fish and Wildlife Habitat Conservation Areas[1,2]		0	0%	2	0%	25	0%	27	0%
Critical Aquifer Recharge Areas		0	0%	0	0%	17	0%	17	0%
Geologic Hazards	Water Erosion	42	0%	103,112	40%	137,419	53%	240,573	93%
	Wind Erosion	88	0%	2,202	1%	3,389	1%	5,678	2%
Frequently Flooded Areas		35	0%	835	0%	1,350	1%	2,219	1%

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Table 3

Stream Summary[1]

Critical Areas	Areas within Agricultural Lands							
	Irrigated		Dryland		Rangeland		Total	
	Miles	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*
Streams Total	**0**	**0%**	**350**	**30%**	**656**	**56%**	**1,006**	**85%**
Shorelines of the State	0		0		0		0	
Fish Use or Potential Fish Use	0		26		47		73	
No Fish Use	0		55		14		69	
Unknown	0		269		595		864	

Notes:

1. Streams data excludes irrigation canals

Wetlands Data Summary, Snake River

Table 4

Wetland Summary

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Wetlands (all types)	**0**	**25**	**47**	**71**
Freshwater Emergent Wetland	0	20	30	50
Freshwater Forested/Shrub Wetland	0	2	10	12
Lake/Pond	0	2	6	8
Riverine	0	0	0	0
Other	0	0	1	1

Fish and Wildlife Habitat Conservation Areas - PHS Data Summary, Snake River

Table 5

Priority Habitats and Species (PHS) Summary - excluding game species[1,2]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Priority Habitats and Species	**0**	**2**	**25**	**27**
Birds	**0**	**2**	**25**	**27**
American White Pelican	0	0	0	0
Bald Eagle	0	0	0	0
Waterfowl Concentrations	0	2	25	27
Giant Palouse Earthworm[3]	0	0	0	0
Cliffs/bluffs	0	0	0	0
Prairies and Steppe	0	0	0	0

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted
3. There are no known or mapped occurrences of Giant Palouse Earthworm on private agricultural lands. Mapped occurrences are within public lands.

Table 6

PHS Summary (game species)[1]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
PHS (Game Species)	**169**	**81,752**	**138,899**	**220,820**
Birds	**168**	**8,163**	**69,761**	**78,093**
Chukar	88	3,992	59,348	63,429
Ring-necked Pheasant	80	4,215	11,193	15,488
Mammals	**169**	**81,752**	**138,888**	**220,809**
Elk	0	0	0	0
Moose	0	0	0	0
Mule Deer	169	81,752	138,888	220,809
Northwest White-tailed Deer	0	536	896	1,432
Rocky Mountain Elk	0	0	0	0

Notes:

1. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Geologic Hazard Areas - Water Erosion Potential, Snake River

Table 7

Water Erosion Potential

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Water Erosion Potential	**42**	**103,112**	**137,419**	**240,573**
Moderate	37	91,374	61,633	153,044
Severe to Very Severe	6	11,738	75,785	87,529

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

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Appendix B-3: Whitman County Critical Areas Designations, Definitions, and PHS List

Whitman County Critical Areas Code (Chapter 9.05)

General Provisions

Critical areas in Whitman 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

Wetlands

Identification and Designation (WCC 09.05A.020)

Wetlands shall be identified and delineated by a qualified wetland professional in accordance with WAC 173-22-035 as revised. If a wetland report is deemed *necessary,* it will follow the requirements in Section 9.05A.060.

Maps and References (WCC 09.05A.020)

Planning staff uses the National Wetlands Inventory (NWI) maps in the planning office as a basis to identify the location of wetlands in the County. Project proponents are responsible for determining whether a wetland area exists and is regulated pursuant to this Chapter.

Fish and Wildlife Habitat Conservation Areas (HCAs)

Identification and Designation (WCC 09.05B.020)

All areas within Whitman 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 and shall be managed consistent with the best-available science, such as the Washington Department of Fish and Wildlife's (WDFW's) Management Recommendations for Priority Habitat and Species. Fish and wildlife habitat conservation areas shall include:

- Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association.
- State priority habitats and areas associated with state priority species:
  - A state list of priority habitats and species is included in CAO Appendix 1 (included as an attachment to Appendix B-2).

  - Eastside steppe habitat listed in CAO Appendix 1 includes habitat known as Palouse Prairie, per CAO Section 9.05.300: Definitions – Eastside Steppe.
- Habitats and Species of Local Importance:
  - Areas legislatively designated and mapped by the County because of unusual or unique habitat warranting protection due to their population status or sensitivity to habitat manipulation. Habitats may include a seasonal range or habitat element with 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.
- Naturally Occurring Ponds less than 20 Acres:
  - Naturally occurring ponds are those ponds less than 20 acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds, and landscape amenities, unless such artificial ponds were intentionally created for mitigation.
- Waters of the State:
  - Waters of the state include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington, as classified in WAC 222-16-031 (or WAC 222-16-030 depending on classification used).
- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.
- State Natural Area Preserves and Natural Resource Conservation Areas:
  - Natural area preserves and natural resource conservation areas are defined, established, and managed by the Washington State Department of Natural Resources.
- Areas of Rare Plant Species and High Quality Ecosystems:
  - Areas of rare plant species and high-quality ecosystems are identified by the Washington State Department of Natural Resources through the Natural Heritage Program.
- Land useful or essential for preserving connections between habitat blocks and open spaces.

Maps and References (WCC 09.05B.030)

The approximate location and extent of habitat conservation areas are shown on the critical area maps adopted by the County, as most recently updated. The following critical area maps are hereby adopted:

- WDFW Priority Habitat and Species (PHS) maps
- Washington State Department of Natural Resources, Official Water Type Reference maps, as amended

- Washington State Department of Natural Resources Shorezone Inventory
- Washington State Department of Natural Resources Natural Heritage Program mapping data
- Anadromous and resident salmonid distribution maps contained in the Habitat Limiting Factors reports published by the Washington Conservation Commission
- Washington State Department of Natural Resources State Natural Area Preserves and Natural Resource Conservation Area maps
- County official habitat maps

Note:

1. These maps are to be used as a guide for the County, project applicants, and/or property owners and should be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.
2. See CAO Appendix 1 for Whitman County's List of Priority Habitat and Species.

Critical Aquifer Recharge Areas (CARAs)

Identification and Designation (WCC 09.05C.010)

CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of groundwater resources or contribute significantly to the replenishment of groundwater. These areas include the following:

- Wellhead Protection Areas:
  - Potable water-supply purveyors using groundwater must develop and implement wellhead protection programs that include delineation of protection areas around each well, inventorying of contamination sources within wellhead protection areas, and development and implementation of water supply contingency and spill response plans to address contamination incidents that could cause loss of a well. The State of Washington wellhead protection regulations exclude individual domestic wells and well systems that do not meet the definition of public water supplies.
- Sole-source Protection Aquifers:
  - Sole-source aquifers are areas designated by the U.S. Environmental Agency pursuant to the Federal Safe Water Drinking Act.
- Susceptible groundwater management areas:
  - Susceptible groundwater 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.
- 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 Washington State Department of Ecology (Ecology) guidelines or meeting the criteria established by Ecology.

Geologically Hazardous Areas (GHAs)

Identification and Designation (WCC 09.05D.020)

GHAs shall include erosion, landslide, and seismic hazards and are defined as follows:

- Erosion Hazard Areas:
  - 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.
- Landslide Hazard Areas:
  - Landslide hazard areas are areas potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors.
- 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.
- Other Hazard Areas:
  - Geologically hazardous areas shall also include areas determined by the County Planner to be susceptible to other geological events including mass wasting, debris flows, rock falls, and differential settlement.

As noted in the Voluntary Stewardship Program (VSP) Work Plan, structures in agricultural lands will continue to be permitted and regulated through the County's Critical Areas Ordinance, notably for landslide, and seismic hazard areas. Geologically hazardous areas for erosion hazards have primary applicability in the VSP context.

Maps and References (WCC 09.05D.030)

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:

- U.S. Geological Survey landslide and seismic hazard maps

- Washington State Department of Natural Resources slope stability maps
- Federal Emergency Management Administration Flood Insurance Rate Maps
- Applicable maps adopted by Whitman County and local jurisdictions

Frequently Flooded Areas (FFAs)

Identification and Designation (WCC 09.05E.010)

This zoning district overlays present or future districts also associated with the property designated on the Flood Insurance Rate Maps which are adopted as part of this Chapter by reference and does not add to the specified uses, but, may restrict certain specified uses. This district is intended to meet the requirements of the federal government to maintain the County's eligibility for participation in the National Flood Insurance Program. The Flood Insurance Study and FIRM are on file at the Whitman County Planning Department. This ordinance shall apply to all areas of special flood hazards within the jurisdiction of unincorporated Whitman County.

Maps and References (WCC 09.05E.010)

It is the purpose of this zoning district to minimize public and private losses due to flood conditions in specific areas designated by the County, and the Federal Insurance Administration and the accompanying Flood Insurance Study and Flood Insurance Rate Maps dated May 1, 1980, and as may be subsequently amended.

Attachment 1:

- Whitman County CAO (Chapter 9.05) Appendix 1: Whitman County List of Priority Habitats and Species

Attachment 1
Whitman County Critical Areas Ordinance – Chapter 9.05: Appendix 1

Whitman County List of Priority Habitats and Species

	Species/Habitat	State Status	Federal Status
Habitats[1]	Aspen Stands		
	Biodiversity Areas and Corridors		
	Juniper Savannah		
	Eastside Steppe		
	Shrub-Steppe		
	Riparian		
	Freshwater Wetlands & Fresh Deepwater		
	Instream		
	Caves		
	Cliffs		
	Snags & Logs		
	Talus		
Fishes	Pacific Lamprey		Species of Concern
	River Lamprey	Candidate	Species of Concern
	White Sturgeon		
	Leopard Dace	Candidate	
	Mountain Sucker	Candidate	
	Bull Trout/Dolly Varden	Candidate*	Threatened*
	Chinook Salmon	Candidate	Threatened (Upper Columbia spring run is endangered)
	Rainbow Trout/Steelhead/Inland Redband Trout	Candidate**	Threatened**
	Sockeye Salmon	Candidate	Threatened – Ozette Lake Endangered – Snake River
	Westslope Cutthroat		
Amphibians	Columbia Spotted Frog	Candidate	
	Western Toad	Candidate	Species of Concern
Reptiles	Sagebrush Lizard	Candidate	Species of Concern

	Species/Habitat	State Status	Federal Status
Birds	American White Pelican	Endangered	
	Eastern Washington breeding concentration of Grebes & Cormorants		
	Eastern Washington breeding Terns		
	Great Blue Heron		
	Waterfowl concentration		
	Bald Eagle	Sensitive	Species of Concern
	Ferruginous Hawk	Threatened	Species of Concern
	Golden Eagle	Candidate	
	Peregrine Falcon	Sensitive	Species of Concern
	Prairie Falcon		
	Chukar		
	Ring-Necked Pheasant		
	Wild Turkey		
	Upland Sandpiper	Endangered	
	Eastern Washington breeding occurrences of Phalaropes, Stilts and Avocets		
	Yellow-billed Cuckoo	Candidate	Candidate
	Burrowing Owl	Candidate	Species of Concern
	Pileated Woodpecker	Candidate	
	Loggerhead Shrike	Candidate	
	Sage Sparrow	Candidate	
	Sage Thrasher	Candidate	

	Species/Habitat	State Status	Federal Status
Mammals	Merriam's Shrew	Candidate	
	Preble's Shrew	Candidate	Species of Concern
	Roosting concentrations of Big-brown Bat, Myotis Bats, Pallid Bat		
	Townsend's Big-eared Bat	Candidate	Species of Concern
	Black-tailed Jackrabbit	Candidate	
	White-tailed Jackrabbit	Candidate	
	Washington Ground Squirrel	Candidate	Candidate
	Moose		
	Northwest White-tailed Deer		
	Elk		
	Rocky Mountain Mule Deer		
Invertebrates	Columbia River Tiger Beetle	Candidate	
	Mann's Mollusk-eating Ground Beetle	Candidate	
	Giant Palouse Earthworm	Candidate	
	Shepard's Parnassian	Candidate	
	Silver-bordered Fritillary	Candidate	

Notes:

1. These are the species and habitats Identified for Whitman County. This list of species and habitats was developed using the distribution maps found in the Priority Habitat and Species (PHS) List (see http://wdfw.wa.gov/conservation/phs/). Species distribution maps depict counties where each priority species is known to occur, as well as other counties where habitat primarily associated with the species exist. Two assumptions were made when developing distribution maps for reach species:
    - There is a high likelihood a species is present in a county, even if it has not been directly observed, if the habitat it is primarily associated with exists.
    - Over time, species can naturally change their distribution and move to new counties where usable habitat exists.

Distribution maps in the PHS List were developed using the best information available. As new information becomes available, known distribution for some species may expand or contract. WDFW will periodically review and update the distribution maps in the PHS List.

* Bull Trout only
** Steelhead only

Appendix B-4
Baseline Conditions Critical Areas Data Summary

1304

Critical Areas Data Summary Tables

Table 1

Agricultural Activity Landcover

Landcover	Acres	Percent
Total Area	**1,378,155**	N/A
Agricultural Landcover	**1,286,359**	**93%**
Irrigated	5,201	0%
Dryland	839,601	65%
Range	441,557	34%

Analysis Unit: County-wide Summary

Global Notes: - Agricultural areas included in VSP are limited to privately-owned lands. Additionally, incorporated city/town limits are not included in VSP and are excluded from these calculations.
- See Appendix B-1 for GIS Data Sources and Methods.
- Critical area percentages are based on the total private agricultural landcover stated in Table 1

Table 2

Critical Areas within Agricultural Lands

Critical Areas		Areas within Agricultural Lands							
		Irrigated		Dryland		Rangeland		Total	
		Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands		85	0%	1,368	0%	4,582	0%	6,036	0%
Fish and Wildlife Habitat Conservation Areas[1,2]		69	0%	1,730	0%	23,263	2%	25,062	2%
Critical Aquifer Recharge Areas		70	0%	5,766	0%	2,237	0%	8,072	1%
Geologic Hazards	Water Erosion	678	0%	730,746	57%	319,801	25%	1,051,225	82%
	Wind Erosion	885	0%	16,070	1%	16,381	1%	33,336	3%
Frequently Flooded Areas		1,400	0%	17,548	1%	13,933	1%	32,881	3%

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Table 3

Stream Summary[1]

Critical Areas	Areas within Agricultural Lands							
	Irrigated		Dryland		Rangeland		Total	
	Miles	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*
Streams Total	**17**	**0%**	**3,067**	**56%**	**1,933**	**35%**	**5,017**	**91%**
Shorelines of the State	1		29		179		209	
Fish Use or Potential Fish Use	0		219		194		413	
No Fish Use	0		771		220		991	
Unknown	16		2,048		1,340		3,403	

Notes:

1. Streams data excludes irrigation canals

County-wide Summary

Wetlands Data Summary

Table 4

Wetland Summary

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Wetlands (all types)	**85**	**1,368**	**4,582**	**6,036**
Freshwater Emergent Wetland	64	1,177	2,813	4,054
Freshwater Forested/Shrub Wetland	0	83	456	540
Lake/Pond	2	50	458	510
Riverine	19	48	765	831
Other	0	10	91	101

County-wide Summary

Fish and Wildlife Habitat Conservation Areas - PHS Data Summary

Table 5

Priority Habitats and Species(PHS) Summary - excluding game species[1,2]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Priority Habitats and Species	**69**	**1,730**	**23,263**	**25,062**
Birds	**21**	**1,131**	**7,890**	**9,042**
American White Pelican	0	11	74	86
Bald Eagle	20	1,110	7,467	8,597
Waterfowl Concentrations	1	22	453	475
Giant Palouse Earthworm[3]	0	0	0	0
Cliffs/bluffs	0	12	843	855
Prairies and Steppe[4]	48	592	14,830	15,470

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted
3. There are no known or mapped occurrences of Giant Palouse Earthworm on private agricultural lands. Mapped occurrences are within public lands.
4. Includes 1,100 acres of Palouse Prairie remnants.

Table 6

PHS Summary (game species)[1]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
PHS (Game Species)	**5,077**	**264,339**	**324,660**	**594,077**
Birds	**582**	**8,220**	**70,955**	**79,757**
Chukar	88	3,993	60,186	64,267
Ring-necked Pheasant	494	4,271	11,549	16,314
Mammals	**5,077**	**264,339**	**324,649**	**594,066**
Elk	0	1,049	1,365	2,413
Moose	0	17	492	509
Mule Deer	5,077	260,024	322,026	587,128
Northwest White-tailed Deer	328	1,665	3,430	5,423
Rocky Mountain Elk	0	3,496	3,001	6,497

Notes:

1. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

County-wide Summary

Geologic Hazard Areas - Water Erosion Potential

Table 7

Water Erosion Potential

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Water Erosion Potential	**678**	**730,746**	**319,801**	**1,051,225**
Moderate	**663**	**685,415**	**212,182**	**898,259**
Severe to Very Severe	**15**	45,332	107,619	152,966

County-wide Summary

Appendix B-5
Agricultural Viability Interview Summary

1305

Appendix B-5: Agricultural Viability Interview Summary

Whitman County has a unique set of factors that make agriculture viable. These include an abundance of transportation infrastructure through the dam system and production of a high-quality product. To obtain a firsthand agricultural viability perspective, several producers in the County were interviewed. A compiled summary of the interviews is provided below (Eriksen 2016; Kile 2016; Kinzer 2016; Lange 2016; Pearson 2016; and Suess 2016).

What do you see in terms of trends for agricultural viability in Whitman County or the region?

- The price of wheat has been low, and it looks like this trend is going to continue due to successful wheat crops in other countries and worldwide overproduction. Additionally, it is possible the markets will become even more volatile. Cattle prices are also at a 10-year low.
- Due to the limitation of crops that can be grown in the County, when wheat prices are low, it can have a ripple effect on the rest of the County's economy because people aren't buying other goods (e.g. cars and equipment) as much.
- Currently, the consolidation of farms is resulting in fewer small farms and more large farms. This trend is likely to continue.
- The growing garbanzo bean market has helped growers maintain profitability.
- Marijuana farming may be an opportunity for farmers if the market for other products does not improve.
- There is a continuing trend toward more automation in crop production; this results in less of a need for a large workforce.

How do you see the international market affecting agricultural viability?

- Currently, the United States grows more crops than we utilize domestically. Therefore, as a Country, we rely on the international market to purchase our products.
- If worldwide production is high, then the market will not be good and we are not in a good position to be competitive.
- The international agriculture market conditions are favoring big crops; however, these crops are not of a high quality.
- Japan, Philippines, Korea, and Taiwan are loyal customers of our product because what we provide very high quality products.
- International Food Aid used to use a lot of local wheat; however, this practice has decreased and no longer feeds the local wheat market.

In regards to the local agriculture market or practices, what do you see are some strengths, weaknesses, opportunities, and threats (SWOT)?

Strengths:

- Strong infrastructure
- Good services exist in the County with multiple producers, allowing you to shop around to get the best price
- Effective marketing companies
- High-quality products
- Loyal consumer base especially for our high-quality products
- Close to Washington State University (WSU), which produces an educated workforce

Weaknesses:

- Limited flexibility for type of crops that can be produced
- Market price of high-quality products
- Incentivizing younger generations of farmers can be difficult due to high cost of entry and few programs that help new farmers
- Dependence on dams because there is not currently enough other infrastructure, such as roads or trains, that could replace the service that dams provide at the same cost
- The County has highly erosive soil; however, most farmers are aware of this problem and do all they can to reduce erosion
- Very little irrigation occurs in the County, which forces farmers to rely on seasonal water sources (i.e. rain).
- Large variations in climate throughout the County and local microclimates are prevalent

Opportunities:

- Creating new international markets (e.g. Indonesia and Central America)
- Other crops like industrial hemp, quinoa, and mustards
- Hummus market
- Agri-tourism to educate the public on how their food is produced
- Investment in education programs for young and tenured producers that focus on financial systems
- Specialty crops that can be identified by the consumer, such as organics or tracking the supply chain, are becoming more popular
- Improvements to the transportation system to become less reliant on dams
- Crop micro-management, such as applying different rates of fertilizers, may become more popular, especially if costs of such systems continue to decrease
- Discovery of new technologies that control pests

Threats:

- Competition from foreign producers
- Big crops/over-production, which push the price lower
- Detrimental changes in government policies that force costs up
- Interest rates
- Lack of young farmers

Do agricultural producers have the flexibility to respond to fluctuating market conditions that is needed? Are there opportunities to increase flexibility?

- Short-term decisions are based on economics, and long-term decisions are based on if the benefit will be seen in the future.
- Flexibly is limited in dryland farming because you are limited in the type of crop you can grow and timing.
- Building up the health of the soils could help to cut down on the amount of inputs needed, which would help production be more sustainable.
- In order to be the most flexible, you need to have as many options as possible because there are so many different ways to solve each challenge; however, some options may be better than others for that particular farmer.
- Growing a larger variety of crops will create more flexibility, other crops include industrial hemp, peas, lentils, and garbanzos.

What types of financial incentives are available to producers to improve the bottom line?

- Quite a few producers that participate in Environmental Quality Incentives Program (EQIP) and some that participate in the Conservation Stewardship Program (CSP). However, it is more effective if a producer can work directly with one specific person to coordinate participation.
- Some programs have allowed producers to purchase new equipment; however, many producers do not participate because of the difficulty of the process or the restrictions it places on their property.
- There are no benefits for producers that are already implementing conservation practices. These incentive programs only benefit the producers who are not as proactive; there should be a way to also reward those who have already implemented practices.
- It is very harmful to farmers when these incentive programs are no longer funded and they stop receiving payments.
- If funding direct seeding incentives goes away, you will likely see fewer farmer making the switch.
- Don't necessarily need programs, if you can convince farmers what they are doing is detrimental to the land and the river they will be motivated to change.

- If a change in practice can increase your bottom line, then you do it. Need to look at the cost of the practice and what is the change it will make you more profitable.

What are some programs that you would like to see to support a more resilient local agriculture market?

- Pursuing higher value crops would make the market more resilient; garbanzo beans are an example of this.
- Need to have financial safety nets for when prices are low, such as subsidies from the government when prices are lower than cost.
- More education for farmers on reserve funds and money management.

At a regional level, what would help agricultural producers maintain a more viable practice?

- Regional efforts to educate the public on how we farm would be helpful for public perception. One way to do this would be to focus on something that people loves and show how it is produced; the Guinness factory was given as an example.
- Streamlining regulations would be very helpful.

Can you provide some unique examples of measures being implemented to address items such as soil health, erosion, moisture and nutrient management, weed management, and pollinator/beneficial organism recruitment?

- No-till and other reduced-tillage practices are becoming popular in the region. One practice is having drill share programs.
- Recordkeeping has improved significantly. This can help improve practices over the long-term.
- Stewardship should be left in the hands of the locals, but we need to educate producers on what they can be doing. This is why VSP is a good program, but we need to make sure all producers are involved.
- Need to have some sort of enforcement to get less forward-thinking producers involved.

References

Eriksen, T., 2016. Personal communication with J. Jensen. St. John, Washington, November 29, 2016.

Kile, R., 2016. Personal communication with J. Jensen. Colfax, Washington, December 6, 2016.

Kinzer, D., 2016. Personal communication with N. Schlenker. Colfax, Washington, November 29, 2016.

Lange, D., 2016. Personal communication with J. Jensen. Colfax, Washington, November 23, 2016.

Pearson, J., 2016. Personal communication with J. Jensen. Colfax, Washington, November 22, 2016.

Suess, R., 2016. Personal communication with J. Jensen. Colfax, Washington, November 29, 2016.

Appendix B-6
Whitman County Water Quality 303(d) Listings (2016)

Water Quality Parameter	Potential Agricultural-related Source
2,4,6-Trichlorophenol	Herbicide/Fungicide/Insecticide
2,4-Dinitrophenol	Pesticide
4,4'-DDD	Insecticide
4,4'-DDE	Byproduct of DDT
4,4'-DDT	Pesticide
Aldrin	Insecticide
Alpha-BHC	Insecticide
Ammonia-N	Organic waste products
Bacteria	Animal waste
DDT (and metabolites)	Pesticide
Dissolved Oxygen	Organic matter decomposition
Heptachlor	Insecticide
Heptachlor Epoxide	Insecticide
Hexachlorobenzene	Fungicide
Hexachlorocyclohexane (Lindane)	Insecticide
Total Phosphorus	Organic decomposition

Appendix C
Benchmarks: Methods and Initial Results

Appendix C: Benchmarks – Methods and Initial Results

Methods

Linking Stewardship Practices to Resource Protection

Conservation practice benefits are related to critical areas functions and values through the use of the national Conservation Practice Physical Effect (CPPE) scores for each practice developed by U.S. Department of Agriculture (USDA; NRCS 2017). The CPPE describes how Natural Resources Conservation Service (NRCS) practices affect the human-economic environment (e.g., Agricultural Viability) and natural resources (e.g., Critical Functions). CPPE, developed by USDA NRCS economists, helps field planners describe in detail how each practice affects agricultural viability and natural resource critical functions. Scores range between +5 and -5, with positive scores denoting a functional beneficial effect, 0 denoting no effect, and negative scores having an adverse effect.

For each of the four key critical area functions (i.e., water quality, hydrology, soil, and habitat), resource concerns were tailored to Whitman County by including concerns applicable to the County and were averaged together to provide an overall function score. Where a resource concern was listed as "not applicable" to a particular practice, this resource concern was not factored into the average function score. The following table provides additional details on methods applied to summary tables of practice effects on resource function in Whitman County:

- **Table 1: CPPE Resource Concerns for Whitman County**, summarizes the resource concerns identified as applicable to Whitman County conditions, pared down for applicability from the comprehensive list of resource concerns in the NRCS National CPPE Summary Tool, dated 7/28/2015 and available from the NRCS CPPE webpage (NRCS 2017) at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/data/?cid=nrcs143_009740.
- **Attachment 1: Whitman County CPPE Resource Concerns and Scores,** provides a detailed summary of applicable individual resource scores (identified in Table 1) and average function scores per key critical area function for all NRCS conservation practices. Resource concerns listed as a zero (and colored in red) indicate the score is applicable to the conservation practice as having no effect. Zero scores not highlighted in red indicate a resource concern that is not applicable to the practice and is therefore not factored into the average function score.
- **Attachment 2: Whitman County Practice Toolbox with CPPE Averaged Function Scores,** provides an overview of NRCS conservation practices currently implemented in Whitman County, showing quantitative scores, and additional applicable and key practices (scores greater than 3) for each function category.

Table 1
CPPE Resource Concerns for Whitman County

Function	Resource Concern
Soil	The oil function score averaged soil erosion and soil condition scores based on the associated resource concerns listed below.
Soil Erosion	• Sheet and rill • Wind • Ephemeral Gully • Classic Gully • Streambank/shoreline/conveyance
Soil Condition	• Organic matter depletion • Compaction • Subsidence • Contaminants: Salts or other chemicals
Hydrology	• Excessive seepage • Excessive runoff, flooding, or ponding • Excessive subsurface water • Drifted snow • Inefficient water use on irrigated land • Inefficient water use on non-irrigated land
Water Quality	• Pesticides in surface water • Pesticides in groundwater • Nutrients in surface water • Nutrients in groundwater • Salts in surface water • Salts in groundwater • Excess pathogens and chemicals from manure, bio-solids, or compost applications in surface water • Excess pathogens and chemicals from manure, bio-solids, or compost applications in groundwater • Excessive sediments in surface water • Elevated water temperature • Petroleum, heavy metals, and other pollutants transported to surface water • Petroleum, heavy metals, and other pollutants transported to groundwater
Habitat	• Inadequate food • Inadequate cover/shelter • Inadequate water • Inadequate space

Application for Future Practices

The spreadsheets in Attachments 1 and 2 may be used to track enrollment in future practices and to continue to assess functional indicators of these practices. New NRCS practices may also be added to Whitman County's palette of protection and enhancement tools (Attachment 2).

For practices outside of NRCS, equivalent function scores should be developed to estimate the benefit or impact on soil health, hydrology, water quality, and fish and wildlife habitat based on the understanding that scores range from +5 and -5 with positive scores denoting a beneficial effect and negative scores indicating an impact. The suggested steps for this process include:

- Assessing whether the new practice is similar to an existing NRCS practices and using the resource concern scores from the existing NRCS practice as a starting point to develop function scores
- Using experience and available technical information to develop scores, with the understanding that although a practice may have a beneficial effect on a target resource, there may be impacts to other resources. Also, not all practices will have an effect on all possible resource concerns; many will have no effect, and some will not be applicable and should be listed as a zero.

Initial Results (2011 to 2016)

To track performance from implemented conservation practices from 2011 to 2016, enrollment in conservation practices was tabulated and average function scores (Attachment 2) were applied. This provided a functional indicator that accounted for the beneficial and adverse effects of each practice.

Although NRCS enrollment data are available since 2011, the discontinuation of practices during that period was not recorded. The rate of discontinuation of practices often varies based on whether implemented practices involve stewardship investment (e.g., irrigation management systems), stewardship actions (e.g., cover cropping), or permanent conversion into conservation easements. Table 2 summarizes the proposed approach to accounting for the varied disenrollment rates based on some of these categories of practices.

Table 2
Calculating Disenrollment for Conservation Practices

Assumed Range of Disenrollment/ Discontinuation	Conservation Practice Category	Example Practices
None	**Easements and Infrastructure** • Permanent conservation practices	• Permanent easements • Major infrastructure

Lower
0-3%
	Conservation Investments
	• High Barriers to Entry/Exit
	  - Conservation investments
	  - Maintenance cost
	  - Effectiveness
	• Increases land productivity
	• Lowers cost
		• Irrigation management
		• Watering facilities
		• Fencing

Higher
0-6%
	Conservation Actions
	• Low barriers to entry/exit
	  - Easily removed
	• Reduced land in production
	• Rotational use
	  - Market-driven rotation
	• Reliance on unstable conservation funding or incentives (e.g., CRP)
		• Tillage management
		• Pest management
		• Nutrient management
		• Habitat restoration
		• Prescribed grazing
		• Cover crop
		• Range planting

Figures 1 through 4 illustrate the functional indicator results from 2011 to 2016 based on reported practices enrolled/implemented and estimated discontinuation of practices within that time period. Figures 1 through 4 indicate a net gain in function over time for soil, hydrology, water quality, and habitat.

Figure 1
Water Quality Functional Indictors: 2011 to 2016 NRCS Practice Enrollments

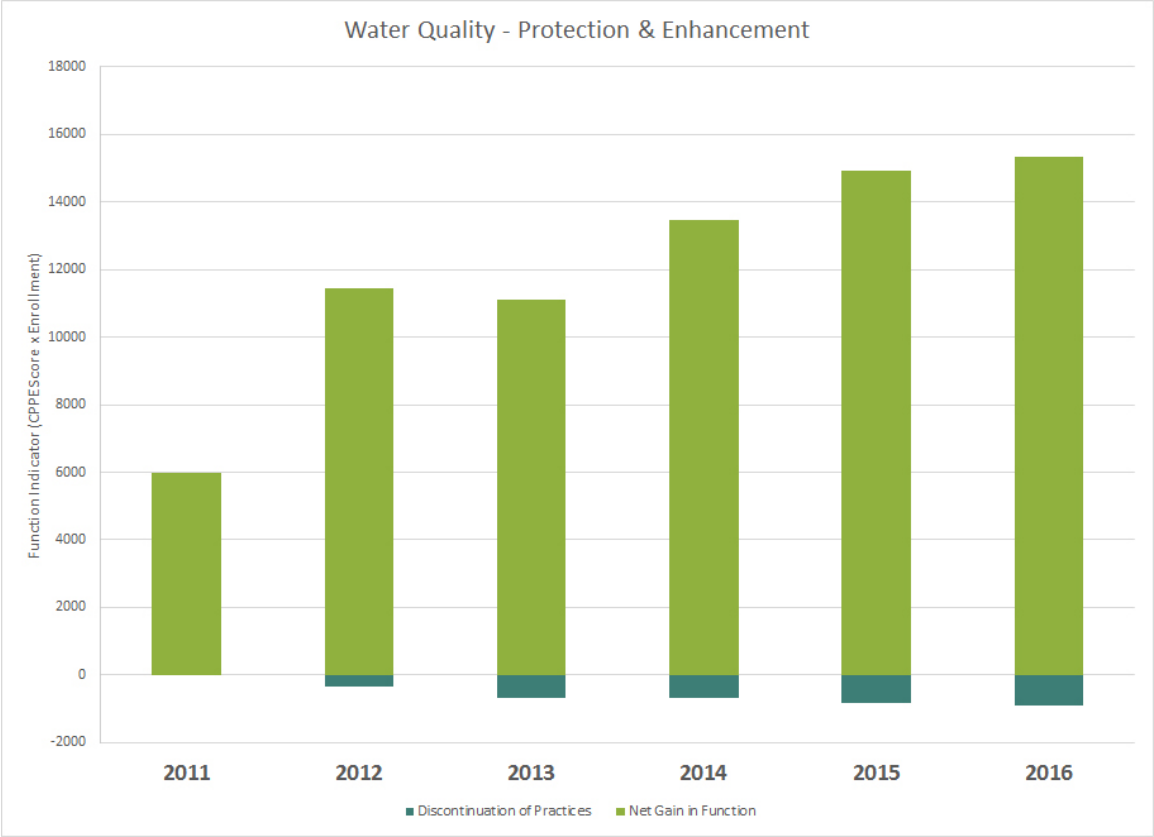


Figure 2
Hydrology Functional Indictors: 2011 to 2016 NRCS Practice Enrollments

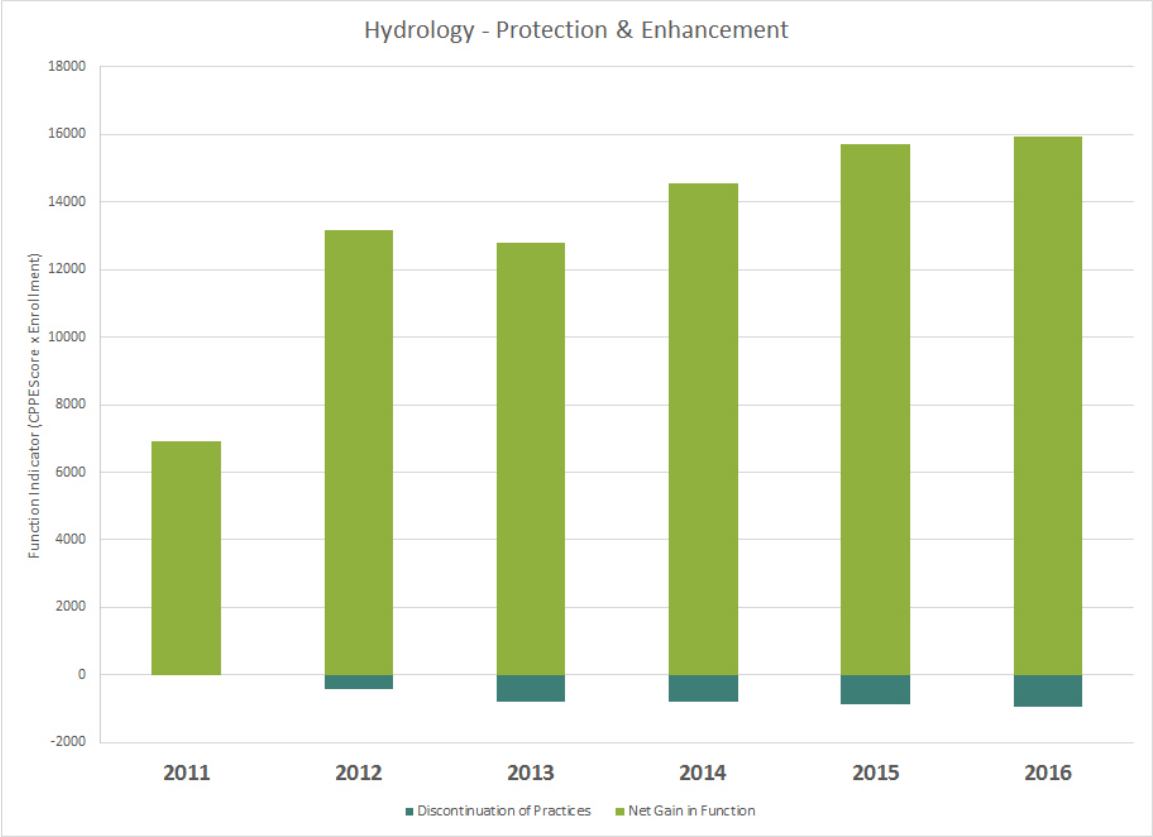


Figure 3
Soil Functional Indictors: 2011 to 2016 NRCS Practice Enrollments

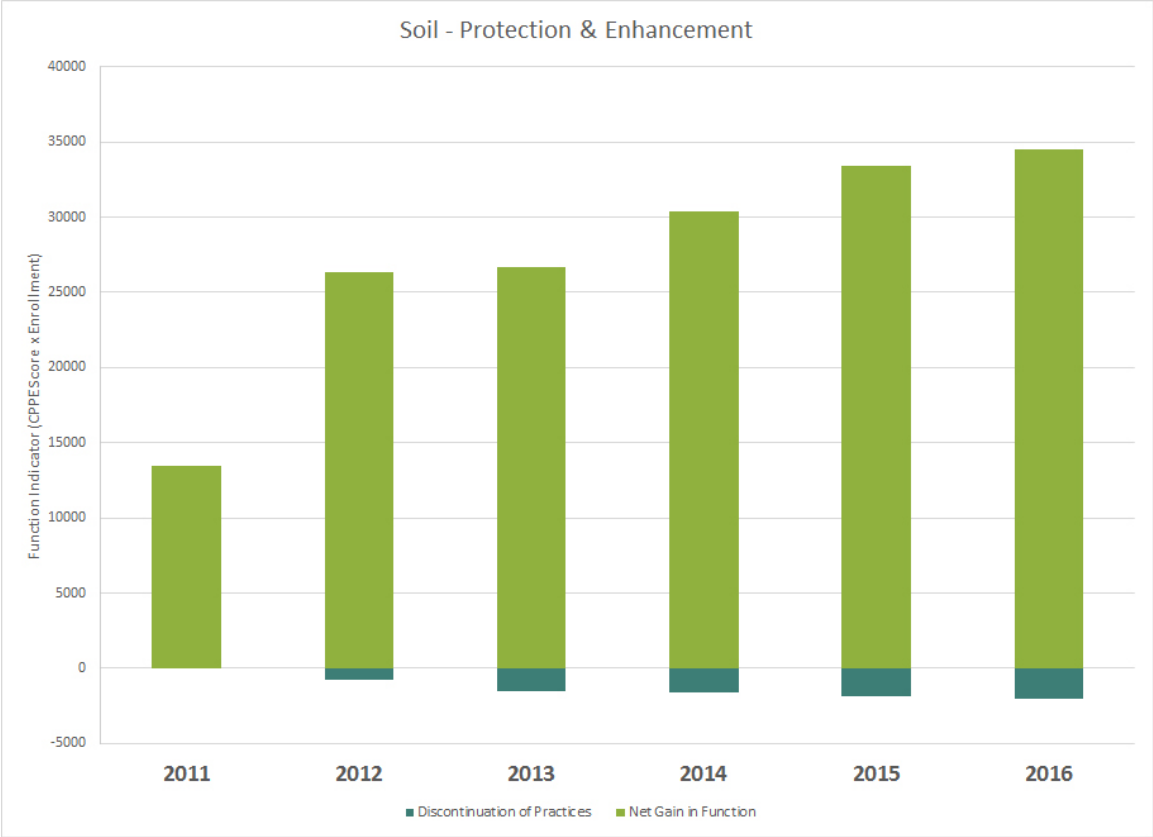
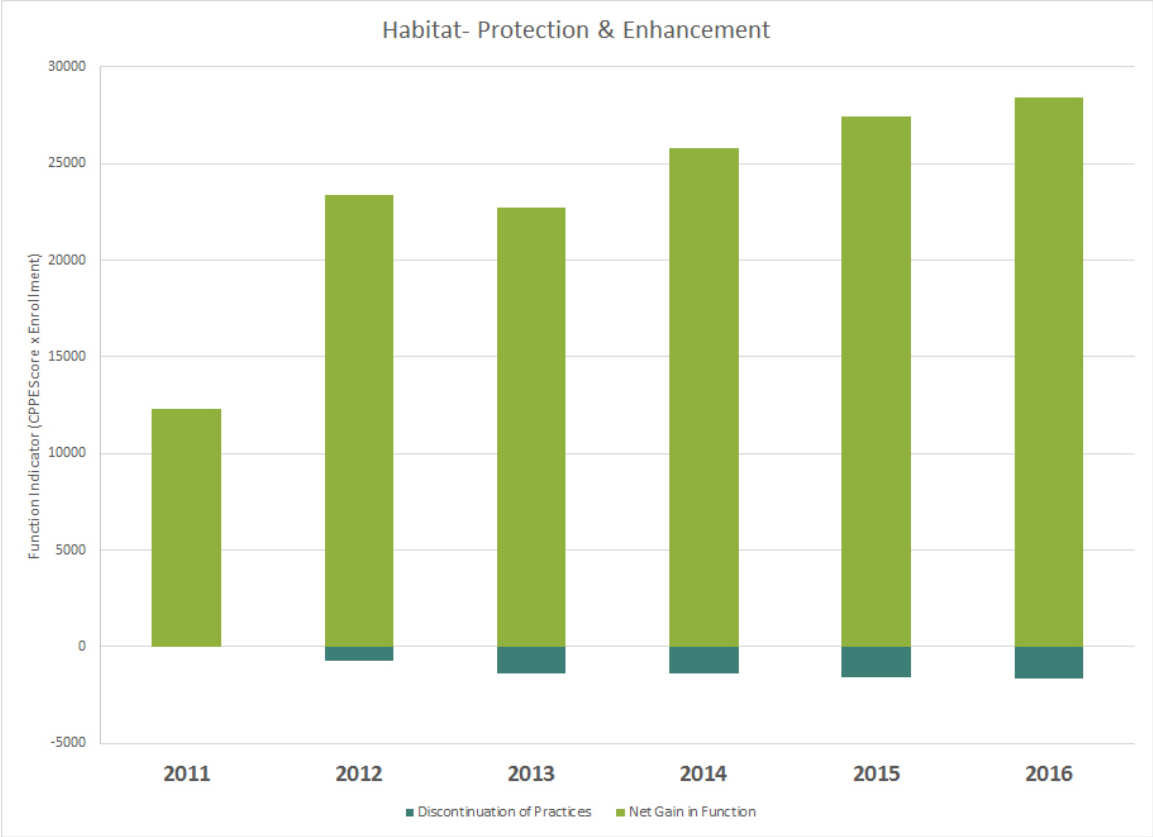


Figure 4
Habitat Functional Indictors: 2011 to 2016 NRCS Practice Enrollments



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NRCS (Natural Resources Conservation Service), 2017. NRCS Conservation Practice Physical Effects CPPE/NRCS Economics. Cited March 2017. Available from: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/data/?cid=nrcs143_009740.

Appendix C: Attachment 1
Whitman County CPPE Resource Concerns and Scores

RESOURCE CONCERNS -> CONSERVATION PRACTICES	Code	Soil Erosion – Sheet and Rill	Soil Erosion – Wind	Soil Erosion – Ephemeral Gully	Soil Erosion – Classic Gully	Soil Erosion – Streambank/ Shoreline/ Conveyance	Soil Erosion Average	Soil Condition – Organic Matter Depletion	Soil Condition – Compaction	Soil Condition – Subsidence	Soil Condition – Contaminants: Salts or Other Chemicals	Soil Condition Average	Water Quantity – Excessive Seepage	Water Quantity – Excessive Runoff, Flooding, or Ponding	Water Quantity – Excessive Subsurface Water	Water Quantity – Drifted Snow	Water Quantity – Inefficient Water Use on Irrigated Land	Water Quantity – Inefficient Water Use on Nonirrigated Land	Hydrology Average	Water Quality Degradation - Pesticides in Surface Water	Water Quality Degradation - Pesticides in Groundwater	Water Quality Degradation - Nutrients in Surface water	Water Quality Degradation - Nutrients in Groundwater	Water Quality Degradation - Salts in Surface Water	Water Quality Degradation - Salts in Groundwater	Water Quality Degradation - Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Surface Water	Water Quality Degradation - Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Groundwater	Water Quality Degradation - Excessive Sediment in Surface Water	Water Quality Degradation - Elevated Water Temperature	Water Quality Degradation - Petroleum, Heavy Metals and Other Pollutants Transported to Surface Water	Water Quality Degradation - Petroleum, Heavy Metals and Other Pollutants Transported to Groundwater	Water Quality Average	Fish and Wildlife – Inadequate Food	Fish and Wildlife – Inadequate Cover/Shelter	Fish and Wildlife – Inadequate Water	Fish and Wildlife – Inadequate Space	Habitat Average
Access Control	472	3	1	4	4	5	3.40	1	4	0	0	2.50	1	1	2	0	0	3	1.75	1	0	1	1	0	0	1	1	3	3	1	1	1.44	3	3	1	1	2.00
Access Road	560	1	0	1	1	0	1.00	0	2	0	0	2.00	0	1	0	0	2	0	1.50	0	0	0	0	0	0	0	0	1	0	0	0	1.00	0	0	0	-1	-1.00
Agrichemical Handling Facility	309	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	5	5	5	5	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0.00
Air Filtration and Scrubbing	371	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Alley Cropping	311	5	5	5	3	0	4.50	5	2	0	1	2.67	1	1	2	3	3	0	2.00	3	1	3	1	1	1	3	1	3	0	1	1	1.73	2	2	0	3	2.33
Amending Soil Properties with Gypsum Products	333	1	1	0	0	0	1.00	1	0	0	1	1.00	0	1	0	0	1	0	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Amendments for Treatment of Agricultural Waste	591	0	0	0	0	0	0.00	1	0	0	0	0.50	0	0	0	0	1	0	0.50	0	0	2	2	2	2	2	2	0	0	2	2	2.00	0	0	0	0	0.00
Anaerobic Digester	366	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	2	0	0	0	2	0	0	0	0	0	0.67	0	0	0	0	0.00
Animal Mortality Facility	316	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	2	2	0	0	2	2	0	0	0	0	2.00	0	0	0	0	0.00
Anionic Polyacrylamide (PAM) Erosion Control	450	2	2	2	0	0	2.00	0	2	0	0	2.00	0	0	0	0	1	1	1.00	2	-1	2	-1	0	0	0	0	4	0	1	0	1.17	0	0	0	0	0.00
Aquaculture Ponds	397	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	-2	-2	0	0	-2	0	0	-2	0	0	-2.00	0	0	1	0	1.00
Aquatic Organism Passage	396	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	2	0	0	2.00	0	2	1	5	2.67
Bedding	310	2	0	0	0	0	2.00	-1	-1	0	1	-0.33	0	5	0	0	0	-1	2.00	-2	1	-2	1	-2	1	-2	1	-1	0	-2	1	-0.55	0	0	0	0	0.00
Bivalve Aquaculture Gear and Biofouling Control	400	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	2	0	0	0	2	0	0	0	0	0	2.00	0	0	2	0	2.00
Brush Management	314	1	1	1	1	0	1.00	0	0	0	0	0.00	0	1	0	0	0	2	1.50	-1	0	0	0	0	0	0	0	2	0	0	0	0.50	2	2	0	1	1.67
Building Envelope Improvement	672	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Channel Bed Stabilization	584	0	0	0	2	2	2.00	0	0	0	0	0.00	2	0	0	0	0	0	2.00	0	0	0	0	0	0	0	0	1	1	0	0	1.00	1	1	1	2	1.25
Clearing & Snagging	326	0	0	0	0	2	2.00	0	0	0	0	0.00	0	2	0	0	0	0	2.00	0	0	0	0	0	0	0	0	-2	-1	0	0	-1.50	-2	-2	-1	-2	-1.75
Combustion System Improvement	372	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Composting Facility	317	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	2	2	0	0	2	2	0	0	0	0	2.00	0	0	0	0	0.00
Conservation Cover	327	4	4	1	1	1	2.20	5	3	0	2	3.33	1	2	1	1	0	0	1.25	2	2	4	4	5	2	1	2	4	0	0	0	2.89	4	4	0	2	3.33
Conservation Crop Rotation	328	4	4	0	0	0	4.00	4	1	0	2	2.33	1	2	1	0	2	2	1.60	2	2	2	2	1	2	1	0	2	0	0	0	1.75	2	2	0	2	2.00
Constructed Wetland	656	0	0	0	0	0	0.00	0	0	0	0	0.00	0	2	0	0	0	0	2.00	2	1	4	1	1	1	4	3	5	0	4	1	2.25	3	3	0	2	2.00
Contour Buffer Strips	332	3	0	0	0	0	3.00	2	0	0	0	2.00	-2	1	-1	0	0	0	-0.67	2	0	2	-1	1	-1	1	-1	2	0	0	0	0.56	2	2	0	2	2.00
Contour Farming	330	2	0	0	0	0	2.00	1	0	0	0	1.00	-2	1	-1	0	0	1	-0.25	1	-1	2	-1	1	-1	1	0	2	0	0	0	0.50	0	0	0	0	0.00
Contour Orchard and Other Perennial Crops	331	4	0	1	0	0	2.50	2	0	0	0	2.00	-2	1	-1	0	1	2	0.20	1	-1	2	-1	1	-1	0	0	2	0	0	0	0.43	0	0	0	0	0.00
Controlled Traffic Farming	334	0	0	0	0	0	0.00	0	4	0	0	4.00	0	0	0	0	1	1	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Cover Crop	340	4	4	3	0	0	3.67	2	2	0	1	1.25	1	2	1	0	1	2	1.40	2	2	2	2	0	1	1	2	2	0	0	0	1.75	2	2	0	2	2.00
Critical Area Planting	342	5	5	5	4	4	4.60	5	2	0	1	2.67	0	0	0	0	0	0	0.00	0	0	2	1	0	0	0	0	4	0	0	0	2.33	2	2	0	2	2.00
Cross Wind Ridges	588	0	4	0	0	0	4.00	1	0	0	0	1.00	0	0	0	0	0	0	0.00	1	0	1	0	1	0	0	0	1	0	0	0	1.00	0	0	0	0	0.00
Cross Wind Trap Strips	589C	0	4	0	0	0	4.00	2	0	0	0	2.00	0	0	0	0	0	0	0.00	2	0	2	0	1	0	0	0	1	0	0	0	1.50	0	2	0	2	2.00
Dam	402	0	0	0	2	1	1.50	0	0	0	-1	-1.00	-2	2	-1	0	2	0	0.25	0	0	0	-1	0	0	-2	0	2	0	0	0	-0.25	2	2	0	2	1.50
Dam, Diversion	348	0	0	0	0	-1	-1.00	0	0	0	0	0.00	0	2	0	0	2	2	2.00	0	0	0	0	0	0	0	0	0	-2	0	0	-2.00	-2	-2	-2	-2	-2.00
Deep Tillage	324	0	0	0	0	0	0.00	-4	5	-1	2	0.50	-2	0	2	0	2	2	1.00	0	0	1	-2	1	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Denitrifying Bioreactor	605	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	3	1	0	0	0	0	0	0	0	0	2.00	0	0	0	0	0.00
Dike	356	0	0	0	1	-2	-0.50	0	0	0	0	0.00	-1	2	-1	0	0	0	0.00	2	2	0	0	0	0	0	0	0	0	0	0	1.33	-2	-2	0	1	-0.75
Diversion	362	1	0	2	2	1	1.50	0	0	0	0	0.00	-1	2	2	0	2	2	1.40	1	1	0	-1	0	0	1	0	2	0	1	0	0.71	0	0	0	0	0.00
Drainage Water Management	554	0	2	0	0	0	2.00	2	-1	2	0	1.00	1	-2	2	0	0	0	0.33	2	2	1	-1	0	0	1	1	0	0	2	0	0.89	0	0	2	2	2.00
Dry Hydrant	432	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	-1	-1	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Dust Control from Animal Activity on Open Lot Surfaces	375	0	2	0	0	0	2.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	1	0	1	0	1	0	0	0	0	0	1.00	0	0	0	0	0.00
Dust Control on Unpaved Roads and Surfaces	373	2	5	0	0	0	3.50	0	0	0	-1	-1.00	0	0	0	0	0	0	0.00	0	0	-1	0	-1	0	0	0	1	0	-1	0	-0.50	0	0	0	0	0.00
Early Successional Habitat Development/Mgt.	647	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	-2	0	0	-1.00	4	4	0	4	4.00
Emergency Animal Mortality Management	368	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	2	2	0	0	2	2	0	0	0	0	2.00	0	0	0	0	0.00
Farmstead Energy Improvement	374	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	-2	0	0	-2.00	0	0	0	0	0.00
Feed Management	592	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	2	2	1	0	1	1	0	0	0	0	1.40	0	0	0	0	0.00
Fence	382	1	0	0	0	0	1.00	0	1	0	0	1.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	2	0	0	0	0	0	2.00	0	0	0	0	0.00
Field Border	386	4	4	1	0	1	2.50	4	2	0	0	2.00	0	1	0	0	0	0	1.00	2	2	1	1	0	1	1	0	2	0	0	0	1.43	2	2	0	2	2.00
Field Operations Emissions Reduction	376	1	4	0	0	0	2.50	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Filter Strip	393	0	0	0	0	0	0.00	5	0	0	0	5.00	0	0	0	0	0	0	0.00	2	1	5	2	1	1	3	1	5	0	4	1	2.36	2	2	0	2	2.00
Firebreak	394	-1	-1	-1	-1	0	-0.80	-2	-2	0	0	-2.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	-1	0	0	0	-1.00	0	0	0	-1	-1.00
Fish Raceway or Tank	398	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	-1	-1	-1	0	-1	-1	0	-1	0	0	-1.00	0	0	0	0	0.00
Fishpond Management	399	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	-2	0	0	0	0	0	0	0	0	-2.00	4	4	2	4	3.50
Forage and Biomass Planting	512	1	1	0	0	0	1.00	1	2	0	0	1.50	0	1	0	0	0	0	1.00	1	0	1	0	0	0	1	0	1	0	1	0	1.00	1	1	0	0	1.00
Forage Harvest Management	511	1	1	0	0	0	1.00	1	3	0	0	2.00	0	0	0	0	1	1	1.00	2	0	1	0	0	0	1	0	0	0	1	0	1.25	1	1	0	0	1.00
Forest Stand Improvement	666	1	0	1	1	0	0.75	1	-1	0	0	0.00	0	0	0	0	0	3	3.00	0	0	1	2	1	0	1	1	0	1	1	1	0.75	3	1	0	3	2.33
Forest Trails and Landings	655	-1	0	-1	-1	0	-0.75	-1	1	0	0	0.00	0	0	0	0	0	0	0.00	0	0	1	0	0	0	0	0	0	0	0	0	0.50	1	1	0	-1	0.33
Fuel Break	383	-1	-1	-1	-1	0	-1.00	-3	-1	0	0	-2.00	0	0	-1	0	0	0	-1.00	-1	-1	0	0	0	0	0	0	-1	0	0	0	-1.00	1	-1	0	0	0.40
Grade Stabilization Structure	410	0	0	0	2	2	2.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	2	0	0	0	1.00	2	2	1	0	1.67
Grassed Waterway	412	0	0	5	4	1	3.33	3	0	0	-1	1.00	0	3	2	0	0	0	2.50	2	0	2	0	0	0	1	0	2	0	1	0	1.33	1	1	1	1	1.00
Grazing Land Mechanical Treatment	548	1	1	0	0	0	1.00	1	0	0	0	1.00	0	2	0	0	0	2	2.00	0	0	1	0	0	0	1	0	5	0	0	0	2.33	0	0	0	0	0.00
Groundwater Testing	355	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Heavy Use Area Protection	561	2	2	2	2	0	2.00	0	1	0	0	0.50	0	-1	0	0	0	0	-1.00	0	0	1	0	0	0	2	0	2	0	0	0	1.67	0	0	0	0	0.00
Hedgerow Planting	422	0	1	0	0	0	1.00	2	1	0	0	1.50	0	0	0	2	0	0	2.00	1	0	2	0	0	0	0	0	0	1	0	0	1.33	4	4	0	4	4.00
Herbaceous Weed Control	315	4	4	2	2	4	3.20	0	0	0	0	0.00	0	0	0	0	2	0	2.00	-1	0	0	0	0	0	0	0	0	0	0	0	-0.25	2	2	0	1	1.67
Herbaceous Wind Barriers	603	0	4	0	0	0	4.00	2	0	0	0	2.00	0	0	0	0	0	3	3.00	1	0	1	0	0	0	0	0	1	0	0	0	1.00	2	2	0	2	2.00
High Tunnel System	325	0	0	-1	0	0	-1.00	1	0	0	0	1.00	0	-3	0	0	0	-1	-2.00	0	0	0	0	0	0	0	0	-1	0	0	0	-1.00	0	0	0	0	0.00
Hillside Ditch	423	2	0	2	2	1	1.75	0	0	0	0	0.00	0	4	0	0	0	1	2.50	1	0	-1	-1	0	0	-2	0	2	0	-1	0	-0.25	0	0	1	0	1.00
Integrated Pest Management	595	2	2	2	2	0	2.00	2	2	0	0	2.00	0	0	0	0	0	0	0.00	5	5	0	0	0	0	0	0	2	0	0	0	4.00	2	0	2	0	2.00
Irrigation Canal or Lateral	320	0	0	0	0	0	0.00	0	0	0	0	0.00	0	2	-2	0	5	0	1.67	0	0	-2	0	0	0	-2	0	0	0	0	0	-1.33	0	0	1	0	1.00
Irrigation Ditch Lining	428	0	0	0	0	0	0.00	0	0	0	0	0.00	1	0	-1	0	5	0	1.67	0	0	1	1	1	2	-1	1	1	0	-1	1	0.60	0	0	1	0	1.00
Irrigation Field Ditch	388	0	0	0	0	0	0.00	0	0	0	0	0.00	0	1	-1	0	5	0	1.25	0	0	0	0	0	0	-1	0	0	0	1	0	0.00	0	0	1	0	1.00
Irrigation Land Leveling	464	1	0	1	0	0	1.00	-2	-2	0	-1	-1.67	0	1	2	0	4	0	2.33	2	2	2	2	0	2	2	2	1	0	1	1	1.55	0	0	0	0	0.00
Irrigation Pipeline	430	0	0	0	2	0	2.00	0	0	0	0	0.00	1	0	1	0	2	0	1.33	0	0	1	0	1	2	1	1	1	0	0	1	0.89	0	0	0	0	0.00
Irrigation Reservoir	436	0	0	0	2	1	1.50	0	0	0	0	0.00	-1	2	-1	0	2	0	0.50	0	0	0	-1	0	0	0	0	2	0	0	0	0.33	2	-1	2	-1	0.50
Irrigation System, Microirrigation	441	0	0	0	0	0	0.00	0	0	0	1	0.50	2	2	2	0	2	0	2.00	2	2	2	2	0	2	2	1	1	0	1	1	1.33	0	0	1	0	1.00
Irrigation System, Surface & Subsurface	443	0	1	0	-1	-1	-0.33	0	-1	0	0	-0.50	1	1	1	0	2	0	1.25	1	1	1	1	1	1	1	1	0	0	1	1	0.91	0	0	1	0	1.00
Irrigation System, Tailwater Recovery	447	0	0	1	1	1	1.00	0	-1	0	-1	-1.00	-1	1	-1	0	2	0	0.25	2	2	2	-1	1	-1	1	0	1	0	4	-1	0.73	0	0	1	0	1.00
Irrigation Water Management	449	0	2	0	0	0	2.00	1	0	0	2	1.50	0	0	1	0	2	0	1.50	2	2	2	2	2	2	2	2	2	0	2	2	1.82	0	0	0	0	0.00
Karst Sinkhole Treatment	527	0	0	4	4	0	4.00	0	0	0	2	2.00	0	-2	0	0	0	0	-2.00	2	2	2	2	0	2	2	2	2	0	0	2	2.00	0	0	0	0	0.00
Land Clearing	460	0	0	0	0	0	0.00	-3	-1	0	0	-2.00	0	-1	0	0	0	0	-1.00	-1	0	-1	0	0	0	-1	0	-1	-2	-1	0	-1.00	-2	-2	0	-2	-2.00
Land Reclamation, Abandoned Mined Land	543	4	4	4	1	0	3.25	3	1	0	4	2.67	0	3	0	0	0	0	3.00	0	0	0	0	1	1	3	0	4	0	0	1	2.00	2	2	0	1	1.67
Land Reclamation, Currently Mined Land	544	4	4	4	1	0	3.25	3	1	0	4	2.67	0	3	0	0	0	0	3.00	0	0	0	0	1	1	3	0	4	0	0	1	2.00	2	2	0	1	1.67
Land Reclamation, Landslide Treatment	453	2	2	2	0	0	2.00	2	0	0	0	0.67	2	0	2	0	0	0	2.00	0	0	0	0	0	0	1	0	4	0	4	0	3.00	2	2	0	0	2.00
Land Reclamation, Toxic Discharge Control	455	2	2	2	0	0	2.00	0	0	0	2	2.00	2	1	2	0	0	0	1.67	0	0	0	0	0	2	0	0	0	0	4	2	2.67	2	2	0	0	2.00
Land Smoothing	466	0	0	1	0	0	0.50	-2	-2	0	-1	-1.67	2	2	2	0	2	2	2.00	1	1	1	2	0	0	0	0	1	0	1	0	1.17	0	0	0	-1	-1.00
Lighting System Improvement	670	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Lined Waterway or Outlet	468	0	0	5	2	0	3.50	0	0	0	0	0.00	2	2	2	0	0	0	2.00	0	0	0	2	0	0	0	0	2	0	0	0	2.00	-2	1	0	0	-0.50
Livestock Pipeline	516	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Livestock Shelter Structure	576	0	0	0	0	3	3.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	3	0	0	0	2	0	2	0	0	0	2.33	0	0	0	0	0.00
Mine Shaft & Adit Closing	457	0	0	0	0	0	0.00	0	0	2	0	2.00	0	0	2	0	0	0	2.00	0	0	0	0	0	2	0	0	0	0	2	1	1.67	0	0	0	2	2.00
Mole Drain	482	1	0	1	0	-1	0.20	-2	1	-2	2	-0.25	2	2	2	0	0	0	1.20	1	1	-4	2	-2	2	0	2	1	0	0	2	0.56	0	0	0	0	0.00
Monitoring Well	353	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Mulching	484	4	4	0	0	0	4.00	1	0	0	1	1.00	-1	1	-1	0	2	2	0.60	2	0	2	-1	1	-1	0	0	2	0	0	0	0.83	1	1	0	0	1.00
Multi-Story Cropping	379	1	1	1	1	0	1.00	5	2	1	1	2.25	1	1	1	0	0	0	1.00	3	1	1	0	1	0	1	1	1	0	1	1	1.10	3	1	0	1	1.67
Nutrient Management	590	0	0	0	0	0	0.00	2	-1	0	4	1.67	0	0	0	0	0	0	0.00	0	0	5	5	3	3	4	4	0	0	2	2	3.50	0	0	0	0	0.00
Obstruction Removal	500	0	0	0	0	0	0.00	1	-1	0	0	0.00	0	0	0	2	0	0	2.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	-2	0	0	-2.00
On-Farm Secondary Containment Facility	319	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	5	5	5.00	0	0	0	0	0.00
Open Channel	582	0	0	0	0	2	2.00	0	0	0	0	0.00	1	5	2	0	0	0	2.67	0	0	-1	0	0	0	0	0	0	0	-1	0	-0.67	0	0	-2	0	-0.50
Pond	378	0	0	0	2	1	1.50	0	0	0	-1	-1.00	-2	2	-1	0	2	2	0.60	0	0	2	-1	0	0	-2	0	2	0	0	0	0.20	2	2	4	2	2.50
Pond Sealing or Lining, Concrete	522	0	0	0	0	0	0.00	0	0	0	1	1.00	1	0	2	0	2	2	1.75	0	0	2	2	0	3	0	2	0	0	0	1	2.00	0	0	1	0	1.00
Pond Sealing or Lining, Compacted Soil Treatment	520	0	0	0	0	0	0.00	0	0	0	1	1.00	1	0	2	0	2	2	1.75	0	0	2	2	0	3	0	2	0	0	0	1	2.00	0	0	1	0	1.00
Pond Sealing or Lining, Flexible Membrane	521A	0	0	0	0	0	0.00	0	0	0	1	1.00	1	0	2	0	2	2	1.75	0	0	2	2	0	3	0	2	0	0	0	1	2.00	0	0	1	0	1.00
Precision Land Forming	462	0	0	2	4	0	2.00	-2	-1	0	1	-0.67	2	2	2	0	0	2	2.00	1	1	1	2	0	1	0	1	1	0	1	1	1.11	0	0	0	0	0.00
Prescribed Burning	338	2	2	1	1	1	1.40	1	0	-1	-1	-0.33	0	1	0	0	0	0	1.00	0	0	2	1	0	0	0	0	1	0	1	0	1.25	2	2	0	4	2.67
Prescribed Grazing	528	4	4	3	1	3	3.00	4	2	0	2	2.67	0	1	0	0	0	2	1.50	2	1	1	1	2	1	1	1	2	1	0	0	1.30	2	2	0	4	2.67
Pumping Plant	533	0	0	0	0	0	0.00	0	0	2	0	2.00	2	2	2	0	2	2	2.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Range Planting	550	4	4	4	2	2	3.20	4	4	0	1	3.00	0	0	0	1	0	2	0.75	2	2	1	1	1	1	1	1	2	1	2	1	1.33	2	2	0	4	2.67
Recreation Area Improvement	562	1	1	1	1	1	1.00	1	1	0	0	1.00	0	1	0	0	0	0	1.00	1	1	0	0	0	0	0	0	1	0	0	0	1.00	1	1	0	-1	0.33
Recreation Land Grading and Shaping	566	0	0	0	4	2	1.20	1	0	0	0	0.50	0	2	0	0	0	0	2.00	0	0	0	0	0	0	0	0	2	0	0	0	2.00	-2	-2	0	-2	-2.00
Residue and Tillage Management, No Till	329	4	4	0	0	0	4.00	2	2	0	0	2.00	-1	2	-1	0	2	2	0.80	4	0	2	-1	0	0	1	0	4	0	0	0	2.00	2	2	0	1	1.67
Residue and Tillage Management, Reduced Till	345	4	4	0	0	0	4.00	2	1	0	0	1.50	0	1	0	0	1	2	1.33	4	0	2	0	1	0	1	0	3	0	0	0	2.20	2	2	0	1	1.67
Restoration and Management of Rare or Declining Habitats	643	2	2	2	0	0	2.00	0	0	0	-1	-1.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	2	2	0	0	2.00	4	4	4	4	4.00
Riparian Forest Buffer	391	3	2	1	3	4	2.60	4	2	0	1	2.33	1	-1	2	0	0	0	0.67	3	1	5	5	1	1	3	1	5	5	3	1	2.83	5	5	1	5	4.00
Riparian Herbaceous Cover	390	2	2	1	0	4	2.25	4	4	0	2	3.33	2	-3	2	0	0	0	0.33	2	2	5	5	1	1	3	2	4	2	2	1	2.50	4	4	2	4	3.50
Road/Trail/Landing Closure and Treatment	654	5	1	5	5	4	4.00	5	2	0	0	2.33	1	3	4	0	0	1	2.25	0	0	1	1	0	0	1	1	3	1	3	1	1.50	1	1	1	3	1.50
Rock Barrier	555	5	0	5	1	1	3.00	0	0	0	0	0.00	1	0	1	2	0	0	1.33	0	0	0	0	1	-1	1	0	2	0	1	0	0.80	0	0	0	0	0.00
Roof Runoff Structure	558	1	0	3	1	1	1.50	0	0	0	0	0.00	1	-1	1	0	0	3	1.00	0	0	2	2	2	0	2	0	1	0	0	0	1.80	0	0	0	0	0.00
Roofs and Covers	367	0	0	0	0	0	0.00	0	0	0	0	0.00	0	-1	0	0	0	0	-1.00	0	0	0	0	0	0	0	1	0	0	1	1	1.00	0	0	0	0	0.00
Row Arrangement	557	3	1	3	0	0	2.33	1	0	0	1	1.00	-1	2	-1	0	4	4	1.60	1	-1	-2	2	0	0	1	0	2	0	0	0	0.43	0	0	0	0	0.00
Salinity and Sodic Soil Management	610	0	0	0	0	0	0.00	0	0	0	2	2.00	0	0	0	0	2	2	2.00	0	0	0	0	-2	-2	0	-1	0	0	0	-1	-1.50	0	0	0	0	0.00
Saturated Buffer	604	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	5	0	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0.00
Sediment Basin	350	0	0	2	2	0	1.33	0	0	0	0	0.00	-2	2	-2	0	0	0	-0.67	2	-1	5	-1	2	-1	2	-1	4	0	2	-1	1.00	-1	-1	1	0	-0.33
Shallow Water Development and Management	646	0	0	0	0	0	0.00	1	0	0	0	1.00	0	2	0	0	0	0	2.00	0	0	1	1	0	-1	2	-1	2	0	2	1	0.70	4	2	2	4	3.00
Short Term Storage of Animal Waste and Byproducts	318	0	0	0	0	0	0.00	1	1	0	0	1.00	0	0	0	0	0	0	0.00	0	0	4	2	2	1	2	2	0	0	0	1	2.00	0	0	0	0	0.00
Silvopasture Establishment	381	4	3	3	2	2	2.80	3	0	0	0	3.00	1	2	1	2	0	2	1.60	2	1	3	2	1	1	1	1	3	1	1	1	1.50	1	1	0	1	1.00
Spoil Spreading	572	0	0	0	0	0	0.00	1	-1	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	2	0	0	0	2.00	0	0	0	0	0.00
Spring Development	574	0	0	0	1	1	1.00	0	-1	0	0	-1.00	2	1	2	0	2	2	1.80	0	0	0	0	1	0	1	0	1	0	2	0	1.25	0	0	4	2	3.00
Sprinkler System	442	0	2	0	0	0	2.00	0	-1	0	2	0.50	0	2	1	0	5	0	2.67	2	2	2	1	2	2	2	1	1	0	1	1	1.55	0	0	1	0	1.00
Stormwater Runoff Control	570	0	0	2	0	3	2.50	0	1	0	0	1.00	-1	4	-1	0	0	0	0.67	0	0	2	0	0	0	0	0	4	0	2	0	2.67	0	0	0	0	0.00
Streambank and Shoreline Protection	580	0	0	0	0	4	4.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	1	0	0	0	1	0	2	1	0	0	1.25	2	2	0	2	1.50
Stream Crossing	578	0	0	0	0	2	2.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	-1	0	0	0	-3	0	2	0	0	0	-0.67	0	0	0	0	0.00
Stream Habitat Improvement and Management	395	0	0	0	0	5	5.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	2	2	0	0	2.00	2	3	3	4	3.00
Stripcropping	585	4	4	0	0	0	4.00	2	0	0	0	2.00	-2	1	-1	1	0	1	0.00	2	0	2	0	1	-1	1	0	2	0	0	0	1.17	2	2	0	1	1.67
Structure for Water Control	587	0	0	0	0	0	0.00	0	0	0	0	0.00	0	2	0	0	2	2	2.00	0	0	0	0	0	0	0	0	1	1	0	0	1.00	0	0	2	0	2.00
Structures for Wildlife	649	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	4	0	0	4.00
Subsurface Drain	606	4	-1	4	1	1	1.80	-2	2	-2	2	0.00	4	4	4	0	2	1	3.00	2	2	-2	1	-2	2	0	1	2	0	0	1	0.70	0	0	0	0	0.00
Surface Drainage, Field Ditch	607	1	-1	2	0	0	0.67	-2	1	-1	2	0.00	0	2	2	0	2	2	2.00	0	1	-2	1	-2	1	-2	1	1	0	-2	1	-0.20	0	0	0	0	0.00
Surface Drainage, Main or Lateral	608	0	-1	2	0	0	0.50	0	0	0	0	0.00	0	2	2	0	2	2	2.00	0	0	-2	1	-2	2	-2	2	-1	0	-2	2	-0.22	0	0	0	0	0.00
Surface Roughening	609	0	3	0	0	0	3.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	-1	1	0	0	0	0.00	0	0	0	0	0.00
Terrace	600	5	1	4	2	1	2.60	2	-1	0	0	0.50	-1	4	-1	-1	0	3	0.80	2	-2	2	-2	2	-2	2	-1	2	0	2	-1	0.36	0	1	0	0	1.00
Trails and Walkways	575	1	1	1	4	2	1.80	0	2	0	0	2.00	0	2	0	0	0	0	2.00	0	0	0	0	0	0	1	0	2	0	0	0	1.50	4	4	2	0	3.33
Tree/Shrub Establishment	612	5	5	4	2	2	3.60	4	2	0	1	2.33	2	0	2	1	0	1	1.20	1	1	1	1	1	1	1	1	3	1	1	1	1.17	1	3	0	3	2.33
Tree/Shrub Site Preparation	490	-1	-1	-2	-1	0	-1.25	-2	-1	0	0	-1.50	0	0	0	0	0	2	2.00	-1	-1	0	0	0	0	0	0	-1	0	0	0	-0.50	0	0	0	0	0.00
Tree/Shrub Pruning	660	1	0	0	0	0	1.00	1	0	0	0	1.00	0	0	0	0	0	0	0.00	1	1	1	1	0	0	0	0	0	0	0	0	1.00	1	1	0	0	1.00
Underground Outlet	620	0	0	5	4	-1	2.67	0	0	0	0	0.00	0	4	0	0	0	0	4.00	-1	0	-1	0	0	0	-1	0	0	0	1	0	-0.50	0	0	0	0	0.00

RESOURCE CONCERNS -> **CONSERVATION PRACTICES**	Code	Soil Erosion – Sheet and Rill	Soil Erosion – Wind	Soil Erosion – Ephemeral Gully	Soil Erosion – Classic Gully	Soil Erosion – Streambank/ Shoreline/ Conveyance	Soil Erosion Average	Soil Condition – Organic Matter Depletion	Soil Condition – Compaction	Soil Condition – Subsidence	Soil Condition – Contaminants: Salts or Other Chemicals	Soil Condition Average	Water Quantity – Excessive Seepage	Water Quantity – Excessive Runoff, Flooding, or Ponding	Water Quantity – Excessive Subsurface Water	Water Quantity – Drifted Snow	Water Quantity – Inefficient Water Use on Irrigated Land	Water Quantity – Inefficient Water Use on Nonirrigated Land	Hydrology Average	Water Quality Degradation - Pesticides in Surface Water	Water Quality Degradation - Pesticides in Groundwater	Water Quality Degradation - Nutrients in Surface water	Water Quality Degradation - Nutrients in Groundwater	Water Quality Degradation - Salts in Surface Water	Water Quality Degradation - Salts in Groundwater	Water Quality Degradation - Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Surface Water	Water Quality Degradation - Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Groundwater	Water Quality Degradation - Excessive Sediment in Surface Water	Water Quality Degradation - Elevated Water Temperature	Water Quality Degradation - Petroleum, Heavy Metals and Other Pollutants Transported to Surface Water	Water Quality Degradation - Petroleum, Heavy Metals and Other Pollutants Transported to Groundwater	Water Quality Average	Fish and Wildlife – Inadequate Food	Fish and Wildlife – Inadequate Cover/Shelter	Fish and Wildlife – Inadequate Water	Fish and Wildlife – Inadequate Space	Habitat Average
Upland Wildlife Habitat Management	645	3	3	3	2	1	2.40	0	0	0	0	0.00	0	-3	2	0	0	0	-0.50	0	0	0	0	0	0	0	0	0	0	2.00	5	5	0	5	5.00
Vegetated Treatment Area	635	4	4	0	0	0	4.00	3	3	0	-2	1.33	-1	0	-2	0	0	0	-1.50	0	0	4	-2	2	-2	5	0	2	0	0	0	1.50	0	0	0	0	0.00
Vegetative Barrier	601	4	1	1	0	0	2.00	0	0	0	-2	-2.00	0	0	0	0	0	0	0.00	2	0	2	0	1	0	1	0	2	0	0	0	1.60	1	1	1	1	1.00
Vertical Drain	630	0	0	0	1	0	1.00	0	0	0	0	0.00	0	4	-2	0	0	0	1.00	0	-2	1	-2	1	-1	1	-1	1	0	1	-1	-0.20	0	0	0	0	0.00
Waste Facility Closure	360	0	0	0	0	0	0.00	0	0	0	2	2.00	0	0	0	0	0	0	0.00	0	0	2	2	2	1	2	2	0	0	0	0	1.75	0	0	0	0	0.00
Waste Recycling	633	0	0	0	0	0	0.00	1	0	0	0	1.00	0	0	0	0	1	1	1.00	0	0	2	2	2	2	0	2	0	0	0	0	1.43	0	0	0	0	0.00
Waste Separation Facility (no)	632	0	0	0	0	0	0.00	1	0	0	0	0.50	0	0	0	0	1	0	1.00	0	0	2	2	2	2	2	2	0	0	2	2	2.00	0	0	0	0	0.00
Waste Storage Facility	313	0	0	0	0	0	0.00	1	1	0	1	1.00	0	0	0	0	1	0	1.00	0	0	4	2	2	1	2	2	0	0	0	1	1.75	0	0	0	0	0.00
Waste Transfer	634	-1	-1	-1	0	0	-1.00	0	-1	0	0	-1.00	0	0	0	0	0	1	1.00	0	0	2	2	2	2	2	2	0	0	0	0	1.50	0	0	0	0	0.00
Waste Treatment	629	0	0	0	0	0	0.00	1	1	0	0	1.00	0	0	0	0	1	0	0.25	0	0	2	2	2	2	2	2	0	0	2	2	2.00	0	0	0	0	0.00
Waste Treatment Lagoon	359	0	0	0	0	0	0.00	1	1	0	0	1.00	0	0	0	0	1	0	0.50	0	0	4	2	2	1	4	2	0	0	0	1	2.00	0	0	0	0	0.00
Water and Sediment Control Basin	638	0	0	2	2	0	2.00	0	0	0	0	0.00	-2	2	-2	0	0	0	-0.67	0	-1	0	-1	0	-1	0	-1	4	-2	0	-1	-0.43	0	0	2	0	2.00
Water Harvesting Catchment	636	0	0	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	0	0	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	4	2	3.00
Watering Facility	614	2	2	2	1	4	2.20	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	4	0	1	0	2	1	2	1	1	0	1.71	0	0	5	3	4.00
Water Well	642	2	2	2	0	0	2.00	0	0	0	1	1.00	0	0	2	0	0	2	2.00	0	0	0	0	0	0	-1	0	0	0	0	0	-1.00	0	0	2	0	2.00
Waterspreading	640	0	0	0	-1	0	-1.00	1	0	0	1	1.00	0	1	-1	0	1	2	0.75	1	-1	2	-1	1	-1	0	-1	0	0	1	-1	0.00	2	2	1	0	1.67
Well Decommissioning	351	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	2	0	2	0	2	0	2	0	0	0	2	2.00	0	0	0	0	0.00
Wetland Creation	658	0	0	0	0	0	0.00	2	0	0	0	2.00	0	2	-1	0	0	0	0.50	1	1	3	1	1	0	1	0	2	0	2	0	1.50	5	5	2	4	4.00
Wetland Enhancement	659	0	0	0	0	0	0.00	1	0	0	0	1.00	0	2	0	0	0	0	2.00	1	1	3	1	1	0	1	0	2	0	2	0	1.50	5	5	2	4	4.00
Wetland Restoration	657	0	0	0	0	0	0.00	1	0	0	0	1.00	0	2	0	0	0	0	2.00	1	1	3	1	1	0	1	0	2	0	2	0	1.50	5	5	2	4	4.00
Wetland Wildlife Habitat Management	644	0	0	0	0	0	0.00	0	0	0	0	0.00	0	2	0	0	0	0	2.00	0	0	0	0	0	0	1	0	3	0	0	0	2.00	5	5	2	4	4.00
Windbreak/Shelterbelt Establishment	380	1	5	2	0	0	2.67	4	2	0	1	2.33	2	0	2	5	5	3	2.83	3	0	1	1	0	0	0	0	1	0	1	0	1.40	3	3	0	3	3.00
Windbreak/Shelterbelt Renovation	650	1	5	2	0	0	2.67	4	2	0	1	2.33	2	0	2	5	5	3	2.83	3	0	1	1	0	0	0	0	1	0	1	0	1.40	3	3	0	3	3.00
Woody Residue Treatment	384	1	1	1	0	0	1.00	-1	-2	0	0	-1.50	0	0	0	0	0	0	1.00	0	0	0	0	0	0	0	0	1	0	0	0	1.00	0	0	0	0	0.00

Appendix C: Attachment 2
Whitman County Practice Toolbox with CPPE Averaged Function Scores

Whitman County Conservation Practices

NRCS Code	Conservation Practice	Function Effects: Average CPPE Scores				Critical Areas					Agricultural Viability					
		Soil [1]	Hydrology	Water Quality	Fish & Wildlife	WET	FFA	CARA	GHA	FWHCA	Soil Health	Prevent Soil Loss	Moisture Management	Weed/ Pest Management	Pollinator/ Beneficial Organisms	Yield/ Fertility Management
313	Waste storage facility	0.50	1.00	1.75	0.00			x		x	x					
315	Herbaceous weed control	1.60	2.00	-0.25	1.67	x	x		x	x		x		x		x
325	Seasonal High Tunnel	0.50	0.00	0.00	0.00					x			x			
327	Conservation Cover	2.77	1.25	2.89	3.33	x	x		x	x	x	x		x	x	
328	Conservation Crop Rotate	3.17	1.60	1.75	2.00	x			x	x	x	x	x	x	x	x
329	Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed	3.00	0.80	2.00	1.67	x	x	x	x	x	x	x	x			x
340	Cover Crop	2.46	1.40	1.75	2.00	x	x	x	x	x	x	x	x	x	x	x
342	Critical Area Planting	3.63	0.00	2.33	2.00				x							
345	Residue Management - Mulch Till	2.75	1.33	2.20	1.67	x	x	x	x	x	x	x	x			x
380	Windbreak/Shelterbelt Eastablishment	2.50	2.83	1.40	3.00	x	x		x	x	x	x	x	x	x	x
382	Fence	1.00	0.00	2.00	0.00	x			x	x		x			x	
386	Field Border	2.25	1.00	1.43	2.00	x			x	x		x		x	x	
390	Riparian Forest Buffer	2.79	0.33	2.50	3.50	x	x		x	x		x			x	
391	Herbaceous Riparian Cover	2.47	0.67	2.83	4.00	x			x	x		x	x	x	x	
412	Grassed Waterway	2.17	2.50	1.33	1.00		x	x	x	x		x		x		
422	Hedgerow Planting	1.25	2.00	1.33	4.00	x	x	x	x	x		x	x			x
441	Micro-irrigation System	0.25	2.00	1.33	1.00			x	x	x		x		x	x	x
472	Access Control	2.95	1.75	1.44	2.00	x	x	x	x	x	x	x		x	x	x
484	Mulching	2.50	0.60	0.83	1.00	x		x	x	x	x	x	x	x		x
490	Tree/Shrub Site Preparation	-1.38	2.00	-0.50	0.00	x	x		x	x				x	x	
516	Pipeline	0.00	0.00	0.00	0.00			x	x	x						x
528	Prescribed Grazing	2.83	1.50	1.30	2.67	x	x	x	x	x		x				x
533	Pumping Plant	1.00	2.00	0.00	0.00		x					x		x		x
550	Range Planting	3.10	0.75	1.33	2.67				x	x	x	x		x	x	x
561	Heavy Use Area Protection	1.25	-1.00	1.67	0.00				x	x		x				
574	Spring Development	0.00	1.80	1.25	3.00		x					x		x		x
578	Stream Crossing	1.00	0.00	-0.67	0.00		x		x	x		x				x
580	Streambank and Shoreline Protection	2.00	0.00	1.25	1.50		x		x	x		x			x	
582	Open Channel	1.00	2.67	-0.67	-0.50		x			x		x				
584	Channel Bed Stabilization	1.00	2.00	1.00	1.25		x		x	x				x		
587	Structure for Water Control	0.00	2.00	1.00	2.00				x	x			x			x
590	Nutrient Management	0.83	0.00	3.50	0.00			x		x	x					x
595	Pest Management	2.00	0.00	4.00	2.00			x		x	x			x	x	
601	Vegetative Barrier	0.00	0.00	1.60	1.00				x	x		x	x	x	x	
606	Subsurface Drain	0.90	3.00	0.70	0.00				x	x		x	x			
612	Tree/Shrub Establishment	2.97	1.20	1.17	2.33	x		x	x	x		x			x	
614	Watering Facility	1.10	0.00	1.71	4.00					x						x
634	Waster Transfer	-1.00	1.00	1.50	0.00				x	x			x			
642	Water Well	1.50	2.00	-1.00	2.00					x			x			x
643	Restoration and Management of Rare or Declining Habitats	0.50	0.00	2.00	4.00					x				x	x	
644	Wetland wildlife habitat mgmt	0.00	2.00	2.00	4.00	x	x			x	x	x	x		x	
645	Updland wildlife habitat mgmt	1.20	-0.50	2.00	5.00					x				x	x	
647	Early Successional Habitat Development/Management	0.00	0.00	-1.00	4.00					x				x	x	
649	Structures for Wildlife Habitat	0.00	0.00	0.00	4.00					x				x	x	
659	Wetland Enhancement	0.50	2.00	1.50	4.00	x	x		x	x	x			x	x	

Notes:
1 = Soil function scores are based on the average scores for Soil Condition and Soil Erosion as summarized in Atttachment 1.
CARA = Critical Aquifer Recharge Areas
FFA = Frequently Flooded Areas
FWHCA = Fish and Wildlife Habitat Conservation Areas
GHA = Geologically Hazardous Areas
WET = Wetlands

Appendix D
Existing and Related Plans, Programs, and Regulations

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Appendix D: Existing and Related Plans, Programs, and Regulations

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 provides an overview of the existing resources used in the Whitman County VSP Work Plan and describes how they relate to other applicable rules and regulations (the regulatory environment).

Existing Conservation Programs

As described in the Whitman 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 July 22, 2011, baseline and have contributed to conservation practices being implemented across Whitman 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 to agricultural producers. These tables provide a general representation of available federal, state, and local programs and are not intended to provide an exhaustive list.

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 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.

Table 1
Federal Conservation Programs

Lead	Description	Program	Details
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)**[1]	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)[2]	Voluntary program providing technical assistance for agricultural and forest landowners to develop plans for conservation, management, and enhancement activities.
		Agricultural Conservation Easement Program (ACEP)[3]	Provides conservation partners with financial and technical assistance through agricultural land easements to restore, protect, and enhance wetlands.
		Agricultural Water Enhancement Program (AWEP)[4]	Voluntary program providing financial and technical assistance to agricultural producers for implementing agricultural water-enhancement activities.
		Wildlife Habitat Incentive Program (WHIP)[5]	Voluntary program for wildlife habitat conservation and enhancement on agricultural land, non-industrial private forest land, and Native American land.

[1] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/
[2] www.nrcs.usda.gov/csp
[3] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/
[4] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip/
[5] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/awep/

Lead	Description	Program	Details
		Regional Conservation Partnership Program (RCPP)[6]	Provides conservation partners with financial assistance to support high-impact conservation projects. NRCS recently awarded $5.5 million in funds during the next 5 years to the Palouse Watershed RCPP through the 2014 Farm Bill. The RCPP provides additional opportunity within Water Resource Inventory Area (WRIA) 34 for increased conservation practices that enhance producer operations, and improve soil and water quality and wildlife habitat. These practices and programs likely only represent a small portion of practices being implemented but that are currently unaccounted for in the County.
Farm Service Agency (FSA)	FSA oversees several voluntary, conservation-related programs that work to address several agriculture-related conservation measures.	**Conservation Reserve Program (CRP)[7]**	Voluntary reserve program to conserve environmentally sensitive land through agricultural protections and plant species to improve environmental health.
		Conservation Reserve Enhancement Program (CREP)[8]	Similar to the CRP, this voluntary program targets high-priority conservation issues. The contract period is typically 10 to 15 years.

[6] https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/
[7] www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/
[8] www.fsa.usda.gov/FSA/webapp?area=home&subject=lown&topic=cep

Table 2
State and Local Conservation Programs

Lead	Description	Program(s)	Details
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**[9]	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)[10]	Provides financial incentives to landowners willing to install irrigation systems that save water.
		Natural Resource Investments (non-shellfish) Grants[11]	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)[12]	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)**[13]	Grant program for qualifying landowners who undertake projects that benefit Washington state's fish and wildlife resources.

[9] http://scc.wa.gov/coordinated-resource-management/
[10] http://scc.wa.gov/iegp/
[11] http://scc.wa.gov/wq-nonshellfish/
[12] http://scc.wa.gov/office-of-farmland-preservation/
[13] http://wdfw.wa.gov/grants/alea/index.html

Lead	Description	Program(s)	Details
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)**[14]	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[15]	Grant program for eligible parties seeking to improve important habitat conditions or watershed processes to benefit salmon and bull trout.
		Farmland Preservation Grants[16]	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.

[14] http://www.rco.wa.gov/grants/alea.shtml
[15] http://www.rco.wa.gov/grants/sal_rec_grants.shtml
[16] http://www.rco.wa.gov/grants/farmland.shtml

Lead	Description	Program(s)	Details
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**[17]	Grant and loan program for high-priority projects to protect and improve the health of Washington State waters.
		Farmed Smart Partnership[18]	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.
Palouse Conservation District (PCD)	PCD works through voluntary, incentive-based programs to assist landowners and agricultural operators with the conservation of natural resources throughout the district.	**Conservation Agriculture and Farmed Smart**[19]	Program offered through the Conservation Agricultural Department at PCD offering a variety of grant options to help landowners and producers.
		Riparian and Wildlife Habitat Program[20]	Program offering education, technical, and financial assistance for improving, enhancing, and restoring habitat.
		Salmon Recovery Program[21]	Program connected with the Salmon Recovery Funding Board to offer funding and technical support for Endangered Species Act-listed salmon recovery projects.
Whitman Conservation Districts (WCD)	WCD 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**[22]	Program for projects within WCD boundaries that implement best management practices for improving water quality.
		Water Quality Program[23]	Program providing technical assistance for livestock and non-livestock issues relating to water quality.

[17] http://www.ecy.wa.gov/programs/wq/funding/funding.html
[18] http://www.ecy.wa.gov/programs/wq/nonpoint/Agriculture/farmedsmart.html
[19] https://www.palousecd.org/conservation-ag
[20] https://www.palousecd.org/wildlife-habitat
[21] https://www.palousecd.org/salmon-recovery
[22] http://www.whitmancd.org/new-page.aspx
[23] *Ibid.*

Lead	Description	Program(s)	Details
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**[24]	Program providing technical assistance, research, and education to producers.

[24] http://anr.cw.wsu.edu/

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. Table 3 includes 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 Whitman County and the Palouse.

The County includes portions of three major watersheds, which are known as Water Resource Inventory Areas (WRIAs). Most of the County is in the Palouse WRIA (WRIA 34). The southern portion of the County is in the Middle Snake WRIA (WRIA 35), and a relatively small area in the northeastern portion of the County is in the Hangman (Latah) Creek WRIA (WRIA 56).

Within the three watersheds, there are several Washington State Department of Ecology water quality improvement projects or Total Maximum Daily Loads (TMDLs) in process or under development on the Palouse River and tributaries:[25]

- Mainstem
- North Fork:
  - Cedar Creek
  - Silver Creek
  - Clear Creek
- South Fork:
  - Paradise Creek
  - Missouri Flat Creek

Table 3
Summary of Planning Documents

Plan or Program	Date	Author/Agency	Description
Watershed Plans			
Water Resource Area (WRIA) 34 – Palouse			
Palouse Watershed Plan	2007	HDR and EES	The Palouse Watershed Plan is intended to identify, prioritize, and develop solutions to water resource management issues within the Palouse watershed. This plan was used to assess existing conditions and management recommendations in the VSP Work Plan.
Rock Watershed HUC: 17060109 Rapid Watershed Assessment Profile	2006	NRCS	The Rapid Watershed Assessment presents quantitative and qualitative information to develop a watershed profile and provide a

[25] http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyCounty/whitman.html

Plan or Program	Date	Author/Agency	Description
			baseline to make decisions about conservation needs and recommendations.
Palouse Subbasin Management Plan	2004	Palouse-Rock Lake Conservation District	The Palouse Subbasin Management Plan includes three components, assessment, inventory, and management. These components are intended to support basin-wide efforts toward a coordinated ecosystem-based approach to fish and wildlife habitat protection and restoration efforts. This plan was used to assess existing conditions and management recommendations in the VSP Work Plan.
Final Draft Phase II – Level 1 Technical Assessment for the Palouse Basin (WRIA 34)	2004	Golder Associates	The Phase II – Level 1 Technical Assessment for the Palouse Basin (WRIA 34) identifies existing water resources and strategies for increasing water supplies within the management area. The assessment collects existing data for land and water uses for future water management activities.
WRIA 35 – Middle Snake			
WRIA 35 Watershed Detailed Implementation Plan	2011	Middle Snake Watershed Planning Unit	The WRIA 35 Middle Snake Watershed Instream Habitat Assessment provides obligations and recommendations for short-term and long-term water management within the WRIA. The plan includes prioritized habitat and policy strategies, including a status update for existing policies.
WRIA 35 Middle Snake Watershed Instream Habitat Assessment	2009	Middle Snake Watershed Planning Unit	The WRIA 35 Middle Snake Watershed Instream Habitat Assessment assesses instream flows in select tributaries of the Middle Snake Watershed as part of its watershed planning efforts. The assessment provides recommendations and considerations for engaging landowners through conservation programs and habitat restoration efforts
WRIA 35 Middle Snake Watershed Plan	2007	HDR	The Middle Snake Watershed Plan is intended to identify, prioritize, and develop solutions to water resource management issues within the Palouse watershed. This plan was used to assess existing conditions and management recommendations in the VSP Work Plan.
WRIA 35 Streamflow Management	2006	HDR and EES	The WRIA 35 Streamflow Management report provides management objectives and instream flow recommendations.

Plan or Program	Date	Author/Agency	Description
WRIA 56 – Hangman Creek			
Detailed Implementation Plan: Hangman (Latah) Creek Watershed Water Resource Inventory Area 56	2008	WRIA 56 Watershed Implementation Team	The Detailed Implementation Plan is used for coordinating and overseeing the implementation of 68 recommendations provided in the WRIA 56 Watershed Management Plan. This includes water conservation strategies, water quality protection, land use compliance, watershed restoration, and other management practices.
The Hangman (Latah) Creek Water Resources Management Plan	2005	The Hangman (Latah) Creek Watershed Planning Unit WRIA 56	The Hangman (Latah) Creek Water Resources Management Plan describes water resource issues within the watershed and identifies recommendations and implementation strategies for future management. This plan was used to assess existing conditions and management recommendations in the VSP Work Plan.
Salmon Recovery Plans			
Proposed Endangered Species Act (ESA) Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Steelhead	2016	National Oceanic and Atmospheric Administration (NOAA) Fisheries	The Snake River Spring/Summer Chinook Salmon and Snake River Steelhead Recovery Plan provides recovery goals and strategies, including site-specific actions for restoring spring/summer Chinook salmon and Snake River steelhead populations in the Snake River basin. This includes strategies to improve habitat and water quality critical to the recovery of the species.
ESA Recovery Plan for Snake River Sockeye Salmon	2015	NOAA Fisheries	The Snake River Sockeye Salmon Recovery Plan provides recovery goals and strategies, including site-specific actions for restoring sockeye salmon populations in the Snake River basin. This includes strategies to improve habitat and water quality critical to the recovery of the species.
Proposed ESA Recovery Plan for Snake River Fall Chinook Salmon	2015	NOAA Fisheries	The Snake River Fall Chinook Salmon Recovery 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.
Snake River Salmon Recovery Region Provisional 3 Year Work Plan (2012 – 2014)	2012	Snake River Salmon Recovery Board	Snake River 3 Year Work Plan identifies priority restoration reaches for restoring and protecting floodplain and riparian function; restoring habitat complexity; reducing fine sediments; removing imminent threats; and maintaining or restoring in-stream flow.

Plan or Program	Date	Author/Agency	Description
Snake River Salmon Recovery Plan for SE Washington	2011	Snake River Salmon Recovery Board	The Snake River Salmon Recovery 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.
Lower Snake Mainstem Subbasin Plan	2004	Pomeroy Conservation District	The Lower Snake Mainstem Subbasin Plan provides strategies for meeting the Columbia River Basin objectives to provide a healthy ecosystem and recover fish and wildlife species.
Groundwater Management Plans			
Palouse Basin Ground Water Management Plan: 2015 Information Update to 1992 Plan	2015	Palouse Basin Aquifer Committee	The 2015 Information Update to 1992 Palouse Basin Ground Water Management Plan builds upon studies conducted since 1992 for groundwater management in the Palouse Basin. Goals are developed to protect and replenish shrinking groundwater aquifers.
Palouse Ground Water Basin Framework Project	2011	TerraGraphics and Ralston Hydrologic Services	The Palouse Ground Water Basin Framework Project characterizes existing conditions and provides recommendations for future research and monitoring of existing wells.
Other Applicable Guidance Documents			
Shoreline Analysis Report: for Shorelines in Whitman County; the Cities of Colfax, Palouse, Pullman, and Tekoa; and the Towns of Albion, Malden, and Rosalia	2014	Watershed Company	The Shoreline Analysis Report includes an inventory and analysis of ecological functions within the shoreline jurisdiction. The report is intended to provide an existing conditions baseline for future actions. This report was used to assess existing conditions in the VSP Work Plan.
Whitman County Shoreline Master Program (SMP)	2015	Whitman County, The Watershed Company, BERK Consulting	The SMP includes shoreline goals and policies for management and protection of shorelines of the state located within the County. Existing agriculture activities are exempt from the SMP.
Management Recommendations for Washington's Priority Habitats: Riparian	1997	Washington State Department of Fish and Wildlife	The riparian habitat management plan provides statewide riparian management recommendations based on the best-available science.
Washington State Recovery Plan for the Greater Sage Grouse	May 2004	Washington State Department of Fish and Wildlife	The greater sage grouse recovery plan prescribes strategies to recover the species such as protecting and restoring habitat.
Priority Habitats and Species List (PHS)	2016	Washington State Department of Fish and Wildlife	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.

Tables 4 and 5 include a summary of federal, state, and local development regulations that are used to achieve the goals and measurable benchmarks of the VSP Work Plan. This list includes the most common environmental regulations affecting agriculture. The list does not include all regulations potentially impacting agricultural producers in the County. For instance, regulations on taxation, employment practices, marijuana production, and other regulations are not included. 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.[26] Continued compliance with these regulations provides additional assurance the functions and values of critical areas are protected.

As illustrated in Figure 1, 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.

[26] Washington State Department of Ecology, 2013. The Voluntary Stewardship Program and Clean Water. Available at: https://fortress.wa.gov/ecy/publications/publications/1310030.pdf.

Figure 1
Balanced Approach of Critical Areas Protection and Agricultural Viability

Table 4
Federal Regulations that Apply to Agriculture

Regulation(s)	Agency	Description	VSP Intersect
Agricultural Act (Farm Bill)[27]	U.S. Department 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)[28]	U.S. Environmental Protection Agency (USEPA); regulated locally by Washington State Department 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 support existing U.S. Department 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)[29]		The SDWA protects public drinking water supplies in the United States, including sole-source aquifers. The USEPA provides technical and financial resources under the Clean Water State Revolving Fund (CWSRF) 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)[30]		NPDES is promulgated under the CWA to regulate discharges to waters of the United States from animal feeding operations.	Regulated discharges to waters of the United States helps to protect water quality in critical areas, including wetlands and fish and wildlife habitat conservation areas.

[27] https://www.fsa.usda.gov/programs-and-services/farm-bill/index
[28] https://www.epa.gov/laws-regulations/summary-clean-water-act
[29] https://www.epa.gov/sdwa
[30] https://www.epa.gov/npdes

Regulation(s)	Agency	Description	VSP Intersect
Endangered Species Act (ESA)[31][32]	National Marine Fisheries Service and the U.S. Fish and Wildlife Service	The ESA protects threatened and endangered species and critical habitat throughout the United States.	ESA-listed species and critical habitat are protected through avoidance and minimization measures such as the "no-spray" pesticide buffer zones near ESA-listed salmon-bearing waterbodies. The no-spray buffer zones are 60 feet for ground and 300 feet for aerial pesticide applications.
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)[33]	U.S. Environmental Protection Agency	FIFRA regulates pesticide distribution, sale, and use and includes labeling and registration requirements.	Compliance with FIFRA is intended to maintain or enhance water quality, which in turn benefits critical areas, including wetlands, fish and wildlife habitat conservation areas, and critical aquifer recharge areas.
National Emissions Standards for Hazardous Air Pollutants (NESHAP)[34]	U.S. Environmental Protection Agency	NESHAP regulates hazardous air pollutant emissions, including from new and existing facilities that manufacture organic pesticide active ingredients used in herbicides, insecticides, and fungicides.	These regulations are intended to reduce or eliminate hazardous air pollutant emissions with the potential to spread via aerial application to critical areas, including wetlands and fish and wildlife habitat conservation areas.

[31] http://www.nmfs.noaa.gov/pr/laws/esa/
[32] https://www.fws.gov/endangered/
[33] https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act
[34] https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9

Table 5
State and Local Regulations that Apply to Agriculture

Regulation(s)	Agency	Description	VSP Intersect
Revised Code of Washington (RCW)			
Title 15 Agriculture and Marketing	Washington State Department of Agriculture	RCW Title 15 includes general regulations pertaining to agricultural practices.	• Regulations cover pest and disease control, fertilizers, and commodity commissions.
Title 16 Animals and Livestock	Washington State Department of Agriculture	RCW Title 16 includes general regulations pertaining to animals and livestock practices.	• Regulations cover range areas, meat licensing, feed lot certification, and fencing.
Title 17 Weeds, Rodents, and Pests	Washington State Noxious Weed Control Board*	RCW Title 17 includes general regulations pertaining to weed, rodent, and pest control.	• RCW Title 17.06 establishes intercounty weed districts.
Title 36 Counties	*Various*	RCW Title 36 includes regulations pertaining to counties including the Voluntary Stewardship Program.	• RCW Titles 36.70A.700-904 comprise the Voluntary Stewardship Program, a program designed to promote plans to protect and enhance critical areas while maintaining and improving agricultural viability.
Title 77 Fish and Wildlife	Washington Department of Fish and Wildlife	RCW Title 77 includes fish and wildlife enforcement regulations.	• Salmon recovery and enhancement programs include habitat projects and plans, including voluntary, incentive-based enhancement programs. • In-water construction activities (i.e., hydraulic projects) are regulated under RCW Title 77.55.
Title 87 Irrigation	Irrigation Districts	RCW Title 87 regulates irrigation and irrigation districts.	• RCW Title 87.03 establishes irrigation and improvement districts.
Title 89 Reclamation, Soil Conservation, and Land Settlement	Conservation Districts, Office of Farmland Preservation, and Irrigation Districts	RCW includes general regulations pertaining to reclamation and local conservation districts.	• RCW Title 89.08 establishes conservation districts. • RCW Title 89.10 establishes the Office of Farmland Preservation. • RCW Title 89.12 includes adoption of the Columbia Basin Project Act and related regulations.

Regulation(s)	Agency	Description	VSP Intersect
Title 90 Water Rights – Environment	*Various*	RCW Title 90 regulates various aspects of water rights and appropriation for public and industrial purposes.	• RCW Title 90.42-46 include regulations pertaining to water resource management, regulation of public groundwater, and reclaimed water use. • RCW Title 90.48 includes the Water Pollution Control Act which regulates agricultural discharges to surface waters and wetlands. • RCW Title 90.64 includes dairy nutrient management regulations. • RCW Title 90.90 includes the Columbia River Basin water supply rules for allocation and development of water supplies.
Washington Administrative Code (WAC)			
Title 16	Washington State Department of Agriculture	WAC Title 16 includes Washington State Department of Agriculture rules pertaining to agriculture regulation, certification, and marketing.	• WAC Chapters 16-200 through 16-202 include standards for fertilizer and pesticide usage. • WAC Chapter 16-611 includes standards for nutrient management.
Title 173	Washington State Department of Ecology	WAC Title 173 includes Washington State Department of Ecology rules for air and water quality protection.	• WAC Chapters 173-15 through 173-27 include state Shoreline Management Act rules and permitting requirements. The County currently implements the Shoreline Master Program under these state rules. • WAC Chapter 173-134A sets the Quincy groundwater management and zones. • WAC Chapter 173-158 includes floodplain management rules. • WAC Chapters 173-166, 173-170, and 173-173 includes rules for drought relief programs, agricultural water supply facilities, and measuring and reporting water usage. • WAC Chapter 173-220 includes National Pollution Discharge Elimination System rules for discharges to waters of the state. • WAC Chapter 173-430 includes rules for agricultural burning.

Regulation(s)	Agency	Description	VSP Intersect
Title 220 and 232	Washington State Department of Fish and Wildlife	WAC Title 173 includes Washington State Department of Fish and Wildlife rules for management of fish and wildlife species and habitat.	• WAC Chapter 220-410 defines game management areas, including the Game Management Units in Whitman County. • WAC Chapter 220-620 describes the volunteer cooperative fish and wildlife enhancement program. • WAC Chapter 220-660 includes the Washington State Hydraulic Code which regulates in-water construction activities (hydraulic projects) through Hydraulic Project Approvals. • WAC Chapter 232-28 includes wildlife interaction rules, including those pertaining to damage of commercial crops and livestock.
Title 246	Washington State Department of Health	WAC Title 246 includes Washington State Department of Health rules, including those for protection of water systems.	• WAC Chapters 246-290 and 246-291 includes rules for Group A and B public water supplies and water systems, respectively. These include regulations for using greywater for irrigation purposes.
Whitman County Regulations			
Critical Areas Ordinance	Whitman County Planning Division	The Whitman County Critical Areas Ordinance is promulgated under Whitman County Code (WCC) 9.05.	• WCC 9.05.040 codifies Whitman County's adoption of VSP under the Critical Areas Ordinance. • WCC 9.05.100 exempts existing and ongoing agricultural operations occurring within critical areas and their buffers from the Critical Areas Ordinance. If agricultural activities cease, then that land would be subject to the ordinance. • WCC 9.05.130 allows the application of herbicides, pesticides, organic or mineral-derived fertilizers, or other hazardous substances as approved by the County, in compliance with state recommendations and federal regulations.
Shoreline Master Program SMP	Whitman County Planning Division	The Whitman County Shorelines Master Plan is promulgated under WCC 19.63	• The Shoreline Master Program covers new agricultural uses and activities within shorelines of the state (defined as 200 feet from mean higher high water) and does not limit or modify existing or ongoing agricultural practices.

*Includes agencies responsible for overseeing agriculture-specific regulations. Other agencies may be assigned jurisdiction for non-agriculture related regulations described therein.