

Appendix G. Adaptive Monitoring Matrix

INTRODUCTION

This appendix provides an adaptive monitoring program consistent with RCW 36.70A.720(1)(j) and 2(a)(iii). The program includes tables addressing 1) **protection** goals, benchmarks, monitoring and adaptive management actions, 2) **enhancement** goals, benchmarks, monitoring and adaptive management actions, 3) **participation** goals, benchmarks, monitoring, and adaptive management action approaches, and 4) **agricultural viability** aims, incentives, and activities associated with critical area protection.

For the purposes of interpreting benchmarks in Work Plan Chapter 7 and Appendix G, the following terms are described to aid in measurement of benchmark performance:

- **Maintain** means no net adverse change from the July 2011 baseline conditions of critical area functions and values and within the range of the adaptive management threshold in Appendix G. Protect is interpreted similar to maintain for purposes of measuring benchmarks. **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
- **Enhance** means to improve the processes, structure, and functions existing, as of July 22, 2011, of ecosystems and habitats associated with critical areas relative to the adaptive management threshold. **Enhancement would be indicated by a positive change (improvement) in the metric** (e.g. new irrigation efficiencies are installed).
- **Extent**, when indicated below, will be measured using the unit of measure prescribed for a given Conservation Practice by the Natural Resource Conservation District (NRCS).

Adaptive management thresholds are included in Appendix G and would be used to detect if there is a substantial change in the performance metrics to determine whether the benchmark is met.

ADDITIONAL MONITORING CONTEXT

Evaluation focuses on the intersect of critical areas with agricultural activities. Monitoring results would be reported at the watershed level. Additionally, adaptive management thresholds in Appendix G define when a closer look at results would occur based on evaluation results. Where adaptive management thresholds are exceeded, the working group will first evaluate whether the changes are a result of agricultural activities.

Activities that do not fit within the VSP definition for “agricultural activities” or that are outside the scope and/or jurisdiction of the VSP will generally be excluded and will not be counted against the agricultural community for VSP monitoring and reporting purposes. Such non-agricultural activities include but are not limited to catastrophic fires, floods, natural disasters, GMA-regulated conversions, forestry activities regulated by the Forest Practices Act, changes in eligibility for federal program, changes in federal program funding contract conditions, technical mapping corrections, mapping errors, changes beyond a producer’s control, etc.). Similarly, data or reports on mixed resource metrics or parameters affected by both agricultural and non-agricultural actors and factors will generally be excluded for purposes of determining compliance with VSP critical area baseline protection requirements or success in meeting critical area protection and enhancement goals and benchmarks. Mixed-activity resources metrics may however be useful as trend indicators to help focus VSP enhancement efforts on high priority areas.

As a general approach, the monitoring methods may include collecting information on acres or lineal feet of a critical area within an intersect as an initial screening approach; however, the goals and benchmarks are evaluated based on whether a critical area function or value is protected or enhanced. Implementation is typically measured by the area directly affected by best management practices. However, implementation benchmarks may also relate to more programmatic actions led by the working group or other members of the agricultural community. For example, coordinated fire management among agriculture and fire-fighting and resource management agencies is a high-priority programmatic action to reduce the frequency of fire affecting shrub-steppe habitat and rangelands. Outreach to federal, state, and local land managers and owners is identified as an implementation benchmark for enhancement.

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

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Effectiveness benchmarks may be evaluated by the area of change, which is supplemented by the nature of the change to understand the effects on critical area functions, or by follow up monitoring of the effectiveness of best management practices. The measurable extent of change may be detected through existing remote sensing information, an expert panel, or through follow-up monitoring by the technical service providers.

Where referenced, expert panels would be convened by the Work Group, and would be made up of qualified professionals and subject matter experts who have demonstrated education, experience, accreditation, and knowledge relevant to the particular matter.

TABLE 1. ADAPTIVE MANAGEMENT MATRIX: PROTECTION GOALS, BENCHMARKS, MONITORING, AND ADAPTIVE MANAGEMENT ACTION APPROACHES TO MAINTAIN CRITICAL AREA FUNCTIONS

| Row # | Critical Area Protection Goal In areas of critical area intersect with agricultural activities, and at the watershed level: | Critical Area Protection Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method Monitor at watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--|---|--|--|--|---|--|--|---|--|---|
| 1. | High level goal of project. There are just a handful. | Specific environmental conditions desired from project <ul style="list-style-type: none"> Rely on regulatory backstop of water rights adjudication. No benchmarks or measurement required. | What will be measured to know if benchmark is achieved Not applicable. | The measured effect of actions on critical areas Not applicable. | How the performance metric will be measured Not applicable. | Project result that, if achieved, must be addressed with an action Not applicable. | Action that will be taken if threshold is reached (A No Action Alternative is implied as an option) Not applicable. | Person or organization responsible for benchmark monitoring Not applicable. | When monitoring will occur Not applicable. | Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached. Not applicable. | Organization with funding available to assist technical provider or agricultural owner Not applicable. |

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| 2. | Protect the functions and values of hydrologically related critical areas, including streams, wetlands, floodplains, and critical aquifer recharge areas. | <ul style="list-style-type: none"> ▪ Maintain floodplain connectivity and groundwater recharge during high flows by avoiding an increase in floodplain disconnection. | <ul style="list-style-type: none"> ▪ Avoid an increase in structures or barriers that result in floodplain disconnection. ▪ Apply regulatory backstop of flood hazard management regulations. | <ul style="list-style-type: none"> ▪ Area of connected floodplain retained in areas of agricultural intersect (see riparian (Row 3) and wetland (Row 6) benchmarks for cover metrics). | <ul style="list-style-type: none"> ▪ Technical Service Provider visits will identify new barriers to floodplain connectivity. ▪ When new mapping is available, such as LIDAR and Flood Insurance Rate Maps, these maps will be used to identify changes in the floodplain area. | <ul style="list-style-type: none"> ▪ Net increase in barriers to floodplain connectivity ▪ 10% reduction in areas of connected floodplain. | <ul style="list-style-type: none"> ▪ Evaluate if changed floodplain connectivity mapping is due to quality of mapping data or due to on-the-ground loss of floodplain connectivity due to agricultural activities. ▪ Seek willing landowners in areas of intersect to implement floodplain connection and stream restoration projects. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type D | Type 1, except C Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

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| 3. | | <ul style="list-style-type: none"> Manage riparian vegetation to maintain instream habitat, limit risk of channel migration into agricultural fields, maintain shading of stream, and other water quality functions. | <ul style="list-style-type: none"> LivestockNumber and extent of best management practices maintainedrelated to livestock. Riparian Area of riparian vegetation area retained, except for noxious weeds. Allow riparian areas to reestablish after natural events. | <ul style="list-style-type: none"> Area and cover of riparian vegetation intersecting agricultural activities. | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices addressing riparian area management. Site visits by technical assistance providers to assess riparian composition and cover. Remote sensing imagery interpretation of riparian area and cover by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> 10% decrease in livestock management practices. 10% decrease in riparian area. 105% decrease in riparian cover. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to increase best management practices. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type D NYCD/SYCD Type E Work Group Type F | A, B, and D Type 1 E and F Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

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|-------|--|---|--|---|---|--|--|--|--------|---------------------------------|--|
| 4. | | <ul style="list-style-type: none"> Manage nutrients, pathogens, and other contaminants to maintain surface and groundwater quality (rely on regulatory backstop for pesticides, dairy nutrients, and stormwater, and on Lower Yakima Valley Groundwater Management Area standards for groundwater). | <ul style="list-style-type: none"> Absent background regulations and TMDLs, number and extent of best management practices maintained to reduce runoff, and protect groundwater quality in critical aquifer recharge areas. (LYGWMA work products will be considered to identify focus areas and BMPs for groundwater protection) | <ul style="list-style-type: none"> Best Percentage of best management practices functioning as designed to protect water quality. | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that address water quality and, nutrient management, and other groundwater BMPs. Success of implemented best management practices in achieving objectives. Groundwater quality monitoring data available from LYGWMA. | <ul style="list-style-type: none"> 5% reduction of best management practices addressing water quality and nutrient management. 5% of best management practices monitored not meeting objectives. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to increase best management practices. | NYCD/SYCD Type A NYCD/SYCD Type B NYCD/SYCD Type D | Type 1 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |
| 5. | | <ul style="list-style-type: none"> Maintain conditions for fish passage related to agriculture. This includes maintaining the current passable/non-barrier crossings to remain passable. | <ul style="list-style-type: none"> No net increase in the number of fish passage barriers related to agricultural activities | <ul style="list-style-type: none"> Surveyed number of fish passage barriers and unscreened diversions associated with agriculture. | <ul style="list-style-type: none"> Survey fish passage barriers via the North Yakima Conservation District and Washington State Fish Passage Map. | <ul style="list-style-type: none"> No increase in fish passage barriers associated with agriculture. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to remove passage barriers. | NYCD/SYCD Type A NYCD/SYCD Type B NYCD/SYCD Type D | Type 1 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

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|-------|--|---|--|--|--|---|--|--|-------------------------------|---------------------------------|--|
| 6. | | <ul style="list-style-type: none"> Protect the functions and values of naturally occurring wetlands. | <ul style="list-style-type: none"> Wetland areaArea of wetland protected in CRP, conservation easement, or in-fee purchase (retained in area or function). ImplementationNumber and extent of practices that avoid and minimize impacts to wetland functions (area of practices to protect water quality, hydrology, and/or habitat)). See riparian metrics above. Recognize federal wetland regulatory backstop. | <ul style="list-style-type: none"> Wetland areaArea of wetland and percent cover in mapped wetlands using Ecology's Wetland Change Analysis, if it becomes available. In the interim, riparian cover in areas intersecting mapped wetlands and agriculture will be used as a proxy. | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that protect wetlands. Mapped conservation areas containing wetlands in areas of agricultural intersect. Site visits by technical assistance provider. Remote sensing imagery interpretation using Ecology's Wetland Change Analysis, if it becomes available. In the interim, remote sensing of riparian cover in areas intersecting mapped wetlands and agriculture will be used as a proxy. Interpretation by entity selected by Work Group. | <ul style="list-style-type: none"> 5% reduction of best management practices in areas of intersect. 5% reduction in areas of wetlands conserved in areas of intersect. 5% reduction in wetland area, cover, or complexity, if Ecology's Wetland Change Analysis becomeswhere data is reasonably available. | <ul style="list-style-type: none"> Evaluate if changed mapping is due to quality of mapping data or due to loss of conservation areas due to agriculture. Seek willing landowners in areas of intersect to implement wetland best management practices. Increase wetland enhancement or restoration projects with willing landowners. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Ecology's Wetland Change Analysis, if it becomes available, otherwise wetland cover with Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |
| 7. | Conserve biodiversity and sensitive species, particularly within shrub-steppe habitats without restricting ongoing or new agricultural | <ul style="list-style-type: none"> Maintain functions of shrub-steppe habitat, especially areas with deep soils through voluntary management and protection measures. Examples include but are not | <ul style="list-style-type: none"> Area of shrub-steppe managed to limit landcover disturbance in areas of shrub-steppe (area of interface or overlap). Area of shrub- | <ul style="list-style-type: none"> ShrubArea of shrub-steppe protected (annual/seasonal review of area and native cover compared to | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that protect shrub-steppe habitat. Site visits by technical assistance providers. | <ul style="list-style-type: none"> 2.5% decrease in shrub-steppe area or native cover. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to increase best management practices. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or | Type 2, no later than 5 years | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

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|-------|--|---|--|--|--|---|----------------------------|--------------|---|---------------------------------|---|
| | activities. | limited to: <ul style="list-style-type: none"> o managed grazing at appropriate times o develop public/private grazing plans that enhance critical areas and agricultural viability. o native bunch grass propagation. Using existing bunch grasses; divide plants into halves or quarters and replant. Best done in late fall /winter. o develop firefighting strategies that protect shrub-steppe habitats that compliment VSP plan goals (see also Table 2). o install rain guzzlers in rangeland shrub-steppe areas to provide water sources for both livestock and wildlife. | steppe managed to promote shrub-steppe functions- may include managed grazing (area of managed grazing or public/private grazing). | baseline). | <ul style="list-style-type: none"> ▪ Remote sensing imagery interpretation of area and native shrub-steppe cover by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | | | | Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | | |

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| 8. | | <ul style="list-style-type: none"> ▪ Maintain habitat connectivity in important linkage centrality areas or pinch points. | <ul style="list-style-type: none"> ▪ ShrubArea of shrub-steppe linkage centrality or pinch point protected (connectivity retained). <ul style="list-style-type: none"> ◦ VoluntaryArea of voluntary informal set-aside's by producers, leases, easements, or acquisitions to retain connectivity. Tools that retain taxable land area are preferred. | | <ul style="list-style-type: none"> ▪ Site visits by technical assistance providers. ▪ Remote sensing imagery interpretation of area of shrub-steppe in mapped areas of habitat connectivity corridors, including linkages and pinch points. Interpretation by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> ▪ 2.5% reduction in habitat connectivity corridors including linkages and pinch points. | <ul style="list-style-type: none"> ▪ Seek willing landowners to enhance or restore habitat in high value blocks or connectivity corridors. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

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| 9. | | <ul style="list-style-type: none"> Maintain abundance of pollinator populations | <ul style="list-style-type: none"> PollinatorArea of pollinator habitat protected (area,based on areal cover, and diversity of host species compared to baseline). Number and extent of Integrated Pest Management (IPM) plans maintained. | | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that protect pollinator habitat. Review overall planted area: Agriculture, Rangeland, and Habitat. Consider seasonality. Use information from WSU for baseline area information if available.¹ | <ul style="list-style-type: none"> 10% reduction of best management practices in areas of intersect. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to increase best management practices. | NYCD/SYCD Type A NYCD/SYCD Type B NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

¹ The baseline of acres in bloom and forage in crop land is not yet available. A WSU Work Program describes such research is needed: <https://agr.wa.gov/PlantsInsects/Apiary/docs/HoneyBeeWkGroupReport.pdf>. Census of Agriculture data reports some data on bee colonies, but it is insufficient. 2012 Census of Ag.: Colonies of Bees in Yakima County = 20,357.

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| Row # | Critical Area Protection Goal In areas of critical area intersect with agricultural activities, and at the watershed level: | Critical Area Protection Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method Monitor at watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--|---|--|--|--|--|---|--|-------------------------------|---------------------------------|--|
| 10. | Avoid and minimize risks associated with geologically hazardous areas associated with agricultural activities. | <ul style="list-style-type: none"> ▪ Manage irrigation practices and agricultural activities to maintain integrity of steep slopes by: <ul style="list-style-type: none"> ○ Avoiding increases in erosion. ○ Avoiding steep slopes or helping to stabilize steep slopes where practical. ○ Avoiding irrigating unstable slopes. | <ul style="list-style-type: none"> ▪ BestNumber and extent of best management practices implemented to manage runoff to steep slopes or to avoid erosion. | <ul style="list-style-type: none"> ▪ NaturalArea of natural vegetative cover retained in areas of agricultural intersection with geologically hazardous areas | <ul style="list-style-type: none"> ▪ Tracking tool: The number and extent of best management practices addressing slope stability and erosion. ▪ Identify areas subject to erosion for vegetative cover using site visits by technical assistance providers. ▪ Evaluate water quality monitoring of sediments in hydrologic study areas, where such results can be attributed to agricultural activities. ▪ Remote sensing imagery interpretation by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> ▪ Net loss of more than 10% vegetation in areas of agricultural intersect with steep slopes. ▪ Measurable decrease in water quality below State standards where results can be attributed to agricultural activities. | <ul style="list-style-type: none"> ▪ Implement best management practices to reestablish lost vegetation or manage runoff with current and added VSP Participants. ▪ Where appropriate, conduct water quality assessments and identify control programs or improvement projects. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type D NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

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TABLE 2. ADAPTIVE MANAGEMENT MATRIX: GOALS, BENCHMARKS, MONITORING, AND ADAPTIVE MANAGEMENT APPROACHES TO VOLUNTARILY ENHANCE CRITICAL AREAS

| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|---|--|--|--|---|---|---|---|----------------------------|---|--|
| | High level goal of project. There are just a handful. | Specific environmental conditions desired from project | What will be measured to know if benchmark is achieved | The measured effect of actions on critical areas | How the performance metric will be measured | Project result that, if achieved, must be addressed with an action | Action that will be taken if threshold is reached (A No Action Alternative is implied as an option) | Person or organization responsible for benchmark monitoring | When monitoring will occur | Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached. | Organization with funding available to assist technical provider or agricultural owner |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

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NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

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|-------|---|--|---|--|--|---|---|--|----------------------------|---------------------------------|--|
| 1. | Enhance the functions and values of hydrologically related critical areas, including streams, wetlands, floodplains, and critical aquifer recharge areas. | <ul style="list-style-type: none"> Increase flow in critical reaches during critical low flow period. | <ul style="list-style-type: none"> Acre-feet reduction in diversion, instantaneous flow. Number of water exchanges, storage, transfers, voluntary regional agreements, and/or water trusts established. | | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that maintain or promote irrigation efficiencies as of the baseline. Tracking tool: Water resource agreements maintained or increased as of the baseline. Ecology River and Stream Flow Monitoring or Yakima Basin Integrated Water Resource Management Plan (YBIWRMP) monitoring results show maintenance or increases in minimum flows at river locations intersecting with agriculture. | <ul style="list-style-type: none"> No increase in best management practices in areas of intersect. No increase in water agreements related to agricultural use important for minimum flows. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to reestablish or add new irrigation efficiency best management practices. Reestablish or increase water agreements with willing landowners. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type D | Type 1, except C Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

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MONITORING ACTIVITY & RESPONSIBILITY

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|-------|--------------------------------|--|---|---|--|---|--|--|--------|---------------------------------|--|
| 2. | | <ul style="list-style-type: none"> Increase floodplain connectivity, groundwater recharge, and instream habitat complexity. | <ul style="list-style-type: none"> Stream enhancement or restoration projects implemented (length of stream)- including dike setbacks, floodplain reconnection, and bank contouring. Coordinated recharge projects implemented in areas of agricultural intersect. (acre-feet recharged). | <ul style="list-style-type: none"> Floodplain areaArea of floodplain restored in area of agricultural intersect compared to baseline. StreamLength of stream channel complexity restored in area of agricultural intersect. Groundwater recharge in areas of agricultural intersect (Acre-feet or pervious area sufficient to allow recharge). | <ul style="list-style-type: none"> Tracking tool: Floodplain and stream restoration projects implemented. | <ul style="list-style-type: none"> No increase in areas of stream restoration in areas of intersect. | <ul style="list-style-type: none"> Evaluate if changed floodplain connectivity mapping is due to quality of mapping data or due to on-the-ground loss of floodplain connectivity due to agricultural activities. Seek willing landowners in areas of intersect to implement floodplain connection and stream restoration projects. | NYCD/SYCD Type A NYCD/SYCD Type B NYCD/SYCD Type D | Type 1 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

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| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--------------------------------|---|--|---|--|---|---|--|----------------------------|---------------------------------|--|
| 3. | | <ul style="list-style-type: none"> Re-establish or enhance riparian vegetation to improve instream habitat, shading of stream, and other water quality functions: <ul style="list-style-type: none"> Priority is given to basins where the benchmark of riparian area protection of functions and values is at risk of degrading compared to baseline and affects fish species. Second priority is other areas of focus per county, state, regional, tribal priorities for enhancement. | <ul style="list-style-type: none"> LivestockNumber and extent of management practices implemented related to livestock. NoxiousArea of noxious weeds and invasive species removed from riparian areas intersecting agricultural activities (annual/seasonal review of conditions compared to baseline). NativeArea of native species restored in riparian areas intersecting agricultural activities (annual/seasonal review of conditions compared to baseline). | <ul style="list-style-type: none"> InvasiveArea of invasive species distribution and cover in riparian areas adjacent to agricultural activities. NativeArea of native species cover in riparian areas adjacent to agricultural activities. Area or cover of riparian vegetation intersecting agricultural activities. | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices or voluntary enhancements that address native species. Sample areas using site visits by technical assistance providers. Remote sensing imagery interpretation of riparian area and cover by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> No increase in riparian area or native cover. | <ul style="list-style-type: none"> Promote voluntary implementation of native plant enhancement in areas of intersect. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

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NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

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| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--------------------------------|--|---|---|--|--|--|--|--------|---------------------------------|--|
| 4. | | <ul style="list-style-type: none"> Manage nutrients, pathogens, and other contaminants to improve surface and groundwater quality. | <ul style="list-style-type: none"> BestNumber and extent of best management practices implemented to enhance organic matter in soil to improve moisture content. BestNumber and extent of best management practices implemented for contaminant storage. Number of off-channel watering sites installed. Number of best management practices installed to limit runoff (including irrigation efficiencies and precision agriculture). | <ul style="list-style-type: none"> Water quality is improved in agricultural drains where monitored. BestPercentage of number of best management practices achieving water quality objectives. Groundwater quality improved in the Lower Yakima Groundwater Management Area. | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that address water quality and nutrient management. Percent of irrigation water management plans and soil nutrient monitoring plans meeting objectives. Ongoing water quality monitoring in agricultural drains and Lower Yakima Groundwater Management Area | <ul style="list-style-type: none"> No improvement in progress to meet water quality parameters. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to increase water quality and nutrient management practices. | NYCD/SYCD Type A NYCD/SYCD Type B NYCD/SYCD Type D | Type 1 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

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|-------|--------------------------------|---|---|--|--|--|--|---|-------------------------------|---------------------------------|--|
| 5. | | <ul style="list-style-type: none"> Improve fish passage conditions related to agriculture. | <ul style="list-style-type: none"> FishNumber of fish passage barriers corrected. FishNumber of fish screens installed on existing unscreened diversions. | <ul style="list-style-type: none"> Surveyed number of fish passage barriers and unscreened diversions associated with agriculture. | <ul style="list-style-type: none"> Survey fish passage barriers via available information from the North Yakima Conservation District and Washington State Fish Passage Map or any available fish passage data. | <ul style="list-style-type: none"> No reduction in fish passage barriers as of baseline. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to remove passage barriers. | NYCD/SYCD Type A NYCD/SYCD Type B County Type C Washington State Fish Passage Map NYCD/SYCD Type D | Type 1 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |
| 6. | | <ul style="list-style-type: none"> Enhance wetland functions and values. | <ul style="list-style-type: none"> Area of wetland enhancement and restoration projects implemented (including artificial wetlands). ActionsNumber and extent of actions implemented to reduce artificial drainage of wetlands (number).. | <ul style="list-style-type: none"> Wetland area, and cover, as detected using Ecology's Wetland Change Analysis, if it becomes available. In the interim, riparian cover in areas intersecting mapped wetlands and agriculture will be used as a proxy. | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that protect wetlands. Mapped conservation areas containing wetlands in areas of agricultural intersect. Site visits by technical assistance provider. Remote sensing imagery interpretation using Ecology's Wetland Change Analysis, if it becomes available. Interpretation by entity selected by Work Group. | <ul style="list-style-type: none"> No increase in best management practices in areas of intersect. No increase in areas of wetlands protection or restoration. | <ul style="list-style-type: none"> Evaluate if changed mapping is due to quality of mapping data or due to loss of conservation areas due to agriculture. Seek willing landowners in areas of intersect to implement wetland best management practices. Increase wetland enhancement or restoration projects with willing landowners. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: County using Ecology's Wetland Change Analysis, if it becomes available, with interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

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NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--|---|--|---|---|---|--|-------------------------------|---------------------------------|--|---|
| 7. | Increase biodiversity and sensitive species resilience, particularly within shrub-steppe habitats ² . | <ul style="list-style-type: none"> Improve biodiversity of shrub-steppe habitats. <ul style="list-style-type: none"> Promote voluntary measures to enhance shrub-steppe habitat and shrub-steppe corridors with the first priority as areas where the benchmark of shrub-steppe protection of functions and values is at risk of degrading compared to baseline. Enhancement opportunities should include firstly current blocks and | <ul style="list-style-type: none"> Area of shrub-steppe enhanced or restored (enhanced in area or native cover³). <ul style="list-style-type: none"> BestNumber and extent of best management practices implemented to control invasive species and encourage native shrub-steppe species (enhanced in area or native cover) such as: <ul style="list-style-type: none"> Additional areas of managed grazing at appropriate times or public/private grazing plans that enhance or restore composition and native cover compared to the baseline, | <ul style="list-style-type: none"> Site visits by technical assistance providers. Remote sensing imagery interpretation of area and native cover of shrub-steppe by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> No increase in quality of shrub-steppe habitat through best management practices. | <ul style="list-style-type: none"> Promote implementation of enhancement or restoration with willing landowners. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission | |

² Shrub-steppe habitat encompasses rocky soils, shrubs, and grasses.

³ Cover represents the native proportion of shrub and grass components within shrub-steppe habitats.

PRIORITY GOALS & BENCHMARKS

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MONITORING ACTIVITY & RESPONSIBILITY

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|-------|--------------------------------|---|---|--|-------------------|---|----------------------------|--------------|------|---------------------------------|---|
| | | currently utilized corridors and secondly historical or likely suitable corridors that could be established or renewed. | <ul style="list-style-type: none"> o Native plant propagation in new areas. o Added areas where rain guzzlers are installed in rangeland shrub-steppe areas to provide water sources for both livestock and wildlife o Avoid disturbance of seedbank, or stockpile removed soils and reapply following disturbance, o Integrated Pest Management to reduce noxious weeds and control invasive species, establishing desired vegetation. | | | | | | | | |

PRIORITY GOALS & BENCHMARKS

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MONITORING ACTIVITY & RESPONSIBILITY

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| 8. | | <ul style="list-style-type: none"> ▪ Improve habitat connectivity in important linkage areas or pinch points. <ul style="list-style-type: none"> ○ See row 17 for priorities. | <ul style="list-style-type: none"> ▪ Area of shrub-steppe linkage centrality or pinch point restored (enhanced in area or native cover). <ul style="list-style-type: none"> ○ Area of voluntary informal set-asides by producers, leases, easements, or acquisitions to retain connectivity. Tools that retain taxable land area are preferred. | <ul style="list-style-type: none"> ▪ FunctionPercent composition of important habitat linkagesnative cover in linkage areas accessible to wildlife. | <ul style="list-style-type: none"> ▪ Mapped area of habitat connectivity corridors including linkages and pinch points. <ul style="list-style-type: none"> ▪ Site visits by technical assistance providers. | <ul style="list-style-type: none"> ▪ No increase in protected, enhanced, or restored habitat connectivity corridors including linkages and pinch points. | <ul style="list-style-type: none"> ▪ Seek willing landowners to enhance or restore habitat in high value blocks or connectivity corridors. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

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| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--------------------------------|---|--|--|--|--|--|--|-------------------------------|---------------------------------|--|
| 9. | | <ul style="list-style-type: none"> Reduce fire risk to shrub-steppe habitat. | <ul style="list-style-type: none"> EffortsArea of efforts implemented to control invasive species, including managed grazing (based on an annual/seasonal review of composition and native cover compared to baseline). OutreachNumber of outreach efforts to federal, state, and local land managers and owners and fire-fighting and environmental agencies to develop a coordinated approach to fire management that will limit impacts to shrub-steppe. MonitorNumber of comments submitted and meetings attended by Work Group representatives to monitor and get involved in development of management plan for Yakima Training | | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices that address cheatgrass or other invasive species. Fire plan preparation. This includes a willing landowner working with a technical provider to create fire breaks or other management techniques. This may alter a critical area, but result in protection of the overall shrub-steppe landscape. Site visits by technical assistance providers. Remote sensing imagery interpretation by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> 2.5% increase in invasive species. 2.5% decrease in native shrub-steppe species | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to increaseprovide access and work with Technical Service Provider to assist in habitat rehabilitation / recovery, such as by increasing best management practices. Promote implementation of native grass planting through enhancement or restoration. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--------------------------------|--|--|---|---|---|---|--|----------------------------------|---------------------------------|--|
| 10. | | <ul style="list-style-type: none"> Improve the abundance and diversity of native pollinators. | <ul style="list-style-type: none"> Center, and get involved where possible such as through comment periods or meetings. | <ul style="list-style-type: none"> Number and extent of Integrated Pest Management plans implemented. Habitat Area of habitat enhanced for pollinators to achieve diversity in pollinator species (enhanced in area, cover, or diversity of pollinator host species). | <ul style="list-style-type: none"> Tracking tool: Voluntary enhancements or added best management practices to improve pollinator habitat. Use information from WSU for baseline area information if available.⁴ | <ul style="list-style-type: none"> No increase in pollinator habitat. | <ul style="list-style-type: none"> Promote implementation of pollinator planting through enhancement or restoration. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

⁴ The baseline of acres in bloom and forage in crop land is not yet available. A WSU Work Program describes such research is needed: <https://agr.wa.gov/PlantsInsects/Apiary/docs/HoneyBeeWkGroupReport.pdf>. Census of Agriculture data reports some data on bee colonies, but it is insufficient. 2012 Census of Ag.: Colonies of Bees in Yakima County = 20,357.

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

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NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Critical Area Enhancement Goal | Critical Area Enhancement Benchmark | Performance Metric (Implementation) At watershed scale in areas of critical area / agriculture intersect. | Performance Metric (Resource measurement) At watershed scale in areas of critical area / agriculture intersect. | Monitoring Method | Adaptive Management Action Threshold At watershed scale in areas of critical area / agriculture intersect. | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|--|--|---|--|--|---|--|-------------------------------|---------------------------------|--|---|
| 11. | Reduce risks associated with geologically hazardous areas associated with agricultural activities. | <ul style="list-style-type: none"> Manage irrigation practices and agricultural activities to reduce risks associated with steep slopes in agricultural areas. | <ul style="list-style-type: none"> BestNumber and extent of best management practices implemented to manage runoff to steep slopes. ImplementationNumber and extent of best management practices for slope stability (e.g. contour planting, retaining native vegetation, irrigation efficiencies). | <ul style="list-style-type: none"> Tracking tool: The number and extent of best management practices addressing slope stability and erosion. Identify areas subject to erosion for vegetative cover using site visits by technical assistance providers. Evaluate water quality monitoring of sediments in hydrologic study areas, where such results can be attributed to agricultural activities. Remote sensing imagery interpretation by entity selected by Work Group. Equivalent alternatives to imagery interpretation include: conservation practice implementation (Tracking Tool), Technical Provider field visits, periodic watershed assessments by experts. | <ul style="list-style-type: none"> Net loss of more than 10% vegetation in areas of intersect and steep slopes. Measurable decrease in water quality below State standards where results can be attributed to agricultural activities. | <ul style="list-style-type: none"> Implement best management practices to reestablish lost vegetation or manage runoff with current and added VSP Participants. Where appropriate, conduct water quality assessments and identify control programs or improvement projects. | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type D NYCD/SYCD Type E | Type 1, except C and E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission | |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

TABLE 2. ADAPTIVE MANAGEMENT MATRIX: PARTICIPATION GOALS, BENCHMARKS, MONITORING, AND ADAPTIVE MANAGEMENT ACTION APPROACHES

| Row # | Critical Area Protection Goal | Critical Area Protection Benchmark | Performance Metric (Implementation) | Performance Metric (Resource measurement) | Monitoring Method | Adaptive Management Action Threshold | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|---|--|---|--|--|---|---|--|----------------------------|---|--|
| | High level goal of project. There are just a handful. | Specific environmental conditions desired from project | What will be measured to know if benchmark is achieved | The measured effect of actions on critical areas | How the performance metric will be measured | Project result that, if achieved, must be addressed with an action | Action that will be taken if threshold is reached (A No Action Alternative is implied as an option) | Person or organization responsible for benchmark monitoring | When monitoring will occur | Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached. | Organization with funding available to assist technical provider or agricultural owner |
| 1. | Promote volunteerism and stewardship of agricultural land and critical areas. | <ul style="list-style-type: none"> ▪ Sufficient participation by commercial and non-commercial agricultural operators that achieves the protection of critical area functions and values across WRIA basins. ○ NYCD: Every two years, survey VSP eligible producers across basins, and directly contact 20 percent of producers about VSP program. Guide technical provider resources based on priorities in Work Plan Exhibit | <ul style="list-style-type: none"> ▪ Minimum annual outreach events held or education opportunities provided reported each biennium. ▪ Landowners contacted within 2 years of plan approval. Annually, include County Assessor mailer to current use tax participants. ▪ Annually information is provided to past and current VSP participants by Technical Providers. Technical assistance sought by cumulative number of calls, meetings, applications, and contracts is | Not applicable | Indicators of active participation include: <ul style="list-style-type: none"> ▪ Number of outreach events. ▪ Number/percentage of landowners contacted. ▪ Number of event attendees. ▪ Number of VSP participation signs and marketing materials distributed. ▪ Education opportunities provided. ▪ Technical assistance sought by producers (as tracked through meetings, calls, applications, and contracts with technical assistance providers). | <ul style="list-style-type: none"> ▪ 10% reduction in participation in VSP program, by WRIA basin. | <ul style="list-style-type: none"> ▪ Increase outreach and education events. ▪ Identify who drops out and why to modify outreach. | NYCD/SYCD Type A NYCD/SYCD Type B NYCD/SYCD Type E NYCD/SYCD Type G | Type 1, Except E Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Critical Area Protection Goal | Critical Area Protection Benchmark | Performance Metric (Implementation) | Performance Metric (Resource measurement) | Monitoring Method | Adaptive Management Action Threshold | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|-------------------------------|---|--|---|-------------------|--------------------------------------|---|--------------|------|---------------------------------|---|
| | | 7-8. o SYCD: Every two years, contact VSP eligible producers about VSP program, targeting between 100 to 200 producers. Provide technical assistance or education annually on average to 35 to 65 producers. Direct technical provider resources based on priorities in Work Plan Exhibit 7-8. | maintained or increased. ▪ VSP participants in each WRIA basin by each biennium is maintained or increased. ▪ Participating agricultural acreage and participating private or leased rangeland acreage in each basin based on self-certification entries by VSP Participants as of first biennium is maintained or increased each biennium thereafter. | | | | ▪ Self-certification: See Appendix F for a checklist. | | | | |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

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NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Critical Area Protection Goal | Critical Area Protection Benchmark | Performance Metric (Implementation) | Performance Metric (Resource measurement) | Monitoring Method | Adaptive Management Action Threshold | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|-------------------------------|--|---|---|--|---|--|--|--------|---------------------------------|--|
| 2. | | <ul style="list-style-type: none"> Indirect participation by commercial and non-commercial agricultural operators in VSP best management practices is maintained or increased over 10 years on agricultural land. | <ul style="list-style-type: none"> Acres or number of collective best management practices is unchanged or increased. Survey demonstrates an increase in understanding of VSP in agricultural households. | Not applicable. | <p>Indirect participation in common stewardship practices may be tracked and reported using one or more methods:</p> <ul style="list-style-type: none"> Mapping and remote sensing imagery interpretation of best management practices in place across watersheds, and Random sampling of farmers and ranchers in the field by technical assistance providers with willing landowners, or Phone, mail, or online surveys, or Census of agriculture or other broadly gathered and published information (only available periodically), or | <ul style="list-style-type: none"> 10% reduction in acres or number where best management practices are applied. 10% reduction in awareness of VSP program. | <ul style="list-style-type: none"> Seek willing landowners in areas of intersect to reestablish best management practices. Increase outreach and education events. | Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E | Type 2 | RC&D under Work Group direction | See Work Group Monitoring Budget - primarily Conservation Commission |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

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NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Critical Area Protection Goal | Critical Area Protection Benchmark | Performance Metric (Implementation) | Performance Metric (Resource measurement) | Monitoring Method | Adaptive Management Action Threshold | Adaptive Management Action | Who Monitors | When | Party Responsible for An Action | Funding source for Adaptive Management Action |
|-------|-------------------------------|------------------------------------|-------------------------------------|---|--|--------------------------------------|----------------------------|--------------|------|---------------------------------|---|
| | | | | | o Participation in other certification programs. | | | | | | |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

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NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

TABLE 3. AGRICULTURAL VIABILITY AIMS, INCENTIVES, AND ACTIVITIES ASSOCIATED WITH CRITICAL AREA PROTECTION

There are no formal measurable benchmarks, nor do they determine whether the plan meets compliance. Agriculture viability aims, incentives, and activities are meant to help the County do its planning for resource lands and to help the local agricultural economy. Suggested aims, incentives, and activities relate to the protection and enhancement of agriculture in the watershed. These should be considered throughout implementation, monitoring, and adaptive management of the VSP Work Plan.

| Row # | Agricultural Viability Aim | Activities | Performance Metric | Monitoring Method | Responsibility for Monitoring | When |
|-------|--|---|--|---|--------------------------------------|--------|
| 1. | Maintain and increase reliability and availability of irrigation water. | <ul style="list-style-type: none"> Facilitate use of water trusts to protect farmers who leave water instream from relinquishing water rights. Develop flexible infrastructure (wells, storage, pumps) drawing from within and out of basin. Develop emergency irrigation allocation plan (water wheeling). Protect irrigation water and pump infrastructure by limiting avulsion risk. | <ul style="list-style-type: none"> Water resources necessary for producers are available and reliable. Funding available for incentives to implement critical area conservation. | <ul style="list-style-type: none"> Track implementation results of the Yakima Basin Water Enhancement Project. | NYCD Type D | Type 2 |
| 2. | | <ul style="list-style-type: none"> Enhance on-farm irrigation efficiency with precision agriculture and other efficiency measures. Enhance efficiency of irrigation distribution. | | | | Type 2 |
| 3. | Support actions that benefit both stream functions and agricultural viability. | <ul style="list-style-type: none"> Support the Yakima Basin Integrated Plan and Title 12 of the Yakima Basin Water Enhancement Project for flow enhancement and groundwater recharge enhancement. Implement off-channel watering. Encourage programs that provide funds for best management practices. Commodity buffers (http://www.capitalpress.com/water/20160323/commodity-buffers-pay-farmers-same-as-crops). | <ul style="list-style-type: none"> Funding available for incentives to implement critical area conservation. | <ul style="list-style-type: none"> Best management practices implemented. Number of incentives and acreage or length implemented. | NYCD/SYCD Type A NYCD/SYCD Type D | Type 2 |
| 4. | Support actions that benefit groundwater quality and agricultural viability. | <ul style="list-style-type: none"> Support Lower Yakima Valley Groundwater Management Area (LYGWMA) group outcomes. | <ul style="list-style-type: none"> None. | <ul style="list-style-type: none"> Track implementation results of the LYGWMA. | SYCD Type D | Type 2 |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Agricultural Viability Aim | Activities | Performance Metric | Monitoring Method | Responsibility for Monitoring | When |
|-------|--|--|---|--|--|--------|
| 5. | Support measures that provide incentives for conservation of key habitats. | <ul style="list-style-type: none"> Voluntary incentives for conservation of corridors, grass banks, or easements | <ul style="list-style-type: none"> Funding available for incentives to implement habitat conservation | <ul style="list-style-type: none"> Number of incentives and acreage or length implemented | NYCD/SYCD Type A NYCD/SYCD Type B Type C: Mapping (Yakima County) or Imagery Interpretation (Work Group Commissioned Entity) NYCD/SYCD Type E NYCD/SYCD Type G | Type 2 |
| 6. | Reduce impacts of fire on agriculture and shrub-steppe habitat. | <ul style="list-style-type: none"> Coordinate with federal, state, and local agencies with both firefighting and environmental responsibilities, as well as land managers, to ensure a coordinated approach to fire management that will limit impacts to agricultural properties. Review entity management plans, and participate in providing comments and direction to promote the viability of agriculture as well as critical area protection. Coordinate with federal, state, and local agencies, as well as land managers, to ensure that agencies are supporting shrub-steppe restoration in areas affected by fire. Pursue opportunities to reinstate grazing on Yakima Training Center. Establish initial priority area of Blackrock for fire suppression and prevention in cooperation with rural fire districts, and state, tribal, and federal wildfire managers. Firebreaks established along critical zones. | <ul style="list-style-type: none"> Development of interlocal agreements to coordinate fire prevention, response, and management. | <ul style="list-style-type: none"> Annual report to Work Group from designated lead that interfaces with federal, state, and local agencies and land managers with both firefighting and environmental responsibilities including Yakima Training Center. | Work Group-Assigned Lead | Type 2 |
| 7. | Support funding for timely research to improve agricultural production. | <ul style="list-style-type: none"> Serve as technical advisors or as volunteers to higher education and private research and development firms that are researching improved agricultural production. | <ul style="list-style-type: none"> Investment in research that supports Yakima's agricultural economy. | <ul style="list-style-type: none"> Review of programs through WSU Extension, Central Washington University, or other institutions. | NYCD/SYCD Type D Work Group Type F | Type 2 |
| 8. | Continue to improve agricultural practices and ecological | <ul style="list-style-type: none"> Support the testing and improvement of best management practices by NRCS and local conservation districts. Encourage priority funding to support VSP Program participation by farmers and ranchers. | <ul style="list-style-type: none"> Priority funding set aside and made available by federal, state, and local sources to support VSP Program participation by farmers and ranchers. Applications for best management practices could score | <ul style="list-style-type: none"> Review improved or new practices from technical providers. Review annual budgets for Conservation Commission. Participate in legislative process | NYCD/SYCD Type A NYCD/SYCD Type D | Type 2 |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.

| Row # | Agricultural Viability Aim | Activities | Performance Metric | Monitoring Method | Responsibility for Monitoring | When |
|-------|---|---|---|--|---|--------|
| | | | higher for VSP participants such as through NYCD, SYCD, NRCS, and other agencies. | to encourage ongoing funding for VSP implementation. | | |
| 9. | Encourage technical assistance to support Yakima’s unique range of producers and products. | <ul style="list-style-type: none"> Encourage higher education, economic development entities (e.g. YCDA), and local governments to include programs, policies, and community engagement that support agricultural economy. Identify options for farmers to reduce their production expenses via technical assistance providers. | <ul style="list-style-type: none"> Producers have access to farm business expertise, training, and practical research that advances farm profitability and conservation. Education, economic development, and local government agencies have policies and programs that support agricultural economy. | <ul style="list-style-type: none"> Options for farmers to reduce their production expenses are disseminated by technical assistance providers. USDA Economic Research Service, Census of Agriculture, Department of Revenue, technical assistance services. Number of producers using business planning and technical assistance services. | NYCD/SYCD Type A NYCD/SYCD Type D Work Group Type F | Type 2 |
| 10. | Maintain and improve access to markets through a strong production and distribution system. | <ul style="list-style-type: none"> Ensure the County and cities Comprehensive Plans, capital investments in roads and other infrastructure, and zoning codes provide strong support for agricultural infrastructure that may be located within urban areas, such as packing houses, etc. | <ul style="list-style-type: none"> On-farm and commercial storage, aggregation, and distribution services are available. Necessary supplies, equipment, and other farm inputs are accessible and available. | <ul style="list-style-type: none"> Number of Storage and Food Distribution Establishments serving the county, and volume of storage and distribution; Covered Employment and Businesses. | Yakima County Type D | Type 2 |
| 11. | Encourage fair oversight of farm safety, labor, and other production aspects, while providing autonomy to innovate and adapt to changing market conditions. | <ul style="list-style-type: none"> Support voluntary market-based certification programs that are fairly implemented and flexible to unique circumstances of different commodities and changing national and international economics. | <ul style="list-style-type: none"> VSP participation dovetails with other common certification programs. | <ul style="list-style-type: none"> Number of participants in voluntary market-based certification programs. Biennial review of stewardship checklists in relation to popular market-based certification programs to avoid duplication and to streamline efforts. | NYCD/SYCD Type D | Type 2 |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

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NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

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NYCD/SYCD Type G: Annual Summary of VSP Activities

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| Row # | Agricultural Viability Aim | Activities | Performance Metric | Monitoring Method | Responsibility for Monitoring | When |
|-------|--|---|---|---|--------------------------------------|--------|
| 12. | Develop private/public grazing plans to benefit the agricultural economy and shrub-steppe habitat. | <ul style="list-style-type: none"> Recognize managed grazing can enhance shrub-steppe habitat and support agricultural viability. Work with federal and state land owners and managers to forge agreements allowing grazing on public land on a reliable annual basis. Agreements should address water and access. Tools that retain taxable land area are preferred. Where state lands are purchased in the future, work with state agencies to incorporate managed grazing into management plans for shrub-steppe habitat. | <ul style="list-style-type: none"> There are cooperative and stable grazing agreements with private and public land owners and managers. | <ul style="list-style-type: none"> Biennial review of public grazing leases. | NYCD/SYCD Type A NYCD/SYCD Type B | Type 2 |

PRIORITY GOALS & BENCHMARKS

See Work Plan Section 7.2 for a description of participation and priority implementation measures.

MONITORING ACTIVITY & RESPONSIBILITY

NYCD/SYCD Type A: Educate, facilitate, and/or implement best management practices with willing landowners

NYCD/SYCD Type B: Tracking Tool / Database Management and Review

County/Work Group Type C: Mapping (Yakima County) or Remote Sensing Imagery Interpretation (Work Group Commissioned Entity)

NYCD/SYCD Type D: Collect and Review Outside Monitoring Information: Ecology River and Stream Gauges, Water YBIWRMP Implementation Reports, Lower Yakima Valley Groundwater Management Area, Water Trusts, Fish Barrier Maps, State Water Quality Monitoring, Other

NYCD/SYCD Type E: Producer Survey (Field Sample, Phone, or Online)

Work Group Type F: Convene expert panel

NYCD/SYCD Type G: Annual Summary of VSP Activities

WHEN

Type 1: Annual, e.g. Tracking Tool Output | **Type 2:** Complete by September 1 of each biennium prior to required periodic evaluations and December 31 prior to January of each 5-year reporting period, with review time by Work Group.