



# Kittitas County Voluntary Stewardship Plan



Presented by  
John Small and Nora Schlenker, Anchor QEA  
November 20, 2017

# Agenda

- Welcome and Follow-up from Last Meeting
- Protection and Enhancement Strategies
- Goals and Measurable Benchmarks
  - Methods
  - Proposed Benchmarks
- Adaptive Management
- Next Steps

10/25 Watershed Group Meeting

# Recap from Last Meeting

# Recap from 10/25 Watershed Group Meeting

- Provided an overview of the Work Plan including what Watershed Group input would be beneficial
- Discussed the schedule for meeting topics and the Work Plan review schedule
- Decided to include both CARAs and GHAs in the plan
- Walked through Sections 1-4 of the Work Plan

# Work Plan Comments

- Please make comments in the Comment Table
- Include section, page, and line numbers
- Anchor QEA will track comments in a master table
  - If we have conflicting or substantial comments we will discuss with group
  - Other comments will be responded to in the matrix which can be review by the Watershed Group
- Revisions will be made once the Work Plan is completed and we have received final comments (January 2018)


## Section 4

# Protection and Enhancement Strategies

# Key Conservation Practices



- Example key conservation practices from Adams County
- Key conservation practices for the different agricultural types
- Table 4-1 in the Work Plan

## Nutrient Management



Managing application of nutrients to minimize loss to runoff

**Applicability:** **D** **I** **R**

Critical Area Functions	
 Water Quality Function	<ul style="list-style-type: none"> <li>Reduces nutrients in surface and groundwater due to matching plant needs to the amount, timing, and placement of nutrients</li> </ul>
 Habitat	<ul style="list-style-type: none"> <li>Optimizes health and vigor of desired plant species</li> <li>Increases food and cover for wildlife</li> </ul>

**Agricultural Viability**


- Soil quality
- Yield and fertility
- Reduced input costs

**D** Dryland Crops **I** Irrigated Crops **R** Rangeland

### Note:





Critical Areas Functions as defined by the Conservation Practices Physical Effects matrix for each practice.

## Prescribed Grazing



Managing grazing and vegetation harvest to improve plant communities and manage weeds

**Applicability:** **D** **I** **R**

Critical Area Functions	
 Water Quality Function	<ul style="list-style-type: none"> <li>Reduces runoff and erosion</li> <li>Reduces transport of nutrients and sediment</li> </ul>
 Hydrology	<ul style="list-style-type: none"> <li>Increases infiltration and water availability</li> </ul>
 Soil Health	<ul style="list-style-type: none"> <li>Decreases water and wind erosion due to increased vegetation cover</li> <li>Reduces stream erosion through enhanced riparian vegetation</li> </ul>
 Habitat	<ul style="list-style-type: none"> <li>Improves and maintains health and vigor of desired plant species</li> <li>Restores desired habitats, such as shrub-steppe</li> <li>Helps maintain adequate water availability</li> </ul>

**Agricultural Viability**

- Soil quality and conservation
- Weed management
- Yield and fertility

# Changes Since 2011 Baseline

## NRCS Practices Implemented Since 2011

Practice	Acres
Irrigation Water Management	2,753
Forest Stand Improvement	2,163
Sprinkler System	2,147
Woody Residue Treatment	2,145
Tree/Shrub Pruning	2,011
Prescribed Grazing	1,428
Integrated Pest Management (IPM)	1,406



# Changes Since 2011 Baseline

## KCCD Practices Implemented Since 2011

Practice	Amount
Irrigation Water Pipeline	42,319 feet
Aquatic Organism Passage	2,770 cubic yards 1,200 square feet
Sprinkler System	1,831 acres
Range Planting	494 acres
Streambank/Shoreline Protection	445 feet
Clearing and Snagging	20 cubic yards
Pumping Plant	2 count
Structure for Water Control	2 count

# Goals and Benchmarks

# Goals and Benchmarks

*RCW 36.70A.720 (1) – Work plan must include goals and benchmarks for the protection and enhancement of critical areas.*

*(e) create measurable benchmarks that, within 10 years are designed to result in*

*(1) the protection for critical areas functions and values*

*(2) the enhancement of critical areas functions and values through voluntary, incentive-based measures*

- **Protect** = *Prevent the degradation of functions and values existing July 22, 2011*
- **Enhance** = *Improve the critical areas processes, structure, and functions of ecosystems and habitats existing July 22, 2011*

# Goals

- Protect and enhance...
  - ...wetland functions
  - ...fish and wildlife habitat conservation area functions
  - ...critical aquifer recharge area functions
  - ...geologically hazardous area functions
  - ...frequently flooded area functions
- Each goal has objectives, key stewardship practices, and integration with existing plans

# Wetland Goals – Grant Example

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

Key Functions	Wetland Functions
Water Quality	<ul style="list-style-type: none"><li>• Reduces siltation and erosion</li><li>• Provides water filtration</li><li>• Moderates water temperature</li></ul>
Hydrology	<ul style="list-style-type: none"><li>• Stores water to reduce flooding and contributes to base flows</li></ul>
Habitat	<ul style="list-style-type: none"><li>• Provides aquatic and woody vegetated habitat for fish and wildlife</li></ul>

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

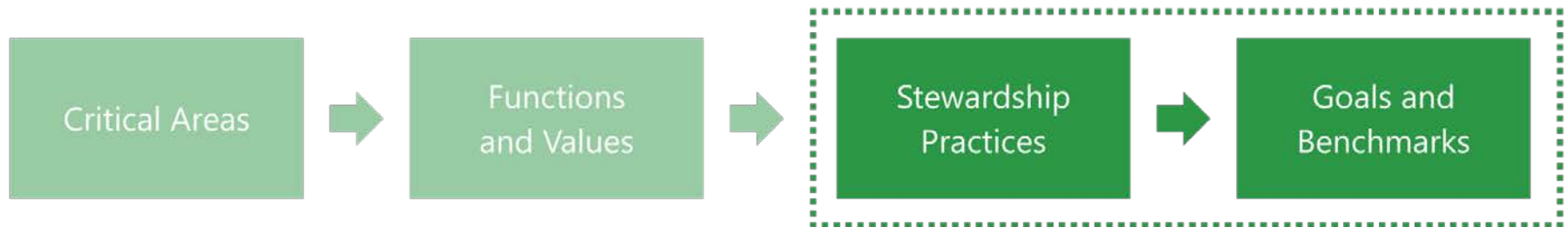
- Ancillary benefits from implemented stewardship practices (improved soil function/soil preservation, weed management, increased pollinators/beneficial organisms, and increased fertility)
- Reducing regulation surprises associated with priority habitat degradation and species decline.
- Reducing costs 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 start-up costs for new practices and infrastructure.

# Wetland Objectives, Practices, and Plans – Grant Example

Objectives	Key Stewardship Practices	Existing Plans
Protect and voluntarily enhance acres managed using strategies that provide direct protections to wetlands and wetland buffers.	<ul style="list-style-type: none"> <li>• Riparian Herbaceous Cover/Filter Strips</li> <li>• Conservation Cover</li> <li>• Fencing</li> <li>• Access Control/Heavy Use Protection</li> </ul>	
Protect and enhance acres managed using strategies that promote water quality and hydrology functions by reducing erosion and improving water storage and filtration.	<ul style="list-style-type: none"> <li>• Conservation Crop Rotation</li> <li>• Cover Crop</li> <li>• Mulch Tillage</li> <li>• Direct Seed</li> <li>• Range Planting</li> <li>• Prescribed Grazing</li> </ul>	
Protect and enhance acres managed using strategies that promote water quality and aquatic habitat functions by reducing inputs from runoff.	<ul style="list-style-type: none"> <li>• Irrigation Water</li> <li>• Nutrient Management</li> <li>• Pest Management</li> <li>• Riparian Herbaceous Cover/Filter Strips</li> <li>• Grassed Waterways</li> <li>• Polyacrylamide</li> </ul>	

# Benchmarks

- Benchmarks are measured by tracking the amount of stewardship practices implemented
- Methods for creating benchmarks rely on:
  - Connecting the benefits to critical areas functions and values provided by stewardship practices
    - Discussed in Section 4
  - The amount of stewardship practices implemented
  - The number of practices that are discontinued



# Types of Critical Area Benefits

- Stewardship practices with **direct** effects on critical areas
  - Conservation practices that are inherently geographically related to critical areas
    - Riparian planting
    - Wetland restoration
- Stewardship practices with **indirect** effects on critical areas
  - Conservation practices that have an effect on critical area processes at the landscape scale
    - Irrigation water management
    - Nutrient management



# Using CPPE to relate conservation practices benefits to critical areas functions and values

Conservation Practice	Habitat	Hydrology	Water Quality	Soil Function
Sprinkler System	■	■ ■	■	■ ■
Forest Stand Improvement	■ ■	■ ■	■	■
Irrigation Pipeline	■	■	■	■ ■
Fencing	■	■	■ ■	■ ■
Prescribed Grazing	■ ■	■	■ ■	■ ■
Mulching	■	■	■	■ ■
Pest Management	■ ■	■	■ ■ ■	■ ■

Beneficial Effects			Neutral or No Effects	Adverse Effects		
High	Medium	Slight		Slight	Moderate	High
■ ■ ■	■ ■	■	■	■	■ ■	■ ■ ■

Key

Benchmark quantities for conservation practice enrollment are provided in 5-year reporting

# Setting a Protection Benchmark and Objective

- Benchmark = No net loss of critical area function (2011)
- Objective = Target amount of practices to reach the protection benchmark
  - Quantify the benefit of stewardship we know has been implemented
    - Practices under contract to NRCS or completed through KCCD
  - Account for discontinuation of practices
  - Protection objective is equal to the change in 2011 baseline to remain at no net loss of critical area function

$$\begin{array}{l} \text{Change from 2011} \\ \text{Baseline Condition} \end{array} = \begin{array}{l} \text{Newly Implemented Acres} \\ \times \text{Physical Effects Score} \end{array} - \begin{array}{l} \text{Discontinued Acres} \\ \times \text{Physical Effects Score} \end{array}$$

# Understanding Discontinuation of Practices

Discontinuation Rate	Categories	Example Practices
None	<ul style="list-style-type: none"> <li>• Permanent Conservation Practices</li> </ul>	<ul style="list-style-type: none"> <li>• Permanent Easements</li> <li>• Major Infrastructure</li> <li>• Aquatic Organism Passage</li> </ul>
Low Rate (0-3%)	<ul style="list-style-type: none"> <li>• High Barriers to Entry/Exit                             <ul style="list-style-type: none"> <li>◦ Conservation investments</li> <li>◦ Maintenance cost</li> <li>◦ Effectiveness</li> </ul> </li> <li>• Increases Land Productivity</li> <li>• Lowers Cost</li> </ul>	<ul style="list-style-type: none"> <li>• Irrigation Management</li> <li>• Streambank/Shoreline Protection</li> <li>• Fencing</li> <li>• Habitat Restoration</li> </ul>
Higher Rate (3-7%)	<ul style="list-style-type: none"> <li>• Low Barriers to Entry/Exit                             <ul style="list-style-type: none"> <li>◦ Easily removed</li> </ul> </li> <li>• Reduced land in production</li> <li>• Rotational use                             <ul style="list-style-type: none"> <li>◦ Market driven rotation</li> </ul> </li> <li>• Reliance on unstable conservation funding or incentives (e.g., CRP)</li> </ul>	<ul style="list-style-type: none"> <li>• Pest Management</li> <li>• Nutrient Management</li> <li>• Prescribed Grazing</li> <li>• Cover Crop</li> <li>• Range Planting</li> </ul>

# Measurable Objectives – Protection

Stewardship Strategies	Historic Enrollment (2011 – 2016)		Protection Objective	
	Average Annual Enrollment	Estimated Yearly Discontinuation	2021 Predicted Objective (discontinuation x 10)	2026 Predicted Objective (discontinuation x 15)
Water Management	1,043 acres	31 acres	313 acres	469 acres
Nutrient Management	120 acres	8 acres	84 acres	126 acres
Irrigation Pipeline	16,913 feet	507 feet	5,074 feet	7,611 feet
Fence	28,407 feet	852 feet	8,522 feet	12,783 feet

# Setting an Enhancement Benchmark and Objective

- Benchmark = Increase of critical area function from 2011
- Objective = Target amount of practices to reach the enhancement benchmark
  - Projects already completed to date that surpass the protection objective
  - Projects likely to be implemented based on existing level of funding
  - Projects likely to be implemented if there was adequate funding to do everything people wanted to do

# Measurable Objectives – Enhancement

Stewardship Strategies	Historic Enrollment (2011 – 2016)		Enhancement Objective	
	Average Annual Enrollment	Estimated Yearly Discontinuation	2021 Predicted Objective (historic minus protection)	2026 Predicted Objective (historic minus protection)
Water Management	1,043 acres	31 acres	2,816 acres	5,789 acres
Nutrient Management	120 acres	8 acres	276 acres	594 acres
Irrigation Pipeline	16,913 feet	507 feet	45,665 feet	93,867 feet
Fence	28,407 feet	852 feet	76,698 feet	157,656 feet

# Enhancement Objective

## *Watershed Group Discussion*

- Aspirational
  - How much could we do with adequate funding
- Realistic
  - How much could we do with current funding
- Conservative
  - Equal to practices implemented 2011-2016
  - Shows you are already above the protection benchmark

# Indicators and Adaptive Management



# Adaptive Management

- Determine whether the implementation of conservation practices is actually improving the critical areas functions and values
- Determine if the stewardship practices included in the Work Plan are still the best, most widely used practices and that they support Ag. viability
- Identify changes in agricultural viability that needs to be addressed (new crops, markets, costs)
- Use direct and indirect monitoring to determine progress

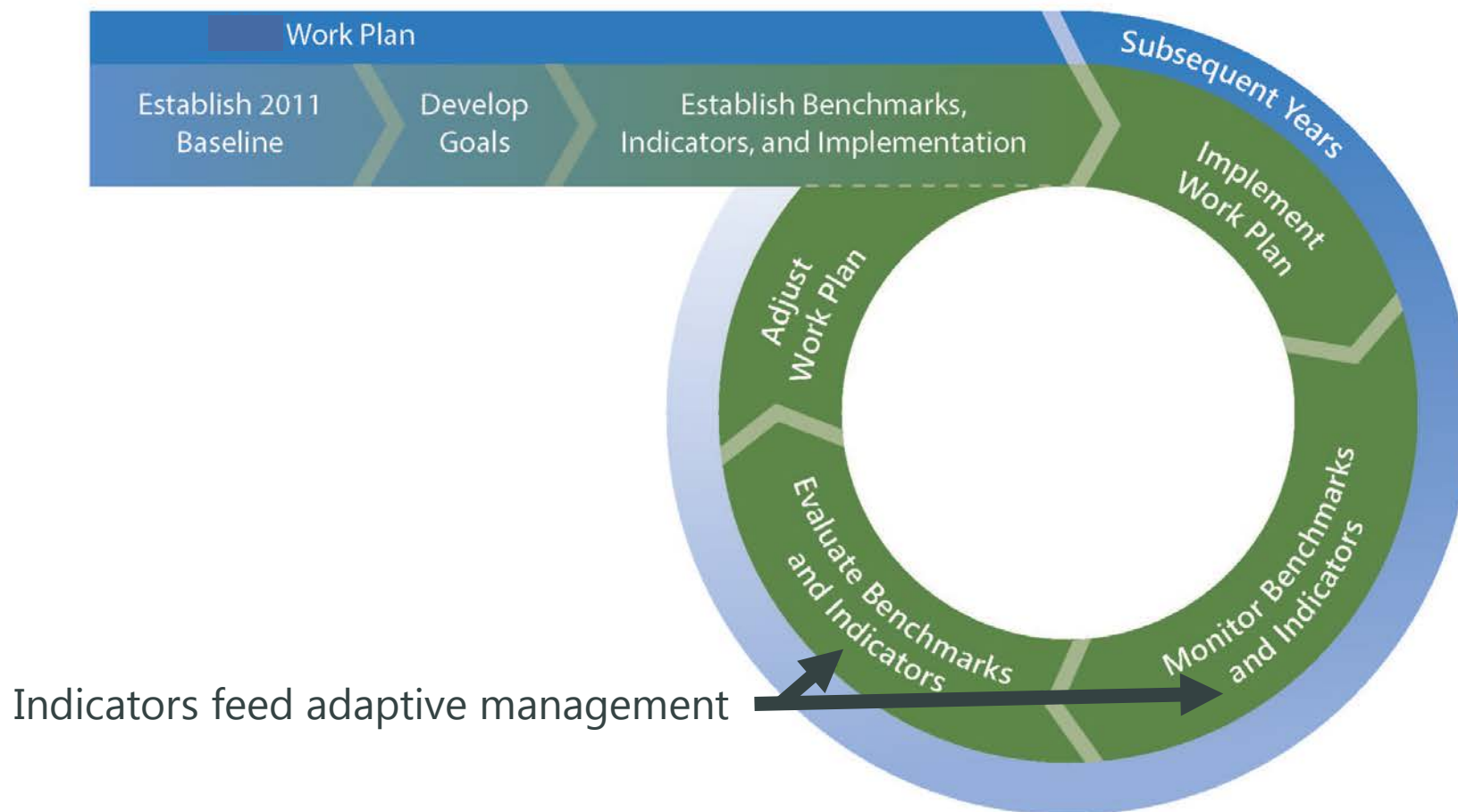
# Direct vs. Indirect Monitoring

- Direct monitoring (of Conservation Practices)
  - *Tracking enrolled acres*: Determine if the county is meeting the protection and enhancement objectives
  - *Sample verification*: Monitor a randomly selected sample of 10% of enrolled projects
  - *Producer Participation*: Annual producer participation rate drops below 120%
- Indirect monitoring (what are the effects)
  - *Indicators*: Assess if practices are having the desired effect
  - *VSP applicability*: determine if change in indicators is due to agricultural practices

# Indicators

- Indicators include information collected through existing programs
  - Water quality monitoring
  - Flow data
  - Priority Habitat and Species data
  - Aerial imagery
- Help to understand if conservation practices are affecting physical indicators of functions and values
- Determine if changes in indicators are the result of agriculture practices.
  - Some changes in indicators cannot be easily distinguished from other factors such as fire, drought, or climate
- Indicators may not reflect benefits from stewardship actions for many years or even decades

# Adaptive Management



# Next Steps

# Expected Next Steps

- Watershed Group Review Sections 1-4
  - Comments due Monday, December 4
- Prepare Section 5
  - Send to Watershed Group one week before meeting
- December Watershed Group Meeting
  - Discuss Outreach and Implementation and comments on Sections 1-5
  - Potential Dates:
    - Wednesday December 13, 2017, 1:00 to 3:00
    - Friday December 15, 2017, 1:00 to 3:00
    - Monday December 18, 10:00 to 12:00
    - Tuesday December 19, 2017, 1:00 to 3:00