

BENTON COUNTY VOLUNTARY STEWARDSHIP PROGRAM

Preliminary Critical Area and related Agricultural Viability Goals, Benchmarks, and Performance Metrics January 2017; Updated March 2017

Note: This document includes a portion of Chapter 7 of the Work Plan Goals, Benchmarks, and Performance Metrics, addressing protection and voluntary enhancement of critical areas and related agricultural viability aims. In addition, participation objectives will be part of Chapter 7 and are addressed in a companion document, and will be combined in the next full version of Chapter 7. Also, the Work Plan will identify additional agricultural viability aims from the agricultural economy perspective in addition to these aims that are related to critical area protection identified in this document.

7.0 GOALS, BENCHMARKS, AND PERFORMANCE METRICS

7.1 Protection and Voluntary Enhancement of Critical Areas and Related Agricultural Viability Aims

The following goals, benchmarks, and performance metrics were developed to frame the Benton County Voluntary Stewardship Program's (VSPs) approach to protecting and voluntarily enhancing the value and functions of critical areas. This section addresses the requisite components of the VSP work plan:

- goals and benchmarks for the protection and enhancement of critical areas (RCW 36.70A.720(1))
- measurable benchmarks that, within ten years after the receipt of funding, are designed to result in (i) the protection of critical area functions and values and (ii) the enhancement of critical area functions and values through voluntary, incentive-based measures ((RCW 36.70A.720(1)(e))

Work Plan implementation must be monitored, and periodic reporting will describe whether the protection and enhancement goals and benchmarks have been met. The following table summarizes the goals, benchmarks, and performance metrics developed by the Benton County VSP Working Group for critical area functions. This chapter includes two tables:

- Table 1. Protection goals, benchmarks, and monitoring approaches to maintain or voluntarily enhance critical area functions; and
- Table 2. Agricultural viability aims, incentives, and activities associated with critical area protection.

Table 1 summarizes the critical area goals, benchmarks, and performance metrics intended to both protect and enhance critical area functions. For each goal, benchmarks for *protection* of critical areas (maintenance of functions) are presented in black; benchmarks for *enhancement* of critical areas (improvement of functions) are presented in green. Performance metrics can be used to monitor progress toward both protection and enhancement goals. For each performance metric, protection would be indicated by no change in the metric (e.g. flows during critical low flow periods are maintained), and enhancement would be indicated by a positive change (improvement) in the metric (e.g. new irrigation efficiencies are installed). In this document,

performance standards are differentiated between implementation (i.e. installation of new activities) and effectiveness (i.e. measured effect of actions on critical areas). The right-hand column that describes the relationship to agricultural viability is intended to identify how critical area goals and benchmarks are compatible with agricultural viability.

Table 2 summarizes aims and activities that are intended to maintain and enhance agricultural viability and that are associated with critical area protection. It should be noted that there are no formal measurable benchmarks for agricultural viability, and success toward meeting agricultural viability goals does not affect the County's eligibility to participate in the VSP. Agriculture viability aims and activities are meant to help the County plan for resource lands and to help the local agricultural economy.

Table 1. Goals, benchmarks, and monitoring approaches to maintain or voluntarily enhance critical areas

Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
Streams/Rivers				
Consistent with the Yakima Basin Integrated Water Resource Management Plan (YBIWRMP), ensure flows necessary to protect salmonids	<ul style="list-style-type: none"> Maintain flow in Yakima River during critical periods (addressed through water rights regulations)* Increase flow in Yakima River during critical periods See also aquifer recharge * 	<ul style="list-style-type: none"> Irrigation efficiencies (both on farm and in delivery) installed (acre feet conserved, instantaneous flow) Number of water exchanges, storage, transfers, voluntary regional agreements, and/or water trusts maintained or established related to agricultural use 	<ul style="list-style-type: none"> Increase in flow in the Yakima River during critical periods Area of connected floodplain for recharge (acres) in areas of agricultural intersect Minimum flows at designated locations (related to agricultural intersect) in critical low flow periods 	<ul style="list-style-type: none"> Aim is to increase water right stability for senior water rights holders, and increase water availability for junior water rights holders
	<ul style="list-style-type: none"> Avoid increases in runoff and erosion associated with agricultural activities Improve surface water quality conditions related to runoff and erosion associated with agricultural activities 	<ul style="list-style-type: none"> Maintenance of conservation practices to limit runoff and erosion due to agricultural activities (including irrigation efficiencies) Implementation of conservation practices that manage or exclude livestock from access to streams and wetlands 	<ul style="list-style-type: none"> Compliance with water quality regulations regarding suspended sediments and toxics where related to agricultural activities Progress toward meeting Total Maximum Daily Load (TMDL) standards for suspended sediments 	<ul style="list-style-type: none"> Provide incentives for irrigation and nutrient management to increase crop yield and quality while reducing loss of inputs via leaching or runoff Encourage water reuse New FSMA requirements for monitoring bacteria levels in irrigation water

¹ An assumption is that federal and state pesticide application requirements apply in any case, and, as a result we are not including as a specific performance measure.

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Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
			and toxics where related to agricultural activities	result in a large expense for farmers
	<ul style="list-style-type: none"> Maintain shading riparian vegetation of streams/wetland areas by native trees*to support biofiltration and bank stability in areas of agricultural intersect Enhance shading riparian vegetation of streams/wetland areas by native trees*to support biofiltration and bank stability in areas of agricultural intersect 	<ul style="list-style-type: none"> Implementation of conservation practices to exclude manage livestock from access to streams and wetlands Riparian planting/protection projects (acres and linear feet) 	<ul style="list-style-type: none"> Riparian cover in areas of agricultural intersect Stream temperatures suitable for priority fish attributable to agricultural activities 	
	<ul style="list-style-type: none"> Control water stargrass and other invasive plant growth abundance and prevent new populations Reduce water stargrass and other invasive plant abundance 	<ul style="list-style-type: none"> Conservation practices implemented to address stargrass and other invasive plants. 	<ul style="list-style-type: none"> Stargrass and other invasive plants abundance 	<ul style="list-style-type: none"> Stargrass and other invasive plants causes problems by clogging irrigation pumps and other aquatic equipment
Upland Habitat (Shrub Steppe [LG1])				
Protect shrub-steppe habitat and connectivity without restricting ongoing agricultural activities	<ul style="list-style-type: none"> Protect blocks of intact shrub steppe habitat and currently utilized connectivity corridors defined by the current WDFW PHS list 	<ul style="list-style-type: none"> Agricultural area managed to minimize impacts to shrub-steppe (acres) 	<ul style="list-style-type: none"> Area of intact shrub steppe habitat in areas of agricultural intersect Extent of connectivity corridors in areas of agricultural intersect 	<ul style="list-style-type: none"> Incentive programs (e.g. shrub-steppe banking) and/or compensation for voluntary shrub-steppe and/or habitat linkage conservation should be

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Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
	<ul style="list-style-type: none"> Enhance shrub steppe habitat blocks defined by the current WDFW PHS list and shrub steppe corridors with the first priority as current blocks and currently utilized connectivity corridors and the second priority as historical or likely suitable connectivity corridors that could be established or renewed through voluntary landowner cooperation 	<ul style="list-style-type: none"> Area of shrub-steppe linkage or pinch point protected (acres) Area of high quality shrub-steppe protected through easements, acquisition, CRP/CREP, and other strategies (acres) Area of high quality shrub-steppe enhanced or restored (acres) Area of shrub-steppe linkage or pinch point enhanced or restored (acres) 		developed and implemented
Manage shrub-steppe habitat to improve resiliency to fire in areas of agricultural intersect	<ul style="list-style-type: none"> Encourage diversity of native grasses in place of cheatgrass to promote resiliency 	<ul style="list-style-type: none"> Conservation practices implemented to control cheat grass and plant native grasses (acres) such as prescribed grazing, Integrated Pest Management, establishing desired vegetation, or other measures 	<ul style="list-style-type: none"> Reduced cheatgrass and increased native grasses in areas of agricultural intersect Reduced frequency and intensity of fire over time (long-term trend) in areas of agricultural intersect with a priority to control fire in the Blackrock Area 	<ul style="list-style-type: none"> Unmanaged fire events threaten agricultural productivity A diverse assemblage of native grasses provides better forage than cheatgrass See agricultural viability aim related to rural fire districts
Protect native plant community diversity in shrub-steppe habitats in areas of agricultural intersect	<ul style="list-style-type: none"> Control invasive species on agricultural lands, and protect native species diversity Reduce invasive species on agricultural lands, and 	<ul style="list-style-type: none"> Continuation of practices to maintain botanical diversity such as prescribed grazing, Integrated Pest 	<ul style="list-style-type: none"> Increased native species diversity in areas of agricultural intersect 	<ul style="list-style-type: none"> Recognize agricultural activities and techniques that are compatible with critical area functions Incentive programs to encourage rotational

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	<i>enhance</i> native species diversity	<ul style="list-style-type: none"> Management or other measures Implementation of measures to control invasive species and enhance native species diversity, including host plants for pollinators 		<ul style="list-style-type: none"> grazing and more intensively management grading should be developed and implemented Invasive species can serve as agricultural pests and/or nuisance species and lead to production loss
Aquifer Recharge				
<p>Protect [LG2] groundwater recharge in areas of declining water tables or where recharge can help maintain base flows for rivers and streams</p>	<ul style="list-style-type: none"> <i>Maintain</i> on-farm water conservation practices, such as irrigation water management and efficient irrigation systems in areas with agricultural wells <i>Increase</i> on-farm water conservation practices, such as irrigation water management and efficient irrigation systems in areas with agricultural wells Investigate opportunities to recharge-Encourage implementation of groundwater recharge by passive infiltration or direct injection. 	<ul style="list-style-type: none"> On-farm irrigation efficiencies installed (acre feet conserved) Floodplain connectivity projects implemented Recharge projects implemented. 	<ul style="list-style-type: none"> Area of connected floodplain for recharge (acres) in areas of agricultural intersect Groundwater levels at specified locations associated with agriculture Groundwater discharge in stream reaches. Acre-feet recharged. 	<ul style="list-style-type: none"> Allow agricultural access to new water supplies created by conservation or recharge projects that exceed environmental baseline Incentives for on-farm water conservation practices should be implemented Groundwater recharge through flooding of fields (passive infiltration to create cool water refugia) could provide a source of additional income from hunting

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Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
Protect groundwater quality in areas of agricultural intersect	<ul style="list-style-type: none"> ▪ Avoid increases in practices that contribute to leaching of nitrogen and other contaminants into groundwater ▪ Reduce practices that contribute to leaching of nitrogen and other contaminants into groundwater 	<ul style="list-style-type: none"> ▪ Implementation of conservation practices to limit leaching of nutrients and pesticides. runoff ▪ On-farm irrigation efficiencies installed (acre feet conserved) to limit agricultural runoff from recharging groundwater leaching of nutrients and pesticides. ▪ Wetland protected or restored (acres) ▪ Implement Benton County Groundwater Community Action Plan [LG3][LG4] m5 	<ul style="list-style-type: none"> ▪ Groundwater quality in areas of agricultural intersect ▪ Groundwater conserved due to irrigation efficiencies ▪ Wetlands functions and values protected in areas of agricultural intersect 	<ul style="list-style-type: none"> ▪ Nutrient management activities could increase crop yield and quality while reducing loss of inputs via leaching or runoff. Encourage use of incentives to implement.

Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
Wetlands				
Protect the functions and values of wetlands in areas of agricultural intersect**	<ul style="list-style-type: none"> Maintain wetland functions and values, with a priority for protecting wetlands with high habitat functions and floodplain wetlands along the Yakima and Columbia Rivers Enhance natural wetlands in the county, with a priority towards floodplain wetland functions along the Yakima and Columbia Rivers 	<ul style="list-style-type: none"> Floodplain wetland area protected in CRP/CREP, conservation easement, or in-lieu fee (acres) Wetland restoration, enhancement, and creation projects implemented in areas of intersect with a priority along the Yakima and Columbia Rivers (acres) 	<ul style="list-style-type: none"> Area of wetlands adjacent to the Yakima and Columbia Rivers Functions and values of wetlands in areas of agricultural intersect 	<ul style="list-style-type: none"> The priority for agricultural and water resources is to improve efficiency of water use; the Working Group recognizes tradeoffs may occur as efficiencies may reduce wetland area Continue to allow ongoing agriculture to manage drainage through legally established drain tiles, crop rotations, reduced tillage, irrigation management, etc. to reduce ponding.
	<ul style="list-style-type: none"> Avoid increases in the presence of invasive species in and around wetlands, and protect native species diversity Reduce the presence of invasive species in and around wetlands, and enhance native species diversity 	<ul style="list-style-type: none"> Implementation of Integrated Pest Management practices, prescribed grazing, or other measures Number of native planting projects 	<ul style="list-style-type: none"> Distribution and abundance of invasive species Distribution, abundance, and composition of native species 	<ul style="list-style-type: none"> Invasive species can serve as agricultural pests and/or nuisance species and lead to production loss

* Wetlands intentionally created by irrigation activities ~~should~~ are not be considered a critical area

**See water quality goals and benchmarks for wetlands under streams and rivers

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Floodplains				
Protect natural floodplain functions	<ul style="list-style-type: none"> ▪ Maintain floodplain connectivity ▪ Enhance floodplain connectivity 	<ul style="list-style-type: none"> ▪ Floodplain protection projects ▪ Floodplain enhancement projects 	<ul style="list-style-type: none"> ▪ Area of connected floodplain for recharge (acres) in areas of agricultural intersect ▪ Area of floodplain restored (acres) in areas of agricultural intersect 	<ul style="list-style-type: none"> ▪ Recognize agricultural activities and techniques that are compatible with flooding ▪ New agriculture in floodplains should not require alterations that diminish floodplain functions or increase safety risks.
Maintain or reduce hazards to physical safety associated with flooding	<ul style="list-style-type: none"> ▪ Intersect areas are protected by the regulatory backstop including flood hazard management regulations and pesticide regulations. No benchmarks or measurement required. 	<ul style="list-style-type: none"> ▪ <u>Not applicable</u>- Use of regulatory backstop in form of flood hazard regulations. 	<ul style="list-style-type: none"> ▪ <u>Avoid increases in flood hazards</u> 	
Geologically Hazardous Areas				
Protect the integrity of steep slopes associated with agricultural production	<ul style="list-style-type: none"> ▪ Maintain integrity of steep slopes ▪ Improve integrity of steep slopes 	<ul style="list-style-type: none"> ▪ Vegetation retained along steep slopes adjacent to agricultural activities (acres) ▪ Implementation of conservation practices for slope stability (e.g. contour planting, retaining native vegetation, irrigation efficiencies) ▪ Irrigation efficiencies employed at the top of slopes 	<ul style="list-style-type: none"> ▪ <u>Wind erosion [mc] and sheet and rill erosion in areas of intersect where basinwide tracking is available through NRCS tools</u> ▪ <u>Transport of sediment in areas of intersect as measured in Ecology water quality results</u> ▪ <u>Water infiltration as measured with groundwater quality results[ss7]</u> 	<ul style="list-style-type: none"> ▪ Aim is to maintain or improve agricultural sustainability through improving soil health and reducing erosion. ▪ Incentives for soil health and erosion control should be implemented.

Table 2. Agricultural viability aims, incentives, and activities associated with critical area protection and enhancement

Agricultural Viability Aim	Activities
Maintain existing agricultural areas and accommodate future expansion of agriculture	<ul style="list-style-type: none"> ▪ Ensure that agricultural uses are not involuntarily restricted by surrounding landscape and that agricultural activities, including irrigation facilities and drains, are not regulated as habitat ▪ Identify lands that are likely to transition to agricultural use or move from grazing or dryland farming to irrigated farming as priority areas for agricultural expansion ▪ Maintain agricultural production areas free from residential encroachment
Maintain and increase reliability and availability of irrigation water	<ul style="list-style-type: none"> ▪ Support implementation of Yakima Basin Integrated Water Resource Management Plan ▪ Facilitate/Encourage use of water trusts to compensate farmers who dedicate water to instream flow during key periods ▪ Develop flexible infrastructure (wells, storage, pumps) drawing from within and out of basin ▪ Develop emergency irrigation allocation plan, which allows transfer of water during periods of drought (also known as water wheeling) ▪ Enhance on-farm irrigation efficiency with precision agriculture and other efficiency measures ▪ Enhance efficiency of irrigation distribution ▪ Develop and implement incentives for on-farm water conservation practices^[LG8] ▪ Support modifying water rights laws to eliminate potential incentives to waste water- ▪ Support allocation of new water rights from the John Day/McNary pool (WAC 173-531A^[LG9])-
Support actions that benefit both stream functions and agricultural viability	<ul style="list-style-type: none"> ▪ Implement off-channel watering ▪ Encourage programs that provide matching funds for conservation measures ▪ Commodity buffers ▪ Support implementation of the Benton County Groundwater Community Action Plan
Support measures that provide incentives for conservation of key habitats	<ul style="list-style-type: none"> ▪ Voluntary incentives for conservation of corridors, shrub-steppe banks, or easements
Protect agriculture from unmanaged fire	<ul style="list-style-type: none"> ▪ Support fire suppression and prevention in cooperation with rural fire districts, and state, tribal, and federal wildlife managers, with the first priority area being the Blackrock Area of Benton County

Agricultural Viability Aim	Activities
	<ul style="list-style-type: none">▪ Establish other priority areas for fire suppression and prevention in cooperation with rural fire districts, and state, tribal, and federal wildfire managers▪ Firebreaks established along critical zones
<u>Support actions that protect and enhance soil health and land productivity.</u>	<ul style="list-style-type: none">▪ Develop and implement long-term incentives for on-farm soil conservation and soil health practices▪ Support and develop programs providing new opportunities for soil conservation (i.e. overcrop and direct seed technologies).