

BENTON COUNTY VOLUNTARY STEWARDSHIP PROGRAM

Preliminary Critical Area and related Agricultural Viability Goals, Benchmarks, and Performance Metrics | January 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 described 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.

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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	▪ Maintain flow in Yakima River during critical periods*	▪ Irrigation efficiencies (both on-farm and in delivery) installed (acre feet conserved, instantaneous flow)	▪ Area of connected floodplain for recharge (acres) in areas of agricultural intersect	▪ Aim is to increase water right stability for senior water rights holders, and increase water availability for junior water rights holders
	▪ Increase flow in Yakima River during critical periods*	▪ Number of water exchanges, storage, transfers, voluntary regional agreements, and/or water trusts maintained or established related to agricultural use	▪ Minimum flows at designated locations (related to agricultural intersect) in critical low flow periods	
*Note- Agriculture in Benton County has a very limited effect on flow in the Columbia River relative to the effects federal water regulation; therefore, no goals or benchmarks for flow on the Columbia River are proposed.				
Protect surface water quality in streams, wetlands, and agricultural drains in hydrologic study areas¹	<ul style="list-style-type: none"> ▪ Avoid 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 ▪ Implementation of conservation practices that manage or exclude livestock from 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"> Investigate opportunities to recharge groundwater by flooding fields during high flows to create cool water refugia * 	<ul style="list-style-type: none"> Floodplain connectivity projects implemented 	<ul style="list-style-type: none"> Area of connected floodplain for recharge (acres) in areas of agricultural intersect 	<ul style="list-style-type: none"> Groundwater recharge through flooding of fields (to create cool water refugia) could provide a source of additional income from hunting
	<ul style="list-style-type: none"> Maintain shading of streams/wetland areas by native trees* Enhance shading of streams/wetland areas by native trees* 	<ul style="list-style-type: none"> Implementation of conservation practices to exclude livestock from streams and wetlands Riparian planting/protection projects (acres and linear feet) 	<ul style="list-style-type: none"> Stream temperatures suitable for priority fish attributable to agricultural activities 	
	<ul style="list-style-type: none"> Control water stargrass abundance and prevent new populations Reduce water stargrass abundance 	<ul style="list-style-type: none"> Conservation practices implemented to address stargrass 	<ul style="list-style-type: none"> Stargrass abundance 	<ul style="list-style-type: none"> Stargrass causes problems by clogging irrigation pumps and other aquatic equipment

* Note- In general, there is limited opportunity to improve water temperatures from vegetation along streams in Benton County.

Upland Habitat (Shrub Steppe)

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. Enhance shrub steppe habitat blocks and shrub steppe <i>corridors</i> with the 	<ul style="list-style-type: none"> Agricultural area managed to minimize impacts to shrub-steppe (acres) Area of shrub-steppe linkage or pinch point protected (acres) 	<ul style="list-style-type: none"> Area of intact shrub steppe habitat Extent of connectivity corridors 	<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 developed and implemented
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	<p>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</p>	<ul style="list-style-type: none"> 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) 		
Manage shrub-steppe habitat to improve resiliency to fire	<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 Reduced frequency and intensity of fire over time (long-term trend) 	<ul style="list-style-type: none"> Unmanaged fire events threaten agricultural productivity A diverse assemblage of native grasses provides better forage than cheatgrass
Protect native plant community diversity	<ul style="list-style-type: none"> Control invasive species on agricultural lands, and protect native species diversity Reduce invasive species on agricultural lands, and enhance native species diversity 	<ul style="list-style-type: none"> Continuation of practices to maintain botanical diversity such as prescribed grazing, Integrated Pest Management or other measures Implementation of measures to control invasive species and 	<ul style="list-style-type: none"> Increased native species diversity 	<ul style="list-style-type: none"> Recognize agricultural activities and techniques that are compatible with critical area functions Incentive programs to encourage rotational grazing and more intensively management grading should be

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		enhance native species diversity, including host plants for pollinators		developed and implemented <ul style="list-style-type: none"> Invasive species can serve as agricultural pests and/or nuisance species and lead to production loss
Aquifer Recharge				
Protect groundwater recharge in areas of declining water tables or where recharge can help maintain base flows for rivers and streams	<ul style="list-style-type: none"> Maintain on-farm water conservation practices, such as irrigation water management and efficient irrigation systems Increase on-farm water conservation practices, such as irrigation water management and efficient irrigation systems 	<ul style="list-style-type: none"> On-farm irrigation efficiencies installed (acre feet conserved) Floodplain connectivity projects implemented 	<ul style="list-style-type: none"> Groundwater levels at specified locations associated with agriculture 	<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
Protect groundwater quality in areas of agricultural intersect	<ul style="list-style-type: none"> Avoid increases in leaching of nitrogen and other contaminants into groundwater Reduce leaching of nitrogen and other contaminants into groundwater 	<ul style="list-style-type: none"> Implementation of conservation practices to limit runoff On-farm irrigation efficiencies installed (acre feet conserved) to limit agricultural runoff from recharging groundwater Wetland protected or restored (acres) 	<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**	<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 not be considered a critical area

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

Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
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"> ▪ Use of regulatory backstop in form of flood hazard regulations. 	<ul style="list-style-type: none"> ▪ Avoid increases in flood hazards 	
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) 	<ul style="list-style-type: none"> ▪ Wind erosion and sheet and rill erosion in areas of intersect where basinwide tracking is available through NRCS tools ▪ Transport of sediment in areas of intersect as measured in Ecology water quality results ▪ Water infiltration as measured with 	<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.

Critical Area Goal	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource measurement)	Relationship to Agricultural Viability
		<ul style="list-style-type: none"> Irrigation efficiencies employed at the top of slopes 	groundwater quality results	

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 restricted by surrounding landscape and that agricultural activities, including irrigation facilities and drains, are not regulated as habitat
Maintain and increase reliability and availability of irrigation water	<ul style="list-style-type: none"> Facilitate 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 (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
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 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 Establish 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